



UNIVERSITI PUTRA MALAYSIA

**THE SUSTAINABILITY OF PAHANG BARAT INTEGRATED
AGRICULTURAL DEVELOPMENT PROJECT
IN PENINSULAR MALAYSIA**

SULOG G. BRA

FPP 1999 14

**THE SUSTAINABILITY OF PAHANG BARAT INTEGRATED
AGRICULTURAL DEVELOPMENT PROJECT
IN PENINSULAR MALAYSIA**

By

SULOG G. BRA

**Dissertation Submitted in Partial Fulfilment of the Requirements
for the Degree of Doctor of Philosophy in the
Faculty of Educational Studies
Universiti Putra Malaysia**

June 1999



ACKNOWLEDGEMENTS

First and foremost, I bow my head for reverence to “Almighty Allah” for the many blessings He has showered in my life ever since I have been preparing this manuscript. Whenever I met difficulties on the way I prostrated to Him and asked His guidance to give me strength, good health, knowledge and courage to face the inevitable hardship and challenges in life. From Him I saw the light and the importance of education in my life.

In particular, I would like to recognise and thank the people who have given tremendous contributions in the completion of this manuscript. Without them, I know I would not be able to make it.

Associate Professor Dr. Saidin B. Teh, the former chairman of the research committee, for his persistent guidance in the initial conceptualisation of the research proposal. He had been responsible in linking me to the different agencies in the places where the study was conducted.

Associate Professor Dr. Mazanah Muhammad who took the chairmanship after Dr. Saidin left for new assignment. Her astute knowledge of research methodology and perseverance to examine thoroughly every aspect of the manuscript has enormously contributed to the refinement of the manuscript.

Dr. Bahaman Abu Samah for his keen knowledge of statistics. He shared a lot of thoughts on the way statistical results were presented in tables. His willingness to help has made the researcher confident in his statistical analysis.

Dr. Shamsuddin Ahmad for his very kind attitude whenever approached for assistance. He has contributed a lot of insights on how results were concisely presented.

My sincerest thanks also go to the Pahang Barat IADP officers, namely: Safie Baharom, Abdul Daut, Zulkifli Yaacob, Mat Khalil Jamian, Mohamad Shamsuddin Abas, and other officers/staff based in Temerloh and other western districts of the State of Pahang, for their very facilitating attitudes. The transport vehicle provided to reach the remote villages had been of tremendous help to the researcher. I will endlessly cherish the kindness and friendly attitude accorded me whenever I requested for help.

To my family members for their constant prayers that I will succeed in my study. My wife, Hulma Ebrahim Bra, for her understanding all the way through to bear the patience and endurance of taking the leadership in the family during my absence. My mother for her encouragement during time of distress, and to my late father who passed away on June 18, 1999, a day after my thesis defence, I will endlessly adore his fatherly love and moral support.

To Dr. Ting Abdul and Dr. Rahima Abdul for their countless valuable assistance during the period of my study in Malaysia. To Halimi Abdul Karim and Mahindera Abdul Manaf for their help in administering the questionnaires.

Last but not the least, I would like to thank my sponsors: The Government of Malaysia for providing the financial support under the Malaysian Technical Co-operation Program; Mindanao State University-Maguindanao, through its Chancellor, Bai Yasmin S. Macalandong, for granting me permission to study; and Universiti Putra Malaysia for the research grant.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	viii
LIST OF FIGURES	xi
ABBREVIATION	xii
ABSTRACT	xiii
ABSTRAK	xv
CHAPTER	
I INTRODUCTION	1
Overview of Pahang Barat IADP Phase I	1
Statement of the Problem	4
Objectives of the Study	6
Significance of the Study	7
Operational Definition of Terms	9
Scope and Limitation of the Study	16
Scope of the Study	16
Limitations of the Study	17
Assumptions	19
II REVIEW OF LITERATURES	22
Definition of Development	22
Etymology of Word Sustainable	23
Origin of Sustainability Use in Development	24
Definition of Sustainable Development	26
Sustainable Development Concepts and Critics	28
SD Concept Comprehensiveness	28
Strength of SD Concept	31
Sustainable Development Premise and Paradigm	33
SD Premise	33
SD Paradigm	34
SD Indicators Formulation	38
SD Assessment Model that Served the Basis of the Study ...	40
Barometer of Sustainability	42
Use of the Barometer of Sustainability	42
Combining Indicators	43
Performance/Measure Scale	43
Communication Tool	44
Comparing Perception with Technical Data	44
Empirical Sustainability Studies in Malaysia.....	45
Farmers Sustainability Index	45

