

Full Length Research Paper

A study of sustainable development among leaders of rural community in Malaysia

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Accepted 04 April, 2018

Rural development researchers have identified a number of factors that affect sustainable development among the rural community. Nevertheless, mix results were reported in literature. Hence, this study was conducted to investigate on the constructs that affect sustainable development among members of Village Development and Security Committee (VDSC) under the Vision Village Movement (VVM). A total of 235 respondents from 18 villages were involved encompassing three states in Malaysia. The final model derived from this study showed that four pertinent constructs that fit into the sustainable development model are spirituality, leadership, beautification, and education. It is believed that the findings of this study would add new perspective in understanding the complexities associated with sustainable development among the rural community.

Key words: Village development and security committee (VDSC), vision village movement (VVM), sustainable development, rural community.

INTRODUCTION

In line with globalization and modernization, the Malaysian government has implemented numerous efforts to develop rural community so that it would enable this community to successfully enhance their quality of life similar to the urban community. Development strategy in Malaysia has started since 1957 whereby this strategy emphasized on planned development. Rural development is one of the key areas placed in this strategy whereby the government had initiated Village Vision Movement (VVM) program launched in 1996 by the ex-Prime Minister of Malaysia to expedite rural development in this country. The main focus of VVM is to cultivate consciousness and positive attitude among rural community so as to be in tandem with government's effort to create villages that are more beautiful, developed, and competitive. Koharudin (2005), in his study concluded that VVM has the ability to create positive attitude and

paradigm shift among the villagers towards development. However, the success of VVM is very much dependable on the committee members of Village Development and Security Committee (VDSC) since they are the change agents that would be able to cultivate competitive and successful rural community (Shamsul, 1998), through rural sustainable development.

Sustainable development is an important element that has a wide array of views under its umbrella. In the 1980s, increasing concern on the effects of economic development on health, natural resources and the environment led the United Nations to publish the Brundtland Report. This report defined sustainable development as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs." In June 1992, the Rio Earth Summit declared that "the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations." Sustainable development is not just about the environment, but also encompasses the economy and society at

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large (The Brundtland Report, 1987).

Literature analysis

There is extensive research done that portray constructs which contribute to rural sustainable development. Studies implemented by Shibliq and Fielden (2008), and Hopkins and McKeown (2002), concluded that Information and Communication Technology (ICT) and education will improve rural community economically, socially and academically while according to Ngcobo and Herselman (2007), ICT and education will empower rural poor people and community to lead their own development. On top of it, beautification and health are also important factors that contribute toward sustainable development whereby Hazell and Lutz (1998), stressed that rural community should be exposed to the importance of beautifying their environment and focusing on the cleanliness of their village since their consciousness towards environment is degrading. Moreover, a study done by Day (1998) identified that the attainment of sustainable development in rural areas depends upon effective leaders that would create social and institutional networks that would boost economic activities in villages besides enabling the villagers to enhance on agricultural skills. Adil et al. (2005), on the other hand, emphasized on the aspect of spirituality that should not be ignored in the context of sustainable development so that the interests of every member in the rural community is being taken care of and more efforts toward creating a culture of collaboration and teamwork can exist in villages.

In spite of the above stated facts, the question that arises is whether the VDSC members perceive all the aspects mentioned above as important dimension of sustainable development? Thus, the main aim of this study is to determine the significant higher order constructs that significantly explain the factors of sustainable development among the VDSC members in their respective villages. It is hoped that this study would contribute to the existing literature by examining different variables that might have been neglected previously. Consequently, this would add to the body of knowledge pertaining to rural sustainable development.

MATERIALS AND METHOD

This study used a descriptive framework. The items for the instrument of this study were developed by the researchers based on previous literature. Pre-test was carried out among 13 VDSC members located in the VVM village in the area of Kajang, Selangor and the value of cronbach alpha was 0.6 - 0.9 indicating that the instrument is valid and reliable. Respondents were interviewed using a questionnaire for the purpose of getting the data needed. The sample (list of VVM village) was gained from the Department of Community Development (DCD) based on the selected states. The sample framework was then strengthened by only selecting the members of VDSC that were listed in the VVM villages. Those who were selected were from three districts from each state and from

every district selected, six VVM villages will represent each district. A total of 235 respondents who were members of Village Development and Security Committee (VDSC) from three states were randomly selected. The three states were Selangor, Negeri Sembilan and Pahang.

