Chapter 52
A Comparative Study on GFT Adoption Behaviour Among Malaysian Paddy Farmers

Nadia Adnan
Universiti Teknologi Petronas, Malaysia

Shahrina Md Nordin
Univerisiti Teknologi Petronas, Malaysia

Amir Noor Noor
London Metropolitan University, UK

ABSTRACT

Agriculture is the major driving force of Malaysian economic. The aim of this research study is to segment the behavior of paddy farmers in Malaysia and understand how they influence adoption, and rejection of a green fertilizer technology(GFT). The objective of this paper is to establish the thinking which enables a society to bridge the gap between embracing GFT. Furthermore, the study builds the conceptual framework and examine the relationship among the relevant construct this framework is critically examining the technology adoption literature. To make this conceptual framework robust it is found in the literature that theory of planned behavior and Theory of reasoned action play the major role to segment farmer's behavior towards the adoption of GFT. This chapter highlights a number of issues that have bearings on the future roles of the fertilizer usage among Malaysian paddy farmers. These include the emerging notion of the awareness and trust of the GFT efficient way to increase the production.

INTRODUCTION

"Green Revolution technology" refers to new seed and fertilizer inputs that are highly divisible and thus available to farmer. Major emphasis on Green Revolution inputs developed in the late 1960s. It wasn't until the "First Decade of Development" ended that analysis indicated that the Green Revolution may actually have a counterproductive aspect (Adnan, Nordin, Rahman, Vasant, & Noor, 2016; Adnan, Vasant, Rahman, & Noor, 2016; Karpudewan, Ismail, & Roth, 2012). Malaysian government has been taking

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initiative to promote the agro-based environment-friendly technology termed as (GT) Green Technology (Reeb, Hays, Venditti, Gonzalez, & Kelley, 2014). The GFT application is aimed at linking agriculture with the environment-friendly technology, which contributes to both sustainable agriculture development and for the significance of the next generation (Sinnappan & Rahman, 2011).

Early studies of Green technology pointed toward the direction which indicates that GFT enhance the farming production (Lorek & Spangenberg, 2014).A common themes was establish in these studies that issues raises where most of the farmer's community is unable to understand the "green" terminology in Malaysia and its importance for the next generation (Jänicke, 2012) especially in paddy farming industry .Nevertheless, more recent research on GFT adoption indicate that farmers belong to farming environment but still their knowledge and awareness about GFT is very minimal (Mülhaupt, 2013).

While, the biggest agenda of Malaysia is to make farmer aware about GFT and transform current agricultural activities into advanced, innovative and sustainable practices. Recently, the Third National Agricultural Policy highlighted many issues to promote the sustainability of agricultural practices Ministry of Agriculture, (Murad, 2008; Othman, 1998). Conversely, this is not an easy task because there is a basic problems that the farmers will encounter, especially with regards to their understanding of GFT and sustainable agriculture (Le Gal, Dugué, Faure, & Novak, 2011). However, the segmentation of farmer behavior towards adoption and adoption of GFT depend upon the farming community characteristic. On the other hand, paddy farmer live in collectivist society where permission of others are important (Ahmad, 2015). There is much research on collective action has sought to understand the conditions under which decisions to community are most likely to adopt GFT. Community can serve as formal constraints (rules, laws, constitutions) or informal constraints (norms of behavior or conventions), which influence social interaction (Arvola et al., 2008). Thus, a collective action dilemma refers to the ways in which rational behavior by individuals results in a tragedy for the larger collectivity (Arts, Frambach, & Bijmolt, 2011) or Hardin's (1968) tragedy of the commons. However, as noted by (Gong, L. Stump, & G. Li, 2014) in collectivist society individual decisions about adoption technology are usually mediated by social controls or permissions. It has long been suggested that social interaction is embedded within the larger cultural ecological context (McCay, 2012; McCay & Acheson, 1987).

Most of the available literature on this issue of adoption and rejection of GFT depend upon their farm size, age, sex and income (Chen & Tung, 2014). On the other hand (Feola & Binder, 2010) claims the societal (Baharuddin, Sahid, Noor, Sulaiman, & Othman, 2011) pressure is the main factor, that can help the farmers adopt and reject the GFT. There is inadequate studies done in regard to these societal pressure among farmers in Malaysia (Haris, Hamzah, Krauss, & Ismail, 2013).In the context of Paddy farming the adoption attitude toward green technology is still not been sufficiently explored because of the social influence (Tey, 2013). Despite their great enthusiasm to try new things, many farmers are constrained with resource limitations, apparently not able to take risks and carry out experiments with their meagre resources. However, there are two main problems related to farmers' behavior that was important in the adoption process. Farmers are dependent on aid. Those areas are continuously affected by drought and they have been places where aid was given for so long.

In view of the above gap the aim of this paper is to develop a conceptual framework based on the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TBP) in order to understand farmer's attitude and behavior towards GFT. Four variables, including individualism, collectivism, informative and Normative have also been incorporated in the proposed conceptual framework to ascertain how these constructs assimilate with the theory and help in understanding farmer's attitude toward GFT. The context of this paper is to segment paddy farmer's attitude and behavior towards GFT. The present study