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Chapter

Agropolitan Project: Role in Rural Development and Poverty Eradication

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Abstract

Theoretical discussions on vicious cycle of poverty shows poverty is a societal problem involving various factors and difficult to overcome. Hence, the efforts to resolve it are necessary as it gives negative impression to society and country. In Malaysia, poverty rate in rural areas remain higher than in urban areas. The situation has prompted the government to focus its efforts to eradicate poverty in the rural area. The Agropolitan project is an incentive by Malaysian government, introduced in 2007 to eradicate poverty in rural areas by increasing the income of participants. This chapter will consider the Agropolitan Project of Gahai, Malaysia as a case study. Discussion of the case study for Agropolitan Gahai Project has shown how its implementation can contribute to the alleviation through increasing income of participants whereby participants were not categorized poor and helped them move out of the vicious cycle of poverty.

Keywords: Agropolitan, rural development, poverty eradication

1. Introduction

Poverty is an issue that is still a concern in most countries of the world. It is a complex phenomenon and covers many dimensions and is closely related to human and social behavior [1]. It is estimated that over 1.2 billion people around the world are in a state of poverty in which 26% are categorized as low national income, 58% with moderate national income, and 17% as medium high national income [2]. Poverty in many countries also tends to be concentrated in rural areas than in the city. According to [3], more than three quarters of poor society members are those who live in rural areas. The poor are expected to continue to live in rural areas for several decades. The issue of poverty is giving a signal to all parties to continue efforts to eradicate poverty.

Globally, aggressive efforts to eradicate poverty can be viewed through the implementation of the Millennium Development Goals (MDGs) which involves 15 years of duration since year 2000. The implementation of the MDGs are aimed at eradicating poverty, aimed at eight goals, namely eradicating extreme poverty and hunger; achieving universal basic education; achieving gender equality and empower women; reducing the rate of children's mortality; improving the health state of mothers; preventing human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), malaria, and other diseases; ensuring the preservation and

sustainability of nature; and promoting global cooperation. Report of [4] showed greater success in eradicating poverty in the last 15 years. According to the report:

i. Since 1990, the number of people who live in the conditions of extreme poor has been reduced by 50% worldwide.

ii. The proportion of individuals who do not have sufficient nutrients has been reduced by almost 50% worldwide.

iii. School admission rates in the developing region has reached 91% and increasing number of female students compared to 15 years ago.

iv. Promising efforts against HIV/AIDS, malaria, and tuberculosis.

v. The rate of deaths of children under 5 years old has been reduced more than half, and the death of mothers has declined by 45% in the whole world.

Presently, efforts to eradicate poverty continued through the implementation of Sustainable Development Goals (SDG). SDG has established the eradication of all forms of poverty in the society. In the year 2030, all individuals are targeted to not suffer any form of poverty where people strive to live with a minimum of USD$1.25 per day. In addition to that, some of the goals were also determined, that is:

i. Eradicate extreme poverty for all people everywhere

ii. Reduce at least by half the proportion of men, women, and children of all ages living in poverty according to the dimensions determined by respective nation

iii. Implement nationally appropriate social protection systems and measures for all, including the poor, and by 2030 achieve substantial coverage of the poor and the vulnerable

iv. Ensure that the poor and vulnerable have equal access to economic resources, as well as access to basic services, ownership, and control over land and other ownership.

v. Building the resilience of the poor toward vulnerability.

vi. Implementation of policies and programs that can eliminate multi-dimensional poverty.

vii. Establish a strong framework at national, regional, and international level that addresses development strategies for poverty alleviation.

In the Malaysian context, the reduction of poverty rates is strongly contributed by the policy implementation by the government, through four major policies, namely New Economic Policy (NEP) (1970–1990), the National Development Policy (NDP) (1990–2000), National Vision Policy (NVP) (2001–2010), New Economic Model (MBE) (2010), and Shared Prosperity Vision (SPV 2030). Malaysia has managed to reduce the rate of poverty from 49.3% in the year 1970 to 0.4% in the year 2016 as in **Table 1**.

The national poverty rate in Malaysia has declined from 49.3% in the year 1970 to 0.6% the year 2014. Poverty analysis based on strata showed declining trend in the urban and rural areas. In the urban area, the rate continued to decline to 0.3 % in the year 2014 compared to 21.3% in 1970. The rural area exhibited the same declining trend from the year 1970 until the year 2014, but with a slight rise in 2009. Despite the decreasing trend in both areas, during the years from 1970 to 2017, the rate of poverty in rural areas remained higher than in the urban. The difference in the rate of poverty is pushing the government to focus its efforts to eradicate poverty in the rural areas.

