



**PAK Publishing Group**  
Growing Knowledge for Future

Proceedings Book of ICEFMO, 2013, Malaysia  
Handbook on the Economic, Finance and Management Outlooks  
ISBN: 978-969-9347-14-6

# **Happiness and its Influencing Factors among Paddy Farmers in Granary Area of MADA**

**Roslina Kamaruddin**

School of Economics, Finance and Banking College of Business, Universiti Utara Malaysia

**Jamal Ali**

School of Economics, Finance and Banking College of Business, Universiti Utara Malaysia

**Nariman Mohd. Saad**

School of Economics, Finance and Banking College of Business, Universiti Utara Malaysia

## **Abstract**

The study aims to study the factors associated with the level of happiness among paddy farmer's household in the granary area of Kedah. The study used quantitative research technique by using interview questionnaire to obtain data at the household level. Structural Equation Modeling (SEM) used to analyze the factors affecting happiness of the paddy farmers statistically. The study found that the institution factor is the most significant factor contributing to happiness of paddy farmer's household with the coefficient value of 0.36. The finding shows that the role played by MADA, particularly in terms of advisory assistance to farmers have succeeded to improve happiness of farmers in the area. The management of leisure time, ownership of financial assets and human assets also positively significant influencing the happiness of paddy farmers. In addition the environment factors such as pollution, land degradation and waste disposal also significant influencing happiness of paddy farmers negatively. Finding also suggests that farm management factor indicated by variables such as effective use of machinery, pest control and weed control are not able to increase the happiness of paddy farmers. This situation clearly shows that the increase in cultivation technology with the usage of mechanization in every production process and harvesting is not able to increase the happiness of paddy farmers especially the poor. Thus, active involvement from related institution, strengthening the financial and human assets, as well as the introduction of technology that is more acceptable to the farmers, seen are the best way to raise the level of happiness among the paddy farmers.

**Key words:** Happiness, Paddy Farmer, Granary Area

## 1. Introduction

The agriculture sector has been identified as the third engine of economic growth after manufacturing and service sector. Agriculture sector in Malaysia can basically be categorized by the co-existence plantation and smallholder's subsectors. It could later classify into food and industrial commodities. The food sub sectors may include paddy, vegetables, fruits, meats and fish while main industrial commodities are palm oil, rubber and cocoa. Among the food crops sub sector, paddy had always been accorded special treatment by the government either in terms of physical development, budget allocation, monitoring of progress and concern of the farmer's happiness, many of which are poor. Malaysia is one of the top 25 rice producing countries in the world with annual production of 2.51 million metric tons (FAOSTAT, 2009). It is mainly cultivated by small holder farmers and is highly regulated and subsidized. Malaysia's rice production is about 2.51 million metric tons in 2009 produced from cultivable land of about 0.7 million hectares since the 1980s.

Being the staple food for the entire population, rice is structurally cultivated in the designated eight main rice producing areas called Granary Areas of Malaysia. These areas are: 1) the Muda Agricultural Development Authority (MADA); 2) Kemubu Agricultural Development Authority (KADA); 3) Barat Laut Selangor Integrated Agriculture Development Area (IADA Barat Laut Selangor); 4) Penang Integrated Agriculture Development Area (IADA Penang); 5) North Terengganu Integrated Agriculture Development (KETARA); 6) Kerian Sungai Manik; 7) Seberang Perak; and 8) Kemasin-Semerak. Among eight granary areas, MADA is the largest and it is known as paddy bowl of Malaysia. In 2011, there were about 55,130 farmers planting rice in the MADA area either with the status of sole-ownership of land or renting with the average size of 2.2 hectares of rice fields (MADA, 2011). MADA was founded on June 30, 1970 with an objective to improve the happiness of rural population and increase revenue for the country especially rice production. MADA area covers two states of Kedah and Perlis. Total area planted with paddy in the MADA area is 96,558 hectares, of which 80.66% is located in the State of Kedah and 19.34% located in the state of Perlis. In order to ease the administration, MADA is divided into four regions, namely Kangar region, Jitra region, Pendang region and Kota Sarang Semut region.

