# The Analytical Study on Living Balance and Behavioral Adjustment of the Farmers: Case Study of Chiang Mai Sufficiency Economy Community Learning Centers

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**Abstract**

The implementation of the Sufficiency Economy in the agricultural sector, in the context of sufficiency, balance of natural resources, quality of agricultural produce and benefits of happiness, is the prime transformative learning leading to changes in basis of thought, belief, knowledge, attitude and former culture of farmers. Such learning under the sufficiency economy has been applied to economic activities and living balance of the farmers. Five aspects of the living balance were analyzed as follows: uncertainty which happened to production and living, self-reliance and self-control, capital for making a living, living strategy, and the outcome. Concerning the achievement after conducting production activities, the farmers have adjusted their behavior under the analysis in living strategy and the outcome. There were changes in six aspects as follows, the reduction in expenses and costs of production, the increase in income and saving, living condition, conservation and utilization of natural resources and environment and generosity and sharing in communities. The achievement in learning to adjust the farmers' behaviors to those based on the Sufficiency Economy has created balance in production, investment, consumption and saving. This has efficiently caused secured remuneration in moderate quantity and

within reasonable limits and produced immunity under the Sufficiency Economy.

***Key Words:*** Living Balance; Adjustment of Farmers; Sufficiency Economy; Transformative Learning

**Introduction**

Thai agricultural system and economic development under capitalism highly causes materialistic growth in Thailand. Meanwhile, the country faces financial crisis from such growth. The result from the enhancement of economic and social systems for prosperity has an impact on Thai society by creating unresolved problems, namely inequality of income distribution, debt and poverty, deterioration in natural resources and environment including changeable climate and weather. In addition, what is destroyed and taken out of the environment is not put back in. Consequently, in the present days, the Philosophy of Sufficiency Economy has been put into practical effect to improve Thai people and society. The Sufficiency Economy, thus, is served as an important tool to reduce all crises mention above.

The implementation of the Sufficiency Economy in the agricultural sector, by ways of creating sufficiency, balance of natural resources and quality of agricultural produce, is the modification of concept, basis of thought, mind, belief, attitude and former culture of farmers. It is the way to enrich them with knowledge, to apply such knowledge to local wisdom in moderation and within reasonable limit and create good immunity to environment and internal and external factors. Therefore, farmers can survive and look after themselves and are not dependent on any aspects outside their communities. The implementation of the Sufficiency Economy is carried out through the sufficiency economy community learning centers in different districts in Chiang Mai. The driving force to implement the Sufficiency Economy was first begun by the government policy, and then distributed to

communities to enhance learning and practice of farmers in each area as appropriate. Agricultural experts and farmers have learned together to set up basis of thought, production base to create balance both at household and community level. This leads to the ability to solve problems, the enhancement of living standards and life quality of farmers in accordance with relevant economic and social factors including any existing obstacles. The fact that farmers and communities share their understanding, thought and solve problem together can bring about the mutual development which is the goal needed to be achieved.

Moreover, agricultural systems in Thailand require a guideline to solve problems regarding environment, natural resources, economy and health of farmers and consumers. Such guideline should be a combination of traditional and modern agricultural methods where appropriate in order to sufficiently exploits natural resources with the least impact on the environment. The guideline is so called "sustainable agriculture". The sustainable agriculture focuses more on the ecological balance without emphasizing solely on the produce. It also gives importance to the stability and effect on the environment including the life quality of people in a community. Therefore, the sustainable agriculture concerning the production system refers to the systems which provides ecological restoration and preservation and receives fair economic return. In addition, such system must promote life quality of farmers and consumers and develop social institutions of local communities as well as activities which help restore and preserve ecological balance.