Environmental and Socio-Economic Dimensions	
Land Settlement	47
Farmers' Participation	48
Organisational Participation	50
Village Sustainability	51
Empirical Sustainability Studies in Other Countries	52
Environment and Development	52
Farmers' Perception of the Environment	53
Natural Resources and Environment: The Philippine Experience	55
Grazing Practice and Environment Vulnerability	57
Sustainable Agriculture	58
Sustainable Farming System	59
Water Resources and Agriculture	61
Research Conceptual Framework	62
Dependent Variable	62
Independent Variable	62
Summary of the Literature Review	65
III METHODOLGY	68
Research Design	68
Research Type	68
Research Methodology	69
Location and Subjects of the Study	71
Location of the Study	71
Subject of the Study	74
Population	76
Sampling Procedure	77
Instrumentation	80
Bases for the Instrumentation	81
Instrumentation Scope	82
Measure Scale	86
Dependent Variable	87
Independent Variables	87
Translation of the Questionnaire	89
Reliability of the Questionnaire	90
Pilot Test	90
Actual Reliability	91
Data Gathering	92
Primary Data Gathering	93
Secondary Data Gathering	98
Data Analysis	99
IV FINDINGS AND DISCUSSIONS	102
Demography of the Respondents	102

Village	102
Sex	103
Age	104
Marital Status	105
Education	105
Project	106
Years in Project Involvement	107
Position in the Project	107
Position in the Villages	108
Perceived IADP Sustainability	109
Perceived IADP Environmental Sustainability	109
Perceived IADP Economic Sustainability	112
Perceived IADP Social Sustainability	115
Perceived Overall IADP Sustainability	122
Responses to Open-ended Questions	122
Observed IADP Sustainability	125
Types and Status of IADP Projects	125
Observed IADP Environmental Sustainability	130
Observed IADP Economic Sustainability	147
Observed IADP Social Sustainability	168
V	
SUMMARY, CONCLUSION AND RECOMMENDATION	190
The Problem	190
Objectives of the Study	191
Research Methodology	192
Summary of Findings	192
Demography of the Respondents	193
IADP Sustainability	194
Conclusion	202
Implications	203
Theoretical Implication	203
Practical Implication	206
The Research Framework Implication	209
Recommendation	211
For Future Research	211
For IADP Management	212
For IADP Future Planning	214
BIBLIOGRAPHY	215
APPENDIX	
A Questionnaire in English	228
B Questionnaire in Bahasa Malaysia	234
C Documents Reviewed	240

D	Village Development Security Council	
	Organisational Structure	243
E	Sample of Introduction Letter from the Chairperson	
	Of the Supervisory Committee to the Concerned	
	Government Agencies of Malaysia	245
	VITA	249



LIST OF TABLES

Table		Page
1	Population Distribution by Project and Village	77
2	Number of Respondents by Project in All Six Villages	80
3	Cronbach's Alpha Coefficient of the Study Instrument	91
4	Respondents Distribution by Village	103
5	Respondents Distribution by Sex and Projects	104
6	Respondents Distribution by Age Category	105
7	Respondents Distribution by Marital Status	105
8	Respondents Distribution by Educational Attainment	106
9	Respondents Distribution by Project	106
10	Respondents Distribution by Number of Years of Involvement in the IADP Projects	107
11	Respondents Distribution by Position in the Project	108
12	Respondents Distribution by Position in the Villages	109
13	Perceived Percentage Score of Sustainability of each IADP Environmental Variables	110
14	Perceived Mean Differences in Sustainability Score of IADP Environmental Variables	111
15	Perceived Level of IADP Environmental Sustainability	112
16	Perceived Percentage Score of Sustainability of each IADP Economic Variables	113
17	Perceived Mean Differences in Sustainability Score of IADP Economic Variables	114
18	Perceived Level of IADP Economic Sustainability	114