Year	Percentage (%)		
	Malaysia	Urban	Rural
1970	49.3	21.3	58.7
1976	37.7	15.4	45.7
1979	37.4	17.5	45.8
1984	20.7	8.5	27.3
1987	19.4	8.5	24.8
1989	16.5	7.1	21.1
1992	12.4	4.7	21.2
1995	8.7	3.6	14.9
1997	6.1	2.1	10.9
1999	8.5	3.3	14.8
2002	6.0	2.3	13.5
2004	5.7	2.5	11.9
2007	3.6	2.0	7.1
2009	3.8	1.7	8.4
2012	1.7	1.0	3.4
2014	0.6	0.3	1.6
2016	0.4	0.2	1.0

Source: [5–7].

Table 1.
Poverty incidents in Malaysia 1970–2016.

Rural poverty eradication has been government's priority because there are more than 36% of Malaysia's population (10.34 million people population) living in rural areas [7]. Therefore, the efforts to eradicate rural poverty and develop the rural areas have been given priority by the government. Among the policies and programs that have been implemented are Rural Development Master Plan (PIPLB), Indigenous Development Strategic Planning, Rural Mega Uplifting Program (PLMLB), New Model for Rural Economy (MBELB), Rural Transformation Centers (RTC) and Government Transformation Program that involve Sustainable Village Program. Rural Development and Master Plan (PIPLB), Strategic Development Plan for Indigenous People, Mega Rural Uplift Program (PLMLB), New Rural Economy Model (MBELB), and National and Rural Transformation Programs.

Among the programs to eradicate extreme poverty was implemented through the Rural Mega Uplifting Program (PLMLB) is Agropolitan project. Since 2006 till 2007, a total of 44,000 people from extreme poverty have been identified in Malaysia. Four ministries, inclusive of the Ministry of Agriculture, the Ministry of Women, Family and Community Development and Ministry of Rural and Regional Development (MRRD) were responsible for eradicating poverty which involves 10,000 people from extreme poverty cluster. At the same time, the government established five development corridors namely the Northern Corridor Economic Region (NCER), East Coast Economic Region (ECER), Sabah Development Corridor (SDC), Sarawak Renewable Energy Corridor (SCORE), and Iskandar Malaysia (ISKANDAR). Through the implementation of the five corridors, 4400 individuals from extreme poverty were placed under the implementing agencies of the respective corridors. The remaining 5600 individuals coming from extreme poverty group were handed over to MRRD for poverty eradication planning and become a focus for participating in the Agropolitan program [8].

As of 2017, there were 11 projects under agropolitan programs which have been implemented and involved five states under the supervision of the Ministry of Rural Development Affairs and Regional Development (MRRD) [9]. According to the ministry, there are two successful agropolitan programs which are Gahai Agropolitan Programme, Lipis, Pahang and Batang Lupar Agropolitan Program, Sarawak. Based on the poverty index, namely Poverty Lines Income (PLI), all participants for both agropolitan programs have been classified as non-poor after joining the agropolitan programs which were implemented since 2007 [10].

2. Vicious cycle poverty theory and agropolitan mechanism

Poverty is a system that associates certain factors and affects each other. This concept corresponds to poverty factors and turned to beginning points of the poverty vicious cycle and ultimately prevents the development process [11]. With regards to poverty, rural sectors and farming activities participation is considered as a trap of poverty for individuals. Individuals in the rural areas are engaged in low scale production activities that affected their income. This situation is described as a setback and as a barrier and a system which connects barriers and causing the poor to fall into vicious cycle. If left unattended continuously, this will cause the poor will not be able to get food, health, and education adequately. In addition, poverty will cause the poor to not being able change or raise the standard of living better than their parents. The situation is due to low income and poverty that is sustained from generation to another generation as depicted in **Figure 1** that shows the poverty vicious cycle. At individual level, vicious cycle could be initiated by the poverty faced caused by failure to meet the nutritional diet requirement. Less nutritious diet intake ultimately affects health and the ability to work. Due to health issues, individuals are not able to work efficiently, and this leads to low productivity. The situation affects their ability to raise their income and thus continue to be in a state of poverty.

Poverty faced by individuals will also affect members of the family. Due to poverty, people are not able to provide sufficient and nutritious food to members of the family, particularly children, and will inhibit their mental growth. The study [12] found the lack of nutritious food affects children's health and eventually will

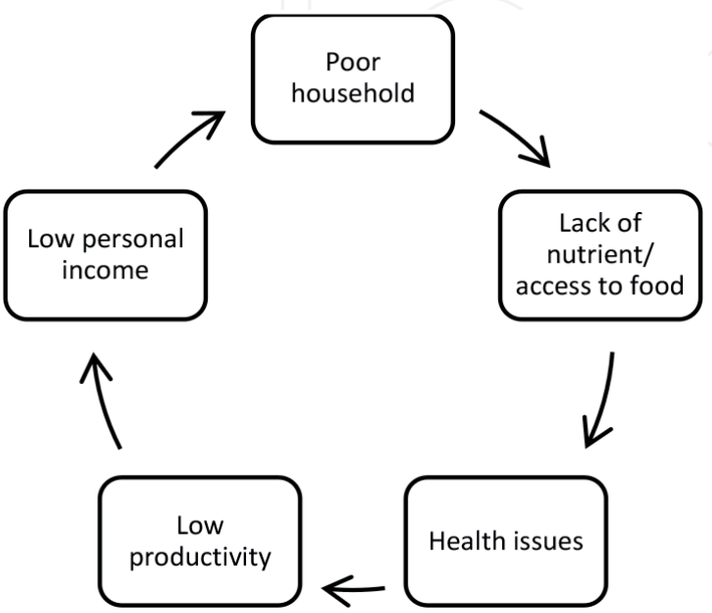

Figure 1.
Individual poverty vicious cycle. Source: [12].

