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Research Article

Developing A Collaborative Model For Environmental Planning And Management (Epm) On Indigenist's Village In Indonesia And Malaysia

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Abstract

Introduction: Environmental Issues Especially About Natural Resource Deterioration As Led To Environmental Pollution, Land Degradation, Unbalance Of Ecosystem And Biodiversity Depletion. **Objective:** The Proposed Of This Study Is To Investigate The Perception Of The Implementation Planning In Natural Resource Management Among Indigenist's Communities In Indonesia And Malaysia. **Research Methodology:** The Survey Method Approach Using Well-Structured Questionnaires Administered To Sample With Randomly Selected Indigenous In Indonesia (Perkampungan Orang Asli Saham, Perkampungan Orang Asli Pahuman And Perkampungan Orang Asli Mandor) And Malaysia (Perkampungan Orang Asli Serendah). There Are A Few Statistical Analyses Applied In This Study Such As Correlation Analysis, Regression Analysis And Hierarchical Agglomerative Cluster Analysis (Haca). **Result And Discussion:** Based On The Correlation Analysis Stated The Level Of Community's Knowledge About Natural Resource Management And Deterioration Factors On Natural Resource As The Necessary Causing In Implementation Planning Of Natural Resource Management. The Correlation Values Recorded As -0.0914 (Very Low Correlation) ≤ Values Of R ≤ 0.9329 (Very High Correlation) In Indonesia And 0.3665 (Low Correlation) ≤ R Value ≤ 0.9630 (Very High Correlation) Showed There Are Existence Of A Significant Relationship Between Level Of Community's Knowledge About Natural Resource Management And Implementation Planning In Natural Resource Management Measure More Significant Level Among Indigenist's Communities In Malaysia Compared To Indonesia. Besides That, Based On The Statistical Analysis There Are A Natural Resource Management Model Already Created Such As Model A (Innovation Of Existing The Natural Resource Management System), Model B (The Development Of

Natural Resource Management System), Model C (The Application Of New Technology In Development Of Environmental Management), Model D (Guidance From Those Responsible For Environmental Management) And Model E (The Commitment From Government) **Conclusion:** This Study Helps Us Understand Knowledge Level And Deterioration Factors Such As The Roles Of Transformative And Incremental Change In Implementation Planning In Natural Resource Management Especially The Importance Of Governing Organizations. The Indigenist's Communities Are Constantly And Actively Applied The Natural Resource Management Model Such Processes As They Are Able To Negotiate, Promote, Implement, And Articulate Multiple Strategies That Contribute To Enhancing Their Role In Forest And Resource Management.

Keywords: Natural Resource Deterioration; Correlation Analysis, Regression Analysis And Hierarchical Agglomerative Cluster Analysis (Haca); Transformative

1.0 Introduction

The Environmental Challenges In Indigenist's Village In Indonesia And Malaysia Results From The Continual Exploration And Exploitation Years By Years. The Natural Resources Deterioration Which Has Gradually Triggered The Unbalance Of Natural Ecosystem Primarily From Economic Motives. This Has Become An Important Issue Of Growing Concern, Considering That Serious Environmental Degradation, Increased Anthropogenic Activities Around The Indigenist's Village Such As Agricultural, Industrialization, Deforestation Which Have Exacerbated The Incidences Of Pollution And Contamination Both Surface And Ground Water By Variety Of Harmful Pollutants Such Carbon Monoxide, Sulphur Dioxide, Contamination Of Soil By Oil Spills And Leaks In River Water (**Bhat Et Al., 2013; Santika Et Al., 2019; Baging Et Al., 2020**) .

Besides That, The Anthropogenic Impacts And Global Climate Change Are One Of The Most Critical Issues On The Conservation Of Forest Ecosystems Especially In Unreserved Forest In Indonesia And Malaysia (**Chua Et Al., 2002; Rasul Et Al., 2016**). Besides That, The Increasing The Development Activities And Population Growth In Indigenist's Settlements Will Triggered The Evolution And Nature Of Resource Utilization. The Unlimited Of Evolution And Nature Resource Around The Indigenist's Villages And Human Processes Influencing Resource Use. The Overexploitation Of Natural Resources Will Give Many Conflicts Arose Over The Use Of Land, The Extraction Of Forest Products And The Boundaries Of Resources Between Villages (**Nyong Et Al.,2007**). There Are Villagers Among Indigenist's Communities Or Outsiders Traded In Timber Products In The Absence Of Community Accepted Rules And Regulations Governing The Proper Use Of Natural Resources.

The Rapid Expansion Of These Existing Indigenist's Communities Into Protected Areas Is Expected To Cause Severe Anthropogenic Regeneration And Fragmentation Of Natural Forests. In Addition, Further Deteriorating The Forest Structure, Fauna's Habitat And Biodiversity Of Important Natural Tropical Forests Resources Such As The Degradation Of Ecological Services Received From Forest Ecosystems Sustainability (**Morris, 2010; Liu Et Al., 2019)**. There Are A Few Factors Of Soil Degradation And Natural Resources Deterioration Will Give Negative Impact To Socioeconomics, Environment And Concerning The Development, Structure, And Functioning Of Human Society. These Impacts Include Compaction, Loss Of Soil Structure, Nutrient Degradation, Erosion, Sedimentation And Soil Salinity. These Are Very Real And At Times Severe Issues (**Refer Figure 1**).

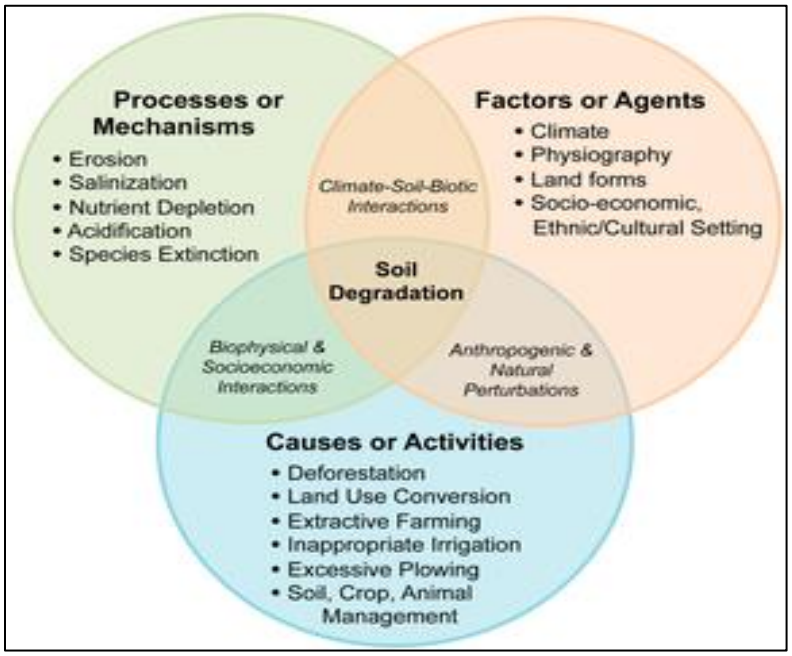


Figure 1: The Factors Of Soil Degradation And Natural Resources Deterioration

The Deterioration Of Natural Resources Is Meant To Be Operationalized Through The Formulation Of Actor-Specific Environmental Actions Plans By Collaboration Of All Parties Including Communities, Government, Ngo And Academia Researchers. The Environmental Planning And Management (Epm) Process Increasingly Popularized Strategy Of Solving The Environmental Deterioration Issues Especially Among Rural Communities (**Lekwot Et Al., 2014; Nhu Et Al., 2020**). The Emp Process Including A Few Performances Management Steps Such As Environmental Policy, Environmental Planning, Environmental Implementation, Environmental Checking And Correction And Environmental Management Review (**Refer Figure 2**).

The Involvement Local Authorities And Their Public, Private And Indigenist's Communities Strengthening The Capacities To Achieve More Sustainable Natural Resource Management In Rural Areas Especially Around Indigenist's Villages. Environmental Planning And Management (Epm) In Indigenist's Settlements In Indonesia And Malaysia Will Improve And Reducing Poverty By Working On Sustainable Through More Efficiently And Equitably Use Of Environmental Resources And Control Of Environmental Hazards In Development Planning. The Basic Methods In Planning And Systematic Management Of Resources Which Are Attributes And Implications In Decision-Making Process And Political Administrative Environment. This Study Examines The Knowledge Level Among Indigenist's Communities And Use Of Epm Process As A Strategy Of Solving Environmental Problems In West Kalimantan, Indonesia And Hulu Selangor, Malaysia.

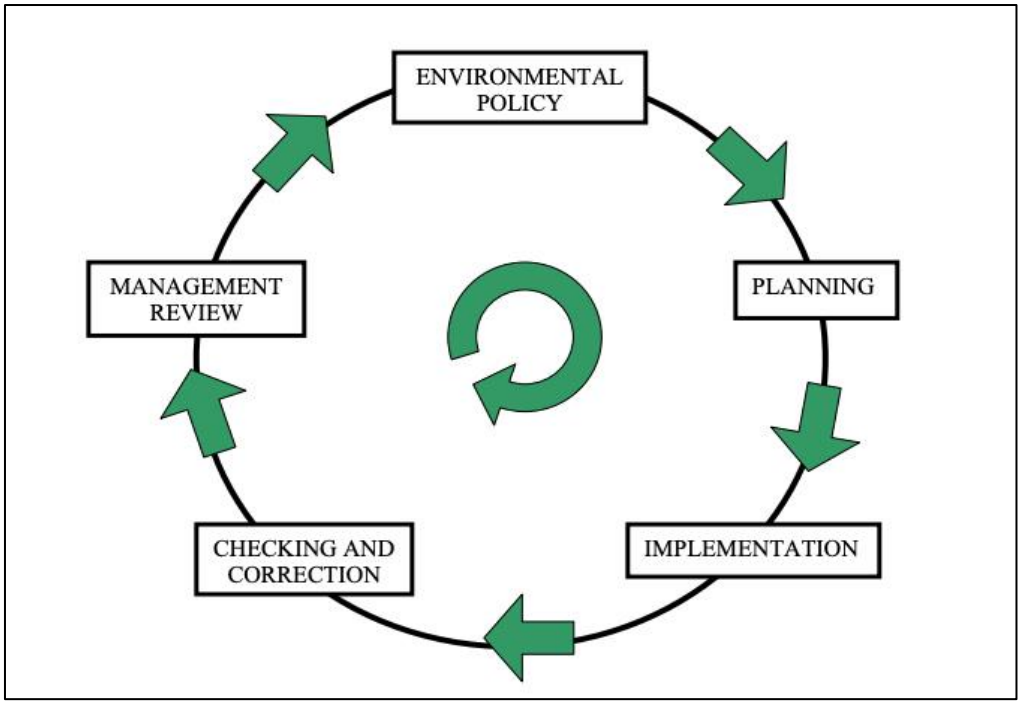


Figure 2: The Including A Few Performances Management

2.0 Study Area And Research Methodology

2.1 Study Area

West Kalimantan (Kalimantan Barat) Has A Population Of About 5 Million People (Now Nearly 5.5 Million). Its Area Is 146.807 Km^2 And 62.7 Percent Is Covered With Forest (More Than Half Non-Developed Areas). West Kalimantan With Its Capital City, Pontianak, Which Is Also Known As "The City Of Equator" Because There Are Occupied By Various Ethnic With A Variety Of Cultures. Besides That, There Are Coveringof Three Big Ethnic Groups In West Kalimantan Such As Dayaks (42%), Malays (31%), And Chinese (12%).

