

CHAPTER FIVE

CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

This chapter presents (1) a summary of the study, (2) a summary of the findings, (3) discussion of the results, (4) conclusions, and (5) recommendations for further research.

5.1 SUMMARY OF THE STUDY

5.1.1 Objectives of the Study

This study was aimed to identify factors contributing to the users' satisfaction with community biodiesel (B100) at Mae Klong Samakki Karnkaset Group, Samut Songkram Province, to measure the users' levels of knowledge and understanding about community biodiesel (B100), as well as to identify existing problems, if any, in order to recommend to the core team possible ways to improve the efficiency of managing community biodiesel (B100) production, and to point out the strengths and weaknesses in using community biodiesel (B100) of the group.

5.1.2 Subjects, Materials, and Procedures

5.1.2.1 Subjects

The subjects of this study included 245 users of community biodiesel (B100) at Mae Klong Samakki Karnkaset Group, Samut Songkram Province. The samples were selected from each household head, who was a member of the group, from December 2008 to the end of January 2009. The cross-sectional design and quota sampling method were used to conduct the research and select the samples.

5.1.2.2 Material

The research instrument in this study was a self-administered questionnaire prepared in both Thai and English versions as shown in Appendix A and B. The questionnaire consisted of three parts. The first part was Demographic Information consisting of six closed-ended questions such as Gender, Age Occupation, Educational Level Household Income per Month and Type of Vehicles Used. The second part was users' knowledge and understanding about community biodiesel (B100) consisting of 10 statements as stated in the second part of the questionnaire. Finally, the third part was the degree of users' satisfaction with

community biodiesel (B100) divided into three aspects, namely, Opportunity to generate higher household income, Managing efficiency of the core team at Mae Klong Samakki Group, Samut Songkram Province and Marketing Mix (4 Ps):

5.1.2.3 Procedures

The data collection took place from December 2008 to the end of January 2009. Questionnaires were distributed to those samples by the researcher and the core team of the group, when the respondents assembled at the group's regular meeting twice a month. All data were analyzed using the Statistical Package for Social Sciences (SPSS) version 11.5. The results are shown in the form of descriptive statistic including frequency, percentage and mean scores.

5.2 SUMMARY OF THE FINDING

The results of the study can be summarized as follows:

5.2.1 General Information of the Respondents

From the study result drawn from Tables 1-7, it was found that the male respondents were 78.9 percent, and female ones were 21.1 percent. The main age group was over 50, which was from 40.1 percent of the respondents. Most respondents were orchardmen at 59.91 percent. The major educational level was primary school at 58.68 percent, whereas the respondents' highest household income per month was over 10,000 Baht representing 78.93 percent. Pickup trucks were the main vehicles used by respondents at 67.08 percent.

5.2.2 Background Knowledge and Understanding about Community Biodiesel (B100)

It was revealed that background knowledge and understanding about B100 was 90.08 percent responding 'gained' and 9.92 percent responding 'not gain'. Remarkably, when asked about the government's encouragement of B100 use in Thailand, only 67.36 percent of respondents revealed 'gained' and the remaining 32.34 percent represented 'not gain'.

5.2.3 Degree of Users' Satisfaction with Community Biodiesel (B100)

The results of the study show that the users had a degree of overall satisfaction with community biodiesel (B100) at Mae Klong Samakki Karnkaset Group, which consist of three factors as follows :

5.2.3.1 Opportunity to Generate Higher Household Income

It was reported that the majority of respondents were satisfied overall with the opportunity to generate higher household income/month, to save more money, while being able to alleviate their debt burden, and their oil crops were boosted and stabilized when the biodiesel production was established in their community.

5.2.3.2 The Managing Efficiency of the Core Team

It was concluded that the major respondents were satisfied with Managing efficiency of the core team at Mae Klong Samakki Karnkaset Group, in terms of being supportive, educative and communicative. Additionally, the core team was able to establish a B100 service station in the community and sell the product at reasonable price, while producing it with consistent quality.

5.2.3.3 Marketing Mix (4Ps)

5.2.3.3.1 Product: Notably, the majority of respondents were very satisfied with B100 produced by Mae Klong Samakki Karnkaset Group, in terms of quality, application and above all, environmental friendliness.

5.2.3.3.2 Price: It was found that the major respondents were satisfied with B100 price, in terms of competitive price in that B100 price was two baht cheaper than regular diesel; it could be floated depending on the market price and should be set at competitive price with conventional diesel because of its high quality.

5.2.3.3.3 Place: It was concluded that most respondents were in the range of ‘satisfied’ and ‘very satisfied’ with B100 place, in terms of availability and accessibility of B100 service stations, as well as B100 sufficient supply .

