

## **Public Involvement on Environment Issues in Kuala Krai and Jeli District, Kelantan, Malaysia**

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### **Abstract**

#### ***Problem statement***

*Environmental problems are too complex to be solved through scientific, technical and purely legal approaches. Thus, comprehensive public involvement and participation are needed. This study carried out in Kuala Krai and Jeli district, Kelantan, Malaysia with 390 respondents involved in each of them.*

#### ***Approach***

*Major method of study was used investigation question form. This study compared the extent to which a significant correlation ( $p$ ), Mean ( $M$ ) and Standard Deviation ( $SD$ ) of the studied demographic factors as gender, age, race, religion, income, education and the respondent lived with the knowledge of environmental issues, environmental local environment and constraints factors involved in environmental issues at the research areas. Chi-square test is used to study demographic factor association with respondent's knowledge for environmental issue.*

#### ***Results***

*Comparison of demographic factors with knowledge of the respondents of research areas on environmental issues shown that there is relationship for respondent's incomes and education level for Kuala Krai with respective  $p$  values is 0.039 and 0.046. For Jeli, relationship is shown for the education factor with the  $p$  value is 0.036. The relationship between demographic factors with knowledge of the local environment issues by respondent in the research areas shown there is relationship to ages, incomes and education with their respective  $p$  values is 0.000, 0.029, 0.003 for Kuala Krai and 0.012, 0.046, 0.012 for Jeli. As for the relevance of demographic factors of respondents with the constraints factors to be involved on environmental issues shown a relationship for the factors of ages, incomes and education with the  $p$  values is 0.036, 0.041, 0.001 for Kuala Krai and 0.028, 0.007, 0.026 for Jeli.*

#### ***Conclusion***

*This research find out that factors demographic of the respondents can influenced their knowledge about the environmental issues in both research area and they also agreed that the public involvement in issues environmental issues is very important in ensuring the quality of the environment is always protected and well as help the government formulate strategies to implement sustainable development.*

**Key words:** Environmental issues, enhancing public awareness, public communities

## **Introduction**

Malaysia is facing many pressing environmental problems. In this crucial situation, sustainability of the environment often depends on the actions of public. Public involvement in environmental issues has been recommended as an effective way to achieve sustainable development as well as to be able to resolve these problems. Thus, public involvement has been recognised as key objectives for local, national and global environmental programme and have been propagated through the various policies and declarations such as the Rio Declaration, Earth Charter and UNEP Agenda 21. In Malaysia, participation and involvement of public in environmental issues has been adopted as the national strategy for management and sustainable development of environmental resources. Therefore, public must remain active participants in the processes of sustainable environment because the involvement of the public is a critical ingredient to curb environmental degradation. The participation and involvement of public or local people in the sustainable management of environment matters will benefit them in terms of their livelihoods, recreation, socio-culture or spiritual resources and peaceful existence in the community. Furthermore, public involvement are so important because, if space and opportunity are given for public involvement in managing natural resources, their support for the preservation and conservation of the environment will also be increased (McNeely 1992).

## **Material and Methods**

The research was conducted from January to April 2010. Overall, Kuala Krai and Jeli District, each has a total population of 103,200 and 48,000 people (Department of Statistics Malaysia Kelantan in 2010). There are 390 respondents for each district, involved in these studies who are from different walks of life such as civil and private servants, school students (> 18th year) and the residents which elected from a draw of a random list of households. For respondent from list of households, head of the family was selected to represent as the respondent (Haliza 2007). The questionnaires is used in the study to see the understanding and perception of the public on the issues related to environmental development activities taking place, impact, policy and related legislation and measures and actions was taken to address the problem (Haliza 2007). The questionnaires consists of three main parts, Part A related to socio-economic information (Respondents Demographic Data), Part B related to respondents' knowledge about environmental issues, Part C deals with the knowledge of respondents about local environmental issues and Part D related to factors faced by respondents to be involved in environmental issues. Comparison of Mean (M), standard deviation (SD) and significant relationships ( $p$ ) of the respondents according to their demographics factors and knowledge about the environmental issues, environment local environmental issues and constraints factors to be involved in the environmental issues was done by at the concerned areas.

## **Results**

The result of the study is shown in Figure 1-3 for comparison of significant relationships ( $p$ ) between the demographic factors of respondents with knowledge about environmental issues, local environmental issues and constraints for factors involved in environmental issues in the area of research. The result of comparison of Min (M) between the demographic factors of respondents with knowledge about environmental issues, local environmental issues and constraints for factors involved in environmental issues is shown in Figure 4-6. The results of comparison of Standard Deviation (SD) between the demographic factors of respondents with their knowledge about environmental issues, local environmental issues and constraints for factors involved in environmental issues is shown in Figure 7-9. The result of comparison related to public involvement on environmental issues for both district is shown and summarized in Figure 10-13. Table (1-3) shown the comparison of the result for relationship between demographic factors of respondents in both concern areas and their level of knowledge in environmental issues, environment local environmental issues and for the constraints factor to involved in environmental issues.

## **Discussion**

In the terms of comparison of significant relationships ( $p$ ) between the demographic factors of respondents with their knowledge about the environmental issues, the results shown differences between demographic factors and the level of respondents' knowledge of environmental issues (Fig 1-3), there are significant relationship for both district concern in the factor of incomes with the value of  $p$  respectively 0.039 for Kuala Krai and 0.046 for Jeli. For the respondents' knowledge of environment local environmental issues, the comparison shows that there are significant relationship for the factor of ages, incomes and level of education for the both district with the respectively  $p$  value is 0.000, 0.029 and 0.046 for Kuala Krai and 0.012, 0.003 and 0.012 for Jeli.