The ways to successfully develop agricultural systems to meet the sustainability, balance and stability require the development process which is relevant to farmers' social and economic conditions so that they could fully take part in every step of the process and the development should be conducted in compliance with their actual conditions, development process and the promotion of information and body of knowledge on the sustainable agriculture, (Jitsanguan, 2001). Furthermore, theories and code of practices of the sustainable agriculture are in accordance with those of the Sufficiency Economy

which focus on the smart management on existing natural resources, step by step development, self reliance, working on a community level and building alliances with outside organizations. Finally, the development and promotion of the sustainable agriculture must provide a process which help farmer acquire self learning skill until they feel confident and change their production systems to those in accordance with the sustainable agriculture. This means the farmers might change their idea and belief relating to the sustainable agriculture. They should realize that the sustainable agriculture does not only involve the investment for monetary income or profit, but it also the way to enrich soil, fields and water resources which are the ecosystem. Consequently, farmers as a part of the ecosystem would reap benefits from the above abundance. The farmers would have a good life quality where appropriate from consuming safety food. They tend to be healthy, have close-knit family and live in the good environment for living as well as receive proper income from selling their produce in a market. Moreover, their debt burden and reliance on external factors could be decreased. This is consideration of the agriculture in way of the holistic approach which is concerned with whole systems comprising technical, economic, social and environmental factors.

Therefore, the analytical study on living balance and behavioral adjustment of the farmers from Chiang Mai sufficiency economy community learning centers would be a guideline for improving people in the agriculture sector based on knowledge, morality and life quality under the Philosophy of Sufficiency Economy. This study was also conducted to analyze the causal factors in individual behaviors of the farmers and current types of the sustainable agriculture which affected the development of the implementation of the Sufficiency Economy. This should be done to develop people in the agricultural sector to construct the agricultural systems to have relationship with and support resources and environment. Agricultural produce benefits families and their group in community based on geosocial aspect, self reliance and dependence on each other by considering basic factors in conducting

sufficient farming to create immunity to guarantee and secure their living in the society with understanding and happiness. In addition, the balance relationship between families, communities, societies, culture and environment is still given importance on.

**Research Objectives**

1. To study the concept and analyze causal factors in individual behaviors of the farmers which affect their living balance,

2. To study how the thinking process and behavior adjustment of the farmers pursuant to the Sufficiency Economy Philosophy can be put into good practice.

**Research Instruments and Methodology**

Quantitative, qualitative and action research methods were employed to study on living balance and behavioral adjustment of the farmers. The three methods were used in this study as follows, 1) primary data collection was the method which primary data was collected by surveying the ideas of the target group (the 200 farmers from five sufficiency economy community learning centers) from Saraphee, San sai, Doi saked, San kampang and Mae ai districts in Chiang Mai to create a research topic and interview form. Then individual data was collected and all data were analyzed and kept as primary results, 2) data collection from forums was the method which data was collected from knowledge forums and recorded in accordance with five learning patterns of Gavin (1993) which are learning to solve problems systematically, experimenting new approaches, learning from first-hand experience and events in the past, learning from other's good experience and convey knowledge efficiently, and 3) Data collection from focus group session. With respect to the analysis, quantitative and qualitative analysis was conducted along with the data collections under the major variables during the period from October 2010 to October 2011.

**Conceptual Framework of the Study**

The study has been conducted based on an integration of the concept regarding action learning and knowledge management according to Senge (1994), Marquardt (2004), Nonaka (1998). In addition, the integration of the action learning of the farmers and adult community members and their knowledge management has also been combined as shown in the table 1.1 below.

**Table 1.1** Illustrated between the concept regarding action learning and knowledge management

| Action Learning | Knowledge Management |
|---|---|
| 1. Identifying the problem<br>2. Determining the objectives<br>3. Assigning appropriate members to solve the problem<br>4. Analyzing the problem by the group<br>5. Defining the problem-solving strategy<br>6. Implementing | |
| 7. Repeating the action for problem solving or until new directions are determined and making a conclusion to generate new body of knowledge | 1. Building knowledge by learning together from the experience |
| | 2. Conducting knowledge capture to analyze balance in living<br>3. Applying knowledge gained to adjust behavior<br>4. Managing knowledge of the learning centers<br>5. Extending new knowledge |