Rice cultivation in Malaysia is closely associated with the rural population and traditional farmers. Labour in this subsector is characterized by aging farmers and low levels of education. Poverty and dependency is significant in this subsector, and most farmers would be living below the absolute poverty line without Government support (Norsida & Sami, 2009). Among the reasons recognized that lead to the incidence of poverty plaguing the local rice farming community is lack of productive assets, active depending on small-scale agriculture projects and non-agricultural activities (Zaim et.al. 2013). This situation coupled with out-migration of youth which have an advantage in terms of productivity, age and education, caused the government's initiative on eradicating poverty becomes less effective.

The new Malaysia economic transformation program under the 10th Malaysian plan have identified the need for scaling up and increasing productivity in paddy farming, to increase national self-sufficiency and reduce subsidy dependency by both the farmers and end consumers. Two major initiatives under the National Key Economic Areas (NKEA) have been identified to scale up and strengthening productivity of paddy farming in the MADA area and in other irrigated areas. It was reported that poor paddy productivity has resulted in low farmer's income with average earning of RM 1,400 per month and this earning includes price support of RM248.00 per metric ton provided by the government.

Various development programs and incentives have been channeled by the government to increase paddy productivity and thus improve the living standard of rice farmer. Credit facilities, fertilizer subsidies, irrigation investment, guaranteed minimum price, income support programmes, subsidized retail price as well as research and extension support (training and advisory), have been channeled. Despite the massive fiscal outlays for this constituency, rice production is still chronically inefficient with respect to meeting the market and population demand (Norsida & Sami, 2009). With this condition, the government and MADA currently take a different approach by introducing a number of projects such as 10 tons project, mini-estates, and model farm (*ladang contoh*) to ensure the achievement of the objectives.

However, to what extent these goals were achieved? Is the happiness of their living solely dependent on these factors or there are other things that also affect their happiness? Although in terms of financial the farmers are seen as a poor group, but they are difficult to leave these activities, because this job has been synonymous in their lives. They are happy and proud to be a paddy farmer. Farming was among the earliest of civilized man’s occupations, and it has been the main economic basis of every civilization down to fairly recent times. Among ancient peoples, the landowner was regarded, along with the warrior, as the most respected and honored of men. There is, of course, the old saying, “The farmer’s day is never done.” The chores on a farm are many and the monetary rewards often limited. But many farmers do not think of their occupation solely in terms of cash. This fact shows that there are other dimensions that determine the level of their happiness, other than financial terms. Therefore, this study will analyze the factors that influence the level of happiness among paddy farmers in the granary area of Kedah, which MADA is the key agency that responsible in assisting farmers in the area.

## 2. Methodology

This study is highly dependent upon the survey method to derive accurate information from respondents. The direct face-to-face interview is employed in this study. The survey was conducted in 2012 through interviews from the selected samples of MADA paddy farmers. In total, 800 farmers were selected as respondents to answer the questionnaire. In this study, sampling design was followed by ‘random sampling’ method. The data was collected by the researcher and trained enumerators using a pretested interview schedule.

After collecting the results of the survey, all the data were coded directly on to a questionnaire and then entered into a personal computer. Several analyses of the data have been carried out as the core of this study. Structural Equation Modelling is used to analyse the factors effecting happiness of the paddy farmers.

Based on field study and literature review, hypothesized model is shown in Figure 9.1. This model assumes the dimensions of rice farmer's well being influenced by possession of livelihood assets include human assets, financial assets and physical assets especially in terms of the effectiveness of mechanization; property ownership including houses, paddy fields, farm land, cars, savings, stocks, etc. Other factors include leisure time management, quality of the nearby environment, effectiveness of rice field management, satisfaction with the development programs, services and facilities offered by relevant institutions. List of indicators for each dimension are presented in Table 9.1. Formation of model is divided into two stages. The first stage is the validation of indicators for each dimension by using confirmatory factor analysis and the second stage is to analyze the relationship between the dimensions by using structural equation modeling.

