



The Study on Reasons for Approval of Thai Rice Projects in Lanchang-Mekong Cooperation Based on Geographical Relationship

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Abstract

Lanchang-Mekong River passes through China, Myanmar, Laos, Thailand, Vietnam and Cambodia. Lanchang-Mekong Cooperation (LMC), based on such geographical condition, has been established in order to solve common regional problems. As the main source of diet for the people in this region, rice is an important industrial crop and one of the top export products all over the world. However, there are some factors, especially climate change, that have enormous impacts on the production of quality rice in the region. Due to the uncertain factors, these countries face the hidden dangers of the food crisis. The objective of this study was to analyze the reasons why Thailand successfully got 2 rice project approvals from LMC in 2019. The study was a qualitative research, which conducted an in-depth interview with 2 officials and collected data and literatures to analyze. The result indicates that regional rice culture, demand of food security, rice economic integration, and rice sustainable environmental development which is based on geographical relationship are the reasons that the rice projects was approved by LMC. Besides, the existing geographical relationship theory is not sufficient for the comprehensive analysis in the case of LMC rice projects. Geographical environment perspective should also be taken into consideration.

Keywords: *Geographical relationship, Lanchang-Mekong Cooperation, Rice, Food Security, Thailand, ASEAN*

1. Introduction

Lanchang-Mekong River passes through China, Myanmar, Laos, Thailand, Vietnam and Cambodia. Among these countries, there are numbers of common issues concerning politics, economy, and society that sometimes cause the countries to stand against each other. This is, in fact, one of the obvious effects of globalization. To solve or minimize the effects of such disputes in friendly manner, as well as to turn crisis into opportunity, the countries come up with lots of cooperation, which is mostly based on the geographical relationship. One of the most successful cooperation is Lanchang-Mekong Cooperation or LMC in short.

Under LMC, the budget of 300 million dollars, also called LMC Special Fund, is set up. The member countries who have proposed small-medium sized projects that are corresponded to the pillar of cooperation of politics, security, and sustainable development as well as the field of connectivity, capacity building, trans-border economy, water resource, and agriculture and poverty, would be granted the maximum budget of 500,000 dollars to implement one project, which has the implementing period between 1 to 3 years. The main donor of LMC special fund is the Chinese government (Zhifei, 2019).

Among the 5 cooperative fields mentioned above, the agriculture and poverty is, indeed, the root problem of the socio-economic development for all of the related countries. Food security has a direct impact on lives. Even though such countries are the world's top rice producers, they still face quite a few difficulties on producing high quality rice to meet the market demand. In Southeast Asia, the countries can be categorized into 3 groups based on rice production. The first group is the countries with rice exporting advantage such as Thailand, Vietnam, Cambodia, and Laos. The second group is the ones with rice exporting disadvantage such as Singapore and Brunei. The last group is the countries that produce rice to the level of self-sufficiency such as Philippines, Indonesia, and Malaysia. It is clear that the Southeast-Asian countries who are the member of LMC are the countries with rice exporting advantage. These countries are also called CLMVT (Foreign Agricultural Service/USDA, 2018).

In 2008, the world was confronted with a serious food crisis due to climate change and other environmental issues. Philippines was the country that was impacted by the outbreak severely. Tens of



thousands of Filipinos allied and protested their government, which destabilize the well-being of the society. To solve this urgent food crisis, the Philippines government decided to import 2.8 million tons of rice from Thailand, Vietnam, and Cambodia (Chongbo, 2012). However, Thailand also suffered from the drop of rice productivity itself due to the immediate floods, which resulted in refusing to export rice to Philippines as it needed to guarantee its own domestic demand. In fact, the CLMVT countries also faced devastating food crisis themselves.

For the sake of food security, rice production capacity became a new form of geopolitics instantly (Qin, 2018). China and CLMVT are linked geographically by the flow of the Lanchang-Mekong river. And LMC is a vital cooperative platform that serves the Chinese Belt and Road Initiative (Zhi and Xiuliang, 2017). Food security issue becomes increasingly complex when political and economic issues are taken into account (Chongbo, 2012). In this regard, geographical relationship is actually the combination of geo-political, geo-economic, and geo-culture (Qi, Liang, Shengkui, Dan & Xiaopeng, 2018). In the related existing research papers, most of them focus on the cooperation among Mekong countries based on political and economic perspectives. Deep study on the factor of environmental perspective such as climate change is, therefore, needed. Thus, this study uses geographical relationship theory that adds environmental perspective to completely analyze the reasons for Thai Rice projects were approved by LMC. Meanwhile, this study indicates that the rice culture, demand of food security, economic integration, and sustainable environmental development are the main reasons behind the approval on such projects.

