SOCIAL SCIENCES & HUMANITIES

Impingement Factors Affecting the Human Development Index among the River Communities of the Tembeling, Pahang and Muar Rivers

Asnarulkhadi Abu Samah[1,3]*, Raidah Mazuki[1], Sulaiman Md. Yassin[2] and Bahaman Abu Samah[1]

[1]Institute for Social Science Studies, Universiti Putra Malaysia (UPM), 43400 Serdang, Selangor, Malaysia
[2]Universiti Islam Malaysia (UIM), 63000 Cyberjaya, Selangor, Malaysia
[3]Faculty of Human Ecology, Universiti Putra Malaysia (UPM), 43400 Serdang, Selangor, Malaysia

ABSTRACT

There are few studies on the Human Development Index (HDI) with regard to the community and very little is known about the community development index and the factors that impinge on it. This study seeks to fill this gap, and makes the examination of the factors that impinge on the human development index among river communities its main focus. This is a quantitative study and the measurement of the HDI is based mainly on an established online instrument. A total of 240 respondents, who were the villagers of four selected villages, make up the respondents of the study. Analysis confirms that factors such as gender, race, level of education, area and job category lead to significant differences of the HDI, while further analysis concludes that factors such as income, period of stay, distance to the nearest city and size of household have a significant relationship with HDI. The discussion will help the concerned parties to construct a workable strategy to further improve the HDI of the locals, particularly those who are settled near the Tembeling, Pahang and Muar Rivers.

Keywords: Human development, Human Development Index, river communities

INTRODUCTION

Mahbub ul Haq (1990) in the Human Development Report 1990 envisioned human development as a crucial aspect of modern life. The major aim of human development is to create an empowering

environment that enables people to enjoy long, healthy and creative lives. Human development has two aspects to it: the formation of human capabilities and the use people make of their acquired capabilities. This concept seems to be easy to understand. It is not a really new way of looking at human development. In principle, human choices can be infinite and they can change over time. This is because human development is a process of enlarging people's choices.

The question of the impingement of human development is a big question as impingement of human development can have profound and far-reaching effects on human life. People are the real wealth of a nation. Among the vital factors that lead to better human development are good health, better education and a decent standard of living. Furthermore, some additional aspects are also considered, namely political freedom, guaranteed human rights and self-respect (United Nations Development Programme [UNDP], 1990). As Sen (1993, p. 3) argued, "Development can be seen… as a process of expanding the real freedom that people enjoy."

The Human Development Index (HDI) is a statistical mechanism used to compute a country's overall performance in its social and economic dimensions. The social and economic scopes of a country are based on the health of people, their level of education and their income. The ranking of countries based on HDI is different from the ranking by GNP per capita as GNP per capita and HDI are two different measures of human attainment.

In 2013, the Human Development reported that in 2012, Malaysia's HDI value had increased to 0.769 from 0.563. The increase of 37% represented an average annual increase of about 1.0%. Malaysia, an upper-middle-income Southeast Asian country with a population of 28.7 million, was ranked 64 out of 187 countries and territories based on the UNDP Human Development Index in 2012. Malaysia is on schedule to reach most of the Millennium Development Goals in aggregate terms by 2015. Furthermore, based on the Human Development Report 2013, the country had achieved the goal of halving poverty, which fell from 17% in 1990 to 3.8% per cent in 2009, according to the national poverty line. Malaysia took 19 years to reduce the poverty percentage of this country.

The Pahang, Tembeling and Muar Rivers

This study was conducted among three river communities living close to the Tembeling, Pahang and Muar Rivers. The Tembeling River is one of the main tributaries of the Pahang River. The Pahang National Park is situated near this river. Ulu Tembeling is where the National Park was established and the first Superintendent's office was in nearby Kuala Tahan (Daim, Bakri, Kamarudin, & Zakaria, 2012). Aboriginal villages are scattered along the banks of this river. They are believed to have a long history of dwelling in this area. The Pahang River system, on the other hand, begins to flow in the southeast, passing finally through