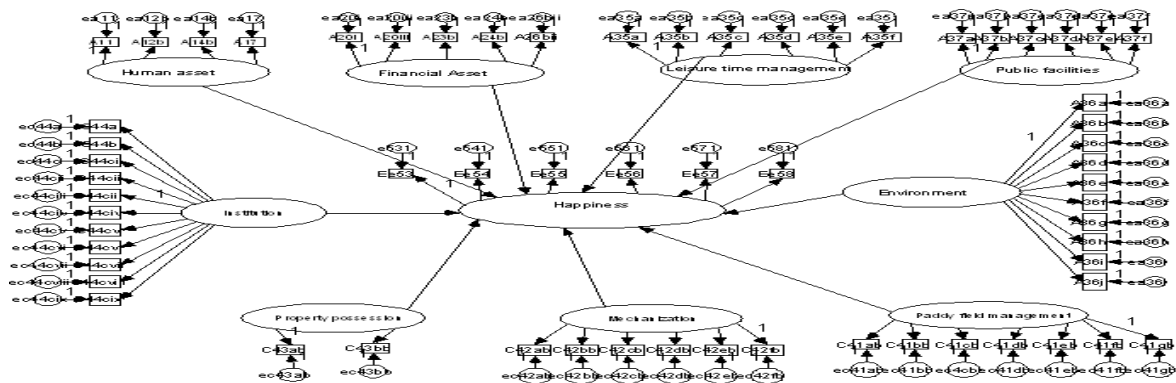
This study utilized the Statistical Package for Social Sciences (SPSS) version 17 and AMOS version 16 to analyse the data.

**Table-9.1.** List of variables used in the model

Variable	Description of indicators	Symbol
Human asset	Years of experience in paddy farming	A11
	Education level /academic qualification of farmers (ranking 1-7)	
	1- No formal education	A14B
	2- Religious school	
	3- Primary school	
	4- Lower secondary school (PMR)	
	5- Higher secondary school (SPM/SPVM)	
	6- STPM/STA	
	7- Tertiary education	
Financial asset	Total income from agriculture ( RM/month)	A20I
	Total household income ( RM/month)	A20III
	Total area cultivated ( hectar)	A26BII
Leisure time management	Undergoing economic activities (business, hired labor etc.)	A35D
	Community activities / social	A35E

Public facilities	Community hall facilities <i>Rukun tetangga</i> facilities Recreational facilities Public transport	A37A A37B A37C A37D
Environment	Often experienced haze in the villages and fields. Solid waste disposal system and unmanageable toxic. Landfills stench often disturbing. River water polluted by factory waste. Contaminate soil erosion stone into the river. Nearby factory and vehicle air pollution. Local authorities should seek to raise public awareness Odorless of drinking water Muddy water	A36A A36B A36C A36D A36E A36F A36G A36H A36I
Paddy field management	The Effectiveness of paddy field management: - Method of rice planting - Use of machinery - Insect Control - Control weeds	C41BB C41EB C41FB C41GB
Institution	Advice / assistance in: - Cultivation of rice - Weeds Control - Insect Control - Fertilization - Harvesting	C44CV C44CVI C44CVII C44CVIII C44CVIX
Happiness	At present, as a whole, the level of farmer's happiness is...  At present, as a whole, the health level of farmers and families are...  At present, as a whole, the financial status of farmer giving pleasure to farmers and families  At present, as a whole, the farmer's relationship with PPK and MADA are...  At present, as a whole, the farmer's relationships with colleagues are...	EE53  EE55  EE56  EE57  EE58

Figure-9.1. Hypotheses model of factors influence the level happiness among paddy farmers in MADA