These Three Ethnic Groups Are Spread Throughout The Entire Parts Of West Kalimantan. The Dayaks Or Indigenist's Communities Mostly Occupy In The Rural Areas Or The Hinterland Areas. They Prefer To Live Peacefully Without Urban Development So There Had Happened Many Occasions Of Social Conflicts Between Certain Ethnic (**Prasojo, 2017; Sada Et Al., 2019**). The Study Applied Area Sampling Method Whereby Landak Kalimantan Barat, Indonesia And Kampung Ulu Melaka, Hulu Selangor, Malaysia. The Landak Kalimantan Barat Consist Of Perkampungan Orang Asli Saham (Saham), Perkampungan Orang Asli Pahuman (Sengah Temila) And Perkampungan Orang Asli Mandor (Mandor). In Addition, The *Temuan People* Can Be Found In Almost Every State Of Peninsular Malaysia, But Most Of Them Still Live In The Countryside And Suburban Villages Of Selangor, Negeri Sembilan, As Well As Pahang And Melaka.

Table 1 Showed The Population Distribution Of The *Temuan People* By State In Peninsular Malaysia. The Researcher In This Study Selects Perkampungan Orang Asli Serendah In Kampung Ulu Melaka, Hulu Selangor As Study Location. Usually, This Villages Consist Of Purely *Temuanpeople*. They Are Also One Of The Largest (Only Smaller In Population In Comparison To The Semai People And Jakun People) In Malaysia (**Refer Table 2 And Figure 3**).

Table 1: The Population Distribution Of The *Temuan People* By State

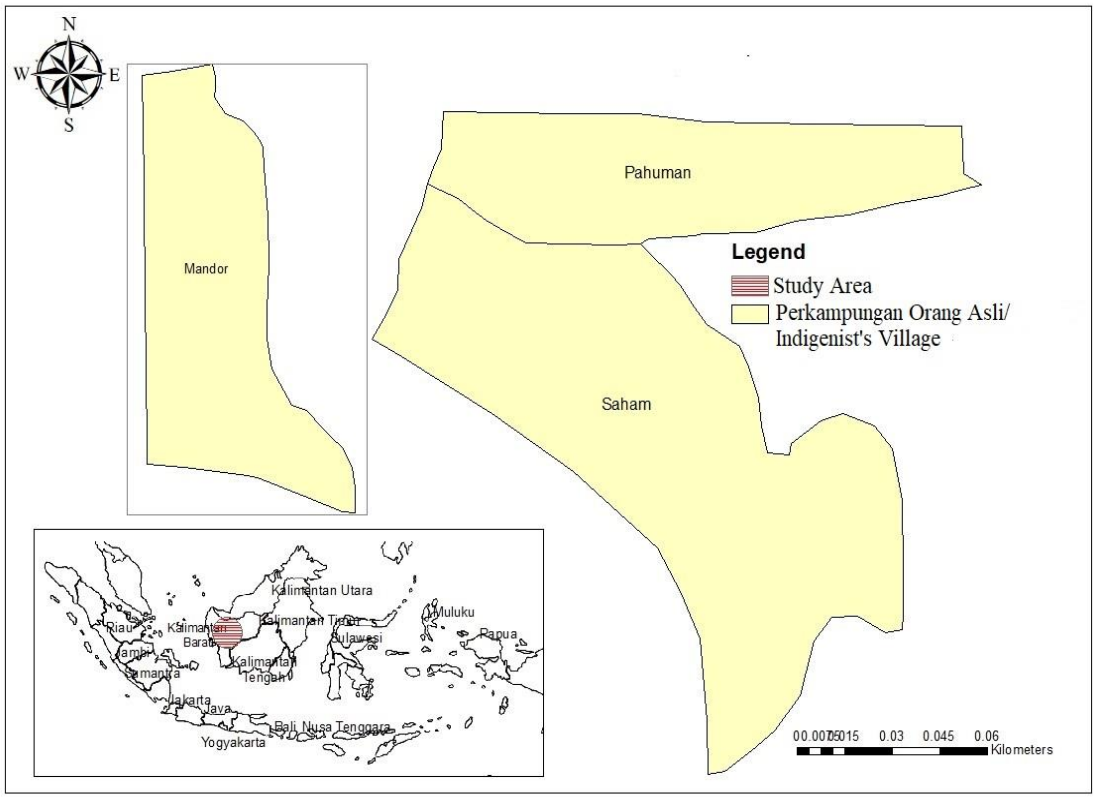
State	Total Number Indigenous	Total Number *Temuan*	Percentage Of Temua

	People/ Orang Asli	*People*	People (%)
Selangor	7107	10472	67.9
Negeri Sembilan	4691	6188	75.8
Pahang	2741	33741	8.1
Melaka	818	831	98.4
Johor	663	7379	9.0
Total	16020	92529	18.0

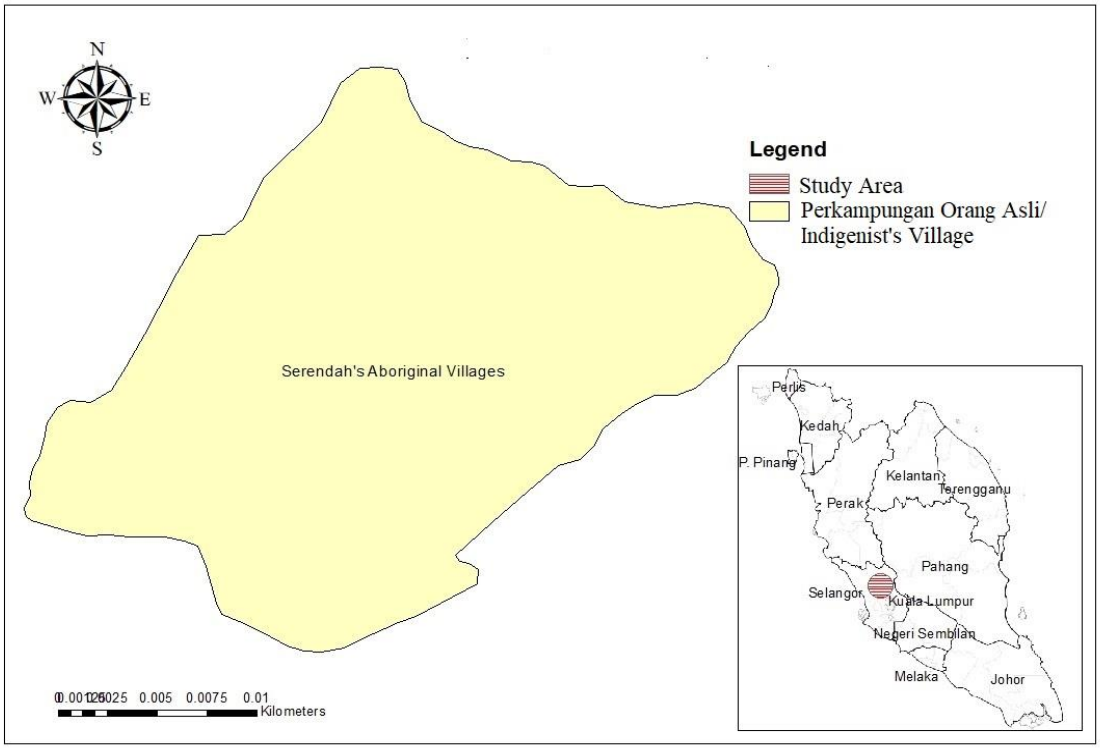
Source: Johor's Local Department Of Orang Asli Affairs (Jheoa) Jheoa, 1996

Table 2: The Coordinate Study Area Developing A Collaborative Model For Environmental Planning And Management (Epm)In Indigenist's Village In Indonesia And Malaysia

Country	**Sampling Area (Perkampungan Orang Asli/ Indigenist's Village**	**Longitude**	**Latitude**
Indonesia	Perkampungan Orang Asli Saham	109.7184167	0.240305556
	Perkampungan Orang Asli Pahuman, Sengah Temila	109.6743333	0.328361111
	Perkampungan Orang Alis Mandor	109.3384444	0.315778
Malaysia	Perkampungan Orang Asli Serendah, Hulu Selangor	101.6201111	3.363166667



(A)



(B)

Figure 3: The Map Of Study Area Of Developing A Collaborative Model For Environmental Planning And Management In Indigenist's Village (A) Indonesia And (B) Malaysia

2.2 Research Methodology

The Primary Data Were Collected Through Self-Administered Questionnaire Which Was A Quantitative Survey Was Conducted Among Indigenist's Communities In Indonesia And Malaysia (**Dawal Et Al., 2009; Bakar Et Al., 2010**). For This Research, Sampling Method Termed As Convenience Sampling, Is Used To Distribute The Questionnaires. **Welman And Kruger (1999)** Point Out The Following Characteristics Sampling Method, Every Person Who Meets The Criteria Is Asked To Participate, It Is A Less Complicated And More Economical Procedure Than Random Sampling, The Researcher 'S Judgment Is Used To Select Individual Subjects. This Research Instrument Was Developed Using Well-Established Measurement Scales Identified From Previous Studies. Changes Were Made In The Selected Items To Make Sure They Fitted Into The Context Of The Natural Resource Management (**Yunus Et Al., 2019; Razak Et Al., 2019; Din Et Al., 2019**).