5.2.3.3.4 Promotion: Surprisingly, the majority of the respondents were satisfied with B100 promotion because they were regularly provided with B100 information needed by the core team.

5.2.4 Respondents’ Suggestion

The most common suggestion made by B100 users in Mae Klong Samakki Karnkaset Group, Samut Songkram Province, was about their lack of budget, which should have been provided by the state, so that they would be able to implement their B100 project effectively. Furthermore, they expected the government to provide them with relevant technical trainings for further improvement of B100

project regarding the project management, project networking, project feedstock provision and project consultancy.

5.3 DISCUSSION

This section concerns how the findings of the study match the theories and the existing research. The discussions are divided in to 4 parts as follows:

5.3.1 Demographic Data

The findings showed that most of the respondents were male. With the main age group being over 50, it can be inferred that the elder people remain to live in rural areas, whereas the younger ones move to earn their living in big cities. The majority of the respondents were orchardmen with primary-school level of education suggesting that orchardmen are more well-trained with agricultural equipment rather than other occupations as well as being keen in technology development regardless of their educational level. The highest household income over 10,000 Baht can imply the average income of agriculturists in these areas where several kinds of fruit trees and oil crops are grown and their productivity is promising. Pickup trucks were the main vehicles used by the respondents hinting that this kind of vehicles is commonly-used in farming areas for its accessibility and easy maintenance. Some certain findings are consistent with the previous studies of Terachai Wasanasomsagul (ธีระชัย วาสนาสมสกุล, 2545) in terms of gender and educational level, and Weraphat Suriyanontarin (วิรัชพร สุริยนนท์รัตน์, 2550) in terms of income per month.

5.3.2 Background Knowledge and Understanding about Community Biodiesel (B100)

The background knowledge and understanding about B100 was mostly gained which implies the users' fundamental knowledge and understanding of B100 are satisfactory. In terms of environmental friendliness, users acknowledge that B100 is a clean and biodegradable fuel with fewer emissions released, while helping stabilize or sell their oil crops; consequently, they can earn more money than ever when using or producing B100 in their community. Additionally, they know well that B100 can be substituted for regular diesel with competitive price sold in B100 service stations available in their community. Besides, they can produce B100 through low technology environment, which reflects that they are interested in technology

information and can practically make use of it. That encourages their self-reliant ways of living. Most users tend to be well-aware of the minor modifications or without technical changes when using B100 with diesel engines that implies they are mostly well-trained or well-informed about these technical requirements beforehand by the core team or by themselves. Remarkably, when asked about the government's encouragement of B100 use in Thailand, 32.64 percent of B100 users admitted that they seldom knew about it implying that the state promotion plan on community biodiesel (B100) has not been executed effectively nationwide, while more vigorous and continuous technical and financial support from the government sector are needed for further improvement of such a project.

5.3.3 Degree of Users' Satisfaction with Community Biodiesel (B100)

The results of the study show that the users had a degree of overall satisfaction with community biodiesel (B100) at Mae Klong Samakki Karnkaset Group, which consists of three factors as follows :

5.3.3.1 Opportunity to Generate Higher Household Income

According to the findings, the respondents were satisfied overall with the opportunity to generate higher household income/month, to save more money, while being able to alleviate their debt burden, and their oil crops were boosted and stabilized when the biodiesel production was established in their community. In other words, the B100 users can benefit from the use and production of B100 in their community for the following reasons: firstly, they can sell their used vegetable oil, lard, and palm oil to the group for reproducing B100, instead of disposing it down the drain. Secondly, their oil crops such as oil palm, jatropha, and so on, are sold as B100 feedstock at reasonable and stabilized prices when B100 production project is going on in their community. Thirdly, they can earn additional income from selling glycerol, which is a byproduct from B100 production.

5.3.3.2 Managing efficiency of the core team

Kotler and Keller (2006, p. 136) stated that firms encourage customer satisfaction by decreasing its prices or increasing its service, resulting in lower profit. The companies would rather be able to focus operating on the principles that try to deliver a high level of customer satisfaction subject to delivering acceptable levels of satisfaction to the other stakeholders, given its total resources. This theory of Total Customer Satisfaction is corresponded by the performance of the core team at

Mae Klong Samakki Karnkaset Group. From the findings, most respondents were satisfied with Managing efficiency of the core team ,in terms of being supportive, educative and communicative. Additionally, the core team was able to establish a B100 service station in the community and sell the product at a reasonable price, while producing it with consistent quality. All these indicators reflect that the core team plays the most significant roles in directing and handling the project starting from feedstock provision, B100 production to B100 distribution. In addition, the core team has provided its group members with technical know-how, necessary equipment and machines, technical training and relevant information, including budget provision for investment and operating costs. As a result, the core team is well-recognized by the users for its strength in managing the B100 project.