The constraint factor for the respondents in the both district to be involved in environmental issues also shown to us that ages, income and education have significant relationship with a value of p is 0.036, 0.041 and 0.001 for Kuala Krai and 0.028, 0.007 and 0.026 for Jeli. The result shown, demographic factors of the respondents in the research areas can influence their knowledge about the environmental issues. This result also supported by the research that conducted by the World Conservation Strategy which explained, respondents who had more education and higher incomes are more considerations on environmental issues. Besides that, environmental education can measured for the transformation of attitudes and behavior of the community and to develop ethical to the environment (Palmer 1998).

**Table 1: Comparison Relationship Between Demographic Factors With The Level Of Respondent's Knowledge Of Environmental Issues In Kuala Krai And Jeli District**

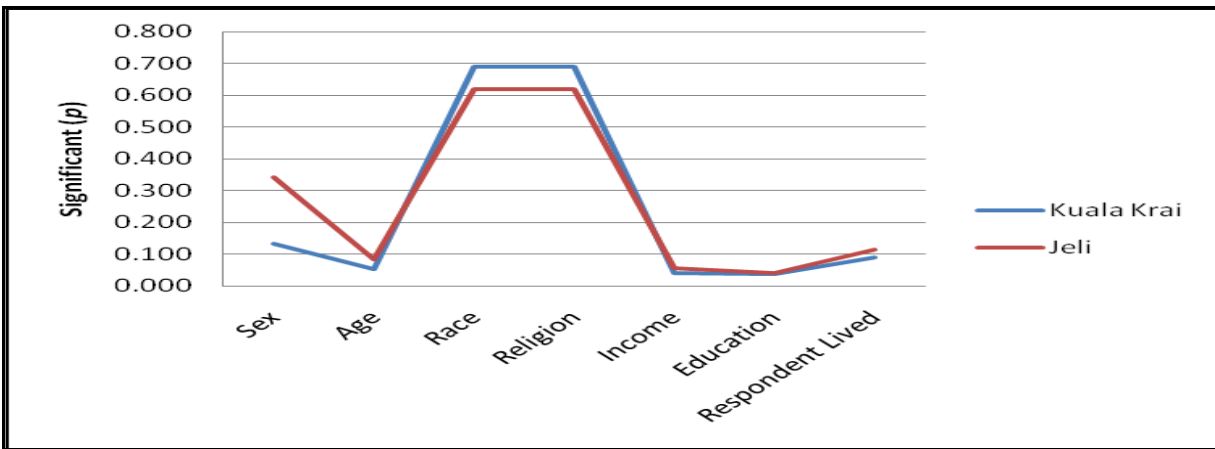
Variables		Min (M)		Standard Deviation (SD)		p Value	
Sex	Male	3.40	3.43	1.605	1.644	0.134	0.343
	Female	3.44	3.46	1.591	1.637		
Age	18 age-27 age	3.37	3.42	1.656	1.638	0.054	0.084
	28 age-37 age	3.44	3.41	1.496	1.563		
	38 age-47 age	3.53	3.55	1.520	1.622		
	48 age-57 age	3.42	3.46	1.580	1.752		
	Than 58 age	3.28	3.31	1.486	1.665		
Race	Malay	3.42	3.40	1.616	1.649	0.690	0.619
	Chinese	3.46	2.98	1.569	1.729		
	Indian	3.52	2.14	1.554	1.429		
Religious	Islam	3.42	3.40	1.616	1.649	0.690	0.619
	Buddhist	3.41	2.98	1.576	1.729		
	Hindu	3.52	2.14	1.540	1.429		
Income	Below RM1,000	3.46	3.47	1.641	1.679	0.039	0.056
	RM1,001-RM2,000	3.29	3.36	1.614	1.662		
	RM2,001-RM3,000	3.47	3.52	1.460	1.579		
	RM3,001-RM4,000	3.55	3.46	1.391	1.509		
	than RM4,000	3.52	3.60	2.531	1.531		
	No information	3.70	3.49	1.638	1.738		
Education	Not in school	3.31	2.64	1.852	1.380	0.036	0.040
	Primary	3.79	3.47	1.867	1.580		
	Secondary until PMR/SRP	4.26	3.48	1.620	1.527		
	Secondary until SPM/MCE	3.28	3.35	1.599	1.675		
	Secondary until STPM/HSC	3.58	3.49	1.585	1.627		
	Diploma	3.49	3.46	1.484	1.586		
	Undergraduate	3.60	3.47	1.508	1.600		
	Postgraduate (Masters)	4.29	2.93	1.202	1.203		
	Postgraduate (PhD)	3.10		1.145			
	No information	3.31	3.42	1.538	1.719		
Respondent Lived	Less 5 years	3.42	3.50	1.678	1.694	0.088	0.115
	5 years-10 years	3.49	3.48	1.467	1.555		
	10 years-15 years	3.23	3.33	1.574	1.666		
	15 years-20 years	3.39	3.36	1.540	1.641		
	More than 20 years	3.48	3.50	1.570	1.623		

**Table 2: Relationship With Demographic Factors On The Level Of Respondent's Knowledge Of Local Environmental Issues In Kuala Krai And Jeli District**