Pekan town and emptying out into the South China Sea. The Pahang River courses through three states, which are Pahang, Johor and Negeri Sembilan. It is the main and the longest river in Peninsular Malaysia (Yassin et al., 2013). The Pahang River and the Muar River are separated by a distance of only 300 m and are linked at Jambu Lapan in Jempol, Negeri Sembilan. This is because the Serting River flows into the Bera River, a tributary of the Pahang River. Formerly, from 1930 to 1950, the Muar River from Bukit Kepong to Muar was the premier path for transporting palm oil. In addition, this river is where historical places such as the Bukit Kepong police station, Kota Buruk and a World War 2 bombed bridge are located. The Muar River is also well known among fishing enthusiasts, especially for its fresh lobster, which can fetch up to USD12 per kilo (Yassin et al., 2010).

Problem and Objectives

Efforts to eradicate poverty can be associated with the success of the country in uplifting the HDI of local communities. Studies across the globe have proven the success of better HDI in combating poverty (Deusche Bank, 2006; Legatum Prosperity Index, 2013; New Economic Foundation, 2013; OECD, 2013; The American Human Development Project of the Social Science Research Council, 2012). Provision of adequate food, shelter and clothing, access to health facilities, education and greater employment opportunities can inspire absolute poverty (Todaro, 1989). Moreover, social security

measures, such as public assistance and the pension system are also needed to help mitigate poverty (Ishida & Asmuni, 1998). The HDI seems to play an important role in community development in Malaysia and much understanding is needed before any development strategies can be concretely strategised. Nevertheless, though the need is mounting, that thaere are few studies related to the HDI is a concern. To date, not much is known about the level of HDI and the factors that might impinge on it, and this has eventually resulted in plans or strategies not in line with the need, ability and interests of the targetted community. In response to this, the main objective of the current study has undertaken to examine the impingement factors of HDI among the communities that live near the Tembeling, Pahang and Muar Rivers.

METHODS

The quantitative approach was used for this research. An established instrument developed by The American Human Development Project of the Social Science Research Council (2012) was used. It consisted of three parts, namely health (23 items), income (1) and education (1). For each of the questions the respondents were given either a closed-ended or open-ended type of answer.

This study relies on the G-Power software, which is able to determine a suitable size of sample based on the needed analysis. It can also be understood as the power of the probability for rejection of

the null hypothesis when necessary. It is generally accepted that the power should be 0.80 or greater, that is, 80% or more in terms of the opportunity of finding the statistically significant difference or relationship when there is one. The current study aims to run analyses such as the independent t-test, ANOVA and Pearson product-moment correlation. Based on a moderate effect size, an alpha value of 0.005 and a magnitude of power between 0.90 and 0.95, the appropriate size of the sample to run an independent t-test was 176, the appropriate number to run the ANOVA was 232 and the appropriate number to run the Pearson product-moment correlation was 191. This study aimed to have a sample size of 240 respondents. A bigger sample size was not a problem as Mohammad Najib (1999) has stressed that a bigger sample size can strengthen the reliability and validity of a study.

This study involved two phases of sampling. The first phase involved cluster sampling, where a list of the villages located close to the Tembeling, Pahang and Muar Rivers was obtained. Subsequently, a total of four villages were randomly selected, namely the villages of Jorak, Bantal, Gintong and Langkap. At the second stage, a total of 60 villagers were randomly selected based on a list provided by the village leaders, which made the total respondents for the study 240 (60 respondents x 4 villages = 240 respondents).

The data collection process was facilitated by trained and experienced enumerators and monitored by the research team members. The survey was the main data collection technique used. The enumerator read the questions in Malay to the respondents. On average, each survey session took between 20 and 45 minutes to be completed. The respondents were allowed to ask questions if they did not understand the questions clearly.

The SPSS was employed for analysis to obtain the general data. The independent t-test and ANOVA were used to discover differences that might occur between the independent and dependent variables. In addition, Pearson product-moment correlation was used to analyse any possible relationship between the HDI and the selected independent variables.