contribute to weakening education and contribute to the low education achievement. Failure to obtain education causes them to continue to be engaged in low-income activities and consequently remain to be in a poor situation.

Even though the Vicious Cycle Theory can explain the poverty faced by individuals is associated with poverty factors, there was some criticism of the theory. First, this theory does not explain in detail the concept of poverty and setback. Secondly, the theory does not consider the differences of poverty faced by every country, and thirdly, the theory discusses poverty in static and unchanged situation. The theory is also unable to give a detailed description on how to overcome the vicious poverty cycle.

Theoretical discussions on vicious poverty cycle shows poverty is a societal problem that involve multiple factors and difficult to overcome. However, attempts to solve it are necessary because failure to alleviate poverty will reflect bad impression on one's society and nation. Gill [13] explained that a country cannot develop because of poverty. Therefore, the efforts to alleviate individuals from poverty should be given attention. According to the Organization for Economic Co-operation and Development (OECD) in [14] explained, there are five factors that allow a person to free oneself from poverty. These involve:

i. Economic ability which refers to the ability of the income, expenditure, and ownership of assets.

ii. People's ability referring to ability to obtain health, education, nutritious food, clean water, and safe place to stay.

iii. Political ability that refers to the ability to get the legislature rights

iv. Socio-cultural ability that refers to individuals' ability to be involved in the community activities.

v. Protection ability that refers to the ability to deal with uncertain situation.

Matin and Hulme [15] discussed the perspective of materialism, which indicates individual is unable to meet the basic requirements due to (i) having low income to expend and (ii) shocks applied that caused the income of individuals to fall under the poverty line. In assisting this group, the government will conduct interventions such as micro-financing programs to increase individual income subsequently overcome poverty. Poverty eradication through this approach is called "poverty reduction" as the first step to increase household income (**Figure 2**).

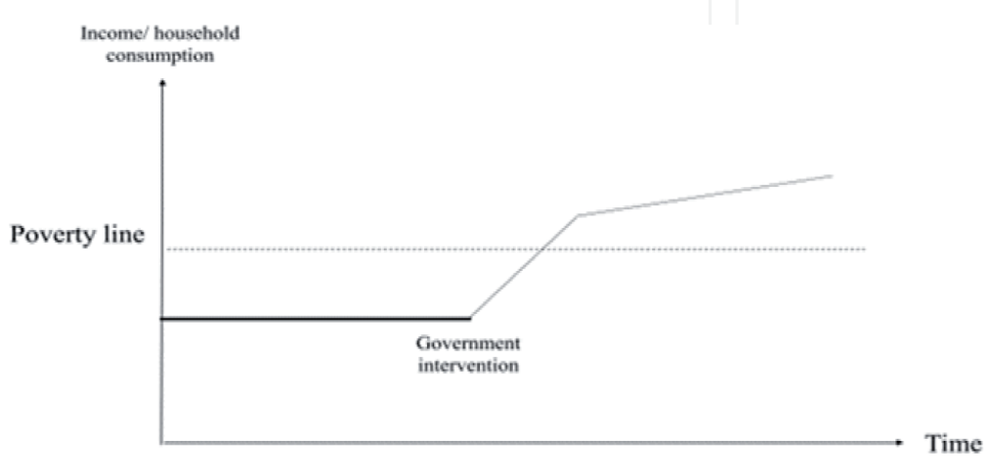

Figure 2.
Reduction of poverty is the first to raise higher revenues contents home. Source: [15].

In other situation, if shock happens unexpectedly, the situation is just temporary because it only affects the individual's income to obtain food at a certain time. If government intervenes to help people improve their income, this approach refers to the poverty reduction as a "one-off" grant, which would reverse the household income to the previous level (**Figure 3**). Although this approach is simple, it still fails to help the poor. Consequently, there exists the need to promote an approach that emphasizes the multi-dimensional design complex programs (multi-sector and partnerships between organizations), to help the poor. Not only has it met the minimum of physical needs but also access to health, education, and other services.