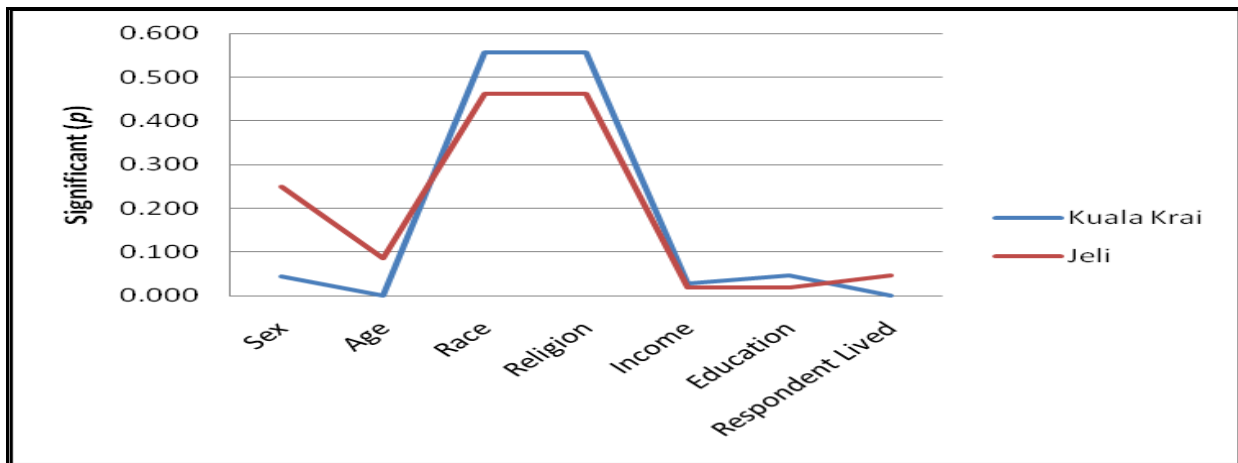
Variables		Min (M)		Standard Deviation (SD)		p Value	
Sex						0.045	0.250
	Male	2.93	2.99	1.306	1.444		
	Female	2.92	3.04	1.231	1.438		
Age						0.000	0.086
	18 age-27 age	2.95	3.05	1.309	1.457		
	28 age-37 age	2.98	3.11	1.275	1.452		
	38 age-47 age	2.95	2.99	1.239	1.417		
	48 age-57 age	2.82	2.98	1.289	1.603		
	Than 58 age	3.73	2.98	0.989	1.163		
Race						0.557	0.462
	Malay	2.91	3.01	1.275	1.376		
	Chinese	3.18	3.59	1.458	0.864		
	Indian	2.95	2.68	1.200	1.446		
Religious						0.557	0.462
	Islam	3.10	3.01	1.275	1.446		
	Buddhist	3.34	3.59	1.442	1.376		
	Hindu	3.09	2.68	1.200	0.864		
Income						0.392	0.019
	Below RM1,000	2.86	3.00	1.384	1.430		
	RM1,001-RM2,000	2.97	3.08	1.437	1.447		
	RM2,001-RM3,000	2.92	3.08	1.211	1.424		
	RM3,001-RM4,000	2.75	2.82	1.320	1.403		
	than RM4,000	3.28	2.78	1.650	1.163		
	No information	3.10	3.02	1.218	1.518		
Education						0.046	0.019
	Not in school	3.50	3.11	2.143	1.100		
	Primary	3.13	2.95	1.266	1.353		
	Secondary until PMR/SRP	3.17	2.98	1.916	1.411		
	Secondary until SPM/MCE	3.00	3.04	1.411	1.438		
	Secondary until STPM/HSC	2.89	3.04	1.354	1.438		
	Diploma	3.16	3.10	1.263	1.383		
	Undergraduate	2.89	2.99	1.189	1.438		
	Postgraduate (Masters)	3.00	2.90	1.539	1.444		
	Postgraduate (PhD)	2.62		2.064			
	No information	3.14	2.97	1.228	1.348		
Respondent Lived						0.000	0.047
	Less 5 years	2.68	2.89	1.277	1.505		
	5 years-10 years	2.96	2.99	1.332	1.461		
	10 years-15 years	2.87	2.94	1.565	1.446		
	15 years-20 years	3.11	3.23	1.265	1.426		
	More than 20 years	2.90	3.02	1.103	1.345		

**Table 3: Relationship With Respondent's Demographic Factors On Constraint Factors Involved In Issues Related To Environment In Kuala Krai And Jeli District**

