

THE NINTH MALAYSIAN PLAN AND AGRICULTURE EXTENSION OFFICER COMPETENCY: A COMBINATION FOR INTENSIFICATION OF PADDY INDUSTRY IN MALAYSIA

Hayrol Azril MOHAMED SHAFFRIL *

Azizan ASMUNI**

Azahari ISMAIL**

Abstract

Agriculture interest in Malaysia has risen. This can be proved through government plans stated in The Ninth Malaysian Plan. One of the agriculture sectors that can be benefited through this plan is paddy industry. It is expected in 2010, the income generated by paddy industry will increase up to 988 million per year, thus depicts the potential it has. Paddy industry in The Ninth Malaysian Plan will be boosted through land rehabilitation and consolidation, increase number on R&D, paddy farmers will be exposed to more agriculture trainings, bigger credit allocation and better drainage and irrigation systems. In order to achieve this, the competency of agriculture extension officer is needed. Based on the previous studies, communication training is indeed important aspects that need to be intensified to strengthen the competency aspect of the agriculture extension officers. Previous studies also has show consistent findings that job performance, attitude, skills, knowledge, quality and quantity of works, use of technology and demography factors play important roles in cultivating competency to agriculture extension officers.

Keywords: Agriculture Extension Officer, The Ninth Malaysian Plan and Competency

1. Introduction

Agriculture sector has achieved positive development during The Eight Malaysia Plan (RMK-8). To sustain this positive development the Malaysian government has announced in the 2010 budget that RM6 billion has been allocated for agriculture sector. One of the agriculture sectors that can profit from this allocation is the paddy industry. As we know, food crisis happened recently or known as “silent tsunami” has caused instability on the food prices in Malaysia. Rice is one of the basic foods that recorded 100% price increase. This indeed has brought difficulties to communities especially the poor and the low-income group. In facing this problem, the related ministry and the private sector has taken initiative in investing on opening land for paddy entrepreneurship. The best example to be referred here is an effort by giant company, which is Sime Darby. They have identified 7,000-hectare land for paddy plantation in Sarawak (Utusan Malaysia, 16 June 2008). Malaysian Government has already launched Northern Region Economy Corridor (NREC), where one of the objectives is to make two third of the community within this region to be involved in paddy plantation. Besides this, the small-scale paddy plantation area has been centralized and continued with the concept of grouping agriculture in eight paddy plantation areas. On top of it, project “ten tone per hectare” has enabled wider concept of Good Agriculture Practice (GAP) and better plantation management. Due to this positive development, the paddy productivity has increased to 2.3% per year.

The paddy development areas in Malaysia such as in Kedah, Selangor, Perak and Sarawak are indeed demanding the competency of agriculture extension officer (AEO) in ensuring their paddy area is well developed. The paddy plantation needs to be cultivated by new ideas and method so that this sector can be developed as a new source of income for Malaysia. This creates chances for Ministry of Agriculture and Agro-Based Industry as the policy maker to come with plans of action to intensify this sector as a dynamic and competitive sector. Table 1 narrates the potential of the paddy plantation to be one of the major

*Institute for Social Science Studies, Universiti Putra Malaysia

**Faculty of Educational Studies, Universiti Putra Malaysia

contributors to the economy of the country. It is expected that in 2010, paddy will generate RM988 million. But, if we compare paddy with other agriculture sources, there is still lot to be done in order to intensify paddy as the main agriculture sector in Malaysia. In order to intensify paddy industry, we need to enhance the competency of the AEO first.

Table 1: Income generated by Paddy Industry and Comparison with Other Agriculture Sources

Year/ Sources	2000	2005	2010
	In RM Million		
Palm Oil	5860	7915	10,068
Fisheries	2493	2839	3875
Forestry	3055	3016	2761
Rubber	1868	2264	2554
Livestocks	1520	2089	2483
Paddy	590	632	988
Cocoa	250	83	138

Sources: Department of Statistic Malaysia and Economy Planning Unit

Table 2 has summarized the potential of paddy to be one of the country main products. It is expected that in 2010, paddy productivity will rise as the third highest in the country behind saw logs and crude palm oil.