19	Perceived Percentage Score of Sustainability of Individual Beneficiaries Participation and Transformation Variables	116
20	Perceived Mean Differences in Sustainability Score of Individual Beneficiaries Participation and Transformation Variables	117
21	Perceived Sustainability Level of Individual Beneficiaries Participation and Transformation	118
22	Perceived Percentage Score of Sustainability of each Community Building and Organisational and Transformation	119
23	Perceived Differences in Sustainability Mean Scores Of Community Building and Organisational Transformation Variables	120
24	Perceived Sustainability Level of Community Building and Organisational Transformation	121
25	Perceived IADP Overall Social Sustainability	121
26	Perceived Overall IADP Sustainability	122
27	Responses to Open-ended Questions Summarised by Items	123
28	Yearly Average (PM-10) Air Particulate Concentration in Western Districts of Pahang	134
29	Annual Rainfall Amount in Western Pahang	136
30	Annual Number of Raindays by Year in Western Districts of Pahang	138
31	Annual Mean Temperature and Maximum Temperature in Western Districts of Pahang by Year	140
32	Water Quality of Rivers in Pahang Barat	142
33	National Water Quality Standards for Malaysia	144
34	Forested Land in Pahang Barat by Classification	146
35	Cultivated Area and Yield of Oil Palm, Rubber and Cocoa	148



36	Count Number of Animals in each Village Cattle Project	149
37	Hectarage Area Planted to Seasonal Fruits in the Project Area, 1991-1993	151
38	Fruit Area (acre) by Districts in Pahang, 1991-1993	152
39	Respondents' Monthly Income Level	153
40	Changes in Income Levels and Indicative Changes in Standard of Living among Beneficiaries of FELCRA, Cocoa and Mini Pilot Schemes	154
41	Type of Vehicles Purchased by the Beneficiaries	156
42	Pupils Enrolment Trend in the Project Area And their UPSR Percent of Passing	160
43	Nutritional Status of Children in the Project Area from Year 1993-1997	162
44	Health Facilities Existing in the Project Area	164
45	Cases of Stillbirth and Infant Mortality in the Project Area	165
46	Home Appliances Owned by the Beneficiaries	168

LIST OF FIGURES

Figure		Page
1	Conceptual Framework of the Study	67
2	Six Villages of the Western District of Pahang Covered by IADP Phase I	73

ABBREVIATION

ADB	Asian Development Bank
ARRS	Assessing and Planning Rural Sustainability
BS	Barometer of Sustainability
CIPP	Context, Inputs, Process and Product
FAO	Food and Agriculture Organization
FELCRA	Federal Land Consolidation And Rehabilitation Authority
FELDA	Federal Land Development Authority
IADP	Integrated Area Development Project
IIMS	Interactive-Integrative Model of Sustainability
IUCNN	International Union for the Conservation of Nature and Natural Resources
JKKK	Jawatankuasa Kemajuan dan Keselamatan Kampung
KPW	Kumpulan Pengembangan Wanita (Women Extension Group)
RAMS	Rapid Assessment Mapping of Sustainability
RISDA	Rubber Industry Smallholders' Development Authority
SD	Sustainable Development
SPSS	Statistical Package for Social Science
SRM	Sustainable Resource Management
SUSA	Systemic User-driven Sustainability Assessment
UMNO	United Malay National Organization
UNEP	United Nations Environment Program
UN-STAT	United Nations Statistics
WCED	World Commission on Environment and Development
WWF	World Wide Fund for Nature
VSDC	Village Security Development Council

Abstract of dissertation submitted to the Senate of Universiti Putra Malaysia in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

**THE SUSTAINABILITY OF PAHANG BARAT INTEGRATED
AGRCULTURAL DEVELOPMENT PROJECT
IN PENINSULAR MALAYSIA**

By

SULOG G. BRA

June 1999

Chairperson: Professor Madya Dr. Mazanah Muhamad

Faculty: Educational Studies

This study was conducted in six rural villages in the western part of the state of Pahang. The study's general objective was to assess the overall IADP project sustainability through its integrated impact on the environment, economic, and social well being of the beneficiaries and the villages. The specific objectives were to: (i) identify environmental related variables and determine their level of sustainability contribution to IADP; (ii) identify economic related variables and determine their level of sustainability among the beneficiaries; and (iii) identify social related variables and determine their level of sustainability in relation to the beneficiaries transformation, organisation and community practices.