2. Objectives

2.1 The first objective of this paper is to study the reasons behind the approval of LMC on the Thai rice related projects.

2.2 The second objective is to develop a geographical relationship theory in the case of LMC Thai rice related projects

3. Materials and Methodology

3.1 Methodology

The study is a qualitative research, which conducted through literature review and in-depth interview. The researcher reviews related research papers and get secondary data needed such as the theory of geographical relationship, The Belt and Road policy, and Lang-chang Mekong Cooperation.

On the other hand, the researcher conducts in-depth interviews with 2 officers from Ministry of Agriculture and Cooperatives of Thailand to get primary data. There are 3 topics in the interview.

3.1.1 The reasons why the rice projects got approved by LMC.

3.1.2 The updates of the 2 Thai rice projects in LMC.

3.1.3 The impact of the 2 Thai rice projects after the implementation in the future.

3.2 Theory

Geographical relationship refers to the different interpersonal relationships formed by different geographical locations, similar to DNA relationship and karmic connection. As a connection (or interaction) among countries or regions formed on the geographical basis, geographical relationship is the combination of geopolitical relationship, geo-economic relationship, and geo-cultural relationship (Qi et al, 2018). This concept is extracted and developed from geopolitics, geo-economics, and clash of civilizations in the geographical theory. Along with the historical and global situational changes, the geographical theory has experienced the evolution and development of Geopolitics, Geo-economics, and Geo-culture. The previous research focused on the great power nations, recent focus on the current emerging countries as well as regional cooperation. Geopolitics was applied as early as in ancient China. The term of geopolitics in the modern time was proposed by Rudolf Kjellen, developed by Friedrich Ratzel and Karl Haushofer. It emphasizes the positional consolidation through national expansion, which provided a theoretical basis for the outburst of WWII. (Renwei, 2010) Along with the evolution from the Western powers' invasion into the Asian, African, and Latin American colonies to the Cold War, the Sea Power Theory, the Land Power



Theory, the Air Power Theory, and the Clash of Civilization Theory emerged in different global situations. During the recovered social stability and economic development throughout the world after WWII, interest-connected regional organizations came into being, such as European Community and Organization of the Petroleum Exporting Countries. The market integration of EC and production of OPEC improved the member countries' right of speech in international affairs through the bound economic interests, as well as these regions' socio-economic production positions throughout the world, and therefore became the models of following regional organizations. After the collapse of the bipolar structure and the disintegration of the Soviet Union, all countries tried their best to improve their competitiveness in the world trade, with the custom-union-based free trade area drawing more attention, followed by the establishment of North American Free Trade Area as well as the first proposition of China-ASEAN Free Trade Area. Diminishing the hindering of tariff barrier in trade for the development of regional economy became the way of improving competitiveness in the globalization. Against such background, Edward Lutwak etc. in 1990s proposed the geo-economic theory with economic interests and relationships as the axis of international relationship in replace of military confrontation and political relationship. Later scholars from different countries made further development based on the theory: the American school emphasized market control and economic competition, the Russian school focused on the aim of national strategies, and the Italian school was concerned about international competition and cooperation (Ke, 2016). Collective economic development within the regional organizations became the mainstream, but the members had to confront an important problem of the threat from untraditional political fields such as regional poverty, international refugees, and environmental disasters. Solving these problems required the beyond-tradition political mind in pursuit of collective stability and prosperity in competition, as the regional development can only be effectively promoted with the attention to regional livelihood. LMC as the further development of geopolitical and geo-economic theories advocates the development of transborder economy on the basis of regional peace and stability, collective consumption of regional energy, and solution of livelihood problems via projects. The cooperative mechanism explains the geographic relationship in a more comprehensive perspective with attention to regional development beyond the existing geopolitical and geo-economic theories.