The research instrument used in this study consisted of three parts. The first part seeks information on the respondents' socio-demographic profiles: gender, zone, grade of village, job category, level of education, position in VDSC, age, income per month, period of staying in VVM village and period of holding a position in VDSC. The second part of the instrument measured the sustainable development of respondents' in terms of social, environment and monetary elements. The third part of the instrument measured the constructs that influence sustainable development. These constructs consisted of seven dimensions: 1) Beautification, 2) Economy, 3) Leadership, 4) Information and Communication Technology, 5) Education, 6) Health and 7) Spirituality. Overall, these seven dimensions consisted of 70 items or statements.

The data collection process involved a group of trained enumerators and was conducted for a period of two months from April 2008 until May 2008. Data collected was analyzed using SPSS and AMOS software. SPSS was used to reveal the frequency, percentage, and Cronbach Alpha, while AMOS software was used for analysis of CFA. The CFA analysis will enable to utilize a suitable method to measure the construct validity and to determine the "goodness of fit" of a model determined.

RESULTS AND DISCUSSION

Table 1 and Table 2 depict the socio-demographic profile of respondents. As in Table 1, data revealed that men are still the main dominant force of village administration accounting 86.0% of the respondents. Majority of respondents stayed in central zone (38.3%), followed by southern (31.9%) and only 29.8% respondents represented east coast zone. Nearly half of the respondents lived in VVM grade C village (46.4%). Results gained also showed that respondents who work on their own are involved in village administration matters compared to other job groups (43.8%), There is a possibility that this group of respondents were less tied to job commitments unlike those who work in public and private sector. In terms of level of education, more than two fifth (44.7%) of the respondents had SPM (Malaysia Certificate Education) / SPMV (Malaysia Vocational Educational certificate) certificate. Table 1 also signals that only a minority of respondents had pre-university and tertiary level of education (13.6%). Besides, more than three quarter of respondents (78.3%) are holding the position of committee members of VDSC.

The data obtained as in Table 2 showed that "senior villagers" still dominate village administration based on the respondents age mean score recorded which was 52.61 years. More than one third of respondents (37.9%) were among those whose age were 56 years and above.

More than four fifth of the respondents gained income less than RM2,000 per month. Majority of the respondents had stayed in the VVM village for a period of 26 - 45 years (41.2%) . The mean score for staying period in VVM village was 37.1 years while the mean score for holding a position in CVD was 7.33 years. Slightly more

Table 1. Respondents profile (n = 235).

Respondents profile	Frequency	Percentage
Gender		
Male	202	86.0
Female	33	14.0
Zone		
Central	90	38.3
Southern	75	31.9
East coast	70	29.8
Village grade		
Grade A	57	24.2
Grade B	69	29.4
Grade C	109	46.4
Job category		
Public sector	57	24.3
Private sector	33	14.0
Work on their own	103	43.8
Unemployed	32	17.9
Level of education		
Primary school	55	23.4
PMR/SRP/LCE*	43	18.3
SPM/SPMV/MCE/Certificates	105	44.7
Pre-University/ University	32	13.6
Position in VDSC		
Chairman/ Vice chairman	19	8.1
Secretary	17	7.2
Treasury	15	6.4
Members	184	78.3

*Malaysia Lower Education Certificate.

Table 2. Respondents profile.

Respondents profile	Frequency	Percentage	Mean	S.D
Age (n = 235)				
≤45 years	67	28.5	52.61	10.38
46 - 55 years	79	33.6		
≥56 years	89	37.9		
Income per month (n = 213) (Value in Ringgit Malaysia)				
≤RM1,000	85	39.9	1663.08	1239.85
RM1,001-RM2,000	86	40.4		
≥RM2,001	42	19.7		
Period of staying in VVM village (n = 221)				
≤25 years	57	25.7	37.10	15.10
26 - 45 years	91	41.2		
≥46 years	73	33.1		
Period of holding A position in VDSC (n = 209)				
≤5 years	106	50.7	7.33	6.09
6 - 10 years	62	29.7		
≥11 years	41	19.6		

than half of the respondents held the VDSC position for 5 years.

Instrument development

AMOS software was used to conduct the Confirmatory Factor Analysis (CFA) in determining instrument that measure constructs of sustainable development. In CFA analysis, Chi Square, GFA Index Value, CFI and RMSEA were applied. An instrument is considered reliable if the Chi Square value is low and its significance value is high (larger than 0.05), GFI index and CFI value must be larger than 0.9 and RMSEA value must be lower than 0.08. Analysis conducted involved two phases. For the first phase, it involved testing on model of measurement for each dimension and for the second phase to test on the constructs of sustainable development model.