Data collected through survey were supported by data collected through observation and document study. The survey elicited perception responses from one hundred eleven respondents selected at random through questionnaire with open-ended questions administered by means of interview-schedule. Observation was done on the status of IADP and its sustainable impact on the environment, economic

and social practices of the beneficiaries. The documents studied include the IADP progress reports; statistical data on the environmental condition of the project area taken from the Meteorological Services and Department of Environment of Malaysia; nutritional, health and educational aspects from the villages' clinics and schools, respectively. Descriptive statistics such as frequency, percentage, mean and standard deviations were used in describing the results.

Results of the study revealed the followings: (i) IADP overall perceived sustainability (environmental, economic and social) was high; (ii) IADP is environmentally sustainable owed to the combined effects of the IADP projects which are mostly agro-forestry and the sustainable practices of the beneficiaries that supported maintenance of the environmental factors at desirable state; (iii) IADP is economically sustainable because it has sustained improvement of the economic benefits rendered to the beneficiaries; and (iv) IADP is socially sustainable because it has enhanced individual beneficiaries participation and transformation to acquire good attitudes and, further, it has forged collaborative efforts for community building and organisational transformation which contributed to the continuity of the IADP. Based on the findings, it is concluded that Pahang Barat IADP Phase I is sustainable.

Finally, the study has discerned that an integrative model of assessing project's sustainability can serve as a functional method in assessing sustainability of agricultural development project like the Pahang Barat Integrated Agricultural Development Project (IADP) in Peninsular Malaysia.

Abstrak disertasi yang dikemukakan kepada Senat Universiti Putra Malaysia untuk memnuhi sebahagian syarat untuk memperoleh ijazah Kedoktoran Falsafah.

**KEMAPANAN PROJEK PEMBANGUNAN PERTANIAN BERSEPADU
PAHANG BARAT DI SEMANJUNG MALAYSIA**

Oleh

SULOG G. BRA

June 1999

Pengurus: **Profesor Madya Dr. Mazanah Muhamad**

Fakulti: **Pengajian Pendidikan**

Kajian ini dikendalikan di enam perkampungan luar bandar di bahagian barat Negeri Pahang. Objektif umum kajian ini ialah untuk menilai kemantapan menyeluruh projek IADP melalui kesan bersepadunya terhadap persekitaran, ekonomi, dan kehidupan sosial petani sasaran serta kampung yang terlibat. Objektif khusus kajian ini ialah untuk: (i) mengenal pasti pemboleh ubah yang berkaitan dengan persekitaran serta menentukan tahap kemapanan sumbangannya terhadap IADP; (ii) mengenal pasti pemboleh ubah yang berkaitan dengan ekonomi dan menentukan tahap kemapanannya di kalangan petani sasaran; dan (iii) mengenal pasti pemboleh ubah yang berkaitan dengan sosial dan menentukan tahap kemapanannya dari aspek transformasi, organisasi dan amalan komuniti peserta sasaran.

Data yang dipungut melalui kaedah tinjauan disokong dengan data yang dikumpulkan melalui pemerhatian serta kajian kepustakaan. Tinjauan dibuat dengan melihat persepsi yang ditunjukkan oleh 111 orang responden yang dipilih secara rawak melalui soal selidik dan soalan terbuka yang dijalankan dengan temu bual berjadual. Pemerhatian telah dilakukan terhadap status IADP dan kesan mapannya terhadap alam sekitar, ekonomi dan amalan sosial peserta sasaran. Kajian kepustakaan termasuklah

laporan kemajuan IADP; data statistik tentang keadaan alam sekitar di kawasan projek yang diperoleh daripada Perkhidmatan Meteorologi dan Jabatan Alam Sekitar Malaysia; data tentang aspek pemakanan, kesihatan, dan pendidikan masing-masing daripada klinik-klinik desa dan sekolah-sekolah di kawasan terlibat. Statistik deskriptif seperti kekerapan, peratusan, min dan piawaian standard telah digunakan untuk menghuraikan dapatan kajian.