3.3 Literature review

Zhi and Xiuliang (2017) note that China and Mekong Countries, geographically connected by the river, keep close relationship in commercial trade with LMC as an important cooperation platform of the Belt and Road Initiative. Yongjun (2018) discovered that Sino-Thai trade during 1975 to 1982 was mainly of rice and petroleum and became diversified during 1983 to 2012 with agricultural products and jewelry as main Thai exports. Since the establishment of CAFTA, Thai trade deficit kept an obvious increase with Sino-Thai unbalanced trade. Qin (2018) believed that the endogenous factor of LMC is the driving force of the large regional market and also the forced result of deglobalization and emerging trade protectionism. The cooperation is also closely relevant to the special untraditional regional security, which includes water resource, transnational crime, illegal migration, and environmental changes. Jun-lin (2018) summarizes that the basic framework and latest updates of LMC with the advice on strengthening and improving LMC are to enhance the coordination and communication between water resource work group and other groups, establish special funds for water resource initiations, and promote the construction of LMC think tank to practically resolve the regional water usage through regional organizations. Chongbo (2012) found that 1990s witnessed the decreased food yield with the tendency of lower self-sufficiency and stronger outside dependency in some Southeast Asian countries and studied measures for food security. But his study didn't mention measures taken by regional cooperation to solve regional food crisis. LMC is a regional cooperation project targeted at the six countries Lanchang-Mekong flows through. Based on this geographical relationship, LMC designs three cooperative fields of political security, economy, and sustainable development and social humanities, among which the sustainable development makes a further complement of this definition with more attention to environmental changes and sustainable development in the geographical relationship.



4. Results and Discussion

Since the beginning of LMC in 2017, China and Thailand have finished signing memorandums of understanding of relevant projects, including border economic zone, border infrastructure, trade promotion, rural e-commerce, and Mekong Institute in Chiang Khong, Thailand. Among 13 applied projects in 2018, one project has finished signing the memorandum. As for the agricultural projects in 2019, five out of the six projects applied by Thailand have been approved, including Detection and Forewarning Center of Rice Pest and Natural Disaster Against Climate Change in Lanchang-Mekong Area, Common Standard of Rice Product in Lanchang-Mekong Area, Lanchang-Mekong Area Integration and Sustainable Development, Expansion and Development of Grass Seed Trade Cooperation, and Farmers' Adaption to Climate Change and Food Security. These five projects are waiting for the approval of Thai cabinet before the two parties' memorandum signing.

Two out of the five approved projects are about rice with the implementation period of three years, which shows the importance of rice in Lanchang-Mekong Area.

4.1 Result

Based on the geographical relationship theory, this article analyzes the reasons for approval of rice projects by LMC from the perspectives of geo-culture, geopolitics and geo-economy, which is useful to understand more about the significance of rice in this area and the development of it. During the study, the author realized that the existing geographical relationship theory is not sufficient for the comprehensive analysis of the reasons for successful approval and the geographical environment should also be taken into consideration. Therefore, the analysis will include four perspectives of geo-culture, geopolitics, geo-economy, and geo-environment.

4.1.1 Geo-cultural perspective reason

One of the basic approval reasons is that there is a common rice culture in Lanchang Mekong region. The local farmers in this area share the same water resource to irrigate their farms, water their crop, and use in daily lives. As a common diet in the region, rice is seemed as a sacred gift from the haven. The locals believe that earth and water provide them with source of energy, which come in a form of rice grain. Geo-culture refers to a common culture that is based on specific location, formed by a specific group of people who live in a specific area. This type of culture includes cooking, clothing, and belief as well as values and ideas. Thus the geo-culture in Lanchang-Mekong region can be dated back in an ancient time.