### 3. Result and Discussion

Results of the confirmatory factor analysis were summarized in Table 9.2. There are several indicators that have a low value of factor loading and not significant to represent each asset category. Furthermore results also produce poor fitness indices represented by the value of CFI, GFI, and IFI

that are less than 0.80. Hair (2006) suggests a value for each index must be at least more than 0.80 to obtain a better fit model. Thus based on the factors loading and modification indices generated, several indicators were dropped from the model. The modified model is shown in Figure 9.2. The new model witnessed the absence of property ownership and mechanization factors as indicators for these assets have a relatively low factor loading of less than 0.5. Thus these two factors are eliminated from the model.

**Table-9.2.** Results of the Confirmatory factor analysis model that shows indicators for each dimension

Indicator	Standardized coefficient	Standard error	C.R.	P
<b>HAPPINESS</b>				
The level of happiness (EE53)	0.503			
The level of happiness compared to neighbors (EE54)	0.255	0.123	5.584	0.000
Health status (EE55)	0.482	0.129	8.882	0.000
Financial level (EE56)	0.489	0.142	8.950	0.000
Level of relationships with PPK and MADA (EE57)	0.497	0.093	9.026	0.000
Level of relationships with colleagues (EE58)	0.404	0.073	7.946	0.000
<b>HUMAN ASSET</b>				
Experience (A11)	0.641			
Involvement in association (A12B)	0.006	0.002	0.139	0.890
Education level (A14B)	-0.842	0.042	-2.913	0.004
Information technology (A17)	0.098	0.026	2.420	0.016
<b>FINANCIAL ASSET</b>				
Total income from agriculture ( RM/month) (A20I)	0.992			
Total household income ( RM/month) (A20III)	0.927	0.021	48.138	0.000
Total area cultivated ( hectar) (A26BII)	0.687	0.000	25.313	0.000
<b>LEISURE TIME MANAGEMENT</b>				
Religious activities (A35A)	0.246			
Sport and recreation activities (A35B)	0.186	0.913	3.618	0.000
Rest at home (A35C)	0.196	0.221	3.737	0.000
Economic activities (A35D)	0.560	0.695	5571	0.000
Community activities (A35E)	0.775	0.862	5.336	0.000
Livelihood satisfaction (A35F)	0.229	0.252	4104	0.000
<b>PUBLIC SERVICES</b>				
Community hall facilities (A37A)	0.603			
<i>Rukun tetangga</i> facility (A37B)	0.640	0.103	13.040	0.000
Recreational facilities (A37C)	0.730	0.198	13.743	0.000
Public transport (A37D)	0.644	0.126	13.085	0.000
Clinic (A37E)	0.101	0.041	2.158	0.012
Public facilities (A37F)	0.041	0.037	1.018	0.309
<b>ENVIRONMENT</b>				
Often experienced haze in the villages (A36A)	0.847			
Solid waste disposal system and unmanageable toxic (A36B)	0.910	0.030	36.595	0.000
Landfills stench often disturbing (A36C)	0.894	0.031	35.339	0.000
River water polluted by factory waste (A36D)	0.906	0.030	36.276	0.000
Contaminate soil erosion stone into the river (A36E)	0.933	0.029	38.485	0.000
Nearby factory and vehicle air pollution (A36F)	0.924	0.030	37.717	0.000
Local authorities should seek to raise public awareness (A36G)	0.566	0.050	17.948	0.000
Odorless of drinking water (A36H)	0.882	0.035	34.400	0.000
Muddy water (A36I)	0.879	0.034	34.229	0.000
The satisfaction on environment as a whole (A36J)	0.106	0.033	3.036	0.002
<b>PADDY FIELD MANAGEMENT</b>				
Overall (C41AB)	0.334	0.029	9.570	0.000
Cultivation technique (C41BB)	0.392	0.044	11.395	0.000
Seeding rate (C41CB)	0.230	0.070	6.489	0.000
<i>Mencedong</i> (C41DB)	0.287	0.075	8.149	0.000
Use of mechanisation (C41EB)	0.404	0.044	11.776	0.000