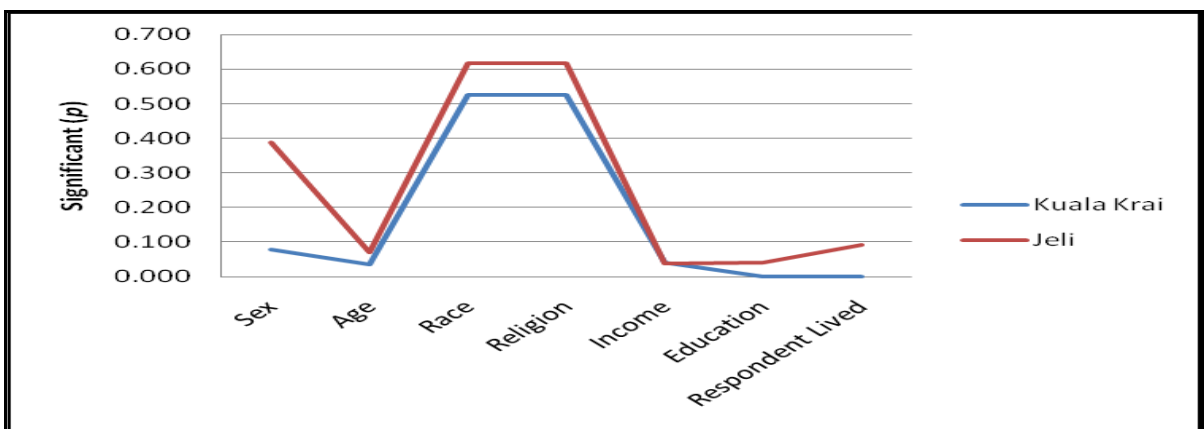
Variables	Min (M)	Standard Deviation (SD)	p Value	
Sex			0.078	0.388
Male	2.44	3.19	1.268	1.735
Female	2.60	3.37	1.376	1.709
Age			0.036	0.069
18 age-27 age	2.55	3.34	1.346	1.724
28 age-37 age	2.62	3.37	1.300	1.693
38 age-47 age	2.44	3.27	1.237	1.753
48 age-57 age	2.51	3.24	1.289	1.754
Than 58 age	2.30	3.33	0.854	1.676
Race			0.525	0.618
Malay	2.52	3.28	1.327	1.727
Chinese	2.65	3.49	1.430	1.269
Indian	2.28	1.60	1.319	0.990
Religious			0.525	0.618
Islam	2.52	3.28	1.426	1.727
Buddhist	2.67	3.49	1.425	1.269
Hindu	2.28	1.60	1.319	0.990
Income			0.041	0.037
Below RM1,000	2.35	3.08	1.168	1.753
RM1,001-RM2,000	2.55	3.29	1.316	1.699
RM2,001-RM3,000	2.55	3.34	1.363	1.717
RM3,001-RM4,000	2.52	3.32	1.297	1.749
than RM4,000	2.40	3.25	1.414	1.710
No information	2.55	3.20	1.326	1.725
Education			0.001	0.040
Not in school	3.50	1.70	2.077	1.556
Primary	3.58	3.14	1.951	1.757
Secondary until PMR/SRP	2.51	3.09	0.017	1.624
Secondary until SPM/MCE	2.50	3.17	0.188	1.617
Secondary until STPM/HSC	2.50	3.34	1.212	1.731
Diploma	2.68	3.45	1.474	1.781
Undergraduate	2.47	3.29	1.392	1.731
Postgraduate (Masters)	2.76	3.64	1.208	1.577
Postgraduate (PhD)	2.30		1.414	
No information	2.59	3.07	1.372	1.688
Respondent Lived			0.001	0.091
Less 5 years	2.25	3.14	1.152	1.734
5 years-10 years	2.30	3.32	1.319	1.698
10 years-15 years	2.63	3.32	1.320	1.719
15 years-20 years	2.74	3.31	1.269	1.658
More than 20 years	2.55	3.25	1.322	1.761



**Figure 1: Relationship between Demographic Factors with the Level Of Respondent's Knowledge of Environmental Issues**



**Figure 2: Relationship with Demographic Factors on the Level of Respondent's Knowledge of Environment Local Environmental Issues**

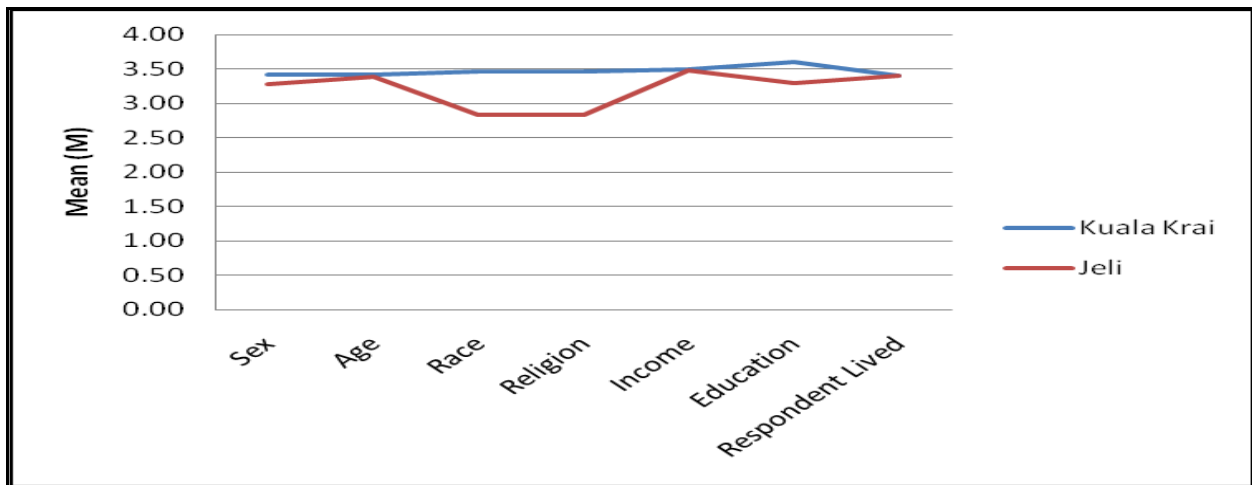


**Figure 3: Relationship with Respondent's Demographic Factors on Constraint Factors Involved In Issues Related To Environment**