**Research Results**

The research on living balance and behavioral adjustment of the farmers: case study on the sufficiency economy community learning centers of five districts in Chiang Mai was conducted on "the aggregate of farmers" whose conscience and determination were the same. They also participated in the same activities which built up social network so that they could support one another. These activities caused the farmers aggregate and share their ideas, thinking methods, knowledge and first-hand experience. These helped them learn things around them and created knowledge and understanding towards the practice of the sustainable agriculture pursuant to the Efficiency Economy Philosophy. The results from the analysis can be divided into three points, namely, learning and analysis on living balance, causal factors which affected the farmers' behavior through economic activities and the achievement in learning leading to sufficient behavior.

**1) Learning and analysis on Living Balance.**

This would lead to the goal of learning of the sufficiency economy community learning centers. The learning process has been provided for the farmers and people in a community, adults in particular. It was a life-long learning process. This process encouraged farmers to utilize their potential to develop their learning skills. In addition, they have tried to solve problems which really occurred or is related to their work or living conditions. The above actual activities were taken place in response to solving actual problems and in accordance with the production planning of the farmers and of a community. Therefore, this was like a power driving and creating learning dynamism. After exchanging ideas, analyzing problems and finding solutions together, the farmers individually put such solutions into practice. After their practice, they mutually reviewed and analyzed the solutions again to make a conclusion and look for the better one for the future. The process was repeatedly occurred, so this could help enhance the farmers' intelligence and be considered as consequence from their learning from actual problems. Moreover, this process helped solve problems and

improve farmers' life quality. This was the process which a community can put it into practice. Therefore, the farmers must possess knowledge for such learning. Knowledge could be derived from three ways as follows, 1) from study which might be a self-study, 2) from knowledge passed from others, 3) from exchanging ideas with others, observing recurring events with the certain outcomes or from first-hand experience. However, regardless of any ways above being used, time factor must be employed to make the knowledge more apparent. This is relevant to the idea of Vivithsiri (2000) who prescribed that learning in adults is derived from three kinds of experiences which are learning from nature-based experience, learning from normal social experience and learning through teaching environments. In the same way, according to learning theory of Bloom (1956), there are six basic learning steps which are knowledge, comprehension, application, analysis, synthesis and evaluation to judge or assess if what they have seen is good and rightful.

The analytical study on the living balance and behavioral adjustment of the farmers gave importance to the stable development of economy, society and environment. The development of these three dimensions must be based on the economical use of all resources with the maximum efficiency. Such development must not cause any negative effects to people both in the present days and in the future. In addition it could be a continuous production base for economic system and for maintaining human living balance. Moreover, there were analyses in five aspects of living balance as follows: (1) analyze the uncertain events occurring to production and living, (2) analyze farmers' self-reliance and self control, (3) analyze their capital for making a living, (4) analyze their living strategy, and (5) analyze the outcome which caused changes in the farmers' practice. With regard to the analyses above, the farmers were found to adjust their cultivated style from their former ways to sustainable agriculture. The utilization of integrated farming system was found as the highest proportion which was 56 percent while the use of new theory farming and organic farming were reported at the percentage

of 32 and 12 respectively. Regarding the learning process which effected the farmers' living, the researcher applied the concept about "Nature, Efficiency and Benefit" to the learning activities to help them decode the utilization of the Sufficiency Economy by communicating, conveying and reflecting the true concept of the Sufficiency Economy to the farmers. The researcher could create the six ways of belief and thought relating to the sustainable agriculture to the farmers as below.