RESULTS AND DISCUSSION

Table 1 presents the data pertaining to the respondents' background. A total percentage of 74.6% of the respondents were Malay, while 24.6% were Aborigine. About 22.1% of the respondents were working in the agricultural field and only 4.2% were retired or engaged in other jobs. About 22.1% of the respondents had lived in the village for more than 51 years. The mean for length of stay in the village was 31.5. A total of 105 (43.8%) respondents agreed that the distance to the nearest city was 11-20 km away and about 31.7% of the respondents lived near the river, which was about 0.251 to 0.500 km.

Table 1
Respondents' background

Level	Frequency	Percentage	Mean	SD
Job category				
Government sector	26	10.8		
Self-employed	50	20.8		
Housewives	47	19.7		
Retiree	10	4.2		
Agriculture related	53	22.1		
Students	14	5.8		
Private sector	21	8.8		
Businessman	9	3.8		
Others	10	4.2		
Race				
Malay	179	74.6		
Aborigine	59	24.6		
Chinese	2	0.8		
Length of stay in the village (years)			31.5	20.5
<10	46	19.2		
11-20	41	17.1		
21-30	43	17.8		
31-40	28	11.7		
41-50	29	12.1		
>51	53	22.1		
Distance to the nearest city (km)			29.2	24.2
<10 km	49	20.4		
11-20 km	105	43.8		
>21 km	86	35.8		
Distance to Pahang River or Muar River (km)			0.841	0.905
<0.0250	56	23.3		
0.251-0.500	76	31.7		
0.501-1	66	27.5		
>1	42	17.5		

Table 2 shows the first part of the Human Development Index (HDI), which is health. More than half of the respondents were male (54.2%) and the mean for the respondents' age was 39.7. All the respondents disagreeed with the statement that they lived in urban areas with a population of more than 2 million. The majority of the respondents (78.7%) stated that all their grandparents lived to the age of 80 years old or more and 68.2% answered "No" to the statement that one of their grandparents had lived to the age of 85 years old or more. A minority of the respondents (21.3%) had parents,

brothers or sisters under the age of 50 years old who was suffering from cancer or a heart condition or who had diabetes. One of the parents of 13.7% of the respondents had died of a stroke of heart attack before 50 years old. Table 2 shows that 94.6% of the respondents were not working beyond the age of 65 years old and 191 respondents were not office workers. A large majority of the respondents were living with a spouse or a friend and 85.8% had never lived alone since the age of 25 years old. About half of the respondents were not engaged in jobs that required heavy physical work. Only 18.8% exercised strenuously every week for at least half an hour and 197 respondents did not sleep more than 10 hr each night. The majority of the respondents were found to be easy-going and relaxed, and 96.7% were happy, while 2.5% were unhappy. Furthermore, the data showed that only 19 respondents had been issued a speeding ticket in the last year and only 0.5% smoked more than two boxes of cigarettes a day. Only six respondents drank the equivalent of two drinks or two measures of liquour a day. Last but not least, 73.8% of the respondents were not overweight and 64.2% went for an annual medical checkup.

Table 2
HDI part 1 – Health

Level	Frequency	Percentage	Mean	SD
Gender				
Male	130	54.2		
Female	110	45.8		
Age (years)			39.7	16.6
Under 30	95	39.6		
Between 30-40	38	15.8		
Between 40-50	38	15.8		
Between 50-70	61	25.4		
Over 70	8	3.4		
Live in urban areas with a population of more than 2 million				
Yes	0	0		
No	240	100.0		
Has one of your grandparents lived to age 85 or older?				
Yes	76	31.7		
No	164	68.2		
Have all your grandparents lived to age 80 or older?				
Yes	51	21.3		
No	189	78.7		

Table 2 *(continue)*

Level	Frequency	Percentage	Mean	SD
Has either one of your parents died of a stroke or heart attack before 50?				
Yes	33	13.7		
No	207	86.3		
Has a parent, brother or sister under the age of 50 had cancer or a heart condition or diabetes?				
Yes	51	21.3		
No	189	78.7		
Are you over 65 and still working?				
Yes	13	5.4		
No	227	94.6		
Do you live with a spouse or friend?				
Yes	231	96.2		
No	9	3.8		
How many years have you lived alone since age 25?				
0 yr	206	85.8		
1-5 yr	23	9.6		
>6 yr	11	4.6		
Do you work behind a desk?				
Yes	49	20.4		
No	191	79.6		
Does your work require heavy physical effort?				
Yes		42.9		
No	103	57.1		
How many times a week do you exercise strenuously (tennis, running, etc.) for at least ½ hour?				
5 times	45	18.8		
2-3 times	50	20.8		
Less than two times	145	60.4		
Do you sleep more than 10 hours each night?				
Yes	43	17.9		
No	197	82.1		
Are you intense, aggressive or easily angered?				
Yes	30	12.5		
No	210	87.5		
Are you easy-going and relaxed?				
Yes	225	93.8		
No	15	6.2		