Sachs [16] in his book "The End of Poverty" discusses that government intervention is important to increase the poor's individual's ability to get the poor out of the situation and able to increase savings and investment which are becoming the driving force to the accumulation of capital to move out of poverty. He said there is a correlation between economic activities, savings, capital investment, and increasing economic activities. Household uses income as a means for consumption, savings, and taxes. The government uses the tax for current spending and development expenses. Capital is generated by household savings and government expenses. Higher capital formation leads to economic growth, which in turn increases household income as a

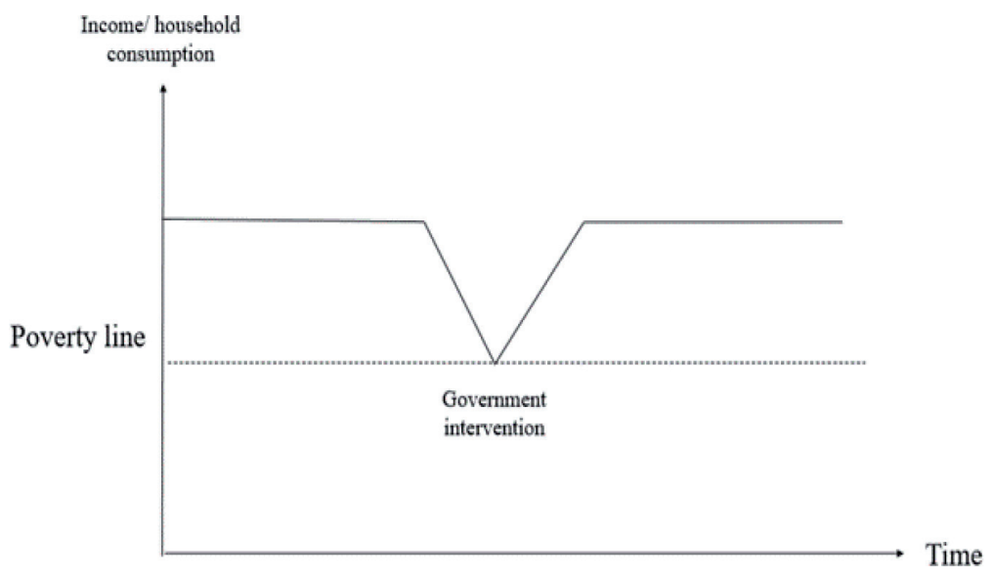

Figure 3.
Poverty reduction as a "one-off" grant that return household income to previous level. Source: [15].

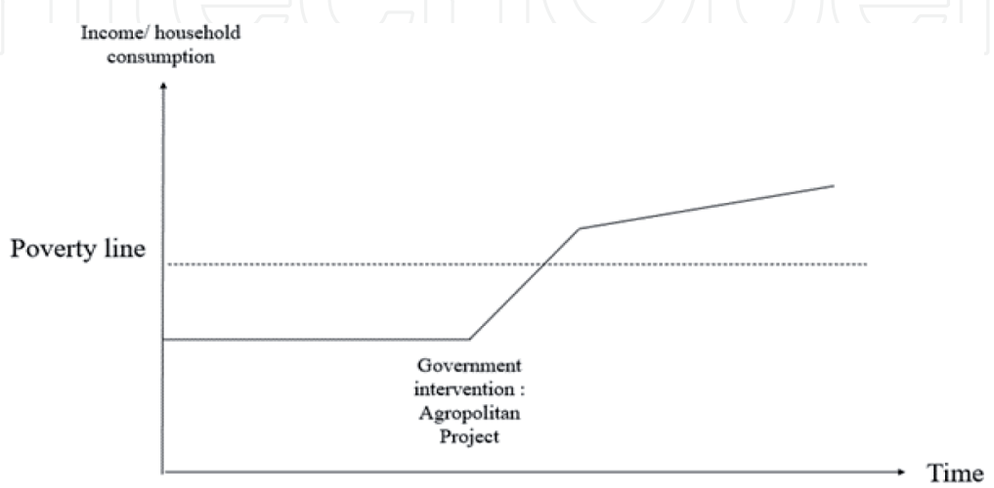

Figure 4.
The Agropolitan project is a government intervention to eradicate poverty to increase income. Source: Adapted from [15].

result of income growth. Capital assistance for projects would lead to capital accumulation, economic growth, and an income increase among the household members who receive benefits from the given assistance. In the context of this study, Vicious Poverty Cycle Theory describes the poverty situation faced by the extreme poor group. The extreme poor not only lack income but also basic needs such as housing, education, health, and other amenities. This poverty will continue to be inherited by their children to the next generation. The Agropolitan project was a government intervention to eradicate poverty to increase income (**Figure** 4).

3. Development of Gahai Agropolitan for rural development and poverty eradication

Agropolitan is a development alternative model which is also known as Region Klauster that was introduced in 1974 by an economist, John Friedman. Agropolitan is a development concept that prioritizes the development of much lower level and aims to improve the socio-economic community in rural area. Agropolitan development highlights network development between urban and rural areas [17–20]. Agropolitan development prioritizes on micro-planning that involves specific target group, government, local research and development (R&D), and education institutions [21]. It is an integrated development involving complete physical and institutional infrastructure as well as optimal resource utilization. Besides, the economic farming and non-farming complement agropolitan development projects as agricultural town. Economic activities in the areas of the Agropolitan project is able to contribute to the region in addition to providing opportunities for employment in off-farm and non-farm and existing commercially available in the agropolitan area. Today, agropolitan has become the choice of several countries in planning rural development by the developing countries such as Indonesia, Nepal, and Malaysia [8, 22, 23].