1) The farmers understand that the sustainable agriculture is the production system that fits the environment and gives produce which is relevant to existing environment.
2) The farmers have belief and thought to conserve abundance of the agricultural areas and ecosystem diversity of a rice field. They can allocate their agricultural land efficiently and in a supportive way to the environment.
3) The farmers understand that the sustainable agriculture the production system which causes the diversity of produce both from plants and animals. This can be immunity to any risks caused by nature and economic changes. Therefore, household income and consumption are secured.
4) The farmers have belief and thought regarding economic self reliance primarily by reducing expenditure, increasing income and saving.
5) The farmers have belief and thought for people to be physically and mentally healthy while being surrounded by the well being of family, society, and environment. They feel proud of their profession and preserve it as inheritance to their children. This causes them to have motivation to adjust their cultivated style to the sustainable agriculture.
6) The farmers understand that the sustainable agriculture is a system based on farmers' morality. They must endeavor, be patient and diligent. In addition, they must not take

any risk, be greedy and negligent and be in conflict with one another. Such moral code is beneficial to farmers, consumers and existing natural resources and builds up connection and network between them to assist one another.

**2) Causal Factors which Affect the Farmers' Behavior through Economic Activities.**

After studying on the life style of the farmers, the researcher discovered that the farmers' belief and thought was altered in accordance with the production and consumption trend and social values. Thus, the large investment was emphasized in the production process for the maximum return without having the true understanding. The agricultural produce was produced under policies supported by the government and market trend since the farmers expected the high return to improve their quality of life. In addition, consumption of luxury goods was admired under the current social trend. The farmers forgot their simple way of life and did not analyze reasons and necessity they actually required. When the researcher applied the concept of the Sufficiency Economy to the analyses, the problems in their present living were found out. Seventy seven percent of farmers faced economic problems in terms of debt and poverty while 51, 42, 40 and 35 percent of them faced educational and learning problems, physical and mental health problems, environmental management problems and social and cultural problems respectively.

According to the conclusion from the analysis of the causal factors which resulted in the unbalance in the farmers' living, there were four main factors which are (1) economic factor comprising debt, poverty, source of investment fund, price of produce and cost of production, (2) social factor consisting of family situation, family values, economic conditions, market conditions and the use of appropriate technology, (3) environmental and natural influence factor, namely, water quantity, arid land, changeable temperatures and seasons and pests and (4)water shortage in agricultural sectors. After the analysis was conducted based on five learning patterns which are learning to systematically solve

problems, experimenting new approaches, learning from first-hand experience and events in the past, learning from other's good experience and convey knowledge efficiently. The analysis was conducted through five learning patterns derived from the knowledge forums which are learning to solve problems systematically, experimenting new approaches, learning from first-hand experience and events in the past, learning from other's good experience and convey knowledge efficiently. As a result, there was an impact on the learning potential for developing the sustainable agriculture learning process by employing economic activities conferring benefits in terms of production, resource utilization, labor force and consumption as appropriate to each area. There were also four concepts of thought which can efficiently drive learning process of the farmers. Such concepts are as follows, 1) cut down the cost of production and adjust living behavior, 2) use former knowledge to create new production knowledge and quality in produce, 3) rely on one self and reduce the use of production factor and investment from the outside, 4) encourage saving and community welfare to inspire and motivate learning with diligence and patience. In addition, the farmers agreed to change their cultivation method from rice farming with mono cropping to the sustainable agriculture.

The application of the Sufficiency Economy to the analysis in living balance of the farmers is one way allowing them to help restore natural resources. The abundance in ecosystem can help farmers produce sufficient food with high quality in response to the basic requirement of consumers. In addition, such application causes independent development in farmers and the community. The cost of production could be reduced while produce could actually be increased. Due to no chemicals used during the production process, farmers, consumers and environment are safe. Moreover, people in the present days are likely to pay more attention in their health and environment than those in the past. The application of the Sufficiency Economy to the sustainable agriculture methods might elevate the living standard and life quality of the farmers through the economic activities as presented in Table1.2.