In the Western Han Dynasty, people in Baiyue located in the southern China began to move toward the south until finally they arrived in Vietnam, Philippines, Thailand, and Malaysia. In this migration, they introduced the rice plantation to Southeast Asian countries and rice with its advantage of three crops a year then gradually replaced potato, the previous staple food in the tropical climate. With the development of the advanced shipbuilding industry in the Tang and Song Dynasties, Chinese merchants began to export rice to Southeast Asia. Contacting between China and Southeast Asia not only increased the trade, but also introduced the rice management technology to the latter. For example, Zheng He ever taught the local farmers to replace fertilizer with plant ash. Later, along with the gradually improved rice technology in Vietnam and Thailand, Zhancheng rice produced in Vietnam was exported to China with the drought-enduring advantage while Siam rice in Thailand had the advantage of water tolerance and length. Trade cooperation further promoted the dietary habit of rice as the staple food in China and Southeast Asia, as well as the cultural agreement on rice. First, linguistic similarity about rice: Xishuangbanna, the name of a famous tourist city in Yunnan Province, China, originates from Thai with the meaning of 12-mu rice field; Na in Dai, Lao and Thai means land, which proves the similarity of rice field naming in Lanchang-Mekong countries as well as the rice culture as the collective culture in this area. Second, in the traditional agricultural countries within this area, people in the ancient times had to rely on rain and river for the rice harvest; therefore, they worshipped and respected the nature. China and countries along Lanchang-Mekong all celebrate the Spring Ploughing Festival: Chinese people pray for rain toward the Dragon King before seeding to expect good weather and good harvest, and this is the origin of February 2nd also named as the



Dragon-Head-Raising Festival. A similar festival is also celebrated in Thailand, Vietnam and Laos, when people worship the heaven god with food before seeding to express their guilt of using natural resources and expectation of good harvest. Besides the above-mentioned cultural similarity in ideology, the ploughing procedure, the irrigation system, ploughing with cattle, ploughing tools, rice types, and even modern plantation machines all represent the rice culture within this area.

4.1.2 Geopolitical perspective reason

Another important reason for Thai rice-related projects approval is about the geopolitical status of rice. Rice, as a basic food, has a direct impact on human-being. It is also used as a tool to strengthen the stability of society worldwide. Lots of countries, especially Asian countries, treat rice as their strategic product: these countries set up quota on export and import on rice. The level of rice in the nation's storage can influence the level of confidence of the people in their government, which results in social stability. These make rice one of the geopolitical tools.

From post-WWII to mid 1980s, Southeast Asia took advantage of the geographical advantages and realized the self-sufficiency of rice through agricultural development. Along with the later rapid development of manufacturing and industry, urbanization and decreased arable land threatened the rice yield. According to the statistics of USDA, the rice consumption in Philippines and Indonesia is higher than the yield which means the self-insufficiency of rice. (See Figure 1)

Comparison of rice yields and consumptions of Southeast Asian countries in 2019

Unit: thousand tons

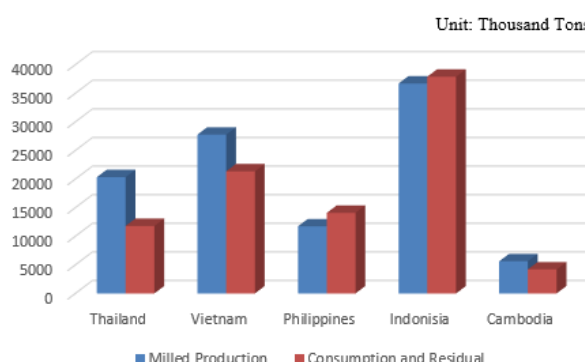


Figure 1 Comparison of rice yields and consumptions in Southeast Asian Countries of 2019

(Source: Foreign Agricultural Service/USDA)

Therefore, Philippines, Indonesia and other countries have been suffering from the potential food crisis since the 1980s, making up the domestic rice shortage only by rice importing. However, along with the aggravated climate change, the global food crisis outbreaking in 2008 damaged the social security in Philippines and the dramatically increased rice price led to the parade and protest of tens of thousands of people. In order to solve the rice-aroused social problem, Philippines added the rice import of over 2.3 million tons from Thailand, Vietnam, and Cambodia with following additions (Chongbo, 2012). But Thailand, a long-term rice export, also suffered from the threat of yield decreasing due to floods, so it had to decline its export to Philippines so as to guarantee the domestic supply. This means the worsening domestic social conflict as well as intensified friction between countries within this area. In this crisis, Southeast Asian countries realized the importance of rice security and adjusted the previous food policies. Philippines expanded its rice import demand as well as domestic yield, while replacing the quota system with the tariff system in this year to meet the domestic demand, so as to increase its rice competitiveness. Malaysia planned its oversea rice plantation base to guarantee the domestic rice demand. It is now clear that the



stable rice supply is closely relevant to the livelihood and social security of all countries. Due to the accelerated urbanization, decreased arable land and soil and water pollution due to chemical fertilizer, China is no longer basically self-sufficient and has to gradually depend on food import, so food import from Southeast Asia is one of the effective policies. When EU uplifted its tariff on rice imported from Cambodia, China increased its quota of rice import from Cambodia to alleviate the rice supply over demand in the latter. This measure guarantees the rice export from Thailand, Cambodia, and Vietnam as well as meets China's rice demand, while emphasizing China's important role in the international affairs.