Table 2 *(continue)*

Level	Frequency	Percentage	Mean	SD
Are you happy?				
Yes	232	96.7		
No	8	3.3		
Are you unhappy?				
Yes	234	97.5		
No	6	2.5		
Did you receive a speeding ticket last year?				
Yes	19	7.9		
No	221	92.1		
How many boxes of cigarettes do you smoke in a day?				
0	162	67.5		
0.5-1	29	12.0		
1-2	48	20.0		
>2	1	0.5		
Do you drink the equivalent of two drinks or two measures of liquour a day?				
Yes	6	2.5		
No	234	97.5		
Are you overweight?				
I'm not overweight.	177	73.8		
Yes, by 10 to 30 pounds.	17	7.1		
Yes, by 30 to 50 pounds.	45	18.7		
Yes, by 50 pounds or more.	1	0.4		
Do you go for an annual medical check up?				
Yes	154	64.2		
No	86	35.8		

The second part of the Human Development Index used for this study was income per year. The mean score for this question was obtained by dividing the annual income of those who only have established income. Those without established income for example housewives and students were excluded from the calculation. Table 3 reveals that the mean score for the income was M=RM13,421.50, which was a good indicator of the income development in the rural area. About 8.5% of the respondents surprisingly had income per year totalling more than RM30,001. However, 36.7% of the respondents had income between RM6001 and RM12,000 per year. In addition to this, analysis revealed that a total of 20.2% of the respondents managed to earn between RM12,001 and RM30,000 in a year.

Table 3
HDI part 2 – Income per year

	Frequency	Percentage	Mean*	SD
Income per year (N=188)			13,421.5	11819.9
No income	52	-		
<RM6000	59	31.4		
RM6001-RM12,000	69	36.7		
RM12,001-RM18,000	22	11.7		
RM18,001-RM30,000	22	11.7		
>RM30,001	16	8.5		

The mean score was gained by dividing the annual income of those who have established income only, while those without established income (e.g. housewives and students) were not included in the calculation

Table 4 denotes the final part of the human development index. This part focusses on the level of education of the respondents. More than half (61.3%) of the respondents had not completed high school or did not have a diploma. Furthermore, a small number of the respondents (5.8%) possessed a Bachelor's degree from college or university. A total of 17 respondents had some college credit or associate credit but had not received a Bachelor's degree. This study also revealed that none of them had attained higher levels of education i.e. a Master's degree or doctorate.

Table 4
HDI part 3 (Education)

Level of education	Frequency	Percentage
Did not complete high school/ No diploma	147	61.3
High school graduate or equivalent	62	25.8
Had college credit or associate credit, but no Bachelor's degree	17	7.1
Had Bachelor's degree from college or university	14	5.8
Master's degree/Doctorate	0	0

In this study, all of the index data had been keyed into the well-o-meter index developed by the American Human Development Project of the Social Science Research Council. The index yields a maximum value of 10.0. The respondents were asked 26 questions covering the indices of health, income and education. The overall HDI of the respondents was obtained from the cumulative value of the indices. The cumulative value of the indices had been calculated once the index data had been keyed into the SPSS. Soon after, the cumulative value was categorised into three groups, namely low (1.00-4.00), moderate (4.01-7.00) and high (7.01-10.0). Based

on the mean scored (M=3.36), as shown in Table 5, it can be concluded that the overall level community development index was low. Only 3.3% of the respondents obtained high levels of the HDI.