**Table 1.2** Illustrated the Relationships between Problems and the Application of the Sufficiency Economy to the Analysis on Living Balance

| Weak Points Affecting Farmers' Life | Living Strategy | Sufficiency Economy Activities and Outcomes |
|---|---|---|
| 1. Debt burden<br>2. Poverty<br>3. Life styles under the consumerism trend<br>4. Health problems<br>5. Influence and impact from nature and environment<br>6. Education and learning<br>7. Market conditions<br>8. Labor shortage | 1. Reducing expenses and costs of production | 1. Plant home-grown vegetable for household consumption, and sell the surplus,<br>2. Conduct paddy farming and raise cows under sufficient ways,<br>3. Raise chicken, fish for household consumption, and sell the surplus,<br>4. Cut down unnecessary household expenses such as alcohol, cigarette, luxury goods, gallivanting, or excessive expenses for traditional or cultural activities,<br>5. Produce commodities for household consumption such as shampoo or dishwashing liquid,<br>6. Plant and use herbal plants for own consumption or process them to other products such as insect repellant made from citronella grass,<br>7. Produce fertilizer for own use, use bio fertilizer and bio substances to prevent pest,<br>8. Use local materials to produce goods,<br>9. Reuse products,<br>10. Reduce the making of unnecessary debt and spend money as necessary,<br>11. Keep healthy,<br>12. Choose products worth its price. |

Source: survey of knowledge, attitude and practice

**Table 1.2** Illustrated the Relationships between Problems and the Application of the Sufficiency Economy to the Analysis on Living Balance (continued)

| Weak Points Affecting Farmers' Life | Living Strategy | Sufficiency Economy Activities and Outcomes |
|---|---|---|
| 1. Debt burden<br>2. Poverty<br>3. Life styles under the consumerism trend<br>4. Health problems<br>5. Influence and impact from nature and environment<br>6. Education and learning<br>7. Market conditions<br>8. Labor shortage | 2. Increasing income | 1. Conduct crop rotation,<br>2. Develop occupation and occupation association,<br>3. Process produce to add value,<br>4. Spend spare time usefully by finding part time jobs,<br>5. Exploit farming areas for optimum benefit,<br>6. Set up community enterprise such as rice mill, agricultural produce processing plant. |
| | 3. Saving | 1. Set up how to spend and allocate money for saving: spending 2 portions and saving 1portion,<br>2. Take part in saving activities such as being a member of saving cooperatives, community funds, other funds or banks. |
| | 4. Living | 1. Living with integrity, honesty, diligence, frugality, patience and morality,<br>2. Adhere to religious codes,<br>3. Inherit local tradition, culture and wisdom,<br>4. Quit all vices such as alcohol, drugs and gambling,<br>5. Have a household account, income and expenses book and discuss about this issue,<br>6. Have life or family planning,<br>7. Know situations, hear, watch and read news and other useful information,<br>8. Invest in moderation and according to one's money and potential,<br>9. Not making unnecessary debt or debt which exceeds one's power to return,<br>10. Think critically and analytically based on democracy,<br>11. Set up places for learning activities of community to regularly exchange knowledge,<br>12. Seek outside connection and community institute to regularly take part in learning activities together. |

Source: survey of knowledge, attitude and practice

**Table 1.2** Illustrated the Relationships between Problems and the Application of the Sufficiency Economy to the Analysis on Living Balance (continued)

| Weak Points Affecting Farmers' Life | Living Strategy | Sufficiency Economy Activities and Results |
|---|---|---|
| 1. Debt burden<br>2. Poverty<br>3. Life styles under the consumerism trend<br>4. Health problems<br>5. Influence and impact from nature and environment.<br>6. Education and learning<br>7. Market conditions<br>8. Labor shortage | 5. Conserving and exploiting natural resources | 1. Utilize natural resources sufficiently and economically,<br>2. Make efficient use of on-farm waste such as use compost, manure and leaves as fertilizer<br>3. Prescribe community regulations such as keep public places clean and correctly dispose of waste and polluted things,<br>4. Arrange activities relating to conservation of rivers, canals or other water resources,<br>5. Have a campaign concerning forest planting , forest ordination and conservation of natural resources and environment,<br>6. Set up the conservation of natural resources and environment as a part of life plan |
| | 6 Having generosity and assisting each other | 1. Set up community welfare or activities to take care of the elderly, children, underprivileged and arrange funeral assistance association and community welfare foundation,<br>2. Set up community enterprise activities such as rice mill and agricultural produce processing plant,<br>3. Have cooperation,<br>4. Set up method to assist one's self and members of a community in case any disaster is occurred ,<br>5. Hold an activity to exchange labor force,<br>6. Create knowledge to Reduce production process to use less human labor or create innovative technology as appropriate such as employing parachute techniques when conducting paddy farming or using rice drum seeder,<br>7. Set up community occupation group for new generation to learn and inherit local knowledge. |