Hasil kajian menunjukkan perkara berikut: (i) IADP menunjukkan kemapanan (persekitaran; ekonomi dan sosial) yang tinggi; dan (ii) IADP menunjukkan kemapanan dari segi alam sekitar lantaran kesan projek IADP yang kebanyakannya berkonsepkan pertanian hutan serta amalan peserta sasaran yang membantu pengkalan faktor persekitaran di negeri berkenaan; (iii) IADP menunjukkan kemapanan dari segi ekonomi kerana projek ini berupaya untuk mempertingkatkan ekonomi peserta sasaran; dan (iv) IADP menunjukkan kemapanan dari segi sosial kerana projek ini mendorong penglibatan dan pempajaan peserta sasaran secara individu, dan ini membolehkan mereka membina sikap dan nilai yang baik, dan seterusnya mendorong kepada usaha bersama ke arah pembangunan komuniti dan perubahan organisasi, justeru ini menyumbang ke arah pelestarian IADP. Berdasarkan penemuan itu, dapatlah disimpulkan bahawa Fasa 1 IADP Pahang Barat adalah mapan.

Akhir sekali, kajian ini juga menunjukkan bahawa model integratif untuk menilai kemapanan projek merupakan satu kaedah pengukuran yang dapat digunakan secara berkesan untuk mengukur kemapanan projek pembangunan pertanian, seperti Projek. Pembangunan Pertanian Bersepadu di Semenanjung Malaysia.

CHAPTER I

INTRODUCTION

Overview of Pahang Barat IADP Phase 1

Pahang Barat “Integrated Agriculture Development Project” (IADP) Phase 1 is one of the 14 IADPs implemented in Malaysia in 1983. It was funded through loan from the Asian Development Bank (ADB) which has its main office based in Manila, Philippines. Six of the western districts of Pahang State, namely: Temerloh, Jerantut, Raub, Lipis, Bentong, and Maran, were included in the program. In each District, one village (Kampung) was chosen as a pilot IADP recipient. The villages are Paya Luas, Perlok, Sungai Pasu, Pagar Sasak, Pelangai and Kuala Santul in each mentioned districts, respectively.

The topography of the area where the projects were implemented is dominated by mountain ranges that are mainly forested. Areas between the mountain ranges are generally rugged, hilly and steep; except in the valleys and foothills, and along river plains where restricted flat and swampy areas are mostly found. Soil along river bank is fertile owing to alluvial deposits. In the foothills and valleys the soil is moderately fertile because it is mainly derived from igneous and sedimentary rocks. Alluvial soil is suited to rice paddy and short-term crop production. The other soil type is generally suited to rubber, oil palm, fruit and annual food crops, depending on limitations imposed by the slope and soil depth. Fishery projects are located in the low lands where water supply is continuously available. About 738,500 hectares in the project area are suitable for agricultural production of one form or another. In addition, the

climate is generally humid and typically equatorial but this does not set climatic limitation to growing of variety of crops in the project area (ADB, 1982, p.5).

IADP projects were designed for the smallholder farmers that comprised the majority of the project area's poor population in a way to provide them an opportunity to increase their income-base by developing new unutilised land, introducing high yielding, and high-valued crops on existing agricultural areas. Adjunct to this, smallholder farmers in the area were accorded the opportunity to have access to ancillary income source such as part-time work in nearby rubber or palm plantation established by either the Rubber Industry Smallholders Development Agency (RISDA) or Federal Land Development Authority (FELDA). Specifically, IADP's scope included (1) development of 10,000 hectares of smallholder rubber and oil palm estates; (2) planting of cacao and fruit crops on 2,500 hectares of land; (3) development of pilot areas on an experimental basis; and (4) provision of agricultural supporting services. To achieve these components, the projects required an investment of about US\$50.3 million, of which US\$22.7 million was borrowed in foreign exchange from Asian Development Bank (ADB, 1982, p.10).