Insect control (C41FB)	0.879	0.036	28.215	0.000
Weed control (C41GB)	0.945			
<b>MECHANISATION</b>				
Overall (C42AB)	0.702	0.073	15.960	0.000
Training in technology (C42BB)	0.760	0.098	16.828	0.000
Training in skill improvement (C42CB)	0.853	0.104	17.778	0.000
Agriculture Development (C42DB)	0.472	0.065	11.670	0.000
Irrigation facility (C42EB)	0.375	0.052	9.520	0.000
Assistance/ advice (C42FB)	0.614			
<b>PROPERTY OWNERSHIP</b>				
House (C43AB)	0.143			
Paddy field (C43BB)	0.203	0.458	2.353	0.019
<b>INSTITUTION</b>				
Advice/assistance in overall (C44A)	0.351	0.355	4.952	0.000
Advice/assistance in paddy yield improvement (C44B)	0.321	0.536	4.829	0.000
Advice/ assistance in financial resources (C44CI)	-0.023	0.315	-0.631	0.528
Advice/ assistance in seeding (C44CII)	0.244	0.287	4.367	0.000
Advice/ assistance in land preparation (C44CIII)	0.202			
Advice/ assistance in water pumping (C44CIV)	0.288	0.421	4.660	0.000
Advice/assistance in cultivation of rice (C44CV)	0.599	0.595	5.450	0.000
Advice/assistance in Weeds Control (C44CVI)	0.849	0.920	5.605	0.000
Advice/assistance in Insect Control (C44CVII)	0.874	0.894	5.612	0.000
Advice/assistance in Fertilization (C44CVIII)	0.791	0.712	5.581	0.000
Advice/assistance in harvesting (C44CIX)	0.438	0.350	5.206	0.000
<i>Fit Measures</i>				
CMIN/DF = 5.487	IFI = 0.675	RMSEA = 0.073		
CFI = 0.674	GFI = 0.688			

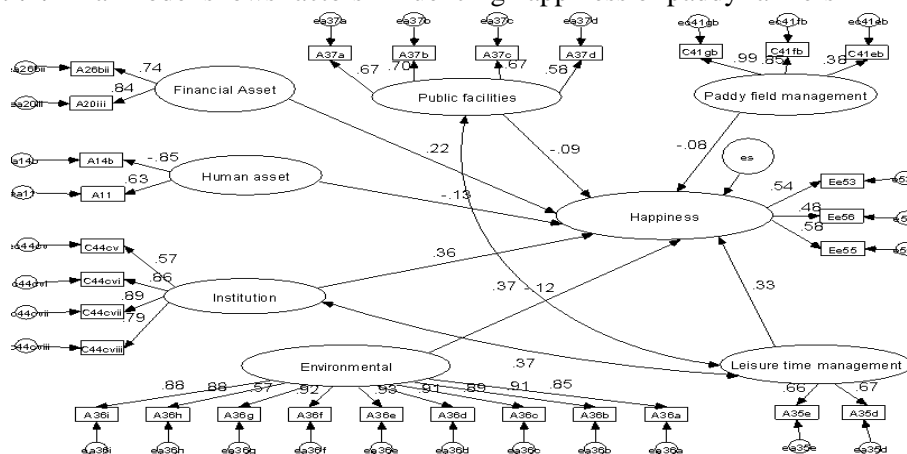
Figure 9.2 presents the final model that shows the factors influence paddy farmer's happiness after the elimination of several variables that have the factor loading value of less than 0.5. Detail results of confirmatory factor analysis model are shown in Table 3. The fitness level of model is better than the original model with the index of CFI, IFI and GFI approaching 0.90 and factor loading value of indicators for each dimension is greater than 0.5 (Table 9.3). This model shows the dimensions of farmer's happiness in the MADA area is significantly influenced by all dimensions except public facilities factor.