Table 5
Overall level community development index using the American Human Development Index (Well-O-Meter)

HDI Index Category	Frequency	Percentage	Mean	SD
			3.36	1.52
Low (1.00-4.00)	177	73.8		
Moderate (4.01-7.00)	55	22.9		
High (7.01-10.0)	8	3.3		

The independent t-test was used to discover differences that might occur in the factors of gender and race. This study revealed that there was a significant difference in both factors. The gender factor showed a significant difference when $t(240)=3.36$, $p=0.001$. Meanwhile, for the race factor, the significant difference was when $t(240)=5.48$, $p=0.0001$. Eventhough there was a slight difference between males and females, the mean score for females was higher at M=3.71, while Malay respondents were recorded to have the higher mean score (M=3.66).

Table 6
Differences between HDI and selected independent variables (Independent t-test)

Factor	N	Mean score	SD	t	P
Gender				3.36	0.001
Male	130	3.06	1.45		
Female	110	3.71	1.54		
Race				5.48	0.0001
Malay	179	3.66	1.58		
Aborigine	59	2.47	0.92		

ANOVA was employed to identify the comparison that might occur between the selected independent variables and the HDI. Four groups of level of education were studied to determine the significance difference at $p<0.05$. Based on the results obtained, there was significant difference that occurred between the four groups studied based on the F value $(4,240)=46.622$, $p<0.05$. The study discovered that the highest mean score for education level was M=5.59, obtained by the respondents who had acquired tertiary education.

Four groups were studied in terms of the areas settled. Table 7 shows that with the F value $(4, 240)=17.786$, $p<0.05$,

there was significant difference in the factor of areas. Kg. Langkap recorded the lowest mean score (M=2.49) among the four areas of study. In the last part of the ANOVA analysis, eight groups under job category were analysed. Job category was significant for the HDI when the F value $(4,240)=19.458$, $p<0.05$. The data indicated that the government sector had the highest mean score (M=5.76) for job category, followed by retirees (M=4.25). The lowest segment for job category fell to the agricultural sector at M=2.62.

Table 7
Differences between HDI and selected independent variables (ANOVA)

Variables	N	Mean	SD	F	P
Level of education				46.622	0.0001
Never been to school	28	2.66	0.83		
Primary school	84	2.69	0.91		
Secondary school	97	3.44	1.24		
Tertiary level	31	5.59	1.95		
Areas settled				17.786	0.0001
Jorak	60	3.80	1.33		
Bantal	60	3.01	1.02		
Gintong	60	4.15	2.01		
Langkap	60	2.49	0.92		
Job Category				19.458	0.0001
Government	26	5.76	1.94		
Self-employed	50	2.81	1.00		
Housewives/Unemployed	47	3.17	0.80		
Retirees	10	4.25	1.22		
Agriculture related	53	2.62	0.81		
Students	14	3.35	1.62		
Private sector	21	3.61	1.75		
Others	13	3.61	1.44		

Pearson product-moment correlation was utilised to show any relationship that might arise between HDI and selected independent variables in Table 8. Five independent variables were selected to run this analysis, namely income, length of stay in the village (years), distance to the nearest city and distance to the nearest river. Four out of five of the selected independent variables were found to be at $p<0.05$ with HDI, which was income (p=0.0001), length of stay (p=0.001), distance to the nearest city (p=0.035) and size of household (p=0.024). The income variable indicated the highest correlation, which was positive.

Table 8
Relationship between HDI and selected independent variables

Variables	r	p
Income	0.777	0.0001
Period of staying	-0.208	0.001
Distance to the nearest city	-0.136	0.035
Distance to the nearest river	0.077	0.236
Size of household	-0.146	0.024

CONCLUSION

The Human Development Index (HDI) seems to play an important role in community development in Malaysia, similar to in other countries across the globe, and much understanding on this issue is needed. Understandably, this can be done by conducting related studies such as the present study. The current study recorded a moderate score for HDI among the river communities that live near the Pahang, Tembeling and Muar Rivers. It managed to fulfil its objective by concluding that females, the Malay rather than Aborogine respondents, those with tertiary education, the Gintong community and government servants possessed a better HDI. The study concluded that the factors of income, length of stay, distance to the nearest city and size of household were significantly related for the river communities to the HDI. This study had several limitations; first, our focus was limited to only three river communities i.e. those near the Tembeling, Pahang and Muar Rivers. We recommend that future research focusses on other river communities, especially in Sabah and Sarawak, where such communities are much bigger. Second, the number of respondents involved was only 240; the results might be enriched if a bigger number of respondents were involved.