About 477,500 people or 62% of the population of the Pahang State live in the six western districts mentioned earlier (ADB, 1982, p.12; Quazi, 1985, pp. 13; MARDI, 1988, p. 11). Of this population, 54% of the households live way below the rural poverty level based on the preliminary studies conducted by the mentioned author and institutions. Rural poverty was assumed to be the consequence of uneconomic land size holdings, low production per unit area, and low unit value of

production. Since IADP Phase I was piloted on the six villages mentioned earlier, beneficiaries were limited only to the poor people in the mentioned villages.

As stipulated in the "Appraisal Report of Pahang Barat Integrated Agricultural Development Project" (ADB, 1982, p.15-43), IADP rationale is that economical landholdings, complemented with capital and management resources would encourage smallholders to adopt new technology and improve their agricultural practices. The combine effect of these is expected not only to raise overall agricultural production, but would also raise the income levels and living conditions of smallholder farmers, which is the thrust of the national government strategy of Malaysia for rural poverty eradication. Moreover, an improved economic and social environment would encourage people to stay in farming, thereby ensuring continued productivity of the smallholders, an important sector of Malaysia's economy. Consequently, the impact is an attractive on farm-employment opportunities for the next generation of the rural populace; thus the vitality of this important sector in the Malaysian economy is sustained.

The overall objective of Pahang Barat IADP Phase 1 was to revitalise smallholder farmers' interest in agriculture. This is further envisioned to stream down the drift of rural people to urban areas so that land abandonment by the rural populace is minimised or prevented. Specific objectives of the IADP program were to: (1) provide smallholder farmers with an economic base that would encourage continuance of their participation in agriculture; (2) provide attractive on-farm employment opportunities for the next generation of the rural population, and (3) maintain the vitality of the agricultural sector in the Malaysian economy.

IADP strategies (Quazi, 1985, pp. 22-23) to achieve the said objectives were to: (1) widen the smallholder farmers production-base through the development of intensively managed estates that would allow participating farmers to expand their earning potentials; (2) increase production per unit area through use of high yielding planting materials and intensive management; (3) increase the unit value of production by introducing new high value crops; and (4) provide ancillary income earning opportunities.

The components of the Pahang Barat IADP Phase 1 were: (1) consulting services, training and project management; (2) smallholder estate development (covering an area of about 10,000 ha of smallholder rubber and oil palm estates); (3) cocoa and fruit crops development (covering an area of 2,5000 ha); (4) supporting services (including provision of new Farmers' Development Centres and new Agricultural Marketing Centres), and (5) pilot development scheme component (Mini IADP)

Statement of the Problem

Pahang Barat IADP Phase 1 was implemented through funding support borrowed by the government of Malaysia from the Asian Development Bank (Manual of Operation, 1983). The projects were intended to bring sustainable benefits to the beneficiaries. Further, the Mini IADPs which are composed of several agro-forestry, fisheries, fruit trees, short-term crops and women group projects (flower nursery, food processing) were prototype projects meant to be replicated in other districts of Pahang State; if their overall impact shows commendable results.

Pahang Barat IADP Phase 1 has remained a viable agricultural development program for more than a decade; from its implementation in 1983 to the time of this study in 1998. So far no studies are conducted on the IADP's sustainability in relation to its environmental impact, economic and social benefits rendered to the beneficiaries and the recipient villages. Under this circumstance, it is therefore deemed of relevant importance that this study should be carried out. The findings can provide a holistic understanding of the entire IADP's sustainability.

Agricultural projects' sustainability, like the IADP, relies on three tenets such as their contribution to maintenance of good environment, economic benefits rendered to the beneficiaries, and social contributions for the improvement of the community as well. These three aspects are integrated and like the human societies form a subsystem within the ecosystem; just as the condition of an egg is within the white. For an egg to be good, both the white and the yolk must be good, otherwise both will be rotten (Prescott-Allen, 1995).