Table 2: Production of Selected Agriculture Commodities 2000-2010

Commodities/ Year	Metric tones (,000)		
	2000	2005	2010
Saw logs	23,074	21,334	19,475
Crude Palm Oil	10,842	14,961	19,561
Paddy	2141	2400	3202
Palm Kernel Oil	1384	1868	2570
Fisheries (marine)	1286	1325	1409
Rubber	928	1124	1293
Cocoa	70	28	57

Sources: Department of Statistic Malaysia and Economy Planning Unit

Despite this great expectation, do all the implementers including AEO is ready to go for it? Are the AEO as the extension agent have enough competency to carry out all the responsibilities put on them? The term competencies defined in the literature as behaviors that an individual needs to demonstrate. Boyatzis (1982) defines competency broadly as an underlying characteristics of a person. It could be motive, trait, and skill, aspect of one's self image or social role, or body of knowledge, which he uses. Seevers et al. (1997) reported that in 1993, the Personnel and Organization Committee of the Extension identified core competency areas such as applied research, change management, communication and human relations, computer operation and software, conflict resolution, cooperative extension system, educational programming (program development), evaluation and accountability, instructional development and learning, marketing and public relations, organizational development; personal organization and management; professional and career development; public policy education; human resource development and management; and strategic planning.

All of these elements are important medium to raise extension officers as a leader for agriculture community. Due to competitive and express evolution caused by the globalization phenomena extension services need to address the necessary competencies that contribute to its performance of extension workers. Competency is a skill needed by someone in order for him to be successful in his job. It cannot be argued if a job require success, those who are responsible to accomplish the job must have high competency. Among the tasks that need to be done by AEO is promoting agriculture to the young generation through education and advices, give advices to agriculture community by using available sources and increasing accountability in agriculture profession. All of these need high competency as the main key of success.

2. RMK-9: What Paddy Industry can Benefit from It and How AEO can Play Their Roles?

The agriculture sector recorded encouraging development during the Eighth Malaysian Plan period. Profits generated through its productivity have doubled due to the boost in export activity and better prices of agricultural industrial commodities. Domestic agro-based industries and nation's food demand highly depend on this industry. During the Ninth Malaysian Plan period, the agriculture sector will be strengthened to become the third engine of the economy generator. The emphasis will be on *New Agriculture* where focus will be on large-scale commercial farming, modern technology, and production of high quality productivity, ICT and high involvement from the farmers. The roles of agricultural agencies will also be streamlined to enhance service delivery and efficiency.

In the period of RMK-9, agriculture program will focus on modern and commercial method instead of relying on traditional method where the main purpose this objective will be accomplished is to enhance the ability, income, output and competitiveness of agriculture community. The functions of AEO here is needed to encourage and motivate the agriculture community to utilize the current agronomy method and modern farm management, increase use of technology and Good Agriculture Practice (GAP).

Another focus on paddy is land consolidation and rehabilitation. The responsible agencies which are Federal Land Consolidation and Rehabilitation Authority (FELCRA) and Farmers Organization Authority (FOA) has benefited more than 3000 farmers through their consolidation and rehabilitation projects. Besides this, marketing services, particularly in the food subsector was further improved with the setting up of the FAMAXchange in 2004 and the expansion of Agribazaar portal. Portals were also developed including *Ikan Online*, SIRIP and Padi Net. Currently there are more than 172 agriculture blogs in Malaysia.

Research and Development is indeed a significant channel for the development of any sector. Agricultural research and development (R&D) especially on paddy development continued to be emphasized to further improve competitiveness of the sector. Government has allocated enough budgets to initiate more than 500 R&D projects related to agriculture development. Up to this stage, a quarter of the projects were ready to benefits the agriculture community. Extension must be based on fact and knowledge. This concept can be achieved if the extension process involves the researchers and agriculture community. Here, agriculture extension is seen as a channel that connects the researchers and the agriculture community. A study done by Oyaro (2008) noted that AEO can be a connector between researchers who initiate the technology and the agriculture community who will use the technology. By doing this, AEO are able to transfer the information and technology to the right group at the right time and places. The study done by Oyaro (2008) is in line with previous study of Ramaru et al. (2009); Worth (2006); and Haggmann et al. (1996) where they noted that extension process will be adapted to agriculture community if they are exposed to information regarding scientific studies, new products and technology development.