The Questionnaires Consist Of Four Main Sections: Respondents' Demographics, Indigenist's Community's Knowledge Level About Natural Resource Management, Deterioration Factors On Natural Resource In Indigenist's Community's Settlement And Implementation Planning In Natural Resource Management In Indigenist's Community's Settlement At Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia.There Are Three Statistical Analysis Methods Applied In This Study Such As Correlation Analysis, Regression Analysis And Hierarchical Agglomerative Cluster Analysis (Haca).

2.2.1 Correlation Analysis And Regression Analysis

The Linear Correlation Coefficient (R) Analysis Measures The Strength And The Direction Of A Linear Relationship Between Two Types Variables (Independent Variable And Dependent Variable). Relationship Between Indigenist's Community's Knowledge Level About Natural Resource Management And Deterioration Factors On Natural Resource With Implementation Planning In Natural

Resource Management In Indigenist's Community's Settlement At Landak Kalimantan Barat, Indonesia And Kampung Ulu Melaka, Hulu Selangor, Malaysia.

The Degree Of Association Is Measured By A Correlation Coefficient, Denoted By R Values Which Is Measured On A Scale That Varies From + 1 Through 0 To - 1. According **Dutilleul Et Al., 2000** And **Lemenkova, (2019)**, A High Correlation Means That Dependent And Independent Variables Have A Strong Relationship With Each Other, While A Weak Correlation Means That The Variables Are Hardly Related. Furthermore, The Direction Of The Relationship Is Indicated By The Sign Of The Coefficient (+) Sign Indicates A Positive Relationship And (-) Sign Indicates A Negative Relationship (**Wahab Et Al., 2018; Kamarudin Et Al., 2020**). **Figure 4** Showed The Illustration Of Correlation Coefficient Between Independent And Dependent Variables.

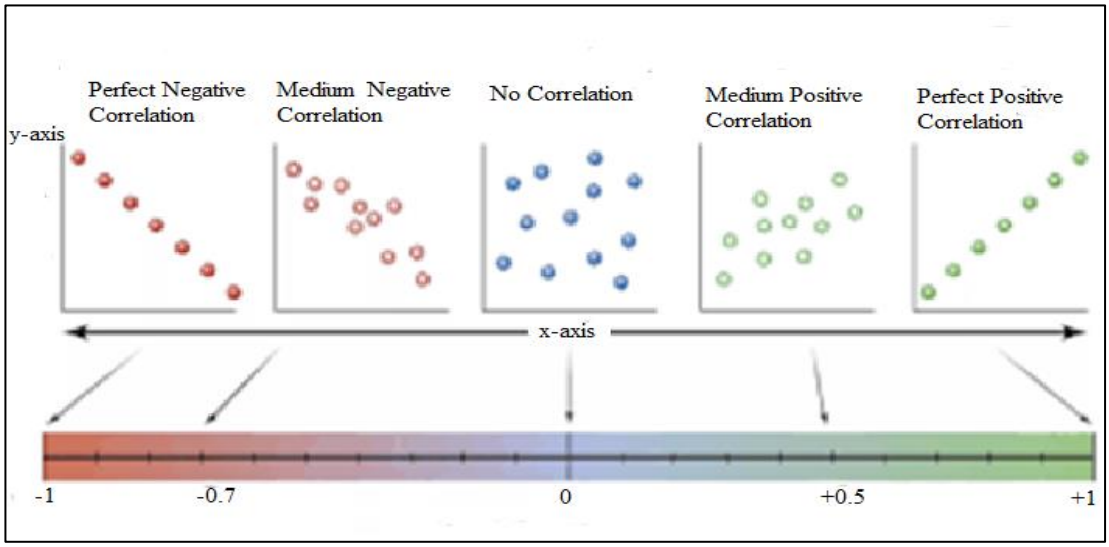


Figure 4: The Illustration Of Correlation Coefficient Between Independent And Dependent Variables
Source: (**Dutilleul Et Al., 2000 & Lemenkova, 2019**)

Regression Analysis (R^2) Used To Predict The Value Of The Dependent Variable (Y Axis Variable) Based On Value Of The Independent Variable (X Axis Variable) The R^2 Is The Strength Of Correlation Coefficient R And Describes How An Independent Variable Is Numerically Affecting The Dependent Variable (**Ramdani & Witteloostuijn, 2010; Wahab Et Al., 2019**). From This Analysis, The Study Describing How Much The Strength Of Relationship Between Independent Variable (Indigenist's Community's Knowledge Level About Natural Resource Management And Deterioration Factors On Natural Resource In Indigenist's Community's Settlement) And Dependent Variable (Implementation Planning In Natural Resource Management In Indigenist's Community's Settlement) At Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia. **Table 3**showedinterpretation Of Regression Analysis Based On The Regression Coefficient Value.

Table 3: The Interpretation Of Regression Analysis

Regression Coefficient Value	Interpretation	Significant Level
0.90 Until 1.00	Very High Significant	↑
0.70 Until 0.90	High Significant	
0.50 Until 0.70	Moderate Significant	Significant
0.30 Until 0.50	Low Significant	↓
0.01 Until 0.30	Weak Significant	
0	Not Significant	Not Significant

Source: (**Nasir Et Al., 2011; Wahab Et Al., 2018**)

2.2.2 Hierarchical Agglomerative Cluster Analysis (Haca)

Haca Applied In This Study As A Method Of Cluster Analysis Which Seeks To Build A Hierarchy Of Clusters Of Questionnaires About Natural Resource Management At Indigenist's Village In Indonesia And Malaysia. The Clustering Result Will Be Used As Application To Create The Implementation Planning In Natural Resource Management Model Among Indigenist's Communities In Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia. The Clustering Of Implementation Planning In Natural Resource Management Identified In The Sub-Plots That Will Be Divided According To The Main Criteria In This Classification. **Figure 5** Showed The Haca Illustration Based On The Dendrogram Or Binary Tree For Implementation Planning In Natural Resource Management Model In Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia (**Mohd Et Al., 2015; Azid Et Al., 2015**). The Root Is The Whole Dataset (Questionnaires)And Each Branch Is A Data Point (Independent And Dependent Variables) Based On The The Final Clustering Can Be Obtained From Dendrogram Cutting At Appropriate Stages (**Juahir Et Al., 2011**).

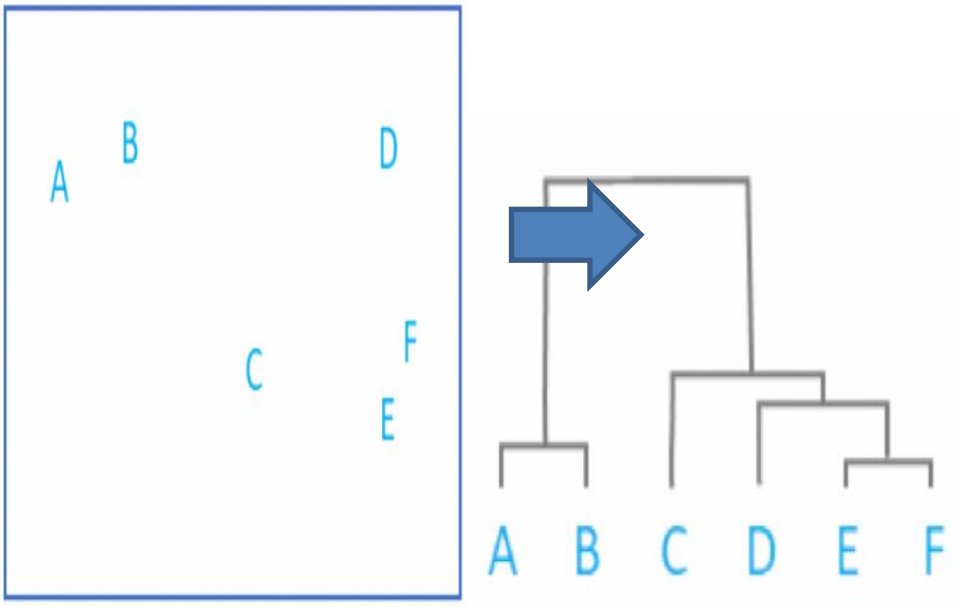


Figure 5: Hierarchical Agglomerative Cluster Analysis (Haca) Illustration Based On The *Dendrogram* Or *Binary Tree* For Natural Resource Management Modelin Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia
Source: (**Juahir Et Al., 2011**)

3.0 Result And Discussion

Table 4 (A), Table 4 (B) And **Table 4 (C)**Showed The List Of Questionnaires Of Indigenist's Community's Knowledge Level About Natural Resource Management, Deterioration Factors On Natural Resource In Indigenist's Community's Settlement And Implementation Planning In Natural Resource Management In Indigenist's Community's Settlement At Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia Respectively. **Table 5(A)** And **Table 5 (B)**Stated The Correlation Analysis Of Indigenist's Community's Knowledge Level About Natural Resource Management (Independent Variable) And Implementation Planning In Natural Resource Management (Dependent Variable).

The Values Of R Obtained For Both Variables In Indonesia Which Is In The Range -0.0914 (Very Low Correlation) ≤ Values Of R ≤ 0.9329 (Very High Correlation). This Indicates There Are Significant Relationship Between The Community's Knowledge Level About Natural Resource Management And

Implementation Planning In Natural Resource Management In Indigenist's Community's Settlement But This Relationship Still Depends On The Sign Of R Values Whereas Positive Or Negative (**Wahab Et Al., 2019; Usman & Purnomo, 2006**).