Beautification

The five items listed for this construct were:

- 1) Emphasize on the beauty of the village was made.
- 2) Initiative to enhance the beauty of the village was taken.
- 3) Involvement in the majority of programs conducted for the beautification and cleanliness of the village.
- 4) VDSC organization encourages all villagers to enhance beauty in VVM villages.
- 5) Unhappy response to those who do not care about the cleanliness of the village.

From these five items only four were selected based on the result of CFA ($\chi^2 = 0.318$, $p = 0.853$, GFI = 0.999, NFI = 0.999 and RMSEA = 0.000), which are items number 1, 2, 3 and 4.

Economy

A total of ten items consisted the economy dimension which are:

- 1) There are undeveloped land in this village.
- 2) Generally, the villagers economy status has been uplifted out from the poverty level.
- 3) Every household in this village has their own transport like bicycle, motorcycle and car.
- 4) Establishing strategic cooperation with number of government and private agencies.
- 5) Agriculture, industry and services are the main activities of the villagers.
- 6) There are a number of entrepreneurship courses conducted in this village for the purpose of enhancing this local economy status.
- 7) Agriculture, industry and services provide job opportunities for the villagers.
- 8) Entrepreneurship / commercial activities increase the

number of rural entrepreneurs.

- 9) There are new/ unique sources and products that can be commercialized.
- 10) There is zero unemployment rate in this village

However, from the CFA analysis conducted, only four items were included in the dimension of economy ($\chi^2 = 1.971$, $p = .373$, GFI = 0.996, NFI = 1.00 and RMSEA = 0.000). The four items identified were items number 2, 5, 7 and 8.

Leadership

There are 16 original items used to measure leadership which are:

- 1) VDSC has initiative to overcome issues regarding social problems, family problems, drug addict problems and community unity problem.
- 2) Members opinion are accepted by all VDSC members in any discussion or meeting.
- 3) CVD leaders take care of members charity.
- 4) Team spirit in this village CVD is high
- 5) Generally, there is a satisfaction in the VDSC leadership in this village.
- 6) The way of this village CVD administration can be accepted by any party.
- 7) There are cooperation between CVD and government/ private / NGO agencies
- 8) CVD is alert on changes in government policy.
- 9) Satisfaction with the relationship among VDSC members.
- 10) All CVD members have equal chances of attending training and courses.
- 11) There are scheduled program/activity conducted by CVD for the purpose of changing the mindset and attitude of the villagers.
- 12) There are effective information disseminations to the villagers.
- 13) This village leadership provides complete and useable village profile and action plan.
- 14) There are management of emergency issues such as unexpected programs that must be conducted instantly.
- 15) There are complete and useable village activity schedule.
- 16) There are unhealthy relations in CVD organizations.

After conducted CFA, only four items supported the leadership model ($\chi^2 = 1.223$, $p = 0.542$, GFI = 0.996, NFI = 1.00 and RMSEA = 0.000). The four items selected were items number 1, 2, 6 and item number 9.

Education

A total of ten items were prepared to calculate sustainable level from the education aspect which are:

- 1) There exist the concept of one house/one degree in this village.
- 2) There are increasing numbers of this villagers son/daughter who gain the opportunity to continue their study at university level.
- 3) Villagers are open to any program conducted to increase the education level of this village.
- 4) There exist information on villagers son or daughter who are successful.
- 5) Villagers education level is at a good level.
- 6) There exist life-long education programs such as reciting Yaasin, fardu ain class and others.
- 7) There are no kids in this vilage who do not go to school.
- 8) There are villagers who have illiteracy problem.
- 9) There exist annual educational visit organized by VDSC.
- 10) There exist contribution of succesful villagers to the village, to conduct community , motivational and other beneficial programs.

CFA analysis conducted revealed that five items have the ability to construct the education model ($\chi^2 = 9.374$, $p = 0.095$, $GFI = 0.985$, $NFI = 0.974$ and $RMSEA = 0.061$). The five items selected were items number 1, 4, 6, 9 and 10.