Source: survey of knowledge, attitude and practice

3) **Learning Achievement in Adjusting the Farmers' Behavior to that Based on the Sufficient Economy**.

The adjustment of the farmers to have behavior based on the Sufficient Economy could be done at several levels either in large-scale or household production. For example, the farmers can avoid using chemicals, plant and produce seasonal fruits, support one another, promote health, conserve environment to maintain eco-diversity (both plants and animals) in their fields, promote the use of local wisdom, prescribe organic farming standards (Wiboonpongse, 2009). Also, the farmers should organize their farming system to give importance on cycling of nutrients used by plants, integrated pest elimination, integrated farming, natural farming and shrub planting on steep slopes. At the community level, there should be an organization taking part in activities such as conserving forest in form of agro forestry, water resource development, field management and the exchange of labor force including other learning indicators to adjust the farmers to have behavior based on the Sufficient Economy. The researcher has discovered seven factors having an impact on the farmers' decision to utilize sustainable agriculture as follow:

1) Appropriate planting areas and natural resources. Production system in the north of Thailand can be categorized under agriculture ecosystems which are hillside production system, upland production system (which relies on rainfall), wetland -rice field-production systems (which relies on rainwater), production system in irrigated area and suburban area. Each area is suitable for planting major crops such as rice, fruits and garden plants. In regard to animal farming, there are pig, chicken, fish and frog raisings to a certain extent to maintain balance in agricultural systems which support one another and make the farmers become self- reliant in term of household consumption.

2) Farmers' competence and experience in production. There are differences in planting areas and the majority of farmers in Chiang Mai are specialized in planting rice as a major crop and they also prefer to plant mono crops, for example, corn, shallot and cassava after rice

harvest. Therefore, the learning which can create idea regarding the sustainable agriculture will cause farmers to have understanding in integrated planting procedures or allocating planting area to be suitable with resources and environment.

3) Efficiency in labor force and instruments. According the population structure in rural areas, the high proportion of the elderly (more than 60 years old) will in the future lower the rate of agricultural productivity per agricultural labor (dividing agricultural GDP by agricultural labor) (Bryant and Gray, 2005). Currently, family labor is mostly found in the area, especially labor force form husbands and wives which are apparently seen in paddy fields. At the community level, there is the exchange of labor force to a certain extent and sometimes local people are hired. However, if the production area is vast but there is limitation in age of labor force, manpower and changeable weather, laborsaving machines (such as tractors for soil preparation, harvesters for plowing rice stubble and paddy transportation) are employed. The farmers view if they or their group possess such machines, it would be a supporting factor for them to improve their method in utilizing the sustainable agriculture. This is why the farmers select laborsaving machines as one of the factors for making decision.

4) Local values and belief. The majority of farmers still lack confidence in sustainable agriculture since the understanding in agricultural knowledge information system and modern technology has not been formed in their minds yet. If their local wisdom and traditional practice are relevant to such new knowledge, farmers would trust and believe in sustainable agriculture. Therefore, local values and belief are still the factor regulating their decision towards the employing of the sustainable agriculture.