The commercialization of agricultural activities, modern farming practices, post-harvest handling, processing and marketing are the main focuses that need to be intensify to boost this industry. It is expected though the RMK-8 and RMK-9, more than a quarter million of entrepreneurs and farmers were and will be trained. In addition, four agricultural training institutions conducted the National Agricultural Skills Training Program based on the National Occupational Skills Standard (NOSS) beginning 2004. In order to ensure the all the training programs conducted are successful and gain high level of involvement from the local community, it is important to emphasize on the cooperation concept between AEO and the local community. This is indeed one of important determinants of agriculture training programs as emphasized by Ghimire

(2009) and Muhammad Zakaria et al. (2007). This is indeed important because the best program can be established if the AEO and local community can work together. The local community should be given bigger opportunity in giving their ideas and opinions. Planning programs with the local community is one of the important aspects in extension education process. A better comprehension and support among the community will be gained if they are involved in the program planning process. Decisions made based on discussion and voice of majority are better and accepted positively compared to a decision that made not based on discussion and decided by outsider (Salawu and Abubakar, 2008 and Svendsen, 2007). Table 3 presents number of trained and expected trained farmers produced in RMK-8 and RMK-9.

Table 3: Agricultural Training by Agencies 2000-2010
Number of Participants

Agencies	RMK-8	RMK-9
Department of Agriculture (Peninsular Malaysia)	102,500	376,900
Malaysia Fisheries Development Board (LKIM)	28,900	35,400
Department of Fisheries	17,900	76,715
Federal Agriculture Marketing Authority (FAMA)	16,900	18,600
Department of Agriculture Sarawak	12,200	13,800
Malaysian Agriculture Research and Development Institute (MARDI)	10,700	11,500
Agro-Bank Malaysia	10,500	16,100
Farmers Organization Authority (FOA)	38,828	50,000
Rubber Industry Smallholder Development Authority (RISDA)	8,800	18,300
Department of veterinary Services	6,000	20,100
Federal Land Consolidation and Rehabilitation Authority (FELCRA)	4,800	14,600
Malaysia Palm Oil Board (MPOB)	2,100	3,700
Forest Research Institute of Malaysia (FRIM)	800	2000

Source: Ministry of Agriculture and Agro-Based Industry, Ministry of Plantation Industries and Commodities and Ministry of Natural Resources and Environment

It is estimated that more than USD16 billion will be provided by banking sector in order to boost agriculture industry including the paddy industry. This represents 2.5 per cent of the total loans disbursed by this sector. Agro Bank Malaysia as the main actor have disbursed more than USD 1 billion to increase farm mechanization, promote Bumiputera participation, encourage the involvement of graduates in commercial farming as well as financial aspects. Specific funds such as *Dana Nelayan*, *Kumpulan Wang Pinjaman Pertubuhan Peladang and Pembiayaan Ekonomi Desa* (SPED) have been initiated. The cost invested in this specific fund is huge and hope to benefit agriculture community such as farmers and fishermen. The fund was utilized to assist entrepreneurs involved in agriculture, manufacturing, services and rural tourism activities for the setting up and expansion of businesses. Here, the agriculture community should be educated and guided

by AEO to aid them in making decision on what to do with the financial support provided to them. This is important in order to avoid any misuse of the money gained. AEO also should play their role as financial consultant here. Dalton (2008); Salawu and Abubakar (2008); Bahn and McAleer (2007); and Schwass (1983) emphasized that AEO must provide help to the agriculture community to encourage them to take the right actions, to solve their problems and to help them in finding a solution.

A total of USD150 million was expanded on various agricultural drainage and irrigation, and water resources projects to improve flood control and water supply. This will improve paddy plantation productivity due to better drainage and irrigation systems. Under RMK-9 a number of new drainage and irrigation facilities, farm roads and crossings, covering a total of 70,000 hectares of agricultural land as well as the Beris Dam in Sik, Kedah. AEO can help the agriculture community to continuously evaluate the projects that have been implemented. This can be done based on the established time. If this can be done, it is easy for the AEO to evaluate whether the projects established is benefiting the agriculture community or not.

3. What Type of Trainings Needed by AEO to Increase Their Competency?

Azimi (2007) in his study has come out with ranking findings of competencies that may be the basis of the focus in providing pre-training and in-service training to the extension personnel (Table 4). The findings show an obvious trend in the thinking of the respondents regarding as to what extension competencies should be given emphasis in the capacity building of extension personal. Based on the results gained, it is obvious that communication skills and knowledge are the main keys to build high competency among AEO. Communication is indeed an important determinant for agriculture community to accept what is brought by the AEO. The other four aspects which are working with farm leaders, participative programming, organize training and responding to farmers inquiries, are all related with communication skills.