Information and comunication technology (ICT)

The original number of items included for ICT was 12. The items included were:

- 1) There exist courses/ trainings regarding ICT usage for the villagers provided by VDSC.
- 2) VDSC encourages its members to enhance their knowledge and skills concerning ICT
- 3) This village has its own website.
- 4) Villagers are easy to get information regarding development happening outside Malaysia through ICT.
- 5) Villagers were able to get lots of information through ICT devices provided
- 6) Majority of the youth in this village know how to use computer.
- 7) There exist computer training regarding computer management and computer software.
- 8) Possesion of at least a computer per home at the VVM village.
- 9) VDSC members and villagers follow computer classes and computer literacy programs.
- 10) CVD and the community were able to join computer learning class that was conducted.
- 11) ICT gave negative impact to the villagers.
- 12) Internet services were used widely by the villagers

From the CFA analysis done, it was identified that only a total of four items have been included in the ICT dimension ($\chi^2 = 0.318$, $p = 0.853$, $GFI = 0.999$, $NFI = 0.999$ and

$RMSEA = 0.000$) which were items number 1, 3, 7 and 9.

Health

Under this construct ten items were identified for the purpose of measurement which were:

- 1) The Ministry of Health frequently conducts free health check and monitor the cleanliness of the village.
- 2) Emphasizes on health care aspect to avoid any infectious disease in this village was made.
- 3) Satisfactory level of cleanliness and health of this village.
- 4) The village drainage system has been serviced systematically.
- 5) Septical toilet is used in this village.
- 6) There are rural clinics in this village for free treatment for the villagers.
- 7) Total of the villagers that have chronic disease is low
- 8) This village waste management has been managed systematically
- 9) This village has won "the most clean village" award at the state level.
- 10) There are cleanliness campaign and tasks to beautify the road, alley, ditch and public places.

CFA analysis towards the ten original items measuring health aspect has resulted in a total of only four items being included in the health model ($\chi^2 = 1.445$, $p = .486$, $GFI = .997$, $NFI = .996$ and $RMSEA = .000$) and the items were items number 1, 4, 5 and item number 10.

Spirituality

Seven items were prepared to measure this construct:

- 1) Emphasizes that the spirituality aspect should be cultivated among the community especially among the youths in the village.
- 2) The believe that the good and bad that happened to one is determined by God.
- 3) There are a number of religious activities being conducted by VDSC and mosque commitee members for the villagers.
- 4) There are percentage of involvement from gender generations in the program conducted.
- 5) There are document on scheduled planning/implementation of spirituality/ religious programs.
- 6) Emphasize on the importance and good deeds of other people in various matters were made.
- 7) Organizing safety campaign and good deeds such as working together and overcoming crimes in village.

From the seven original items prepared for the dimension of spirituality, only four items were found to be significant. CFA analysis had produced the following outcome: $\chi^2 = 2.828$, $p = .243$, $GFI = .994$, $NFI = .992$ and $RMSEA = .042$

Table 3. CFA analysis result for sustainable development dimension.

Instrument/ Items	λ^2	p	GFI	NFI	RMSEA
Beautification	0.318	0.853	0.999	0.999	0.000
I emphasize on the beauty of village.	0.55				
I take initiative to enhance the beauty of village.	0.79				
I get involve in majority of programs conducted for the beauty and cleanliness of village.	0.88				
VDSC organization encourages all villagers to enhance beauty in VVM village.	0.80				
Economy	1.971	0.373	0.996	1.000	0.000
Generally, the villagers economy status has been uplifted out from the poverty level.	0.28				
Agriculture, industry and services are the main activities of the villagers.	0.73				
Agriculture, industry and services provide job opportunities for the villagers.	0.89				
Entrepreneurship/commercial activities increase the number of rural entrepreneurs	0.67				
Leadership	1.223	0.542	0.996	1.000	0.000
VDSC has initiative to overcome issues regarding social problem, family problems, drug addict problems and community unity problem.	0.79				
Generally, I'm satisfied with the VDSC leadership in this village.	0.83				
I'm satisfied with the relationship among VDSC members.	0.66				
Members opinion are accepted by all VDSC members in any discussion or meeting.	0.67				
ICT	2.309	0.315	0.999	0.995	0.026
There exist courses/trainings regarding ICT usage for the villagers provided by VDSC.	0.72				
This village has its own website.	0.68				
There exist computer training regarding computer management and computer software.	0.94				
VDSC members and villagers follow computer class and computer literacy programs.	0.84				
Education	9.374	0.095	0.985	0.974	0.061
There exist the concept of one house/ one degree in this village.	0.70				
There exist information on villagers son or daughter who are successful.	0.75				
There exist life-long education programs such as reciting Yaasin, <i>fardu ain</i> class and others	0.60				
There exist annual educational visit organized by VDSC.	0.75				
There exist contribution of succesful villagers to the village to conduct community, motivation and other beneficial programs	0.62				
Health and Cleanliness	1.445	0.486	0.997	0.996	0.000
The village drainage system has been serviced systematically	0.65				
The Ministry of Health frequently conduct free health check and monitor the cleanliness of the village.	0.77				

Table 3. contd.