Based On The Correlation Analysis For Landak Kalimantan Barat, Indonesia The Majority Respondents Recorded Positive Correlation Which Means The Level Of Community's Knowledge About Natural Resource Management And Implementation Planning In Natural Resource Management In Same Increasing Trend Respectively (**Refer Table 5 (A)**). However, There Are A Few Negative Relationships Correlation Between These Two Variables Such As Relationship Between Sa3 (The Importance Of Implementation Planning In Natural Resource Management Framework In The Settlement Areas Among Indigenist's Communities) With Sb1 (The Organization Of Natural Resource Management Activities In The Study Area Needs To Be Implemented Efficiently And Effectively), Sa4 (The Importance Of Dependence Each Other Between Nature And Human) With Sb1, Sa5 (The Need To Study And Formulate The Concept Of Systematic Natural Resource Management) With Sb1 And Sa6 (The Importance In The Natural Environment Management Development Model Systematically) With Sb1. The Negative Relationship Between Sa43, Sa4, Sa5 And Sa6 With Sb1 Proved Any Organization Of Natural Resource Management Activities In The Study Area Implemented Not Really Affected The Level Of Community's Knowledge About Natural Resource Management (**Refer Table 4(A)** And **Table 4 (C)**).

Meanwhile, The R Value Obtained From The Correlation Variables In Kampung Ulu Melaka, Hulu Selangor, Malaysia Ranged As 0.3665 (Low Correlation) ≤ R Value ≤ 0.9630 (Very High Correlation) (**Refer Table 5 (B)**). Based On The Value Of R Proved There Are Existence Of A Significant Relationship Between Level Of Community's Knowledge About Natural Resource Management And Implementation Planning In Natural Resource Management More Significant Level Than Indonesia. Based On The Result Showed There Are No Negative Correlation Between Independent And Dependent Variables. This Relationship Stated Any Organization Of Natural Resource Management Activities In The Study Area Implemented More Affected The Level Of Community's Knowledge About Natural Resource Management. From These Results Proven The Level Of Community's Knowledge About Natural Resource Management Among Indigenous Is One Of The Important Factors To Triggered The Systematically Natural Resource Management Especially In Rural Areas Settlements (**Phuthego & Chanda, 2004; Rai, 2007; Doolittle, 2010**).

Table 4 (A): The List Of Questionnaires Of Indigenist's Community's Knowledge Level About Natural Resource Management At Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia

Question	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
		1	**2**	**3**	**4**
Sa1	The Importance Of Planning Arrangement The Natural Resource Management Framework In The Settlement Areas Among Indigenist's Communities				
Sa2	The Importance Of Natural Resource Management Based On The Indigenous Communities' Knowledge				
Sa3	The Importance Of Enhancing The Attitude In Managing Of Natural Resources				
Sa4	The Importance Of Dependence Each Other Between Nature And Human				
Sa5	The Need To Study And Formulate The Concept Of Systematic Natural Resource Management				
Sa6	The Importance In The Natural Environment Management Development Model Systematically				

Table4 (B): The List Of Questionnaires Of Deterioration Factors On Natural Resource In Indigenist's Community's Settlement At Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia

Question	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
		1	2	3	4
Sa7	The Rapid Development, Population Increasing And The Increase Human Needs For Natural Resources.				
Sa8	The Human's Greed In Exploiting Natural Resources				
Sa9	Natural Resources Are Increasingly Considered As One Of Important Economic Sources And Need To Be Developed Unlimitedly				
Sa10	The Increasing Of Economic Activity Of Natural Resources Which Is Only Profit-Oriented				
Sa11	Uncontrolled Exploitation Of Natural Resources				
Sa12	The In Equilibrium Relationship Between Human And Nature				
Sa13	Transition Plantation System				
Sa15	Traditional Agricultural Abandonment And Resilience				

Table 4 (C): The List Of Questionnaires Of Implementation Planning In Natural Resource Management In Indigenist's Community's Settlement At Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia

Questions	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
		1	2	3	4
Sb1	The Organization Of Natural Resource Management Activities In The Study Area Needs To Be Implemented Efficiently And Effectively				

Sb2	The Implementation Of Program Which Existence Of Efforts To Optimize The Natural Resources Effectively And Efficiently
Sb3	Implementation Of Various Activities And Increase The Role Of Those Responsible In The Involvement Of Conservation And Preservation Of Natural Resources
Sb4	The Guidance And Counseling To Indigenist's Communities About The Importance Of Natural Resources To Human Beings
Sb5	The Environmental Management Model That Is Appropriate To The Trends Of Indigenist's Communities' Life

Table 5 (A): The Correlation Analysis Of Indigenist's Community's Knowledge Level About Natural Resource Management And Implementation Planning In Natural Resource Management Model At Landak Kalimantan Barat, Indonesia

Variables	Sa1	Sa2	Sa3	Sa4	Sa5	Sa6	Sb1	Sb2	Sb4	Sb5
Sa1	1	0.4001	0.0184	0.2332	0.2728	0.1256	**0.5727**	**0.6037**	**0.2851**	**0.0545**
Sa2	0.4001	1	0.0738	0.3669	0.3692	0.3907	**0.2098**	**0.1676**	**0.5052**	**0.3405**
Sa3	0.0184	0.0738	1	0.2851	0.2390	0.2757	**-0.0110**	**0.0719**	**0.1894**	**0.2094**
Sa4	0.2332	0.3669	0.2851	1	0.3053	0.3840	**-0.0064**	**0.2665**	**0.3655**	**0.3604**
Sa5	0.2728	0.3692	0.2390	0.3053	1	0.3785	**-0.0134**	**0.0984**	**0.1794**	**0.2978**
Sa6	0.1256	0.3907	0.2757	0.3840	0.3785	1	**-0.0914**	**0.0495**	**0.5574**	**0.9329**
Sb1	**0.5727**	**0.2098**	**-0.0110**	**-0.0064**	**-0.0134**	**-0.0914**	1	0.4600	0.0095	-0.0946
Sb2	**0.6037**	**0.1676**	**0.0719**	**0.2665**	**0.0984**	**0.0495**	0.4600	1	0.0235	-0.0124
Sb4	**0.2851**	**0.5052**	**0.1894**	**0.3655**	**0.1794**	**0.5574**	0.0095	0.0235	1	0.5183
Sb5	**0.0545**	**0.3405**	**0.2094**	**0.3604**	**0.2978**	**0.9329**	-0.0946	-0.0124	0.5183	1

Table 5 (B):The Correlation Analysis Of Indigenist's Community's Knowledge Level About Natural Resource Management And Implementation Planning In Natural Resource Management Model At Kampung Ulu Melaka, Hulu Selangor, Malaysia

Variables	Sa1	Sa2	Sa3	Sa4	Sa5	Sa6	Sb1	Sb2	Sb4	Sb5
Sa1	1	0.4335	0.5913	0.5573	0.5435	0.6386	**0.8040**	**0.6328**	**0.9026**	**0.6042**
Sa2	0.4335	1	0.5086	0.6576	0.5856	0.6460	**0.3665**	**0.4230**	**0.4377**	**0.6031**
Sa3	0.5913	0.5086	1	0.5622	0.7086	0.6515	**0.6620**	**0.5780**	**0.5059**	**0.6218**
Sa4	0.5573	0.6576	0.5622	1	0.6536	0.7720	**0.5458**	**0.5366**	**0.6341**	**0.7389**
Sa5	0.5435	0.5856	0.7086	0.6536	1	0.7495	**0.5024**	**0.4916**	**0.4141**	**0.7198**
Sa6	0.6386	0.6460	0.6515	0.7720	0.7495	1	**0.6665**	**0.6909**	**0.6436**	**0.9630**
Sb1	**0.8040**	**0.3665**	**0.6620**	**0.5458**	**0.5024**	**0.6665**	1	0.6574	0.7765	0.6293
Sb2	**0.6328**	**0.4230**	**0.5780**	**0.5366**	**0.4916**	**0.6909**	0.6574	1	0.6829	0.6515
Sb4	**0.9026**	**0.4377**	**0.5059**	**0.6341**	**0.4141**	**0.6436**	0.7765	0.6829	1	0.6099
Sb5	**0.6042**	**0.6031**	**0.6218**	**0.7389**	**0.7198**	**0.9630**	0.6293	0.6515	0.6099	1

ercent Contribution (%) Refers To The Distribution Percentage Value Of Variable X Affecting Variable Y, The Higher Percentage Value Indicates Variable X Affects Variable Y In High Level While The Lower Percentage Value Indicates That Variable X Affects Variable Y At Low Level. **Table 6 (A)** And **Table 6 (B)** Showed The Percentage Contribution In Linear Regression Analysis Between Of Indigenist's Community's Knowledge Level About Natural Resource Management And Implementation Planning In Natural Resource Management At Landak Kalimantan Barat, Indonesia And Kampung Ulu Melaka, Hulu Selangor, Malaysia. For Both Natural Management Model In Landak Kalimantan Barat, Indonesia Such As Sb1 And Sb2 Are Influenced By The Same Indigenist's Community's Knowledge Level As Sa1 With Percentage Contribution Recorded 85.35% And 88.24% Respectively.

The Values Of 85.35% And 88.24% Which Means Indigenist's Community's Knowledge About "The Importance Of Planning Arrangement The Natural Resource Management Framework In The Settlement Areas Among Indigenist's Communities (Sa1)" Influencing The Natural Resource Management Of "The Organization Of Natural Resource Management Activities In The Study Area Needs To Be Implemented Efficiently And Effectively (Sb1)" And "The Implementation Of Program Which Existence Of Efforts To Optimize The Natural Resources Effectively And Efficiently (Sb2)"

Respectively. Besides That, The Indigenist's Community's Knowledge About Importance Of Enhancing The Attitude In Managing Of Natural Resources Affecting To Implement The Systematic The Guidance And Counselling To Indigenist's Communities About The Importance Of Natural Resources To Human Beings And Environmental Management Model That Is Appropriate To The Trends Of Indigenist's Communities' Life Respectively (**Refer Table 6 (A)**).

In Kampung Ulu Melaka, Hulu Selangor, Malaysia Showed The Natural Resource Management Of Sb1, Sb2 And Sb4 Affected By The Indigenist's Community's Knowledge Of Importance Of Planning Arrangement The Natural Resource Management Framework In The Settlement Areas Among Indigenist's Communities With Recording Percent Contribution (%) As 63.37%, 42.72% And 84.45% Respectively. Based On The Percent Contribution Trends Shows The Level Of Knowledge About The Importance In The Development Of Natural Environment Management Model Systematically Among The Indigenist's Communities In Malaysia Is Better Than In Indonesia.