Institutional factor is an important factor that contributes to the happiness of farmers in the MADA area with a standardized coefficient of 0.360 (Table 9.4). The findings show that the role played by the MADA particularly in terms of advisory assistance to paddy farmers have managed to increase the happiness of farmers in the area. As in the sustainable livelihood framework proposed by DFID, policy and institutional environment always supports multiple livelihoods strategies and promotes equitable access to competitive markets for all (Chambers & Conway, 1992; Ellis, 1998; Scoones, 1998). Good relations and trust between MADA officials and farmers should be strengthened to increase the efficiency in rice production and in turn will increase the farmer's household income. Increasing in household income indirectly will increase the happiness level of farmers. Although happiness is not only reflected by money term alone, but it is an important aspect to achieve happiness for the individual.

This is followed by free time management with a coefficient value of 0.333. This result witnessed that farmers who participated in socio-cultural activities, religion, and other leisure activities within their community reported higher level of happiness than those who didn't.

Imbalance in time allocation between work and other things is caused by a number of factors amongst which increased number of work hours is the most prominent one. Money becomes the focus or the driving force behind long hours of work to many individuals. As they devote more time to work they do not find time to do things that they enjoy. Such people are not happier but are much stressed than others (Kahneman et al., 2006).

**Figure-9.2.** Final model shows factors influencing happiness of paddy farmers in MADA area.



**Table-9.3.** Result of Structural Equation Modelling shows the indicators for each dimension

Indicators	Standardized coefficient	Standart error	C.R.	P
<b>HAPPINESS</b>				
The level of farmer’s happiness (EE53)	0.537	0.086	9.059	0.000
The health level of farmers and families (EE55)	0.577	0.141	9.059	0.000
The financial status of farmer giving pleasure to farmers and families (EE56)	0.475	0.106	8.572	0.000
<b>HUMAN ASSET</b>				
Years of experience in paddy farming (A11)	-0.633	3.479	-2.288	0.022
Education level /academic qualification of farmers (A14B)	0.851	0.055	-2.288	0.022
<b>FINANCIAL ASSET</b>				
Total household income ( RM/month) (A20III)	0.839	221.97	4.547	0.000
Total area cultivated (hectar) (A26BII)	0.745	0.000	4.547	0.000
<b>LEISURE TIME MANAGEMENT</b>				
Undergoing economic activities (business, hired labor etc. (A35D)	0.675	0.127	9.434	0.000
Community activities / social (A35E)	0.656	0.088	9.434	0.000
<b>PUBLIC FACILITIES</b>				
Community hall facilities (A37A)	0.665	0.052	14.569	0.000
<i>Rukun tetangga</i> facilities (A37B)	0.701	0.091	14.569	0.000
Recreational facilities (A37C)	0.667	0.158	14.240	0.000
Public transport (A37D)	0.580	0.103	12.985	0.000
<b>ENVIRONMENT</b>				
Often experienced haze in the villages (A36A)	0.846	0.025	34.201	0.000
Solid waste disposal system and unmanageable toxic (A36B)	0.910	0.030	36.577	0.000
Landfills stench often disturbing (A36C)	0.894	0.031	35.306	0.000
River water polluted by factory waste (A36D)	0.906	0.030	36.253	0.000
Contaminate soil erosion stone into the river (A36E)	0.933	0.029	38.467	0.000
Nearby factory and vehicle air pollution (A36F)	0.924	0.030	37.704	0.000
Local authorities should seek to raise public awareness (A36G)	0.567	0.050	17.954	0.000
Odorless of drinking water (A36H)	0.882	0.035	34.377	0.000
Muddy water (A36I)	0.879	0.034	34.201	0.000
<b>PADDY FIELD MANAGEMENT</b>				
Use of machinery (C41EB)	0.384	0.046	10.164	0.000
Insect control (C41FB)	0.846	0.054	17.289	0.000
Weeds control (C41GB)	0.990	0.062	17.289	0.000
<b>INSTITUTION</b>				
Advice / assistance in cultivation of rice (C44CV)	0.574	0.034	17.370	0.000