Agropolitan is different when compared to conventional development models like Growth Pole Model. Conventional development model is "above to below approach" and give priority to competition than cooperation for development [24, 25]. Instead, agropolitan prioritizes planning and cooperation establishment starting from the bottom. **Table 2** shows the agropolitan difference which is also known as Region Klauster and conventional development model namely, Pole Growth Model.

The agropolitan model is also known as the Klauster Regional Model which conducts economic activities that depend on the availability of resources in the development area. The agropolitan concept encouraged the development of side economies in the project area. In terms of urbanization, agropolitan development prioritizes a horizontal (decentralized) urbanization system that has major areas and is linked to the more interior areas. In view of planning, it is decentralized in nature prioritizing on diversifying the economic sectors.

3.1 Case study: development of the Agropolitan Gahai Project

The Agropolitan project is one of the government's initiatives to eradicate poverty and also involves several districts in the state of Pahang, Malaysia. According to records, there are 11 agropolitan projects which were launched by the government under the Ministry of Rural and Regional Development (MRRD) until 2016, and Pahang have two agropolitan projects which are the Chemomoi Agropolitan Project and Gahai Agropolitan Project [10]. The implementation of Chemomoi Agropolitan still runs and ends in September 2016. While the process of development of the Gahai Agropolitan Project, Lipis, Pahang has stopped in 2012 and has shown results to participants through the income acquisition.

Components	Conventional models Growth pole model	Agropolitan model Klauster Region
Basic sector	Large scale economic activities and management agencies outside economic activities (urban)	Economic activity depends on the availability of resources in the area and encourages the development of side economic activities in key areas.
City system	Hierarchy, focused on a number of the population that are associated with the Region Centre Theory	Horizontal, containing the main and rural areas that have specialization and benefits
Urban-rural relationship	Spreading the benefits of the urban to the rural area gives trickling effects mutually	Complex urban-rural relationship gives mutual impacts
Planning	Based on top to bottom through the planners and implementers	Based on a decentralized system of planning, integration, and coordination of various sectors and activities for urban and rural areas
Primary policy	Decentralized industry incentives: industrial estates, transportation, and communications	The variety of activities in agriculture, agro-industry, and manufacturing based on resources, city services, training, and network communication

Source: [17].

Table 2.
Comparison between growth pole model and Agropolitan model.

The selection of the Gahai Agropolitan Project, Lipis for this study is based on the following criteria:

i. Gahai Agropolitan Project has surpassed the development of more than 5 years and allows the impact study to be conducted.

ii. Gahai Agropolitan Project is in Pahang, which is among the state with highest poverty rate (Malaysia 2015), and it is compatible with the objectives of the study in evaluating the impact of the Agropolitan project in eradicating poverty.

iii. The selection of Gahai Agropolitan Project was proposed from the Ministry of Rural and Regional Development (MRRD) as it is an early established Agropolitan project and has showed good performance and exist necessity in evaluating the project.

Gahai Agropolitan Project, Lipis, Pahang encompasses the area of 238.76 hectares, which involves a total of 80 projects participants. Each participant of the project was selected from the extreme/hardcore poor group. The participants of the project were divided into two categories: 50 individuals with house placements and 30 individuals without placements. Although there are 80 registered participants of the Gahai Agropolitan Project, only 50 local participants are actively involved in economic activities and utilize the benefits of the development of economic components, physical components, and human capital components in the Gahai Agropolitan Project. While another 30% are registered participants but are not involved in economic activities, living in the Gahai Agropolitan Project area and they only receive an annual dividend from the Rubber Industry Smallholders Development Authority (RISDA). Gahai Agropolitan Project, Lipis is managed by the implementing agency, Rubber Industry Smallholders Development Authority (RISDA) which was entrusted by the Ministry of Rural and Regional Development (MRRD). The Gahai Agropolitan Project involves the development of economic, physical, and human capital components.

For the first component, economic activities involving primary and downstream activities contribute to participants' income and thus help to increase the standard

of living. Primary economic activities refer to the participation of participants in the Well-Being Farm (Ladang Sejahtera). Presently, 232.69 hectares of Well-Being Farm are planted with 117,940 trees and have been producing incomes in the form of wages and dividends. In addition to that, there are downstream activities that can contribute to the participant's income, majority of them are from the extreme poverty group. This is evidenced by the increase in participants' income. Before joining the Gahai Agropolitan Project, participants who are from the extreme poor were with an average income of RM400 a month. After participating in the Agropolitan project, participants receive income in the form of rubber tapping wage and dividends with an average income of RM1900 per month.