This Shows That The Level Of Knowledge Of The Indigenous Community In Malaysia About The Importance Of Planning The Development Of Natural Resource Management Framework Has Influenced The Steps To Organize Natural Resource Management Activities With A Rate Of 63.37% Which Is Lower Than Indonesia. In Addition, The Percent Contribution (%) For The Relationship Between Sa6 And Sb5 Was Recorded 99.77% Which Is Higher Than In Indonesia. It Can Be Seen That The Level Of Knowledge About The Importance In The Development Of Implementation Planning In Natural Resource Management Model Continuously And More Systematically Among The Indigenous Community In Malaysia Is Better Than In Indonesia. According **Ahmad Et Al., 2011; Sachan Et Al., 2012; Ahmad Et Al., 2015** Stated Every Human Practice And Attitude Affected The Level Of Human Awareness To Natural Resources Especially Depends On The Knowledge Level. If The Humans More Exposed To Useful Knowledge About Something It Will Encourage People To Do More Beneficial Things.

Table 6 (A): Linear Regression Analysis Between Of Indigenist's Community's Knowledge Level About Natural Resource Management And Implementation Planning In Natural Resource Management Model At Landak Kalimantan Barat, Indonesia

Statement	Percentage Values			
Dependent Variable	Sb1	Sb2	Sb4	Sb5
Independent Variable	Sa1	Sa1	Sa6	Sa6
Maximum Percentage Contribution (%)	85.35	88.24	54.69	98.81
Independent Variable	Sa3	Sa6	Sa3	Sa2
Minimum Percentage Contribution	1.35	0.30	1.30	0

Table 6 (B): Linear Regression Analysis Between Of Indigenist's Community's Knowledge Level About Natural Resource Management And Implementation Planning In Natural Resource Management Model At Kampung Ulu Melaka, Hulu Selangor, Malaysia

Statement	Percentage Values			
Dependent Variable	Sb1	Sb2	Sb4	Sb5
Independent Variable	Sa1	Sa1	Sa1	Sa6
Maximum Percentage	63.37	42.72	84.45	99.77

Contribution (%)				
Independent Variable	Sa4	Sa4	Sa2	Sa3, Sa4 And Sa5
Minimum Percentage Contribution	0.22	0	0	0

Table 7 (A) And **Table 7 (B)** Below Show The Correlation Analysis Between Two Variables (Variable X: The Deterioration Factors On Natural Resource In Indigenist's Community's Settlement Y: The Implementation Planning In Natural Resource Management) In Indonesia And Malaysia. The R Value Obtained For Both Variables In Indonesia Ranged Of 0.1081 (Very Low Correlation) ≤ R Value ≤ 0.3778 (Low Correlation) And In Malaysia The Range Value Recorded -0.2795 (Low Correlation) ≤ R Value ≤ 0.7560 (Optimum Correlation). Based On The Results Of Correlation Analysis In The Indigenous Settlement Areas In West Kalimantan Landak, Indonesia Showed All The Deterioration Factors On Natural Resource In Indigenist's Community's Settlement. It Is Proven That's All The Major Factors Of Natural Resource Degradation (Sa7, Sa8, Sa9, Sa10, Sa11, Sa12, Sa13 And Sa15) Affect Implementation Planning In Natural Resource Management (Sb1, Sb2, Sb4 And Sb5). This Can Be Further Proven By The Absence Of Negative Correlation Relations Between Two Variables In Indonesia Compared To Malaysia.

Based On **Table 7 (B)**, There Are Two Main Factors Of Deterioration On Natural Resource In Indigenist's Community's Settlement Which Are Not Affected The Implementation Planning In Natural Resource Management In Malaysia As Sa12 ("The In Equilibrium Relationship Between Human And Nature') And Sa13 ("Transition Plantation System"). The Negative Correlation Relationship Between Two Variables Proved The In Equilibrium Relationship Between Human And Nature And The Transition Plantation System In Malaysia Does Not Give Negative Impact On The Environment. According To **Murad Et Al., 2010; Tiraieyari Et Al., 2017; Islam & Siwar, 2012,** Malaysia Has Succeeded To Ensure The Sustainability Of Environmental Quality Based On Agricultural Economic Activities By Applying The Theory Of Ecological Modernization. This Theory Applied To Oil Palm Industry In Malaysia Cares About The Environment And The Same Time Able To Explain How Factors That Directly And Indirectly In Ensuring The Sustainability Of The Country's Environmental Quality (**Yaacob Et Al., 2013; Abd Halim & Choy, 2016**).

Table 7 (A): The Correlation Analysis Of Deterioration Factors On Natural Resource In Indigenist's Community's Settlement And Implementation Planning In Natural Resource Management At Landak Kalimantan Barat, Indonesia

Variables	Sa7	Sa8	Sa9	Sa10	Sa11	Sa12	Sa13	Sa15	Sb1	Sb2	Sb4	Sb5
Sa7	1	0.6082	0.4195	0.4233	0.2708	0.2484	0.4165	0.5012	**0.2708**	**0.2035**	**0.3742**	**0.2927**
Sa8	0.6082	1	0.3394	0.4926	0.5934	0.3959	0.5454	0.3645	**0.2388**	**0.2778**	**0.2308**	**0.1704**
Sa9	0.4195	0.3394	1	0.2528	0.2674	0.2986	0.2504	0.2549	**0.1250**	**0.1169**	**0.3105**	**0.2118**
Sa10	0.4233	0.4926	0.2528	1	0.5579	0.4732	0.4076	0.3288	**0.3308**	**0.3306**	**0.2458**	**0.1541**
Sa11	0.2708	0.5934	0.2674	0.5579	1	0.4848	0.4905	0.5214	**0.1081**	**0.2788**	**0.3022**	**0.1121**
Sa12	0.2484	0.3959	0.2986	0.4732	0.4848	1	0.4724	0.5334	**0.2205**	**0.3703**	**0.3552**	**0.2385**
Sa13	0.4165	0.5454	0.2504	0.4076	0.4905	0.4724	1	0.5071	**0.0680**	**0.1956**	**0.2557**	**0.1820**
Sa15	0.5012	0.3645	0.2549	0.3288	0.5214	0.5334	0.5071	1	**0.1095**	**0.2617**	**0.3763**	**0.3778**
Sb1	**0.2708**	**0.2388**	**0.1250**	**0.3308**	**0.1081**	**0.2205**	**0.0680**	**0.1095**	1	0.4600	0.0095	-0.0946
Sb2	**0.2035**	**0.2778**	**0.1169**	**0.3306**	**0.2788**	**0.3703**	**0.1956**	**0.2617**	0.4600	1	0.0235	-0.0124
Sb4	**0.3742**	**0.2308**	**0.3105**	**0.2458**	**0.3022**	**0.3552**	**0.2557**	**0.3763**	0.0095	0.0235	1	0.5183
Sb5	**0.2927**	**0.1704**	**0.2118**	**0.1541**	**0.1121**	**0.2385**	**0.1820**	**0.3778**	-0.0946	-0.0124	0.5183	1

Table 7(B): The Correlation Analysis Of Deterioration Factors On Natural Resource In Indigenist's Community's Settlement And Implementation Planning In Natural Resource Management At Kampung Ulu Melaka, Hulu Selangor, Malaysia

Variables	Sa7	Sa8	Sa9	Sa10	Sa11	Sa12	Sa13	Sa15	Sb1	Sb2	Sb4	Sb5
Sa7	1	0.5907	0.3245	0.3002	-0.0011	-0.0394	0.0203	0.5718	**0.4971**	**0.7560**	**0.5606**	**0.6521**
Sa8	0.5907	1	0.2507	0.3769	0.4110	0.0613	-0.0723	0.5494	**0.7604**	**0.6064**	**0.6464**	**0.5173**
Sa9	0.3245	0.2507	1	0.6322	0.4671	0.4843	0.3077	0.1583	**0.1734**	**0.1381**	**0.2217**	**0.2192**
Sa10	0.3002	0.3769	0.6322	1	0.6952	0.4153	0.2404	0.2078	**0.1825**	**0.2559**	**0.1236**	**0.4074**
Sa11	-0.0011	0.4110	0.4671	0.6952	1	0.4065	0.1604	0.2199	**0.1963**	**0.0355**	**0.1423**	**0.1369**
Sa12	-0.0394	0.0613	0.4843	0.4153	0.4065	1	0.5664	0.1766	**0.0851**	**-0.1259**	**0.0198**	**0.0230**
Sa13	0.0203	-0.0723	0.3077	0.2404	0.1604	0.5664	1	-0.0532	**-0.2795**	**-0.1961**	**-0.1787**	**-0.0373**
Sa15	0.5718	0.5494	0.1583	0.2078	0.2199	0.1766	-0.0532	1	**0.6252**	**0.5098**	**0.6160**	**0.6364**
Sb1	**0.4971**	**0.7604**	**0.1734**	**0.1825**	**0.1963**	**0.0851**	**-0.2795**	**0.6252**	1	0.6574	0.7765	0.6293

Sb2	**0.7560**	**0.6064**	**0.1381**	**0.2559**	**0.0355**	**-0.1259**	**-0.1961**	**0.5098**	0.6574	1	0.6829	0.6515
Sb4	**0.5606**	**0.6464**	**0.2217**	**0.1236**	**0.1423**	**0.0198**	**-0.1787**	**0.6160**	0.7765	0.6829	1	0.6099
Sb5	**0.6521**	**0.5173**	**0.2192**	**0.4074**	**0.1369**	**0.0230**	**-0.0373**	**0.6364**	0.6293	0.6515	0.6099	1

Based On The Linear Regression Analysis Results Obtained At Landak Kalimantan Barat, Indonesia, The Percent Contribution Recorded 40.49% (Sa10 With Sb1), 49.16% (Sa12 With Sb2), 38.81% (Sa7 With Sb4) And 13.35% (Sa15 With Sb5). The Highest Percent Contribution (%) Refers To The Relationship Between Sb1 And Sa10 While The Lowest Refers To The Relationship Between Sb5 And Sa15. The Value 40.49% Stated The Increase In Economic Activities Of Natural Resources Which Are Profit-Oriented Triggered The Organization Of Natural Resource Management Activities To Be Implemented Efficiently And Effectively. Majority Of The Communities Agree Any Activities Based On The Medium Of Natural Resource Management Can Help To Reduce The Problem Of Environmental Degradation As Well As To Preserve Environmental Development (**Samdin Et Al., 2012; Kamarudin Et Al., 2018; Fuzi Et Al., 2019**). Besides That, The Value Of 13.35% Showed The Percent Contribution Of Relationship Between "Traditional Agricultural Abandonment And Resilience (Sa15)" And "The Environmental Management Model That Is Appropriate To The Trends Of Indigenist's Communities' Life (Sb5)". The Result Proves Only 13.35% Of Traditional Agricultural Abandonment And Resilience Activities Affecting To The Problem Of Deterioration Of Natural Resources In Indonesia. Indonesia Increasingly Vulnerable To The Development Of The Agricultural System But A Little Slow Compared To Other Countries Such As Malaysia And Thailand.