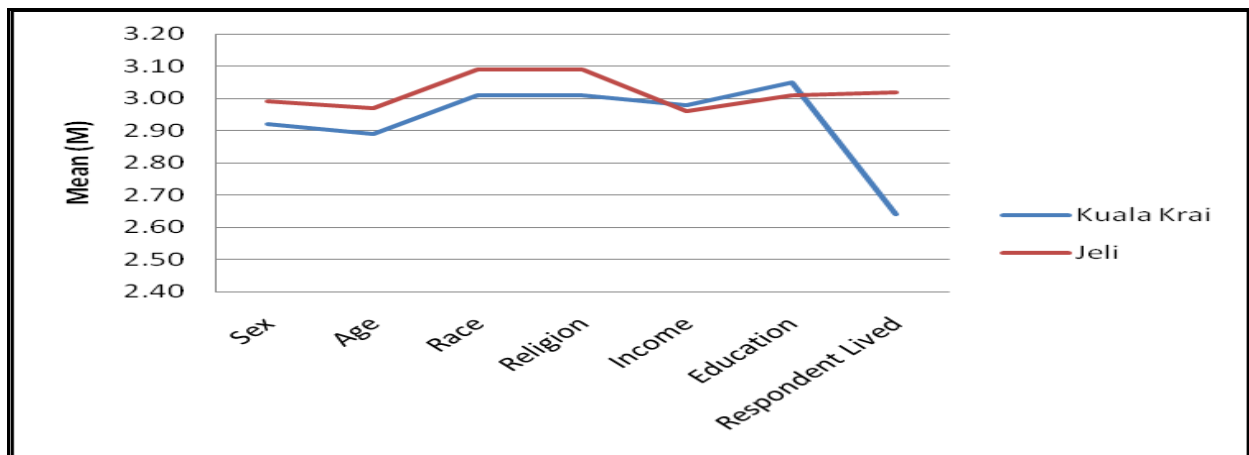
In terms of comparison for relationship mean (M) value between the demographic factors of respondents with their knowledge about environmental issues in the both research areas shown differences (Fig 4-6), there are significant differences between the mean value for both district concern in the sex, age, race, incomes, level of education and respondent lived with the differences of mean values respectively is 0.92, 0.73, 0.86, 1.05, 0.89 and 0.93.

This result shown to us that the respondents in the Kuala Krai district is have more information about the environmental issues compare to the respondents in the Pasir Puteh. For the respondents' knowledge of environment local environmental issues, the result of comparison between two district concern shown that are no significant differences between a demographic factors for respondents in both research areas with the difference mean values is in range 0.02-0.23. For the level education of respondent, the result shown that there are great differences between both districts with the mean value is 0.78. The constraint factors for the respondents in both districts to involve on the environmental issues shown a significant difference for education level of respondent in both concern research areas with the difference of mean values is 0.64. The differences between the mean values for the relationship between respondent's demographic factors and their knowledge about the environmental issues shown demographic factors of respondents can affected their knowledge about the environmental issues.

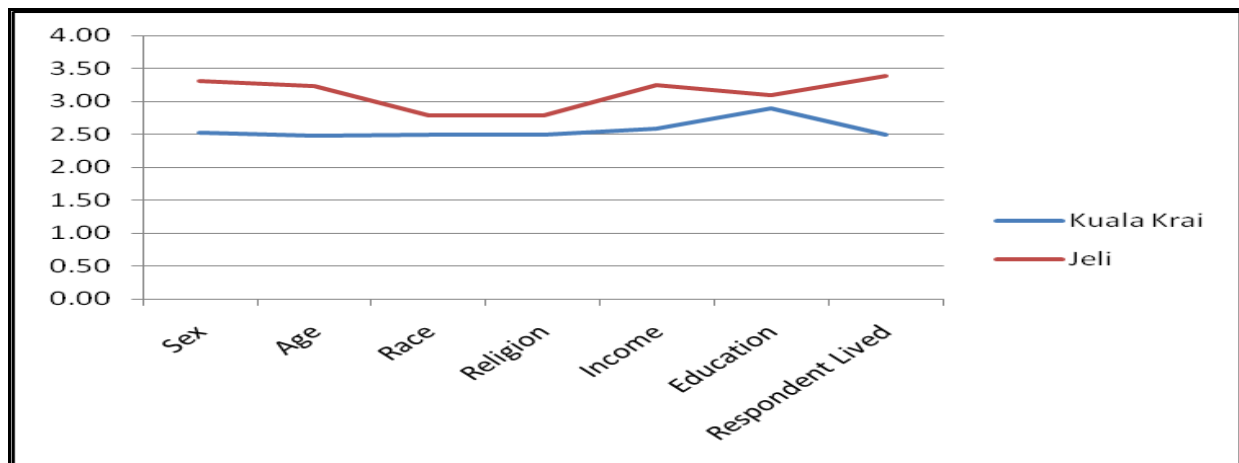
In terms of comparison for the values of Standard Deviation (SD) for the relationships between a demographic factors of respondents with their knowledge about environmental issues, the results shown that are differences between the demographic factors and the level of respondents' knowledge for the environmental issues in both of concern research areas (fig 7-9), with the range of differences is 0.290 for the education level and 0.373 for respondents lived factor. For the respondents' knowledge of environment local environmental issues, the comparison of results shown that are significant differences in almost respondents demographic factors for both research areas that was concerned with the range of differences between 0.290 for the education level and 0.451 for the ages factor. Generally, respondents in Pasir Puteh has more exposed about environment issues and as a results, take more initiative to control the environment problem compared to respondents in Kuala Krai district. For the constraint factor of the respondents in the both district to be involved in environmental issues also shown that most respondent demographic factors that considered in this study is significantly different with the differences value of SD between 0.363 and 0.466. The differences between SD values for relationship between respondent's demographic factors and their knowledge in environmental issues told us that demographics factor can influenced the level of respondent's knowledge about the environmental issues. The result also mentioned that respondents in Pasir Puteh is more active to involved in environment issues compared to Kuala Krai district.