Table 4: Training Needs by AEO based on Azimi (2007) Study

Competency	S.D	Mean Rank	C.V.	Rank
Communication and developing strategic multimedia campaign	0.793	3.87	20.4909	1
Working with farm leaders	0.845	3.86	21.8912	2
Participative programming	0.891	3.74	23.8235	3
Organize training for farmers at village level	0.925	3.73	24.7989	4
Responding to farmers' inquiries	0.894	3.60	24.8333	5
Identifying relevant committee members for programming	0.904	3.54	25.5367	6
Developing extension program based on felt and unfelt needs	0.905	3.49	25.9312	7
Playing the role of resources linker	0.940	3.59	26.1838	8
Applying extension philosophy	0.929	3.48	26.6954	9
Applying the understanding of extension process/ procedure	0.901	3.33	27.0571	10
Ability to use statistical tool in evaluating programs	0.975	3.51	27.7778	11
Applying the theory of adult learning	0.962	3.35	28.7164	12
Developing criteria's for evaluating extension program	0.993	3.39	29.2920	13

Besides this, there are also other studies that focus on competencies training needed by AEO. Khodran (1992) in his study has concluded that AEO need training to enhance their understanding on the relationship between extension and other organization that is related to agriculture, ability to motivate farmers, understanding the influence of mass communication on society, ability to develop short and long range programs in extension, ability to evaluate extension programs and understanding the basic principles of communication. Khodran (1992) furthermore emphasized on research and evaluation, teaching and learning process and communication need to be intensified in order to enhance the AEO competencies. The same case also was found on a study done by Randavay and Vaughn (1991), where they stressed on the importance of attending training related to teaching, communication, planning, implementing and evaluating in order to enhance AEO competency.

Khan et al (2004) in his study has noted that three types of training are needed in order to intensify the AEO competency which are training related on how to conduct panel discussion as a moderator, training on how to conduct farmers' fair and ability to design exhibition and educational booth while Hussain et al. (2004) stressed that out of 14 training needs listed in his study, the three most important types of trainings needed by AEO are the ability to involve farmers in program planning, the ability to priorities and identified needs and the ability to execute program to meet clients' need.

Gibson (1994) in his study has emphasized on eight types of training that are needed by AEO to intensify their competency which are extension organization and administration, program planning and development, communication, research, human development, educational process, social systems and effective thinking.

4. Factors Influencing Competency

Medeiros (2005), in his study concludes that incumbent tenure and size of the technical services unit affect both perceived and expected competencies, with the latter having a greater effect. He furthermore emphasized that professional background affects competency possession, but has only a marginal effect on competency expectation.

Heffernan and Flood, (2000); Dhanakumars (2001); Linders (2001); Armstrong (2006) and Ali Hassan et al. (2008), concluded that job performance is related to competencies. These competencies remain one of the important variables to use in order to explain the performance of agriculture extension worker as leader to farmers. Consequently, competencies could potentially be used to integrate and link an organization's main human resource process such as extension performance management, training and leadership development, succession planning and rewards to the agriculture extension and rural development strategy.

Ali et al. (2009), described four areas which are knowledge, attitude, skills and attributes to develop competency among the AEO while referring to Bergevoet and Woerkum (2006) level of involvement is the one of the main contributors to competency. Involvement according to them is important because of four aspects. First it can help the participants to think in a structured way about reality and to generate knowledge. The second aspect is that professional networks can be developed. The third aspect stressed is participants can create a shared understanding. Also, as a final aspect, it is expected that through involvement the morale of the participants is boosted. Beside this, they also stressed on the important of knowledge that will drive to high competency among agriculture community including AEO.

Tiraeyari (2009) has stated number of factors that will influence competency such as quantity of work, quality of work, deliver of time /timeliness, and effectiveness of work, knowledge and skill in work, implementation of policy and direction, effectiveness of communication, ability to manage, discipline, proactive and innovative, and relationship and co-operation has influence on competency.

In this modern day, use of technology seems to have influence on competency. A study done by Ajayi (2002) identified various sources of information and technologies used by AEO and farmers can affect their level of competency. Ajayi (2002) has concluded that the AEO should endeavor in making sources of

information of improved technologies accessible to farmers and encourage participatory extension strategy with farmers.