The Highest Percent Contribution (%) Refers To The Relationship Between Sa8 And Sb1 While The Lowest Is Recorded In The Relationship Between Sa8 And Sb4. Almost All The Percent Contribution (%) Value Recorded In Malaysia Higher Than Indonesia While The Agricultural Sector Management System In Malaysia Is Better Than Indonesia. The Developments In Traditional Agricultural Abandonment And Resilience Give A Negative Impact On The Deterioration Environmental Sustainability (**Reilly Et Al., 1994; Idrus Et Al., 2011**). However, Malaysia Still Cares About The Environment And The Same Time Is Shows How The Directly And Indirectly Play Their Role To Ensure The Sustainability Of The Country's Environmental Quality (**Fausayana Et Al., 2019**).

Table 8 (A): Linear Regression Analysis Between Deterioration Factors On Natural Resource In Indigenist's Community's Settlement And Implementation Planning In Natural Resource Management Model At Landak Kalimantan Barat, Indonesia

Statement	Percentage Values			
Dependent Variable	Sb1	Sb2	Sb4	Sb5
Independent Variable	Sa10	Sa12	Sa7	Sa15
Maximum Percentage Contribution (%)	40.49	49.16	38.81	13.35
Independent Variable	Sa9	Sa7 And Sa11	Sa13	Sa8
Minimum Percentage Contribution	0.36	0.17	0.15	12.30

Table 8 (B): Linear Regression Analysis Between Deterioration Factors On Natural Resource In Indigenist's Community's Settlement And Implementation Planning In Natural Resource Management Model At Kampung Ulu Melaka, Hulu Selangor, Malaysia

Statement	Percentage Values			
Dependent Variable	Sb1	Sb2	Sb4	Sb5
Independent Variable	Sa8	Sa7	Sa8	Sa11
Maximum Percentage Contribution (%)	58.22	61.85	41.53	43.44
Independent Variable	Sa7	Sa12	Sa11	Sa15

Minimum Percentage Contribution	0.17	0	0.11	0

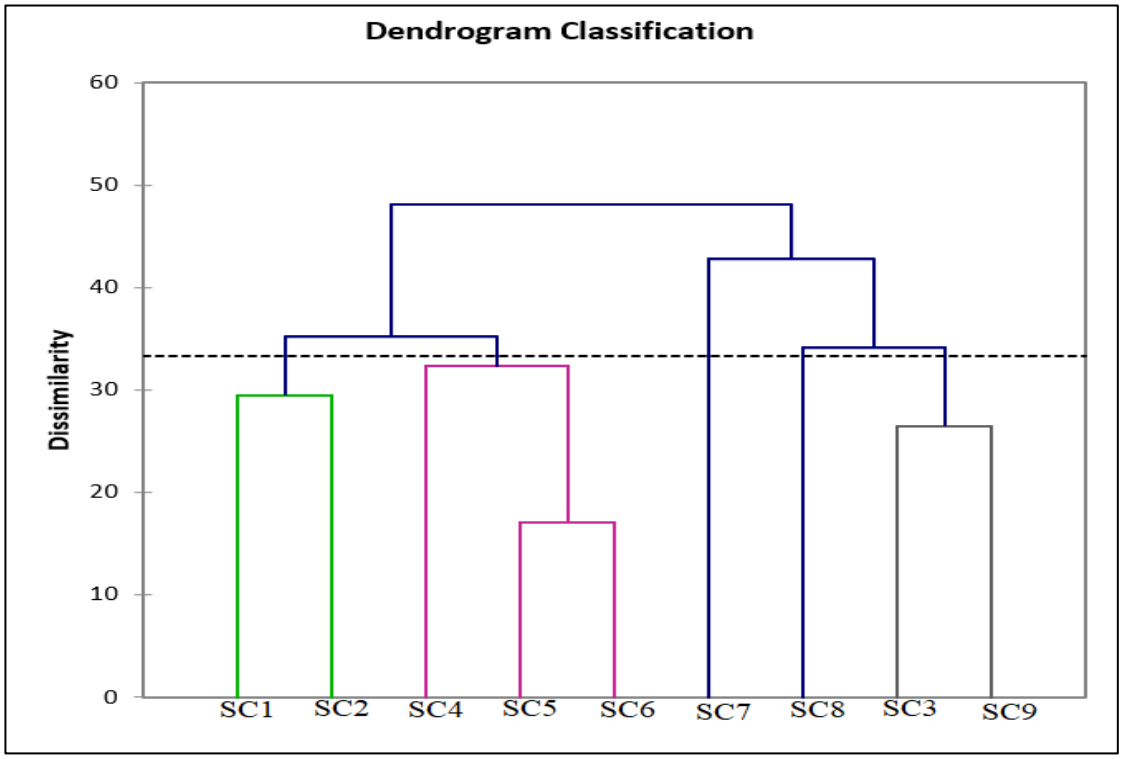
The Classification Of Implementation Planning In Natural Resource Management Model Based On The Primary Data (Questionnaires Of Sc1 Until Sc9) (**Refer Table 9**) In Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia Using Hierarchical Agglomerative Cluster Analysis (Haca). Haca Analysis Method Is Used To Collect And Classified The Questionnaires' Data According To The Classes Of Variables To Form The Implementation Planning In Natural Resource Management Models. Based On The Nine Questions About Implementation Planning In Natural Resource Management Model Which Distributed To Indigenist's Community's In Indonesia And Malaysia Formed Five Implementation Planning In Natural Resource Management Models Such As Model A (Innovation Of Existing The Natural Resource Management System), Model B (The Development Of Natural Resource Management System), Model C (The Application Of New Technology In Development Of Environmental Management), Model D (Guidance From Those Responsible For Environmental Management) And Model E (The Commitment From Government) Based On The Five Homogeneity Class (Class 1, Class 2, Class 3, Class 4 And Class 5) Are Related To The Indigenist's Community's Knowledge Level About Natural Resource Management And Deterioration Factors On Natural Resource. All Nine Questions From Distributed Questionnaires Among 200 Respondents Classified Into Five Classes Such As Questions Sc1 And Sc2 Categorized As Model A (Cluster 2), Questions Sc5 And Sc6 Categorized As Model B (Cluster 1), Question Sc7 Categorized As Model C (Cluster 5), Question Sc8 Categorized As Model D (Cluster 3) And Question Sc3 And Sc9 Categorized As Model E (Cluster 4) (**Refer Table 9 And Figure 6**).

Model A Refers To The Innovation Of The Existing Natural Resource Management System Means That The Management System Needs To Be Improved According To The Suitable Specification Of Indigenist's Community's Knowledge Level About Natural Resource Management And Deterioration Factors On Natural Resource Based On Development Sciences And Technology. Besides That, Model B Refer To The Development Of Natural Resource Management System And Model C Refers To The Application Of New Technology In Development Of Natural Resource Management Which Are Covered To A Few Aspects Such As Education System, Socio-Political, And Economics For Sustainable Management To Meet Explicit Development Goals. These Development Process In Indonesia And Malaysia Especially In Rural Areas Among Indigenist's Communities Increased The Significant Side Effects On The Environmental Management Based On The Industrial Revolution 4.0 **(Syazali Et Al., 2019; Alaloul Et Al., 2020).**

In Addition, Model D And Model E Involving The Role Of Stakeholders Such As Government, Ngo And Others Communities. Therefore, To Encourage The Active Involvement Among Indigenist's Communities In All Programmes And Activities Which Are Related To The Environmental Sustainability, The Relevant Stakeholders Should Give Fully Commitment To Increase Their Awareness Such As Guidance And Counselling And Create The Standard Regulation As On Of The Indication For Them To Follow. This Is Because From The Observation Shows Mostly Respondents Not Really Agree With Implementation Planning In Natural Resource Management Which Are More Focused To Technology Because They Are Not Clear Or Low Knowledge Level About The Latest Information On The Actual Technological Developments That Will Be Implemented In Their Villages As An Effort To Sustain Natural Resources. **Figure 7** Showed The Illustration Of Natural Resource Management Model Based On The Environmental Planning And Management (Epm) At Indigenist's Village In Landak Kalimantan Barat, Indonesia And Kampung Ulu Melaka, Hulu Selangor, Malaysia.