As of May 2015, a total of RM400,000 has been paid to participants as "Well-Being Farm" dividends. For downstream activities, host of bird's nests are still active, which is managed by the Gahai Participants Cooperative (KOPEGA). The project involved initial cost totaling RM58,000 which was contributed by 80 agropolitan participants. The management cost for the project up till May 2015 was RM4,591 which focused on the maintenance and pest control. For bird's nest marketing, it involves the sale of products such as bird's nests and drinks. In 2014, the bird's nest project was already producing output of 8.020 kg with an average price of RM1,200 per kilogram with total income of RM6,000.

Development of physical component also includes home, basic infrastructure, amenities, and business infrastructure. This physical component was provided by the implementing agencies during the project development. Basic infrastructure covering roads in settlements, Rural Water Supply (BALB), Rural Roads (JALB), Village Road Project (PJK), and drain and good drainage system. Besides that, the Gahai Agropolitan Project participants also enjoy the convenience of amenities such as the multi-purpose hall, place of worship, playground, and much more. In addition to the basic physical development, the project development also provided business infrastructure, namely booths, workshops, kiosks, and Small and Medium Enterprises (SMEs) infrastructure.

Besides the economic and physical components development, emphasis is also given to the human capital component. This component refers to the course preparation or training for pre-placement and post-placement. For pre-placement courses, the courses were conducted before participants enter the settlement or participate in agropolitan projects. The course was attended by the head of the households (KIR), and it was for the participants' settlement only. Post-settlement course was conducted continuously after the inclusion of participants in the Agropolitan project. The course is not limited to head of households but also involve members of the house. The courses include on entrepreneurship, skills and technical, spirituality, and family well-being.

3.2 Gahai Agropolitan Project participants' profile

The analysis of this study include 50 participants of the Gahai Agropolitan Project who are actively involved in economic activities and utilize the benefits of the development of economic components, physical components, and human capital components in the Gahai Agropolitan Project. A total of 50 participants were defined as the study population. During the survey, only 45 participants of the Gahai Agropolitan Project were actively involved in providing feedback as sampling units. Despite not obtaining the entire project participants, 45 participants were sufficient to be used as a sample using simple random sampling technique. Sampling size is following to [26] if the total population is 50, a total of 44 samples are required, and for this study, it meets the number of samples to be analyzed.

Table 3 shows the percentage information regarding the profiles of participants of the Gahai Agropolitan Project. Participants' profile shows that the majority of

n = 45		
Note	**Percentage (%)**	**Average**
Gender		
Male	82.2	
Female	17.8	
Age		46.22
35 years old and below	2.2	
36–40 years old	22.2	
41–45 years old	22.2	
46–50 years old	28.9	
51–55 years old	11.1	
56 years old and above	13.3	
Education		
Primary school/UPSR	26.7	
Secondary school/PMR/SRP	17.8	
Secondary school/SPM	51.1	
STPM/certificate	2.2	
Main occupation		
Rubber tapper	88.9	
Others	11.1	
Number of household members		5.60
1–2 people	11.1	
3–4 people	26.7	
5–6 people	44.4	
7–8 people	13.3	
More than 9 people	4.4	

Source: Gahai Fieldwork, 2017.

Table 3.
Research respondents.

respondents (82.2%) are men and the remaining (17.8%) are female. The age breakdown showed participants aged between 46 and 50 years represented the highest (28.9%) followed by the participants aged between 36–40 years and 41–45 years with the same percentage (22.2%). Participants aged 56 years and over also participated but the percentage is small (11.1%). While participants aged 35 years and below are only 2.2% equivalent to one person.

In terms of education, the study shows that the majority of participants, (51.1%) successfully obtained mid-secondary level (Sijil Pelajaran Malaysia [SPM]) while 17.8% graduated with lower secondary (PMR/SRP). About 26.7% of respondents completed with only primary school education up to Primary 6. Even though the number of respondents with primary school education is quite high, most of these respondents are 50 years old and above. Regarding employment, the majority of participants (88.9%) are rubber tappers while the remaining 11.1% are employed in other types of occupation. For respondents who did not rubber tapping as main occupation, they still receive income from the rubber plantation activities which

were paid in the form of dividends for their status as project participants. These dividends contribute to their household income.

3.3 Agropolitan Projects' role in poverty eradication

The Agropolitan Project's performance evaluation is based on income that is earned by the individual or group of extreme poor who participated in this project. It is compatible with the project's main objectives which is eradicating poverty among the participants through an increase in income. For the case study, the income of participants of the Agropolitan Project was analyzed using descriptive analysis and parametric analysis which is paired sample t-test. Descriptive analysis involves minimum value, maximum value, and participant's average income. Besides that, the paired sample t-test is used to determine whether there is a significant change in participant's income for before and after participating in the Project Agropolitan Gahai, Lipis. Furthermore, income analysis also applied Poverty Line Income (PLI) to determine the number of participants who are categorized as poor. The analysis using PLI provides the latest poverty situation for the Gahai Agropolitan Project participants.