Advice / assistance in Weeds Control (C44CVI)	0.855	0.096	17.370	0.000
Advice / assistance in Insect Control (C44CVII)	0.890	0.093	17.635	0.000
Advice / assistance in Fertilization (C44CVIII)	0.789	0.077	16.643	0.000
<i>Fit Measures</i>				
CMIN/DF = 5.109	GFI = 0.861	RMSEA = 0.070		
CFI = 0.898	IFI = 0.898			

Possession of financial assets and human assets are also significant factors contribute to the level of happiness among paddy farmers, with a coefficient value of 0.216 and 0.134 respectively. These findings imply that increasing in financial and human assets will increase happiness level among farmers. As we are aware, rural livelihoods system constitutes diverse economic, social and cultural 'universe' wherein rural families are bound to make their living. People acquire livelihoods in a variety of ways, with varying degrees of success according to their possession of livelihood assets, access to resources and their capability in managing their assets and resources. Rural people that have the modest portfolio of livelihood assets can help to bring them out of poverty and insecurity. It has been recognized that, traditional social capital, culture and history, human capital, and indigenous knowledge and know-how as resources, which may have different opportunities to pursue various livelihoods (WorldBank, 2003). As Chambers (1997) emphasizes, people construct and contrive a living using their knowledge, skills and creativity. Next, environmental factors, especially in terms of environmental aspects such as haze pollution, river pollution, soil erosion, and solid waste disposal system is significantly influenced the happiness of farmers negatively. This negative relationship indicates worsening of environmental degradation level will reduce the level of farmer's happiness. As noted by Welsch (2006), awareness of a local environmental problem, and of its negative effects on human and ecosystem health, could also act to reduce happiness levels directly and independently. Individuals' perceptions of environmental degradation such as air and water pollution may influence their happiness because generally they aware of the sources of pollution and its negative effects on human health (Bickerstaff & Walker, 2001). According to (Barton & Pretty, 2010) natural environments might increase happiness by facilitating and encouraging or practical, cultural and psychological reasons behaviours that are physically and mentally beneficial, including physical exercise, recreation and social interaction.

**Table-9.4.** Result of structural equation model shows the factors influence the happiness of paddy farmers in MADA area

<b>Independent variable</b>	<b>Standardised coefficient</b>	<b>Standard error</b>	<b>C.R.</b>	<b>P</b>
Human asset	0.134*	0.021	1.978	0.048
Financial asset	0.216*	0.012	4.119	0.000
Leisure time management	0.333*	0.041	4.331	0.000
Environment	-0.120*	0.018	-2.751	0.006
Public facilities	-0.093	0.028	-1.587	0.112
Paddy field management	-0.080**	0.051	-1.854	0.064
Institution	0.360*	0.072	6.000	0.000

**Note:** \* Significant at 5%

\*\* Significant at 10%

Similarly, paddy field management factors also have a negative relationship with the happiness of farmers. This finding suggests that variable such as effective use of machinery, pest control and weed control is not able to increase the happiness of farmers and even will lower their happiness level. The reality of paddy farming today tends to make poor farmers a 'boss' to richer farmers. This is because the poor farmers are not being able to have various types of cultivation machinery. In this case they will probably hire rich farmers who have the machine to run every planting process from tilling the soil, sowing seeds, insecticide, weed to harvest. Their time in the paddy field is becoming less. They will only receive their net profit after deducting all the cost of hiring at the end of each season. This situation clearly shows that the increase in cultivation technology in particular the use of mechanization in every stage of production process cannot afford to increase the happiness of the poor farmers.