5) Food security and income circulation. The major problem faced by farmers is that income does not balance expense. The sustainable agriculture provides diversity of plants and animal which naturally support one another. In addition, integrated farming will also cause such diversity and stimulate continuous and completed production activities in

the same planting area. If the farmers choose to employ the sustainable agriculture, they will obtain produce with high diversity of plants and animals. Their means of livelihood will be abundant as appropriate and no money is required for family consumption. Moreover, the surplus can be sold or traded for money considered household income.

6) Transportation and marketing. The farmers with a lot of experience could wisely select the sustainable agricultural methods in conformity with market types and means of transportation. For example, on one hand, the farmers in Saraphee district choose to plant rice, vegetables and fruits because the area is quite near the town, so it is convenient to transport their produce to town. This causes the appropriate combination of produce in the market. On the other hand, farmers whose planting are located near water resources but require long distance to transport their produce to town should focus on selling their produce in markets in their community. Otherwise, they must produce high quality product to attract outside markets.

7) Influence of group. The farmers set up a group to exchange conversation and knowledge, support and promote one another. The farmers might unite to form a group whose produce are the same, for example, herb group, rice mill group or non-pesticide vegetable group. Influence from the groups above can affect the decision of farmers to employ the sustainable agricultural methods.

For the production activities based on the sustainable agriculture, there was adjustment in the farmers' behavior in terms of their production activities, consumption and group forming. Nine changes could apparently be found in them as follows: the reduction in the use of chemicals, the decrease in burning rice stubble, employing crop rotation method, planting home-grown vegetable, herbal plants and fruits, raising animals, producing bio fertilizer, conducting soil improvement and modifying crop seeds. After concluding the activities with the target farmers, three types of sustainable agriculture have been used by the farmers in the learning centers as below:

1) Integrated farming refers to agricultural systems which integrate livestock and crop production in the same area. Each production activity must support one another efficiently. It is the appropriate use of resources in fields for maximum benefit. The farmers at Saraphee and Mae ai learning centers have learned to reduce the amount of chemicals used in paddy fields. They also reduce the burning of rice stubble, employ crop rotation method, plant home-grown vegetable and fruits, raise animals and produce bio fertilizer for soil improvement. Such activities could generate income circulation to the farmers. With respect to the weak point in using new technological techniques for developing plants to have quality , the farmers still required more time to learn and adjust themselves to such new knowledge because they faced problems when implementing such knowledge. However, the agricultural experts and farmers have learned and solved these problems together.

2) New Theory Farming refers to agricultural systems which focus on the allocation of water to fields for optimum benefit and allocation of land to cultivate mainly for household consumption. Then the surplus can be sold. The farmers can have sufficient food for family and produce varieties of produce to generate secured income for the household. In addition, they become self-reliant and cut down the reliance from the outside. The agricultural experts offer knowledge and development to farmers in San kampang and San sai districts which are suburban areas where there is good irrigation system. The farmers in these areas have practiced the new theory farming for five years. The researcher found the behavioral adjustment at household, field and community level. The practices, mostly performed by the farmers, are the reduction of the chemical use, employing crop rotation method after rice harvest, planting home-grown vegetable, herbal plants and fruits, raising animals such as cows and pigs in a hole, producing bio fertilizer, conducting soil improvement. In addition, they also form a group to process goods in their community such as wood vinegar, shampoo, dishwashing liquid and mushroom group and produce household products by using vetiver grass.

3) Organic farming refers to agricultural systems which avoid using pesticides for health safety. The compost from animals, plants and leftover would be used for soil improvement by integrating biological pest control method which allows organism help control and destroy pest. The farmers are aware of their health and dangers caused by pesticide residues in their produce. The farmers mentioned are those from Doi saked district. Their land is located in suburban area near water resources. The idea to plant organic rice and vegetable motivates and inspires the farmers to cooperate in thinking and making production planning for monthly income circulation. This also can efficiently create market both inside and outside their community. The production activities apparently seen is that the farmers, whose production cost was reduced due to the less use of chemicals can inspire and motivate other farmers to do likewise. In addition, the farmers have knowledge regarding the use of nature to control organic produce, control water supply and temperature system for all crops planted in rotation. They also plant home-grown and herbal plants, produce bio fertilizer and conduct soil improvement.

