

## Sustainable Agriculture in Malaysia: Implication for Extension Workers

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**Abstract:** A global survey revealed that at present sustainable agriculture is implemented on only 3 percent of the total farming land in Asia, Africa, and Latin America. Researchers reported some obstacle to adoption of sustainable agricultural practices such as information on sustainable practices, economic factors, education and information, resistance to change, barriers related to sustainable agriculture technologies, social context, financial and material infrastructure and land tenure constraints. One of the main barriers to adoption of sustainable agriculture reported by farm producers and extension workers is lack of available information. Hence agricultural extension workers as information provider play a vital role for achievement of sustainable agriculture. The challenge extension workers faces are that of promoting sustainable agriculture to encourage farm producers adopt the program. The success of sustainable agricultural program depends on training and education of farm producers. The purpose of this paper is to explore whether extension workers have been sufficiently oriented themselves to their responsibility on sustainable agriculture or not.

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### 1.Introduction

Conventional agricultural practices have resulted in land, water, and air pollution, as well as loss of soil (Roberts, 1995). Environmental degradation, exclusion of small family farms from agriculture, poverty, lack of access to farm inputs and information and policy failures are among the main items that endanger agricultural sustainably. Efforts to raise productivity through pesticides and chemical fertilizers have been caused serious environmental issues (Wilson, 2000). These conditions promote sustainable agriculture. Sustainable agriculture continues to be emphasized to ensure that the well being of the present generation is not met at the expense of future generation (Shamsuddin and Wang, 2007). The primary assumption in sustainable agriculture is to develop farming system that promotes farming profits, agro-ecosystem and local communities. In contrast, unsustainable practices focus only on farm profit. Sustainable agriculture is defined as fruitful management of the agricultural resources to fulfill human needs, to preserve the environment, and enhance biological resources (Chikwendu and Arokoyo 1997). William (2000) defined economically sound, environmentally protective, and socially acceptable as three components of sustainable agriculture. Sustainable agriculture must be environmentally, economically and socially balanced farming systems that conserve the resources for the next generations (Bell, 2001). Hence the three major goals of sustainable agriculture are economic efficiency, social responsibility and environmental quality, (Fairweather & Campbell

2003). The transformation of conventional agricultural practices into sustainable agricultural system requires that farm producers adopt sustainable agricultural practices. Since sustainable agricultural system is an information intensive system hence agricultural extension plays a key role in assisting farm producers to adopt the sustainable agricultural practices.

### Sustainable agriculture in Malaysia

Sustainable agriculture in developing countries such as Malaysia stress food security and sustainability of smallholders' livelihoods. Malaysia is an agricultural country that it is fast developing into an industrial country. This country has 4.06 million hectares of farm lands which 80% of this land planted with industrial crops (Murad et al, 2008). Malaysian government's policy towards agriculture emphasizes on increasing production, in order to achieve food self-sufficiency and to expand exports. Approximately 90% of farm producers in the food sector are smallholders with uneconomic-sized farms, the cost of production of these smallholders is high, with low input, low yield and poor quality of products. Agriculture in Malaysia has been relied on conventional methods of farming. Due to the rapid expansion in crop production there has been a corresponding increase in fertilizer use by farm producers. The government has been helping farm producers with fertilizer subsidies in order to improve their income and alleviate poverty (FAO, 2004). It is expected that the usage of mineral fertilizers will continue to rise if the intensity of production continue

to increase. Mineral fertilizers account for more than 90 percent of fertilizers used by all types of farming systems in Malaysia. However, in recent years positive steps undertaken by the government agencies to reduce chemical fertilizers and optimize the use of resource on a sustainable base moving towards sustainable agriculture. Towards this objective, attention has been given on sustainable agricultural productions. Practices such as Integrated farming systems (IFS), Good Agricultural Practices (GAP) and Organic Farming (OF) are being promoted vigorously by the Department of Agriculture (DOA) in order to reduce dependence on mineral fertilizers for crop production. Currently there is a cooperative effort to concern the use of fertilizers and to place more emphasis on the usage of organic fertilizers (Ahmad, 2001). Under the Ninth Malaysia Plan (2006-2010) the government was targeting organic farming industry to be worth MYR 800 million in 5 years time. The Ministry of Agriculture planned to have 20,000 hectares under organic farming methods by 2010 (Murad et al, 2008). At present, these practices are not accepted and properly practiced by majority of farm producers in the Malaysian smallholders sector. For that purpose the mission of the Department of Agriculture (DOA) currently includes provision of extension services to the farm producers in relation to sustainable agricultural practices. In general the effectiveness of extension education is dependent on the ability of extension workers who must be competent and qualified as the whole extension process is dependent on them to transfer sustainable practices to farm producers. However despite frequent attention in recent years on sustainable agricultural practices, the adoption of sustainable practices such as GAP has been slow by farm producers (Othman, 2006). Murad et al, (2008) reported that although the Malaysian scheme on Good Agricultural Practices was launched on 31 January 2002 and the Department of Agriculture has already taken positive steps to promote some of the program, however majority of the farm producers were reluctant to practice the program. Murad et al, (2008) further contended that Malaysian agricultural policies are supportive for sustainable agricultural practice however the present agricultural practices in Malaysia differ from the standard of sustainability. Hock (1999) reported that more components of sustainable agriculture are expected to be included by government agencies in Malaysian agricultural sectors.