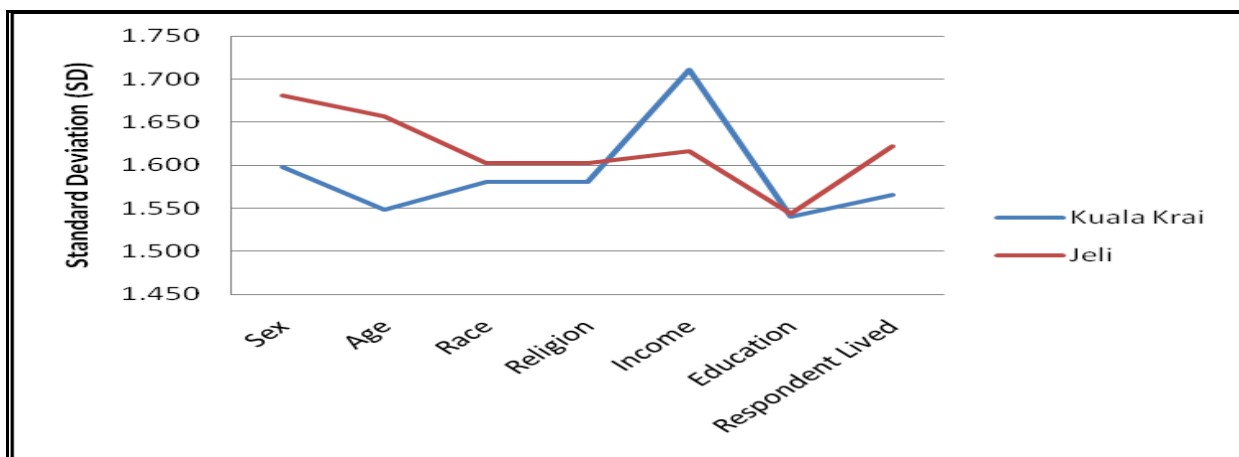
**Figure 4: Relationship with Mean (M) Demographic Factors on the Level Of Respondent's Knowledge of Environmental Issues**



**Figure 5: Relationship with Mean (M) Demographic Factors on the Level Of Respondent's Knowledge of Local Environmental Issues**

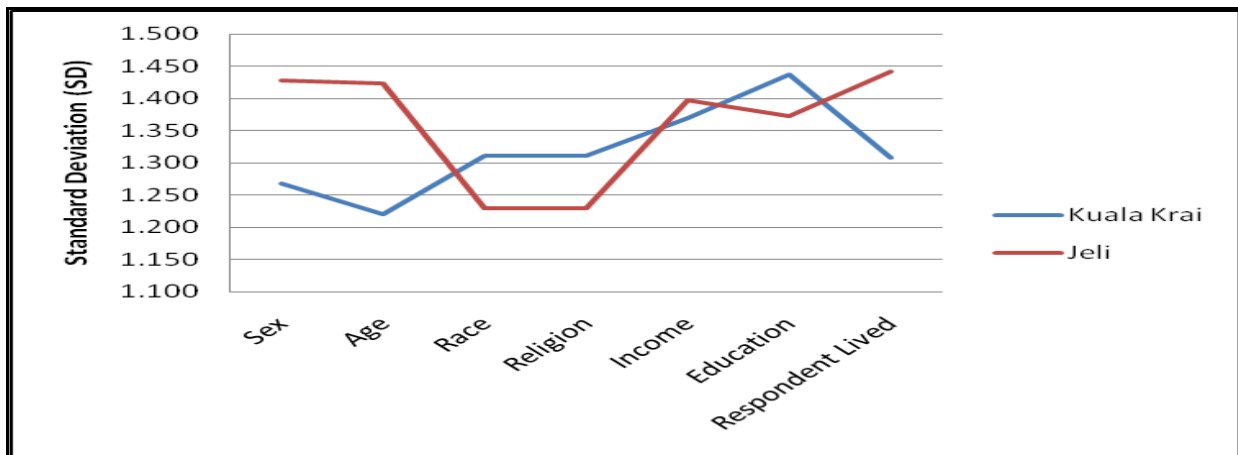


**Figure 6: Relationship with Mean (M) Respondent's Demographic Factors On Constraint Factors Involved In Issues Related To the Environment**