The demography factor also is another important factor for competency. A study done by Chizari et al. (1999) has identified that older AEO possessed higher level of competency compared to the younger AEO. According to Chizari et al. (1999) the younger and less experienced AEO needed considerably different training and willingness to make commitment to provide more management and administrative information to the agriculture community thus increasing their competency. Lahai et al. (2000), conducted a study to determine the competency of male and female AEO. Through his study it can be revealed that female AEO possessed higher level of competency compared to their counterpart. According to Lahai et al. (2000), this thing happened because of specifically women AEO had relatively higher levels of awareness and participation of the extension activities organized, adoption and better technical knowledge of recommended technologies /practices. Hayrol et al. (2009) and Owusu et al. (2000) in their studies have noted that region plays an important role in determining the possessed competency. One of the solutions to this problem according to Hayrol et al. (2009) is to equally distribute the competency trainings to all of the regions. By doing this, the developed and undeveloped region will have the same development opportunity.

5. Conclusion

The competency of Agriculture Extension Officers (AEO) in Malaysia is indeed one of the important determinants of success for paddy industry in Malaysia. Competency of AEO could be motive, trait, and skill, aspect of one's self image or social role, or body of knowledge, which he uses. Paddy industry is one of the potential agriculture industries in Malaysia. This industry requires the competency of AEO to ensure its success. As stated in RMK-9, there is a number of government plans that can profit paddy sector such as land consolidation and rehabilitation, agriculture research and development, commercialization of agricultural activities, modern farming practices, post-harvest handling, processing and marketing, bigger disbursement of credit for agriculture projects and bigger allocation for creating better agricultural drainage and irrigation and water resource projects to improve flood control and water supply. The AEO must play their roles effectively in each of the plans to ensure its success. Communication training is indeed important to enhance the AEO competency. Its number should be doubled and intensified by the responsible agencies and departments. Factors such as job performance, attitude, skills, knowledge, quality and quantity of works, use of technology and demography factors have been proved in various studies to have influence on AEO competency.

6. References

- Ajayi, M.T. (2002). Sources of Information of Improved Technologies Adopted by Farmers: A Study of Farmers in Akinyele Local government of Oyo State, Nigeria. Available at: www.jesoline.org.2002
- Ali Hassan, O.K., Maimunah, I., Turiman, S. & Abu Daud, S. (2008). Extension Worker as A Leader to Farmers: Influence of Extension Leadership Competencies and Organisational Commitment on Extension Workers' Performance In Yemen. *The Journal of International Research*, Volume 1, Issue summer 2008, pp. 368-387
- Ali, S., Ahmad, M., Tanvir, A. & Muhamad Iqbal, Z. (2009). Analysis of Competencies Possessed By Field Staff of Private Agricultural System in Punjab, Pakistan. *Journal of Agriculture Research*, Volume 47, pp. 101-106.
- Armstrong, M. (2006). *A Hand Book of Human Resource Management Practices*. (2nd ed.). Kogan Page Ltd: London.
- Bahn, H.M. and M, P. (2007). U.S Agriculture Extension Services: Adapting Farmers Education to Contemporary Market Requirements. Paper presented at Farmers, Market and Contracting: Concepts, Method, and Experience Workshop, India-U.S Agriculture Knowledge Initiatives, New Delhi India on May 6, 2007.
- Bergevoet, R.H.M. & Woerkum, C.V. (2006). Improving the Entrepreneurial Competencies of Dutch Dairy Farmers Through the Use Of Study Groups. *Journal of Agricultural Education and Extension*, 12: 25-39.
- Boyatzis, R.E. 1982. *Competent Manger: A Model for Effective Performance*. New York: Wiley.
- Chizari, M., Lindner, J.R. & Zoghie, M. (1999). Perception of Extension Agents Regarding Sustainable Agriculture In the Khorasan Province Iran. *Journal of International Agriculture and Extension Education*, Volume 6, pp. 13-21.