Table 9: The Questionnaires About Implementation Planning In Natural Resource Management Model Based On The Clustering Classification Of Model At Indigenist's Village In Landak Kalimantan Barat, Indonesia And Kampung Ulu Melaka, Hulu Selangor, Malaysia

The Implementation Planning In Natural Resource Management Model Based On The Knowledge Level Among Indigenist's Communities And Natural Resource's Factor Deterioration In Landak Kalimantan Barat, Indonesia Dan Kampung Ulu Melaka, Hulu Selangor, Malaysia		
Model	**Question**	**Statement**
Model A (Cluster 2) Innovation Of Existing The Natural Resource Management System	**Sc1**	Arrange The Natural Resource Management System Based On The Knowledge Of The Indigenist's Communities
	Sc2	Integration Of Environmental And Traditional Management Systems Based On The Knowledge Of Indigenist's Communities.
Model B (Cluster 1) The Development Of Natural Resource Management System	**Sc5**	The Development Of Management And Environmental Management Systems Is Integrated With The Needs Of Indigenist's Communities.
	Sc6	Development Of Environmental Management Model Based On The Attitudes And Knowledge Of Indigenist's Communities.
Model C (Cluster 5) The Application Of New Technology In Development Of Environmental Management	**Sc7**	The Application Of Technology System Using Using Gis In Natural Resource Management Modelling**.**
Model D (Cluster 3) Guidance From Those Responsible For Environmental Management	**Sc8**	Guidance And Counselling From Those Responsible For Natural Resource Management Among Indigenist's Communities.
Model E (Cluster 4) The Commitment From Government	**Sc3**	Improving The Natural Resource Management System With An Integrated And Sustainable.
	Sc9	Determination Of Government Regulations And Commitment To Natural Resource Management Modelling



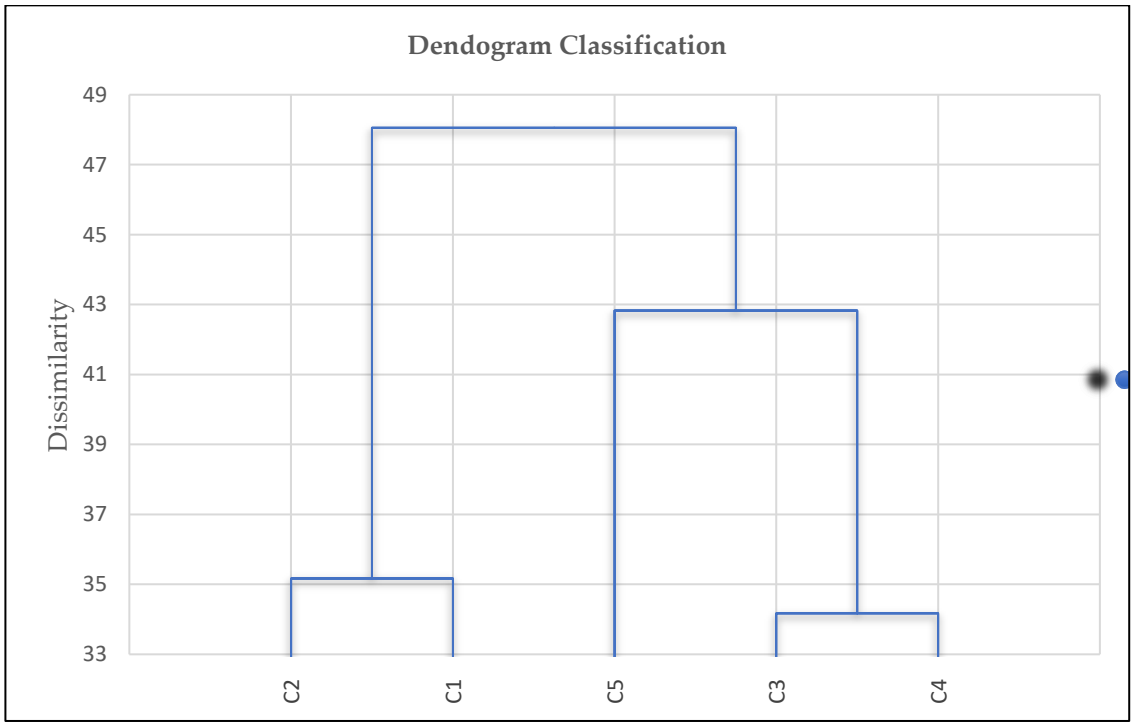


Figure 6: The Dendrogram Classification Of Natural Resource Management Model Based On The Questionnaires Classification In Indigenist's Village In Landak Kalimantan Barat, Indonesia And

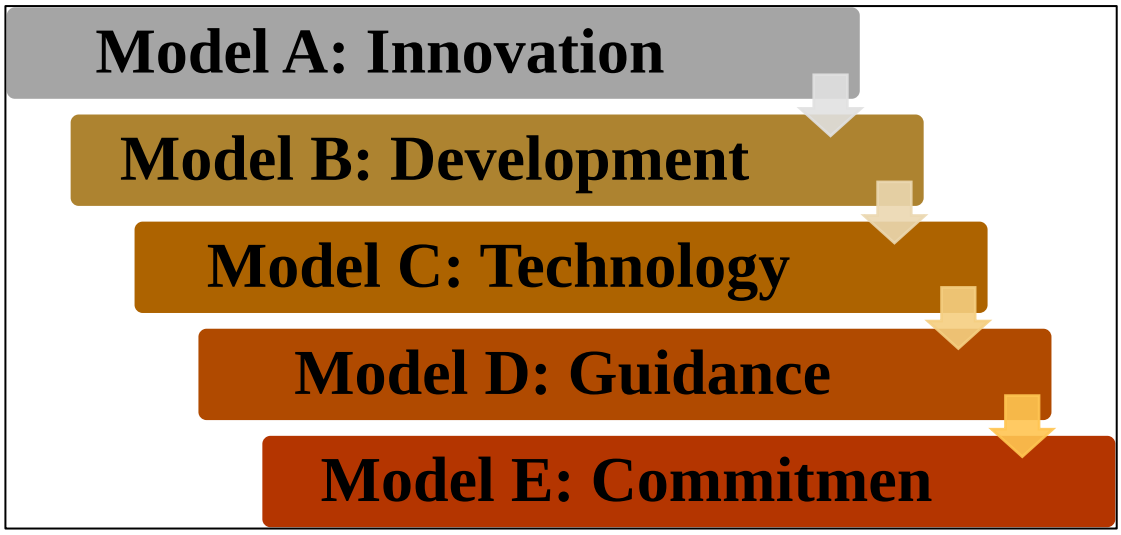


Figure 7: The Illustration Of Implementation Planning In Natural Resource Management Model Based On The Environmental Planning And Management (Epm) At Indigenist's Village In Landak Kalimantan Barat, Indonesia And Kampung Ulu Melaka, Hulu Selangor, Malaysia

4.0 Conclusion

The Natural Resource Management Model Based On The Environmental Planning And Management (Epm) Refer To Indigenist's Community's Knowledge Level About Natural Resource Management And Deterioration Factors On Natural Resource In Indigenist's Community's Settlement Need To Apply Among Indigenist's Communities In Indonesia And Malaysia. This Intervention Model Focuses On Localized Actions Aimed To Improve The Living Condition And Social Infrastructure Necessary To Increase Population Growth, Development And Economic Growth. Through The Systematic Natural Resource Management Especially Around Rural Areas. To Target Of The Future Environmental Sustainability Which Has To Be Achieved Using Environmental Approaches. This Will Not Only Lead To Food Security But Also To Sustainability Of The Agroecosystems. The Underlying Concern Of Modern Natural Resource Management Is That While Today People Are Enjoying The Comforts Of Economic And Social Development.

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References

1. Bhat, S. A., Meraj, G., Yaseen, S., Bhat, A. R., & Pandit, A. K. (2013). Assessing The Impact Of Anthropogenic Activities On Spatio-Temporal Variation Of Water Quality In Anchar Lake, Kashmir Himalayas. International Journal Of Environmental Sciences, 3(5), 1625-1640.

2. Santika, T., Wilson, K. A., Budiharta, S., Kusworo, A., Meijaard, E., Law, E. A., ... & Struebig, M. J. (2019). Heterogeneous Impacts Of Community Forestry On Forest Conservation And Poverty Alleviation: Evidence From Indonesia. People And Nature, 1(2), 204-219.
3. Baging, P. M., Kamarudin, M. K. A., & Rachmadtullah, R. (2020). Change Of Mindset Of Dayak Indigenous Peoples In West Borneo Towards Indigenous Forests As A Management Of Oil Palm Plantations And Oil Palm Plantations Wastes. Journal Of Wastes And Biomass Management (Jwbm), 1(2), 18-22.
4. Chua, K. B., Chua, B. H., & Wang, C. W. (2002). Anthropogenic Deforestation, El Niiio And The Emergence Of Nipah Virus In Malaysia. Malaysian Journal Of Pathology, 24(1), 15-21.
5. Rasul, M. G., Mir, S. I., Yahaya, F. M., Lubna, A., & Mazlin, M. (2015). Effects Of Anthropogenic Impact On Water Quality In Bertam Catchment, Cameron Highlands, Malaysia. International Journal Of Ecology And Environmental Sciences, 41(1/2), 75-86.
6. Nyong, A., Adesina, F., & Elasha, B. O. (2007). The Value Of Indigenous Knowledge In Climate Change Mitigation And Adaptation Strategies In The African Sahel. Mitigation And Adaptation Strategies For Global Change, 12(5), 787-797.
7. Morris, R. J. (2010). Anthropogenic Impacts On Tropical Forest Biodiversity: A Network Structure And Ecosystem Functioning Perspective. Philosophical Transactions Of The Royal Society B: Biological Sciences, 365(1558), 3709-3718.
8. Liu, J., Coomes, D. A., Gibson, L., Hu, G., Liu, J., Luo, Y., ... & Yu, M. (2019). Forest Fragmentation In China And Its Effect On Biodiversity. Biological Reviews, 94(5), 1636-1657.
9. Lekwot, V. E., Balasom, M. K., Dyaji, L., & Yakubu, A. A. (2014). Environmental Planning And Management (Epm) As A Strategry For Solving Environmental Problems In Niger Delta Region: A Study Of Bonny Island, Rivers State, Nigeria. International Journal Of Innovation And Applied Studies, 9(1), 239.
10. Nhu, V. H., Mohammadi, A., Shahabi, H., Ahmad, B. B., Al-Ansari, N., Shirzadi, A., ... & Chen, W. (2020). Landslide Detection And Susceptibility Modeling On Cameron Highlands (Malaysia): A Comparison Between Random Forest, Logistic Regression And Logistic Model Tree Algorithms. Forests, 11(8), 830.
11. Prasojo, Z. H. (2017). Social Change And The Contributions Of The Tionghoa, Dayak And Melayu (Tidayu) In West Kalimantan. In Borneo Studies In History, Society And Culture (Pp. 427-442). Springer, Singapore.
12. Sada, C., Alas, Y., & Anshari, M. (2019). Indigenous People Of Borneo (Dayak): Development, Social Cultural Perspective And Its Challenges. Cogent Arts & Humanities, 6(1), 1665936.
13. Dawal, S. Z., Taha, Z., & Ismail, Z. (2009). Effect Of Job Organization On Job Satisfaction Among Shop Floor Employees In Automotive Industries In Malaysia. International Journal Of Industrial Ergonomics, 39(1), 1-6.
14. Bakar, K. A., Tarmizi, R. A., Mahyuddin, R., Elias, H., Luan, W. S., & Ayub, A. F. M. (2010). Relationships Between University Students' Achievement Motivation, Attitude And Academic Performance In Malaysia. Procedia-Social And Behavioral Sciences, 2(2), 4906-4910.
15. Welman, J. C., & Kruger, S. J. (1999). Research Methodology For The Business And Administrative Sciences. Johannesburg, South Africa: International Thompson. White, B. (2011). Private Perceptions, Public Reflections: Aesthetic Encounters As Vehicles For Shared Meaning Making. International Journal Of Education & The Arts, 12(2), 1-24.
16. Yunus, W. A. S. W., Kamarudin, M. K. A., Saudi, A. S. M., Umar, R., Bati, S. N. A. M., Wahab, N. A., Saad, M. H. M. (2019). Environmentalism Among Primary's Students Based

On Awareness, Knowledge, And Attitude Study. International Journal Of Academic Research Business And Social Sciences, 9(12), 1–11.