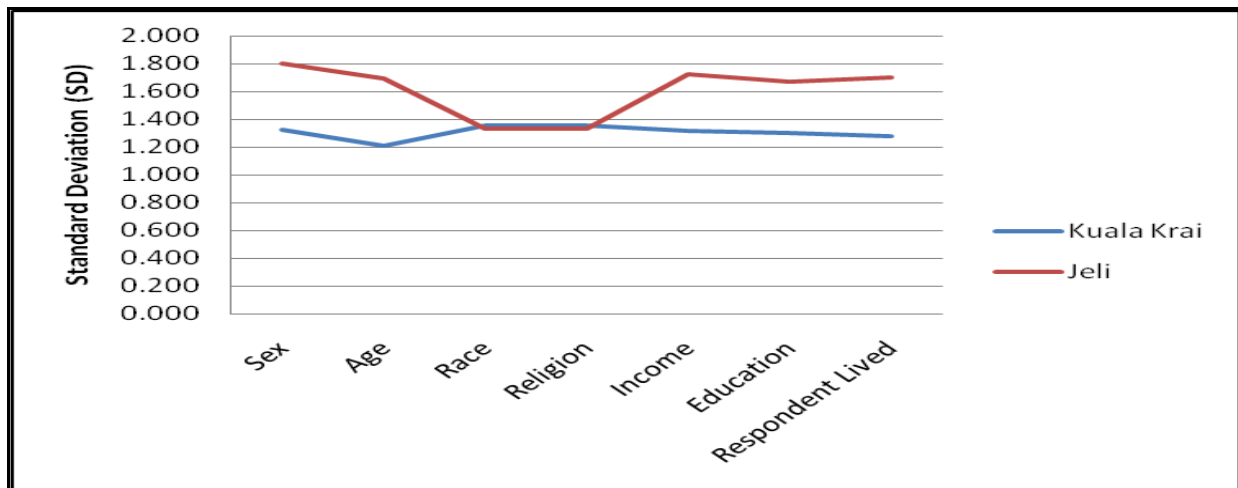


**Figure 7: Relationship With Standard Deviation (SD) Demographic Factors On The Level of Respondent's Knowledge of Environmental Issues**





**Figure 8: Relationship with Standard Deviation (SD) Demographic Factors On The Level of Respondent's Knowledge of Local Environmental Issues**

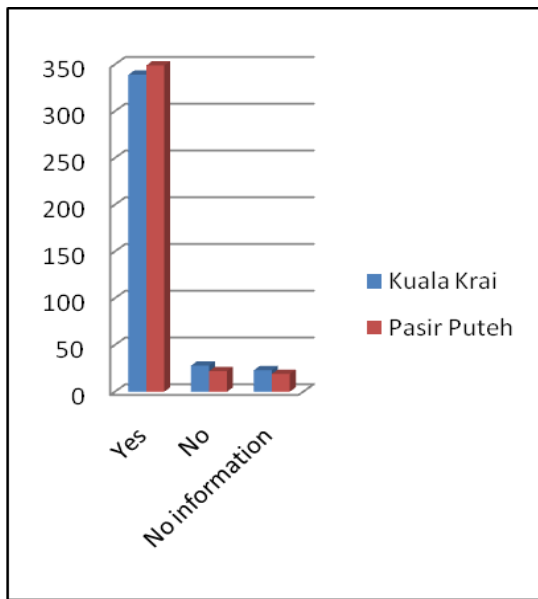


**Figure 9: Relationship with Standard Deviation (SD) Respondent's Demographic Factors on Constraint Factors Involved In Issues Related To Environment**

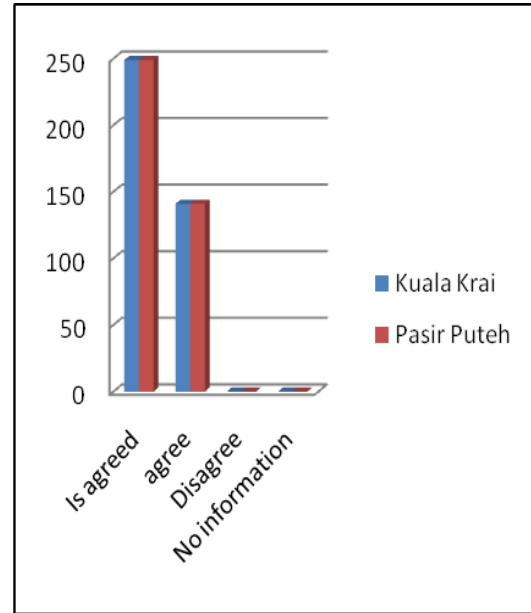
**The Result of Respondent's Answer for the Questionnaires Given**

Comparison public involvement on environmental issues for both concern districts is shown and summarized in bar charts and graphs below (Fig 10-13). The study found that although the understanding and knowledge of local communities for the both research areas in issues involving the environment are quite well, their involvements are stills less. These factors caused the local community in both the study area to be less aware and lack of knowledge of environmental issues in particular of those involving policy, regulatory agencies, as well as their interest to participate in issues related to the environment especially in Kuala Krai. In addition, the main factors that how respondents in both research areas not or less participation in environmental issues is they are less exposed and not given opportunities to be involved directly in issues involving the environment, particularly in the planning and implementation of programs and projects in their area. Respondents in both research areas concern also complaints that problems they face are often not be taken appropriate actions by the authorities. This situation caused hinder local people's interest in the study area to get involved in environmental issues. The end of the research, respondents of both district gave an recommendation how to control environmental issues in research areas to ensure that each development that was done in their location is must be focused to create a sustainable development and also use the green technologies.