#### **Extension Workers' Responsiveness of Sustainable Agriculture**

The transformation of conventional agricultural practices into sustainable agricultural

system requires that farm producers to adopt sustainable agricultural practices. Hence, extension workers could play a main role in assisting farm producers in their decision making process regarding the adoption of sustainable agricultural practices. Although sustainable agriculture was recognized very important, extension workers' knowledge and support for the concept is not favorable (Minarvic and Mureller, 2000). According to Al-Subaiee et al. (2005) the first step in sustainable agriculture plans is training extension workers to develop their understanding, qualifications and ability to teach farm producers. Nonetheless researchers show that extension workers have problems in the first step of understanding the concept of sustainability (Chizari et al., 2006; Allahyari et al., 2008). Agunga (1995) described that extension workers in Ohio did not have a firm understanding of sustainable agriculture. Hence they were less interested in promoting sustainable agriculture. Conner and Kolodinsky (1997) revealed that extension workers in New England also have doubting attitude toward sustainable agriculture. This finding implies that sometimes, extension workers' skepticism toward sustainable agriculture may be due to their inadequate knowledge about sustainable agricultural practices. Finding of study indicated that attitude of Iranian agricultural extension professionals including extension workers is not in favorable situation (Allahyari et al., 2008). Results of study conducted by Minarvic and Mureller (2000) indicated extension workers' attitudes reflected that they realized the importance of the sustainable agricultural concept and were knowledgeable about it, but when asked about actions taken to apply a systems thinking philosophy as one concept to define their attitudes towards sustainable agriculture, there was no evidence of strong extension efforts. The challenge extension faces is that of promoting sustainable development. Adoption of sustainable practices by farm producers is the key to transform agriculture into a sustainable system. In a global survey, Pretty and Hine (2001) mentioned that at present sustainable agriculture is implemented on only 3 percent of the total farming land in Asia, Africa, and Latin America. One of the main barriers to adoption of sustainable agriculture is the lack of accessible information for farm producers and how to disseminate this information to them (Singh and Osawaru, 1990). Similarly, Barrow, Chan and Masron (2010) reported that adoption of sustainable practices in Cameron Highlands in Malaysia is apparently less prompted by extension workers' efforts. They concluded that right support could be identified and extended by government organizations to encourage sustainable agricultural practices faster. According to Alonge and

Martin (1995) the first step toward adoption of new practices by farm producers is to offer relevant information for them which is the main responsibility of extension workers. Fazio et al, (2011) listed categories of extension workers' perceived obstacle to adoption of sustainable practices such as lack of information on sustainable practices. Agunga (1995) reported that extension workers need to be trained in sustainable agriculture in order to expand their knowledge, competence, and ability to communicate the concepts to the farm producers. Furthermore he stated that the logic is clear: if agricultural extension workers are not convinced of the value of sustainable agriculture, how can they be expected to train farm producers?

Extension workers are in a position to promote sustainable agriculture and to facilitate the adoption of sustainable agriculture. Hence they must be competent to adequately orient themselves toward their responsibility on sustainable agriculture. Extension workers in order to promote sustainability practices, they must first understand sustainable agriculture concepts. Thus, the role of extension workers is very crucial in supporting sustainable agriculture (World Bank, 2006; Toness, 2001). According to Karbasioun et al. (2007) and Chizari et al. (2001) low level of extension workers' knowledge and skills with respect to sustainable agriculture is one of the major barriers of adoption of sustainable agriculture activities in Iran. They further concluded that extension workers do not have enough competencies to deliver extension programs regarding environmentally sound agriculture. In addition, Ommani and Chizari (2010) reported that limited farmer knowledge of sustainable agriculture principles and low level of extension workers' knowledge on sustainable agriculture, as some barriers that hinder adoption of sustainable agriculture practices. Results of study conducted by Tiraieyari et al. (2009) revealed that Malaysian extension workers perceived themselves competent in relation to the Good Agricultural Practices as one aspect of sustainable agricultural practices. However the current agricultural practices in Malaysia to some extent vary from the standard of sustainability.

### Conclusion

Extension workers play a vital role for success of the sustainable agricultural program. In other words the success of sustainable agricultural program depends to a large extent on training and education of farm producers by extension workers. Researchers have come to the conclusion that extension has not yet convinced most farm producers; hence they must continue to work to convince them.

In other words extension workers have not adequately oriented themselves toward their responsibility on sustainable agriculture. One of important challenge for achievement of sustainable agriculture could be insufficiency of skillful extension workers to promote the sustainable agricultural to farm producer. If extension efforts supposed to have an impact, training of extension workers on sustainable development should be the first step. The training programs should cover ecological, social and environmental sustainability. The major roles of agricultural extension workers are transferring information from local research to farm producers in helping them to make decisions. Hence during the process of developing education programs for delivery of information on sustainable agriculture, taking training needs of extension workers should be importantly considered. Adequate number of well-trained extension workers on sustainable agriculture will play significant role to support and improve sustainable agriculture. Therefore a high priority should be given to in-service training programs for agricultural extension workers regarding sustainability issues.

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