## 4. Conclusion

Paddy sub-sector had always been accorded special treatment by the government either in terms of physical development, budget allocation, monitoring of progress and concern of the farmer's happiness, many of which are poor. Paddy is mainly cultivated by small holder farmers and is highly regulated and subsidized. MADA is the largest granary area and it is known as paddy bowl of Malaysia. Rice cultivation in Malaysia is closely associated with the rural population and traditional farmers. Poverty and dependency is significant in this subsector because most of the farmers is lack of productive assets, holding a small-scale agriculture projects and coupled with out-migration of youth, caused the government's initiative on eradicating poverty becomes less effective. Although in terms of financial the farmers are seen as a poor group, but they are difficult to leave these activities, because this job has been synonymous in their lives. Moreover many farmers do not think of their occupation solely in terms of cash. There are other dimensions that determine the level of their happiness, other than financial terms. Therefore, this study will analyze the factors that influence the level of happiness among paddy farmers in the granary area of Kedah using Structural Equation Modeling with a sample size of 800 respondents. The results show that institutional factor is the most important factor that influences happiness of farmers in the MADA area. For example, the role played by MADA particularly in terms of advisory assistance related to rice cultivation has a positive relationship with the happiness of farmers. This gives the impression that the role played by the MADA has succeeded in increasing the happiness of farmers in the area. In this case, MADA should strengthen the extension system, guidance and monitoring in order to ensure the farmers access to latest information and technology that applicable to them. But the effectiveness of cultivation technology introduced shows negative effects on happiness level of farmers. This implies that the introduction of technology has not managed to raise the level of happiness among farmers especially for small-scale farmers who cannot afford to have the technology introduced. Thus, the government and relevance agencies should ensure that technology introduced taking into account the ability and preparedness of farmers to adapt the technology. Apart from that, individual factors also play an equally important role in contributing to their happiness. Factors such as leisure time management, possession of financial and human assets also significant in influencing the happiness level among paddy farmers in MADA area.

## References

- Barton, J. & Pretty, J. (2010). Urban ecology and human health and wellbeing. In K. Gaston (Ed.), *Urban Ecology* chapter 9, (pp. 202–229). Cambridge University Press.
- Bickerstaff, K. & Walker, G. (2001). Public understandings of air pollution: The 'localisation' of environmental risk. *Global Environmental Change*, 11, 133–145.
- Chambers, R. (1997) *Whose Reality Counts? Putting the First Last*, London, Intermediate Technology.
- Ellis, F. (1998). Household strategies and rural livelihood diversification. *Journal of Development Studies*, 35 (1): 1-38.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. & Tatham, R.L. (2006). *Multivariate data analysis*. Sixth Edition. New Jersey: Pearson Prentice Hall.
- Kahneman, D. (2006). "Would You Be Happier if You Were Richer? A Focusing Illusion" A CEPS Working Paper No. 125, available at <http://www.princeton.edu/~ceps/workingpapers/125krueger.pdf>
- Norsida, M., & Sami, I. S. (2009). Off-farm employment participation among paddy farmers in the Muda Agricultural Development Authority and Kemasin Semerak granary areas of Malaysia. *Asia-Pacific Development Journal*, 16(2), 141-153. [http://www.unescap.org/pdd/publications/apdj\\_16\\_2/7\\_Man\\_Sadiya.pdf](http://www.unescap.org/pdd/publications/apdj_16_2/7_Man_Sadiya.pdf)
- Scoones, I. (1998) *Sustainable Rural Livelihoods: A Framework for analysis*. IDS, Working Paper Brighton, IDS
- Welsch, H. (2006). Environment and happiness: Valuation of air pollution using life satisfaction data. *Ecological Economics*, 58, 801–813.
- Zaim Fahmi, Bahaman Abu Samah & Haslinda Abdullah. 2013. Paddy Industry and Paddy Farmers Well-being: A Success Recipe for Agriculture Industry in Malaysia. *Asian Social Science*; Vol. 9, No. 3.