- Dhanakumars, V. G. (2001). Performance Appraisal on Rubber Board Extension Delivery System. *Journal of Extension and Research Review*. Issue July – December, pp. 174-190.
- Gibson, J.D. & Hillison, J. (1994). Training Needs of Area Specialized Extension Agents. *Journal of Extension*, Volume 32, No 3.
- Ghimire, N.R. (2009). Farmers Participation in Agriculture Development in Nepal: A Case Study. *Journal of Agriculture, Food and Environment Science*, Volume 3, pp. 1-12
- Hagmann, J., Chuma, E. & Murwira, K. (1996). Improving the Output of Agricultural Extension and Research Through Participatory Innovation Development and Extension, Experience from Zimbabwe. *European Journal of Agriculture Education and Extension*, Volume 2, pp. 15-24
- Hayrol Azril, M.S. & Bahaman, A.S. (2009). Level of Competency among JKKK Members and Factors that Affecting It. *Jurnal Ilmu-Ilmu Sosial*, Volume 2, pp. 1-9
- Heffernan, M. & Flood, P. (2000). An Exploration of The Relationship Between the Adoption of Managerial Competencies, Organization Characteristics, Human Resource Sophistication And Performance In Irish Organization. *Journal of European Industrial*. Volume 24, Issue 3, pp. 128-136
- Hussain, N., Ali, T., Khan, M.A.J & Ahmad, M. (2004). Training Needs of Agricultural Extension Administrators in Planning Extension Activities in Punjab, Pakistan. *International Journal of Agriculture and Biology* , Volume 6, pp. 941-942.
- Khan, M.A.J., Ali, T. & Husain, N. (2004). Competencies Regarding Extension Methodology Possessed by Agriculture Officers in Punjab, Pakistan. *Industrial Journal of Plant Science*, Volume 3, pp. 31-33.
- Linders, J. R. (2001). Competency Assessment and Human Resource Management Performance of County Extension Chairs In Ohio. *Journal of Agriculture Education* Volume 24, pp. 21-31.
- Muhammad Zakaria, Y.H. , Tanvir, A. & Munir, A. (2007). Determination of Participation In Agricultural Activities and Access to Sources of Information By Gender : A Case Study of District Muzaffargarh. *Pakistan Journal of Agriculture Science*, Volume 44, pp. 664-669
- Owusu, O.A., Zinnah, M.M. & Frempong, A.F (2000). Professional Competencies of Agriculture Extension Agent in Ghana: Perceptions of Extension Agent and Their Supervisor in the Central Northern Region. Paper presented at AIAEE 16th Annual Conference, 29th April 2000, Virginia, USA.
- Oyaro, K. (2008). Kenya: Agricultural Extension Work both Important and Under-valued. Available at: <http://allafrica.com/stories/200804280535.html>
- Ramaru, J.M., Hagmann, J., Mamabolo, Z.M. & Netshivhodza, M.H. (2009). Innovation through Action- an Action Research Journey with Smallholder Farmers in Limpopo Province, South Africa: Experience of Soil Fertility Management, in Almekinders, C., Beukema, C. and Tromp, C. (eds.) *Research in Action – Theories and Practices for Innovation and Social Change*, Wageningen Academic Publisher, The Netherlands, 45-66
- Randavay, S. & Vaughn, P.R. (1991). Self-Perceived professional competencies needed and possessed by agricultural extension workers in western region of Thailand: A Multivariate Technique Approach. *Journal of the Informer Association for International Agriculture and Extension Education*, Volume 7, pp. 19-26
- Salawu, J.A. & Abubakar, T.B. (2008). *Introduction to Agricultural Extension and Rural Sociology*. National Open University of Nigeria Publisher. Nigeria
- Schwass, R. H. (1983). Problems of Agriculture Extension and Development in South Pacific. Available at: <http://www.agnet.org/library/eb/200b/>
- Seevers, B., Graham, D., Gamon, J. & Conklin, N. 1997. *Education through cooperative extension*. New York: Delmar Publishers
- Svendson, S.V. (2007). Lock-In of Farmers in Agriculture Cooperatives. In Karantininis, K. and Nilson, J. *Vertical Markets and Cooperative Hierarchies The Role of Cooperatives in the Agri-Food Industry*. Springer Netherland, The Netherland. 113-135
- Madeiras, N. (2005). Factors Influencing Competency Perceptions and Expectations of Technical Services Administrators. Available at: <http://cat.inist.fr/?aModele=afficheN&cpsidt=16965929>
- Tiraieyari, N. (2009). The Importance of Cultural Competency for Agricultural Extension Worker in Malaysia. *The Journal of International Research*, Volume 2/8, Issue summer 2009, pp. 411-421
- The Ninth Malaysian Plan*. Economy Planning Unit. Department of Prime Minister Malaysia. Putrajaya
- Worth, S.H. (2005) Agriflection Model: A Learning Model for Agricultural Extension in South Africa. *Journal of Agriculture Education and Extension*, Volume 12, pp. 179-192