3.4 Discrete income analysis

Table 4 shows the participants monthly income before and after participating in the Gahai Agropolitan Project. The left side of **Table 4** shows the income before participating in the Agropolitan project. The analysis shows the majority of respondents (75.5%) earn income of less than RM1, 000 which is below the poverty line income. There are 17.8% of participants earning incomes of between RM1001 and RM1500 and 4.4% have income of between RM1501 and RM2000. Only 2.2% of participants received income exceeding RM2, 000. The average monthly income of the participants before participating in the Gahai Agropolitan Project is RM920.22. This total income is almost similar to the national PLI.

The right side of **Table 4** also shows the participants income after participating in the Agropolitan Project. The value of the incomes is based on the respondents' feedback on questions related to the monthly average income earned after participating in the project. The income analysis shows all participants of the Agropolitan project obtain incomes exceeding RM 500 a month. There are 8.9% of the participants of the project receiving incomes between RM501 and

n = 45			
Before		**After**	
Income	**Percentage (%)**	**Income**	**Percentage (%)**
RM500 and below	11.1	RM500 and below	0.0
RM501–RM1000	64.4	RM501–RM1000	8.9
RM1001–RM1500	17.8	RM1001–RM1500	31.1
RM1501–RM2000	4.4	RM1501–RM2000	42.2
RM2000 and above	2.2	RM2000 and above	17.8

Source: Field survey, 2017.

Table 4.
Participants' income before and after participating in Gahai Agropolitan Project.

Paired t-test				
Pair differences		**t-value**	**Degree of freedom (df)**	**Significance (two sides)**
Average income	Standard deviation	8.190	44	0.000
718.01111	588.08925			

Source: Field survey, 2017.

Table 5.
Participants' income difference before and after joining the Gahai Agropolitan Project.

Category	Percentage (%)
Poor	4.4
Not poor	95.6

Table 6.
Gahai Agropolitan Project's participants poverty based on the poverty line income (PLI).

RM1000. Most of the respondents had income above PLI which is RM850. A total of 91.1% respondents earned incomes above RM1000. Details on the incomes amount show 31.1% of respondents earn incomes RM1001–RM1500, 42.2% earn incomes between RM1501–RM2000, and 17.8% earn more than RM2, 000 and above. Income comparison before and after participating the project shows a significant increment. The average monthly income of the participant after participating in the Gahai Agropolitan Project was RM1628.33. This average income is higher compared to monthly average income prior to joining the Gahai Agropolitan Project.

3.5 Income parametric analysis

To further strengthen the analysis, the findings of an increase in a participant's income for involvement in Gahai Agropolitan Project were analyzed using a parametric test, paired sample t-test. The test is carried out using the data of the participants' income before and after participating in the project. **Table 5** shows income differences before and after participating in the Agropolitan project. The analysis show significant differences to the participants' income with a value of t = 8196 and the value of p = 0.000, indicating that there is a significant income difference before and after participating in the Agropolitan project. Participant's income increased and significant differences were significant before and after participating in the Gahai Agropolitan Project.

3.6 Poverty analysis using poverty line income (PLI)

Table 6 shows the poverty analysis for the Gahai Agropolitan Project's participants using the poverty line income (PLI). Based on the table above, the household is categorized poor should the household receive an income less than the poverty line. This case study applied PLI at a national level in 2014 for Peninsular Malaysia and rural area at RM 840. RM840 value means the households earning incomes less than this value is considered poor. Based on **Table 6**, 95.6% of the Agropolitan project participants are considered not poor, earning income exceeding RM840 per month. This income is derived from active involvement in the Well-Being Farm which was the main income source. However, there were still poor participants (4.4%).

This PLI poverty analysis thus shows a good state whereby participants' poverty could be addressed as 95.6% of participants have come out of poverty after joining the Gahai Agropolitan Project.

4. Conclusion

The Agropolitan project implementation as a mechanism for poverty eradication in rural area is a precise effort to eradicate poverty and subsequently be able to break the Vicious Poverty Cycle. Agropolitan project development throughout Malaysia is a recognition of Malaysian government's effort to improve socio-economic development and improve quality of life and ultimately eradicate poverty, especially in the rural areas. Toward this goal, responsible ministries and agencies, including state government, must have a mechanism in drawing up an effective program for ensuring the goals of the program can be achieved, thus providing positive impacts to participants. The Gahai Agropolitan Project case study has shown how its implementation can contribute to poverty eradication through increasing the participant's income so that they are able to move out of poverty. In the long run, poverty among the participants and their second-generation households could be eradicated through improved human capital development involving improvement in education and health facilities and sustained by institutional support that would benefit the rural community as a whole.