Septical toilet is used in this village	0.66					
There are cleanliness campaign and tasks to beautify the road, alley, ditch and public places	0.86					
Spirituality		2.828	0.243	0.994	0.992	0.042
I'm emphasizing that the spirituality aspect to be cultivated among the community especially among the youths in the village.	0.84					
There are a number of religious activities being conducted by VDSC and mosque committee members for the villagers.	0.72					
I emphasize on the importance and good deeds of other people in various matters.	0.78					
Orgnaizing safety campaign and good deeds such as working together and overcoming crimes in village.	0.59					

Table 4. The instrument reliability.

Instrument	Number of Items		Cronbach alpha value
	Previous	Current	
Beautification	5	4	0.837
Economy	10	4	0.710
Leadership	16	4	0.836
ICT	12	4	0.868
Education	10	5	0.810
Health and Cleanliness	10	4	0.813
Spirituality and Civic	7	4	0.813
Overall		29	0.922
Sustainable Development Model		17	0.902

The significant items were items number 1, 3, 6 and item number 7

Instrument reliability

The instrument will be considered as reliable if Cronbach Alpha value = 0.70 or more. Seven dimensions which were analyzed using CFA analysis, then was once again analyzed in order to reveal its reliability level. Data gathered is presented in Table 4. Based on the obtained data, all the seven dimensions were found to be reliable, the Cronbach Alpha value exceeding the minimum of 0.70. The economy dimension proved to be the lowest dimension (0.710) while the ICT dimension was found to be the highest dimension (0.868). Overall, the seven dimensions which consisted of 29 items produced Cronbach Alpha value of 0.922.

The Malaysia sustainable development model for rural community

This study was designed to develop a firm model to mea-

sure sustainable development from the seven dimensions that have been identified. CFA analysis was applied for this purpose and the result obtained from Table 3 is presented in Figure 1.

From the seven original dimensions, only four dimensions were found to be fit into the sustainable development model. In order for a data to fit the model the requirements that must be met are GFI INDEX and CFI = > 0.9 and RMSEA = < 0.8. After CFA was run, only four dimensions were found to fit the models which were beautification, leadership, education and spirituality. This result is in tandem with what have been done by Hazell and Lutz (1998), Ngcobo and Herselman (2007), Adil et al. (2005) and Day (1998) where all of them agreed that all of these items are the key for rural development

success. Not only will these four dimensions develop the area but also those who lived in that area. From the previous studies it was also proven that these four items have the ability and power to enhance the quality of life among the rural people especially on the aspects of economy, social and academic. The standardized estimated value for each was 0.72, 0.72, 0.60 and 0.84. The statistic estimation of fit model indicate that this model

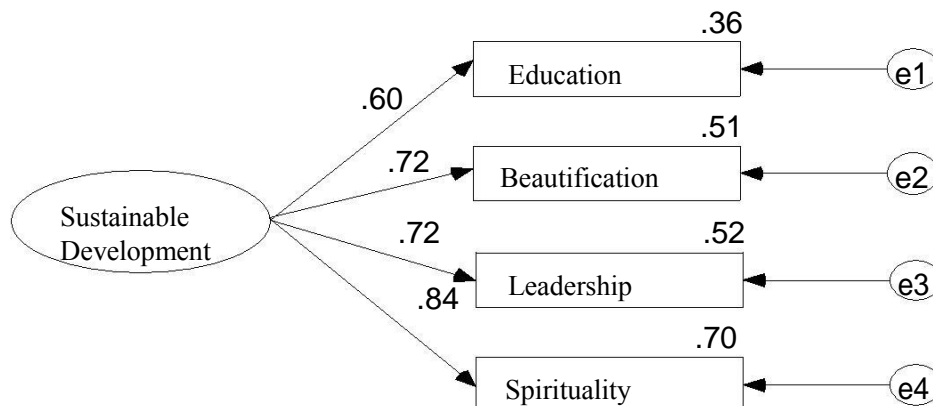


Figure 1. Malaysia rural sustainable development model.
Chi-Square = 1.801, DF = 2, p = .406, CFI = 1.000, GFI = .996, AGFI = .981, NFI = .994, TLI = 1.002, RMSEA = .000

had failed to be rejected, which means that a model that consists of this four dimensions fit the data ($\chi^2 = 1.801$, $p = 0.406$, GFI = 0.996, NFI = 0.994 and RMSEA = 0.0001).