REFERENCES

Chmiel, M., Brunner, M., Martin, R., & Schalke, D. (2011). Revisiting the structure of well-being in middle-age adults. *Journal of Social Research Indicators, 106*(1), 109–116.

City of Hood River. (2011). *Hood River economic opportunities analysis*. Retrieved Disember 10, 2013, from http://centralpt.com/upload/375/15522-_HoodRiverEOAfinal.pdf

Daim, M. S., Bakri, A. F., Kamarudin, H., & Zakaria, S. A. (2012). Being neighbor to a national park: Are we ready for community participation? *Procedia – Social and Behavioral Sciences, 36*(2012), 211–220.

Deusche Bank. (2006). *Measures of well-being*. Retrieved from http://www.dbresearch.com/PROD/DBR_INTERNET_DE-PROD/PROD0000000000202587.PDFhttp://dx.doi.org/10.1787/9789264201392-en

Ishida, A., & Asmuni, A. (1998) Poverty eradication and income distribution in Malaysia. *Journal of Contemporary Asia, 28*(3), 327–345.

Legatum Institute. (2013). *Legatum properity index*. Retrieved from http://www.prosperity.com/download_file/view_inline/2834

Mahbub ul Haq. (1990). *Human development report 1990.* New York, Oxford: Oxford University Press.

Martin, F. (2011). Perceptions of links between quality of life areas: Implications for measurement and practice. *Journal of Social Indicator Research, 106*(1), 95–107.

Mohammad Najib, A. G. (1999). *Penyelidikan pendidikan Skudai.* Skudai, Johor: Universiti Teknologi Malaysia Publisher.

New Economic Foundation. (2013). *Measuring national well-being – Domains and measures.* Retrieved from http://www.ons.gov.uk/ons/dcp171766_327867.pdf

OECD. (2013). *How's life? 2013: Measuring well-being.* Retrieved from http://www.oecd.org/statistics/measuring-well-being-and-progress.htm

Pajaziti, A. (2014). Transition education and quality of life. *Procedia – Social and Behavioral Sciences, 116*, 4737–4741.

Sen, A. (1993). Capability and well-being73. *The quality of life, 30.*

Sen, A. K. (1999). *Development as freedom.* Oxford: Oxford University Press.

Tay, J. B., Kelleher, C. C., Hope, A., Barry, M., Gabhainn, S. N., & Sixsmith, J. (2004). Influence of sociodemographic and neighbourhood factors on self rated rate health and quality of life in rural communities: Findings from agriproject in the republic of Ireland. *Journal of Epidemiology and Community Health, 58*, 904–911.

The American Human Development Project of the Social Science Research Council. (2012). *The human development index.* Retrieved from http://www.measureofamerica.org/human-development/

Todaro, M. P. (1989). *Economic development for the Third World.* New York: Longman.

United Nations Development Programme. (1990). *Human development report.* New York: United Nations Development Programme.

Yassin, S. M., Abu Samah, A., Abu Samah, B., Idris, K., Hamzah, A., & Shaffril, H. A. M. (2013). The sensitivity of communities towards the environmental changes in Tembeling, Pahang and Muar rivers. *Life Science Journal, 10*(3), 2143–2152.

Yassin, S. M., Shaffril, H. A. M., Hassan, M. S., Othman, M. S., Abu Samah, B., & Abu Samah, A. (2010). Socio-economic factors that impinge on the quality of life of the Muar river community. *Australian Journal of Basic and Apllied Science, 4*(10), 5362–5371.

Yassin, S. M., Shaffril, H. A. M., Hassan, M. S., Othman, M. S., Abu Samah, B., Abu Samah, A., & Ramli, S. A. (2011). Factors affecting the quality of life among the rural community living along Pahang river and Muar river in Malaysia. *Australian Journal of Basic and Applied Sciences, 5*(8), 868–875.