Sustainability of the IADPs was viewed to work in the same analogy as stated above. For an economic benefit to flourish, the environment from where it is derived must be maintained in good state so as not to deplete its abundance and viability. Further, the people who are to benefit from the projects must be socially prepared in order to acquire good attitudes and values that will transform them to become responsible individuals in the perpetuation of a good environment and economic development as well. Therefore, together with the environmental and economic factors, it is also essential to determine the social factors that promoted Pahang Barat

IADP Phase 1 sustainability. A simultaneous assessment of the IADP's environmental, economic, and social impact among the beneficiaries and the recipient villages can capture the entire synopsis of its sustainability. Knowledge on these information can be bases for recycling of decision making, whether such previous IADP practice in program development is worth emulating for sustainability concept and practice in other areas, not only in the Pahang State of Peninsular Malaysia, but also in other places.

Specifically, this study addressed the following questions: (1) What is the state or condition of the environment in the area (villages) where IADPs were implemented for more than a decade? (2) What is the state of the beneficiaries' economic development in the recipient villages that indicate sustainability? (3) What is the state of social development of the IADP beneficiaries and recipient villages? (4) How IADP is viewed of its sustainability by the beneficiaries in relation to its effect on the environment, economy and social well-being of the beneficiaries and the villages? and (5) What are the observed environmental, economic and social related sustainable practices of the beneficiaries that lead to the IADP's environmental, economic and social sustainability?

Objectives of the Study

The overall objective of the study was to examine the sustainability of the Pahang Barat IADP Phase 1 in an integrated approach, which included its environmental, economic and social effects. The specific objectives of the study were to: (1) identify environmental related variables and determine their level of

sustainability contribution to IADP, (2) identify economic related variables and determine their level of sustainability among the IADP beneficiaries, and (3) identify social related variables and determine their level of sustainability in relation to the beneficiaries, organisation and community practice and transformation.

Significance of the Study

Development projects' sustainability, specifically agricultural development project, has been the subject of study by various authors and researchers since the time the term "sustainability" came into concern in development (IUCN, 1980). There are however different views and approaches given on the implication of sustainability to development. During the 1980's, a number of new concerns were added such as the links between economic and social development and environmental degradation. Some researchers advocate sustainability of a project to its contribution to the preservation of the environment and the economic benefits it has rendered to the intended beneficiaries (Pearce, Barbier and Markandaya, 1994). Others look at sustainability on its application to management of agricultural program (Smith, 1993; Mitchell and Pigram, 1989). On the other hand, social scientist looks at the social dimension of a sustainable project in relation to participation and attitudinal transformation of the beneficiaries through local institutional development (Cernea, 1987; Oakley and Marsden, 1984; Uphoff, 1986).

The framework of the research integrated the above stated concerns in sustainable development into its inquiry of the Pahang Barat IADP Phase 1 sustainability. The findings, therefore, are envisaged to provide information of

significant importance to planners of agricultural development projects, specifically the IADP planners and other concerned stakeholders, through holistic understanding of the inter-playing factors that contributed to the entire sustainability of the Pahang Barat IADP Phase I. Further, knowledge on this information can also provide essential insights and inputs to future planners of comprehensive sustainable agricultural development projects. The theoretical framework of the study can cross the bound of Malaysia's setting for application since it is comprehensive in scope.

Further, no empirical study has been conducted on the sustainability of Pahang Barat IADP Phase 1. This study is an attempt to address that concern. Moreover, the framework of the study can be a useful guide in assessing sustainability of agricultural development projects in other areas; other than the Pahang Barat IADPs.

The significance of the study are summarised in the following directions:

1. The study results can contribute relevant insights to study or assessment of agricultural development projects sustainability, like the IADPs. Being integrated in approach and comprehensive in scope, the framework of the study can be freely adapted in other areas of development projects and places, not only under Malaysia's setting but also in other countries.
2. The study can verify whether the IADP goal of sustainability was achieved or not. Information on this aspect is essentially important to the IADP planners, stakeholders and participants because it will provide them knowledge on the overall effectiveness of the IADP planning strategies. Findings can be inputs to 'recycling of decisions', whether the program