5.3.3.3 Marketing Mix (4Ps)

According to Kotler and Keller (2006, p. 136), after the purchase, whether the buyer is satisfied, depends on the offer's performance relating to the buyer's expectations. Therefore, *satisfaction* refers to an individual's feelings of enjoyment or disappointment resulting from comparing a product's perceived performance or outcome relating to his or her expectations. If the performance matches the expectation, the customer is satisfied. If it is over expectation, the customer is very satisfied or delighted. Therefore, the Marketing Mix (4Ps) : Product, Price, Place and Promotion is applied in the following aspects.

(1) Product

According to the findings, most users were very satisfied with B100 produced by Mae Klong Samakki Karnkaset Group, in terms of quality, application and above all, environmental friendliness. It refers to the quality of B100 produced in their community, which is reliable and consistent, while it releases fewer air pollutants than regular diesel does. Moreover, it is easy to produce and use even in low technology environment like the community. That makes them confident to further their B100 project in their community.

(2) Price

The majority of the respondents were found to be satisfied with the price of B100, in terms of competitive price in that B100 price was two baht cheaper than regular diesel; it could be floated depending on the market price and should be set at competitive price with conventional diesel because of its high quality.

It refers that B100 are reasonably priced ,whereas its prices can be floated on the market. It also implies that B100 users moderately understand the price mechanism of diesel prices that is significant to both B100 producers and users to be able carry on the project even in unsteady price situation of diesel fuel.

(3) Place

Most respondents were reportedly either satisfied or very satisfied with B100 place, in terms of availability and accessibility of B100 service stations, as well as B100 sufficient supply. It implies that they can fuel their diesel tanks in the service stations available within their own community. Moreover, B100 supply is adequate for users which reflects the balance of demand and supply efficiently controlled by the core team. Using reliable B100, users are confident enough to fuel their tanks with B100 produced by other community groups, when out of the community, which implies that users tend to use B100 wherever it is available because they rely on B100's consistent quality and cheaper prices.

(4) Promotion

The study findings declared that most respondents were satisfied with B100 promotion, because they were regularly provided with B100 necessary information by the core team. This evidence once again confirms the managing efficiency of the core team in bridging the gap relating to technical and financial support, as well as relevant information between B100 users and the government. However, B100 users still need more practical promotion plans from the government sector. The on-going incentive used in the community by the core team, is B100 price sold at two baht per liter cheaper than that of regular diesel. Nonetheless, the B100 price offered is floated in response to the global diesel price mechanism which allows B100 producers and users to learn how fuel price mechanism works, which affects people's cost of living on a daily basis.

5.4 CONCLUSION

The following conclusions can be drawn from the discussion above.

5.4.1 Based on the general information of the respondents, male respondents outnumbered female ones. The respondents' main age group was over 50. Most respondents were orchardmen with primary school educational level, whereas the respondents' highest household income per month was over 10,000 Baht. Pickup trucks were the main vehicles used by respondents.

5.4.2 In terms of background knowledge and understanding about community biodiesel (B100), the majority of B100 user knew about it, while the minority of the users claimed that they did not know about the government policy on B100, added by the suggestions commonly made by the respondents that they lack vigorous and continuous supports from the government sector. As a result, the existing problem and the weakness of the Mae Klong Samkki Karnkaset Group are revealed.

5.4.3 Regarding the degree of users' satisfaction with community biodiesel (B100), the overall satisfaction level of the respondents was shown to be satisfactory when investigated in all aspects. Especially, they were very satisfied with the managing efficiency of the core team as well as the reliable quality of B100, which are the significant strengths of the group.

The results of study show that the factors contributing to the users' satisfaction with community biodiesel (B100) at Mae Klong Samakki Karnkaset, Samut Songkram Province, are significantly correlated with the managing efficiency of the core team. The vigorous core team has adequate knowledge and understanding about B100 that can be practically transferable to the group members. Regardless of the educational level, the group members can bring this know-how into practice by using B100 feedstock available in the community to make B100. They can learn how to produce or use B100 by doing so, thus, they are confident in the product quality, the product itself backed up with the intensive and continuous, technical and financial supports from the core team. All aspects contribute to the community's synergy and self-reliance towards the goal of sustainable way of life as instructed in His Majesty The King's Sufficiency Economy Philosophy.

5.5 RECOMMENDATIONS FOR FURTHER RESEARCH

Based on the findings and conclusions of this study, the following recommendations are made for future research.

5.5.1 Areas of the study should be much greater to make the findings more valid and reliable.

5.5.2 Areas of the study should be extended to other communities producing or using community biodiesel (B100) with different environment and cultures to make further comparative research.