4.1.3 Geo-economical perspective reason

LMC is established with the purpose of the enhancement of coordination in order to pursue the goal of sustainable economic development of its member countries. The mechanism helps solving common issues in the region through economic cooperation. To pursuit the ultimate goal of regional economic development, the geo-economy in Lanchang-Mekong region focuses mainly on the common economic interests. And one of the most effective methods is the unifying of rice standard of the member countries.

Besides tariff, technological standard is also critical to the economic integration in Lanchang-Mekong Area. Since 2010, the zero-tariff policy in CAFTA has given Thailand, Cambodia, and Vietnam more advantages in tariff, which are able to export rice to China, Indonesia, and Philippines through more zero-tariff quotas. Besides this area, Thailand is also actively expanding the EU market. As Laos, Cambodia, and Myanmar have obtained the tariff preference of EU, Thai investors could rent land in these neighboring countries through the relevant preference policies of ASEAN and export the rice planted in these countries to EU for less tariff. Therefore, tariff-preference-based trade has made rice trade the pillar industry in the countries within this area. However, countries in Lanchang-Mekong Area keep collective development as well as competition, while confronting threats outside the area. When the tariff barrier is weakened, the technological barrier has become the weapon fought for by rice exporters. Vietnam used to defeat Thailand, the traditional rice export power, with the advantage of a lower rice, ranking the powers with largest export. China has been the largest importer of Viet rice. In 2018, China's import of Viet rice was 1.3 million tons, accounting for 45% of the total rice import. However, in the first half of 2019, China's import from Vietnam was as small as 0.22 million tons, a year-on-year decrease of 74% compared with 2018 (Sohu news, 2019). The reason of the decreased import is that China increased rice import standard, while a large amount of the largely fertilized Viet rice didn't meet the standard. Dramatic increase of Thai Bhat since May, 2019 also led to the decrease of Thai rice export. In this situation, China chose to increase the import of Cambodian and Burmese rice with less pollution and better quality. Countries within the middle and lower reaches of Mekong River have to confront the domestic competitive as well as pressure from outside rice export powers such as India and Palestine. This, therefore, reflects the demand difference of rice quality security between China and countries within the lower reaches of Lanchang River. To occupy the market in the rice import and export competition in Lanchang-Mekong Area, making use of the tariff quota advantage as well as adjusting the quality standard according to the changing market demands are both important. Meanwhile, as global customers and the business environment pay more attention to rice products with good production procedure and quality, Lanchang-Mekong Area should develop and implement a unified rice standard to coordinate the local and regional standards.

Therefore Thailand as a main rice exporter within this area proposed the "Lanchang-Mekong Countries' Rice Standard Project" under LMC framework. The project classifies the common rice products within this area into fragrant rice, white rice (Class A, B and C), brown rice (Class A, B and C), sticky rice, and quick-cooking rice. Building an authentication and traceability system improves the rice product quality and sustainable development in Lanchang-Mekong Area. Following activities will be implemented in the project: first, the study of rice product standard in Lanchang-Mekong Area, second, Thailand's building of a project management system, third, organization of strategic and technological seminars and conferences, fourth, training of local officials and farmers on the authentication and traceability system of good-quality rice standard, fifth, constructing a website to provide information on the rice product standard, as well as the traceability system for buyers and producers with information on the source area, practical production



and procedure, as well as distribution channels and entering locations (MOAC, 2019). It is, therefore, clear that LMC rice standard project could break the technological barrier and guarantee the sustainable export of local rice, while meeting the new demands of global consumers by updating the local rice product standard. The value beyond the traditional rice import and export trade will be generated, as farmers and relevant practitioners could learn new technologies and new standards through training. There will be a better control of the changeable rice market through the website information and the traceability system. In total, effective use of big data can solve the problem of agricultural product development within the area.