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References

[1] Chamhuri S, Ferdoushi A, Nor D, Shaharudin I, Amelia H, Siti ZZ. Poverty mapping and assessing socio-demographic characteristics of the households: A case study in Pahang, Malaysia. Journal of Applied Sciences. 2014;**14**(20):2632-2640

[2] Kanbur R, Sumner A. Poor countries or poor people? Development assistance and the new geography of global poverty. Journal of International Development. 2012;**24**(6):686-695

[3] Ravallion M. Chapter 59 evaluating anti-poverty programs. In: Handbook of Development Economics. Amsterdam, North-Holland: Elselvier; 2007

[4] The Millennium Development Goals Report 2015. The Millennium Development Goals Report 2015. 2016

[5] Economic Planning Unit (EPU). Fifth Malaysia Plan. 1990:307. Available from: http://www.pmo.gov.my/dokumenattached/RMK/RM5.pdf

[6] Economic Planning Unit (EPU). The Fourth Malaysia Plan (FMP)/4MP 1981-1985. Fourth Malaysia Plan [Internet]. 1980:1-267. Available from: http://www.pmo.gov.my/dokumenattached/RMK/RM4.pdf

[7] Economic Planning Unit (EPU). Rancangan Malaysia Kesebelas (Eleventh Malaysia Plan): 2016-2020. 2015:1-372. Available from: http://rmk11.epu.gov.my/book/eng/Elevent-Malaysia-Plan/RMKe-11Book.pdf

[8] Shaffril HAM, Nasir AFA, Idris K, Uli J, Drsquo JL. Agriculture project as an economic development tool to boost socio-economic level of the poor community: The case of Agropolitan project in Malaysia. African Journal of Business Management. 2010;**4**(11):2354-2361

[9] Ismail MK, Siwar C, Ghazali R. Gahai agropolitan project in eradicating poverty: Multidimensional poverty index. Plan Malaysia. 2018;**16**(7):97-108

[10] Kementerian Luar Bandar dan Wilayah. Laporan Penilaian Outcome Projek Pembangunan Kementerian Luar Bandar dan Wilayah (MRRD). Putrajaya: Ministry of Rural and Regional Development, Malaysia; 2013

[11] Jomo KS, Ahmad SK. Teori Pembangunan Ekonomi: Satu Ulasan Kritis Terhadap Pendekatan Yang Sedia Ada. Kuala Lumpur, Malaysia: Utusan Publications; 2004

[12] Barke M, editor. Conceptual Frameworks in Geography: Case Study Supplements Case Studies of the Third World. London, United Kingdom: Oliver & Boyd; 1991

[13] Gill R. Economic Development: Past and Present. Englewood Cliffs, NJ: Prentice-Hall; 1963

[14] Watkins K, Carvajal L, Coppard D, Fuentes R, Ghosh A, Giamberardini C, et al. United Nations Development Program 2007. Human Development Report; 2007;**2**:70-75

[15] Matin I, Hulme D. Programs for the poorest: Learning from the IGVGD program in Bangladesh. World Development. 2003;**31**(3):647-665

[16] Sachs J. The End of Poverty: How We Can Make It Happen in Our Lifetime. United Kingdom: Penguin UK; 2005

[17] Friedmann J, Douglass M. Agropolitan development: Towards a new strategy for regional planning in Asia. In: Growth Pole Strategy and Regional Development Policy [Internet]. United Kingdom: Elsevier; 1978. pp. 163-192. Available from:

https://linkinghub.elsevier.com/retrieve/pii/B9780080219844500149

[18] Friedman JW, Weaver C. C. 1979. Territory and Function: The Evolution of Regional Planning. United Kingdom: British Library Cataloguing in Publication Data; 1989

[19] Douglass M. Agropolitan development: An alternative for regional development in Asia. Himalayan Review. 1981;**13**:37-71

[20] Hardoy JE, Satterthwaite D. Small and intermediate urban centres in the third world. What role for government? Third World Planning Review. 1988;**3**:27-43

[21] Buang A, Habibah A, Hamzah J, Ratnawati YS. The agropolitan way of re-empowering the rural poor. World Applied Sciences Journal. 2011;**13**(13):1-6

[22] Zulfa FI, Syamsul M, Endang GS, Tajuddin B, Aris M. Agroindustry based agropolitan institutional design with analytical network process. Journal Teknologi Pertanian. 2009;**19**(3):130-137

[23] Bajracharya BN. Promoting small towns for rural development: A view from Nepal. Asia-Pacific Popul J [Internet]. 1995;**10**(2):1-13. Available from: https://www.un-ilibrary.org/population-and-demography/promoting-small-towns-for-rural-development-a-view-from-nepal_f9234773-en

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

[25] Akkoyunlu S. The potential of rural–urban linkages for sustainable development and trade. Interantional Journal of Sustainable Develpoment and World Policy. 2015;**4**(2):20-40

[26] Krejcie RV, Morgan DW. Determining sample size for research activities. Educational and Psychological Measurement. 1970;**30**(3):607-610