Conclusion

The findings of this study imply that rural community leaders perceive the dimension of spirituality as an important element towards sustainable development. This is an important factor that needs to be taken into serious consideration by policy makers. It is vivid that rural people do not wish to sacrifice their lives by the tidal waves of unfettered materialism that would lead them to live in a world that can best be described as a dystopia. It becomes a surety that rural people would lucratively accommodate development if it is packaged with the component of spirituality as they believe that acknowledgement of spiritual worth would lead to creating responsible sustainable development that would be beneficial and bring true happiness to a greater number of people.

Secondly, the study implies that rural community leaders perceive leadership to be imperative towards sustainable development. The study identified that to ensure sustainable development among rural community effective leadership helps villages to develop through times of peril to overcome numerous social and community problems and to accommodate the wishes of the people in the community. Thus, it is of utmost importance that sustainable development is accompanied by visionary leaders that would help to conquer obstacles and implement decisions that are timely, complete and correct. Without good leadership, sustainable development might be hindered as the activities in villages would be moving too slowly, stagnate and might lose their way.

Further implication that can be drawn from this study is that beautification too is an important factor towards

sustainable development. The study depicts that the realization on the need to take care of the environment has been imprinted in the minds and souls of rural community. It is clear that rural leaders feel that sustainable development should be accompanied with the factor of beautification as they believe that this will increase the quality of life and economic development in rural areas. Moreover, developing a safe and clean environment apparently seem to create an awesome feeling for rural people as this would help them to preserve their heritage and make their village to look stronger than ever.

It is also undeniable that education plays an important role towards sustainable development. The traditional way of having rural community with good manners but poor education is considered as antiquated. The study suggests that rural people believed on the importance of education as an important tool to lift them out of the state of chronic poverty, and their focus is on two main areas - having their children educated till the tertiary level and to equip themselves with relevant knowledge and skills. The rural leaders believe that via education rural people would be instilled with a long- term vision and they will be more responsible in utilizing the resources available in villages.

In conclusion, it is recommended that policies on sustainable development among the rural community would need a different approach from the policy makers since this community does not wish to live a disintegrated life at an insidious pace. Future research is recommended to encompass a wider scope of constructs pertaining to sustainable development that incorporate socio-political sustainability and cultural diversity.

REFERENCES

- Adil SA, Ghaffor A, Nadeem AM (2005). Investigations into the human resource development status and its impact on farm output in rural areas of district Jhang, Pakistan. *Agric. Soc. Sci.* 1:10-13.

- Day G (1998). Working with the Grain? Towards sustainable rural and community Development. *Rural Stud.* 14: 89-105.
- Hazell P, Lutz E (1998). Integrating environmental and sustainability concerns into rural development policies. In Lutz, E., Binswanger, H., Hazell, P., and Mc Calla, A (eds.). *Agriculture and the environment.* The World Bank Publication. Washington D.C, United States of America pp: 9-21.
- Hopkins C, McKeown R (2002). Education for sustainable development: An international perspectives. In Tilbury, D., Stevenson, R.B., Fien, J., and Schrueder, D (eds.). *Education and Sustainability: Responding to Global Challenges.* IUCN Publisher. Gland, Switzerland pp: 150-156.
- Koharudin MB (2005). Rural development in Malaysia: Village Vission Movement (VVM) as a mekanisme for development of rural community. *J. Technol.* 42: 31- 48.
- Ngcobo P, Herselman ME (2007). Evaluating ICT provision in selected communities in South Africa. *Issues Informing Sci. Info. Tech.* 4: 714-724.
- Shamsul AB (1998). Development and change in rural Malaysia: The role of Village Development Committee. *South East Asian Stud.* 26: 1-9.
- Shiblaq F, Fielden K (2008). *ICT provision in rural community: A New Zealand case study.* Paper presented at IADIS International Conference ICT, Society and Human Beings, Amsterdam, The Netherland.
- The Brundtland Report (1987). http://www.ace.mmu.ac.uk/ee/Sustainability/Older/Brundtland_Report.html [17 July 2009].