17. Razak, S. A. A., Kamarudin, M. K. A., Toriman, M. E., Wahab, N. A., Saad, M. H. M., & Bati, S. N. M. (2019). Relationship Between Knowledge And Attitudes Towards Environmental Education Among Secondary School Students In Malaysia. International Journal Of Academic Research Business And Social Sciences, 9(12), 36–48. (Era).
18. Din, M. F. A., Kamarudin, M. K. A., Arifin, M. H., Umar, R., Bati, S. N. A. M., Wahab, N. A., Saad, M. H. M. (2019). Community Perception Towards Impact Of Development In Sungai Terengganu. International Journal Of Academic Research Business And Social Sciences, 9(12), 49–60.
19. Dutilleul, P., Stockwell, J. D., Frigon, D., & Legendre, P. (2000). The Mantel Test Versus Pearson's Correlation Analysis: Assessment Of The Differences For Biological And Environmental Studies. Journal Of Agricultural, Biological, And Environmental Statistics, 5(2), 131-150.
20. Lemenkova, P. (2019). Computing And Plotting Correlograms By Python And R Libraries For Correlation Analysis Of The Environmental Data In Marine Geomorphology. Jeomorfolojik Araştırmalar Dergisi, 3, 1-16.
21. Ramdani, D., & Witteloostuijn, A. V. (2010). The Impact Of Board Independence And Ceo Duality On Firm Performance: A Quantile Regression Analysis For Indonesia, Malaysia, South Korea And Thailand. British Journal Of Management, 21(3), 607-627.
22. Dominick, D., Juahir, H., Latif, M. T., Zain, S. M., & Aris, A. Z. (2012). Spatial Assessment Of Air Quality Patterns In Malaysia Using Multivariate Analysis. Atmospheric Environment, 60, 172-181.
23. Wahab, N. A., Kamarudin, M. K. A, Toriman, M. E., Juahir, H., Saad, M. H. M., Ata, F.M., Ghazali, A., Hassan, A. R., Abdullah, H., Maulud, K. N., Hanafiah, M. M., Harith, H. (2019). Sedimentation And Water Quality Deterioration Problems At Terengganu River Basin, Terengganu, Malaysia. Desalination And Water Treatment, (149): 228-241.
24. Nasir, M. F. M., Samsudin, M. S., Mohamad, I., Awaluddin, M. R. A., Mansor, M. A., Juahir, H., & Ramli, N. (2011). River Water Quality Modeling Using Combined Principle Component Analysis (Pca) And Multiple Linear Regressions (Mlr): A Case Study At Klang River, Malaysia. World Applied Sciences Journal, 14, 73-82.
25. Wahab, N. A., Kamarudin, M. K. A., Toriman, M. E., Ata, F. M., Juahir, H., Ghazali, A., Anuar, A. (2018). The Evaluation Of Dissolved Oxygen (Do), Total Suspended Solid (Tss) And Suspended Sediment Concentration (Ssc) In Terengganu River, Malaysia. International Journal Of Engineering & Technology, 7 (3.14):44-48.
26. Mohd, K. A. K., Mohd, E. T., & Nur, H. S. (2015). Classification Of Tropical River Using Chemometrics Technique: Case Study In Pahang River, Malaysia. Malaysian Journal Of Analytical Sciences, 19(5), 1001-1018.
27. Azid, A., Juahir, H., Amran, M. A., Suhaili, Z., Osman, M. R., Muhamad, A., & Saudi, A. S. M. (2015). Spatial Air Quality Modelling Using Chemometrics Techniques: A Case Study In Peninsular Malaysia. Malaysian Journal Of Analytical Sciences, 19(6), 1415-1430.
28. Juahir, H., Zain, S. M., Yusoff, M. K., Hanidza, T. T., Armi, A. M., Toriman, M. E., & Mokhtar, M. (2011). Spatial Water Quality Assessment Of Langat River Basin (Malaysia) Using Environmetric Techniques. Environmental Monitoring And Assessment, 173(1-4): 625.
29. Usman, H. Setiady Akbar, Purnomo. (2006). Metodologi Penlitian Sosial.

30. Phuthego, T. C., & Chanda, R. (2004). Traditional Ecological Knowledge And Community-Based Natural Resource Management: Lessons From A Botswana Wildlife Management Area. Applied Geography, 24(1), 57-76.
31. Rai, S. C. (2007). Traditional Ecological Knowledge And Community-Based Natural Resource Management In Northeast India. Journal Of Mountain Science, 4(3), 248-258.
32. Doolittle, A. A. (2010). Stories And Maps, Images And Archives: Multimethod Approach To The Political Ecology Of Native Property Rights And Natural Resource Management In Sabah, Malaysia. Environmental Management, 45(1), 67-81.
33. Ahmad, J. H., Mustafa, H., Abd Hamid, H., & Wahab, J. A. (2011). Pengetahuan, Sikap Dan Amalan Masyarakat Malaysia Terhadap Isu Alam Sekitar (Knowledge, Attitude And Practices Of Malaysian Society Regarding Environmental Issues). Akademika, 81(3).
34. Sachan, R., Patel, M. L., & Nischal, A. (2012). Assessment Of The Knowledge, Attitude And Practices Regarding Biomedical Waste Management Amongst The Medical And Paramedical Staff In Tertiary Health Care Centre. International Journal Of Scientific And Research Publications, 2(7), 1-6.
35. Ahmad, J., Noor, S. M., & Ismail, N. (2015). Investigating Students' Environmental Knowledge, Attitude, Practice And Communication. Asian Social Science, 11(16), 284.
36. Murad, W., Molla, R. I., Mokhtar, M. B., & Raquib, A. (2010). Climate Change And Agricultural Growth: An Examination Of The Link In Malaysia. International Journal Of Climate Change Strategies And Management.
37. Tiraieyari, N., Hamzah, A., & Samah, B. A. (2017). Organic Farming And Sustainable Agriculture In Malaysia: Organic Farmers' Challenges Towards Adoption. Sustainable Development Of Organic Agriculture: Historical Perspectives, 135.
38. Islam, R., & Siwar, C. (2012). The Analysis Of Urban Agriculture Development In Malaysia. Advances In Environmental Biology, 6(3), 1068-1078.
39. Yaacob, M. R., Yusof, M. F. M., & Dan Perniagaan, F. K. (2013). Perindustrian Dan Kelestarian Kualiti Alam Sekitar Di Malaysia: Asas Dan Pendekatan Teori Pemodenan Ekologikal. Prosiding Perkim Viii, 2, 991-1003.
40. Abd Halim, N. I. B., & Choy, E. A. (2016). Hubungkait Peranan Pihak Kerajaan Dan Pihak Masyarakat: Pembangunan Ekopelancongan Di Pulau Langkawi, Kedah Relating The Role Of The Government And The Community: The Development Of Eco—Tourism In Pulau Langkawi, Kedah. E-Bangi, 13(2).
41. Samdin, Z., Bakori, K. A., & Hassan, H. (2012). Factors Influencing Environmental Management Practices Among Hotels In Malaysia. International Journal Of Humanities And Social Sciences, 6(5), 889-892.
42. Kamarudin, M. K. A., Wahab, N. A., Mohamad, M., Saudi, A. S. M., Samsurijan, M. S., Saad, M. H. M., Yusri, S. N., Sazali, N. A. A., Latif, N. F. A. A., Rahim, S. N. A., Samsuri, N. N. S. (2018). Population Growth And Economic Development In Developing And Developed Countries. International Journal Of Engineering & Technology, 7 (4.34):123-127.
43. Fuzi, N. M., Habidin, N. F., Janudin, S. E., & Ong, S. Y. Y. (2019). Environmental Management Accounting Practices, Environmental Management System And Environmental Performance For The Malaysian Manufacturing Industry. International Journal Of Business Excellence, 18(1), 120-136.
44. Reilly, J., Hohmann, N., & Kane, S. (1994). Climate Change And Agricultural Trade: Who Benefits, Who Loses? Global Environmental Change, 4(1), 24-36.
45. Idrus, S., Rainis, R., & Hadi, A. S. (2011). Transformasi Reruang Dan Dayahuni Perumahan Di Seremban, Malaysia (Spatial Transformations And Housing Livability In Seremban, Malaysia). Akademika, 81(3).

46. Fausayana, I., Miniarti, Y., & Rosmawaty, R. (2019). Perbedaan Pendapatan Peralihan Lahan Usahatani Padi Sawah Menjadi Usahatani Jeruk Nipis Di Desa Watabenua Kecamatan Landono Kabupaten Konawe Selatan. Jurnal Ilmiah Membangun Desa Dan Pertanian, 4(5), 117-121.
47. Syazali, M., Putra, F., Rinaldi, A., Utami, L., Widayanti, W., Umam, R., & Jermsittiparsert, K. (2019). Retracted: Partial Correlation Analysis Using Multiple Linear Regression: Impact On Business Environment Of Digital Marketing Interest In The Era Of Industrial Revolution 4.0. Management Science Letters, 9(11), 1875-1886.
48. Alaloul, W. S., Liew, M. S., Zawawi, N. A. W. A., & Kennedy, I. B. (2020). Industrial Revolution 4.0 In The Construction Industry: Challenges And Opportunities For Stakeholders. Ain Shams Engineering Journal, 11(1), 225-230.