**Conclusion and Discussion**

This is an analytical research on living balance and behavioral adjustment of farmers. The results are derived from the farmers in five communities in Chiang Mai. The study aims to create significant learning base to build immunity or to improve people in an agriculture sector with knowledge, morality and life quality guideline under the Sufficiency Economy. The researcher has analyzed five aspects of living balance as follows: uncertainty events which might occur to production and living balance, self reliance and self control, capital for making a living, living strategy, and the outcome by learning from economic activities which are beneficial to production planning, production factors, resources, environment and consumption which can be altered to fit the need of farmers in each area. The researcher found that there were several causal factors, namely, economy, society, natural and environmental

influence and farm labor shortage which lead to the farmers' interest in learning to build their living balance and adjusting their behaviors and solving the following problems: (1) debt burden, (2) poverty, (3) behavior under consumerism trend,(4) health problem, (5) environmental and natural influence, (6) education and learning, (7) market conditions, (8) the shortage of labor force in agricultural sectors. The analysis was conducted through five learning patterns which are learning to s solve problems systematically, experimenting new approaches, learning from first-hand experience and events in the past, learning from other's good experience and convey knowledge efficiently. This results in the potential to analyze living balance and behavioral adjustment in the farmers by employing economic activities (which confer benefits in terms of production, the adjustment of labor force and consumption to fit each area) and by creating learning system and gathering, collecting, searching, publicizing and conveying knowledge which cause the adjustment in thinking methods and behavior in conducting production activities as can be seen from this study's result.

According to the analysis above, there were changes in the farmers' practice. The integrated farming is an agricultural system mostly utilized while the new theory farming system and organic farming system was reported to be used respectively. In addition, there are seven factors causing the decision on selecting the production activities which are appropriate planting areas and natural resources, farmers' competence and experience in production, efficiency in labor force and instruments, local values and belief, food security and income circulation, transportation and marketing and Influence of group. With respect to the production activities, there is behavioral adjustment and results in six changes in the farmers as follows: the increase in income and saving, living condition, conserving and utilizing natural resources and environment and having generosity and assisting on another. The achievement in learning to adjust the farmers' behavior to that based on the Sufficiency Economy has created balance in production process, investment, consumption and saving. This causes secured remuneration

in moderation within reasonable limit and has good immunity under the Sufficiency Economy guidelines.

The analysis on living balance and behavior adjustment of the farmers must adhere to the principle which closes to the nature as much as possible. Utilizing sustainable agriculture provides diversity of plants and animals which naturally support one another and stimulates continuous and completed production activities in the same planting area. Produce obtained from high diversity of plants and animals will cause the abundance in livelihood as appropriate. No money is required for buying such produce. Moreover, the surplus can be sold or traded for money considered household income. Sustainable agriculture also avoid using chemicals, pesticides and plant modification since this might cause the increase in expenses and economic and market risks. In addition, it might harm environment and lives if chemicals, pesticide and plant modification are repetitiously and incorrectly used without professional knowledge. Under the conditions above, the production process will concentrate on the sufficiency of household or community consumption in agricultural sector. The surplus will be sold and distributed for consumption of people outside the sector. This leads to the increase in farmers' income, conservation of natural resources and decrease in adverse impact on environment under the sustainable agricultural guideline.

Therefore, the analysis on living balance and behavior adjustment of the farmers is more or less the same as the development of farmers' life quality to change their idea and behavior. Such development is as important as the technology development. The development and promotion of farmers' quality must be implemented based on economy, society, culture and natural resources of each area both at the individual level and for farmers in the trade system. Sustainable agricultural system in any appropriate patterns can be achieved so that farmers can learn and put the theory into practice and finally cause them to become self-reliant.

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