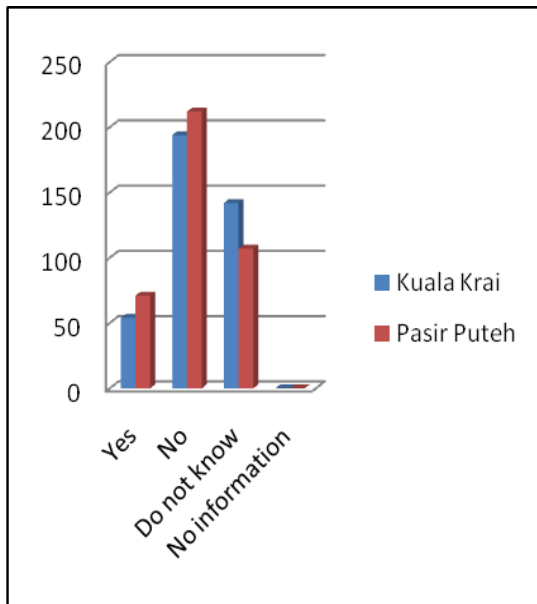
**Respondent's Answer for the Questionnaires Given**



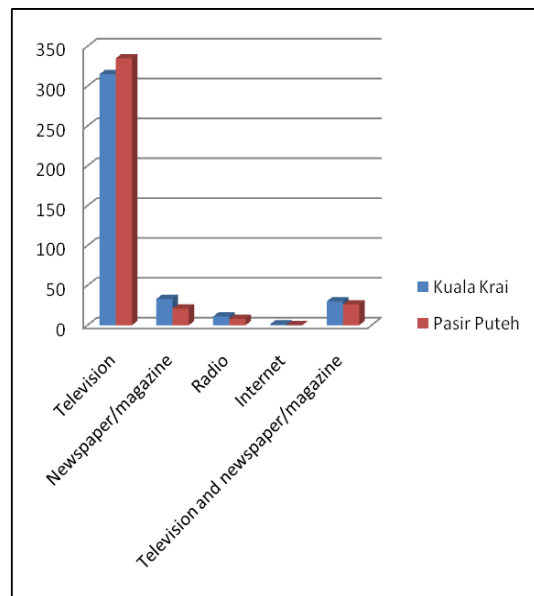
**Figure 10: Question On: Phenomenon Environmental Should Be Damage Worrying?**



**Figure 11: Question On: Is Public Opinion Included Development Plans?**



**Figure 12: Question On: Environmental Quality For 10 Years (2000-2009) Is Better?**



**Figure 13: Question On: The Most Influential Mass Media In Environmental Education**

## **Conclusion**

As the conclusion, from this research, nearly 14 proposals were put forward by local communities in efforts to preserve and conserve the environment, including the role of education, laws, campaigns, taking into account the views of the community in local development and so on. In general, the research has demonstrated the role of education and income factors in influencing public involvement in environmental issues as well as the importance of collaboration of all parties such as governments, private sectors and communities in the development of a strategic plan to create a sustainable environment. The study found that demographic factors such as age, income, education and length of staying has a significant relationship to respondents' knowledge about environmental issues, local environmental and factor constraints to be involved in environmental issues. By Model Hines, to change the attitude of a person through Environmental Education, an individual must be given the knowledge and information on issues of environmental pollution that requires immediate action.

In addition to the knowledge, skills, action must be given to the individual that will affect the interest, curiosity and the desire of an individual. However, factors such as personality and external social pressures, economic demands and the opportunity to choose will affect the formation of interest. The researcher expects that adequate education about the environment is given. Various studies have been carried out by (Md Taff, 2004; Mittelstaedt et al., 1999; Palmberg & Kuru, 2000) in the field of outdoor education, proving that it is one of the effective medium in shaping the attitudes and understanding of environmental positively to the students since the early stages because the education allowed them more aware about the environmental issues in addition to reducing the environmental issues. In addition, the government must do everything in our human capital development strategies and economic to increase the household population. In Model Hines Hines (Hines 1987) explains the importance of economic factors in promoting environmental awareness.

## **Recommendation**

Associated with the findings of the study, the researchers suggest several aspects that need to be and can be reviewed to ensure that the knowledge and involvement of civil society on environmental issues to achieve the goals that are being set. This proposal also takes into account the recommendations proposed by the respondents in the survey through questionnaires given. An example of suggestion is, stricter enforcement should be performed to any company or person who does not emphasize the care of the environment properly. In addition, civil society should be more actively involved in issues relating to the environment because they are capable in giving constructive ideas to the implementation of laws and acts effectively in the protection of the environment other than to assist in the development of environmentally sustainable. In addition, the relevant parties should participate intensify in the environment campaign for enhancing public awareness of the importance of caring for the environment, while improving the function and role played by the NGOs concerned. Besides that, provide proper education to the public is also very important in preserving and conserving the environment. The government should strive to increase income among the general public. This is because the income is sufficient to provide the best input in an effort to educate the public about environmental issues as well as to increase interest and awareness on environmental issues.

Knowledge and awareness of civil society on policies and legislation related to the environment in our country must be improved to ensure the public to fully understand the policies and legislation related to the environment. This will provide information needed by civil society in improving their level of knowledge about legal action that can be applied to criminals who damage the environment as well as additional knowledge about environmental issues. Planning approach in the form of top to bottom must be reduced and replaced with the planning approach from the bottom up. This approach takes into account the hopes and aspirations of civil society in efforts to minimize environmental problems. With this, the public will be given opportunities to provide ideas and opinions that can help the government to formulate a plan for sustainable environmental development, with strategic and integrated policies. All forms of information, discussion and consultation between relevant bodies and agencies, governments, the private sector, developers and contractors, and civil society must be comprehensive, transparent and more sensitive to the effects of development on environmental health, particularly to the public. The government should strive to provide a data base where the public can access to make reference to current environmental issues and to give their views to produce the best approach in minimizing environmental problems. The role of the media must be used and fully extended in a program that involves the knowledge that must be owned by the public related to environmental issues. This is very important that the goals and objectives of a program to achieve its targets relating to environment and not just stay as a program solely.

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