4.1.4 Geographic environmental perspective reason

During the study, the researcher has found that the common concern on geographical issue namely geographic environment like climate change is actually one of the significant reasons, which helps Thai rice projects to be approved. The geographical relationship theory consists of geo-politics, geo-economics, and geo-culture. In theory, the geographical relationship, which caused by the effect of climate change, would further lead to other perspective problems. The Thai rice projects not only could help maintaining the well-being of rice trade and the political stability in the region, they also diminish some negative impacts, cause by climate change, on the daily lives of the people in the area. Therefore, the sustainable development of geographic environment can be regarded as a vital factor that influences the approval of LMC commission.

Global climate change is now the biggest threat to agricultural production, with no exception in Southeast Asia. According to a report of Asian Development Bank, “in the past fifty years, the average temperature in Southeast Asia has increased by 0.1-1.3 degrees Celsius per ten years with annual sea level increase of 1-3 mm. From 1960 to 2000, in this area, there occurred heat wave, drought, flood, tropical cyclone, and other extreme weather events.” (Chongbo, 2012). Climate change exposed negative influence on Southeast Asian countries to different extents such as restricted agricultural production, threatened food security, and aggravated international rice price fluctuations. In a special geographical location, Philippines frequently suffers from the heavy rainfall aroused by typhoon in the oceanic monsoon climate. In 2009, Philippines surviving the global food crisis had a rice yield of only 16.2588 million tons, a year-on-year decrease of 3.31% compared with 2008; in the following 2010, it suffered from El Nino with a continuous decrease of rice yield by 3.04%. Indonesia with the population of 0.1 billion was confronted with the same difficulty: the long drought in 2010 led to the bad crop of only 1.08 million tons of rice in 2011 and until now it is still self-insufficient in food (Chongbo, 2012). Different from the drought in Indonesia, Cambodia suffered from the severe flood with the risen water level of Tonle Sap, the largest freshwater lake in Southeast Asia, rice shoot submerged by the flood, and local rice security seriously damaged. Besides the influence on the rice production by extreme weather due to climate change, the rice quality also got worse rapidly, as the change of microelement in the atmosphere also influences the nutrition of rice. Looking for effective measures and solutions is the key of the cooperation in the environment field within this area.

Therefore, countries within the middle and lower reaches of Mekong River with rice plantation are as an important industry taken action to reduce the influence of climate change on rice yield and quality. Especially, Thailand proposed the project of “Development of Rice Pest and Natural Disasters Monitoring, Forecasting and Warning Center for Sustainable Rice Production under Climate Change in Mekong-Lanchang Sub-Region”. (MOAC, 2019) The technological team of this project will work together with technicians from different countries. Entomologists, plant pathologists, agricultural research institutes, irrigation engineers, and meteorologists in the baseline study will collect data together, which include evaluating and analyzing the monitoring, forecast and forewarning rice pests, and natural disasters in the region. The center of the project is a physical information center and network platform, including information on pests in the rice-producing area, natural disasters, water yield, climate conditions, and satellite cloud pictures. Agriculturists build equations and yield models with the collected big data and monitor the influence of climate change on yield and quality to timely report relevant information to local farmers. It will be a better fight against the negative influence of uncertainty on agriculture. What’s more, the centric management system of this project will be constructed in Thailand to organize different



countries' participation in the strategic and technological seminars and conference and provide trainings for farmers and practitioners. The project will benefit 0.3 million people in this area, including officials, practitioners, and farmers.

4.2 Discussion

This study has found out that there are 4 reasons for Thai rice-related projects to get approval by LMC.

In geo-culture perspective, rice is, indeed, a common culture in Lanchang-Mekong region. The culture has started in an ancient time and continues nowadays. It has been further polished by generations and has formed a custom. The region has an excellent condition for rice paddy including climate, humidity, soil nutrition, and etc. With these outstanding background condition, rice becomes part of the local's culture. The geographic relationship between rice and the local forms a common spiritual culture and belief.

In geo-political perspective, rice is an important community product that can help maintaining the stability and well-being of the society, which lead to the stability of politics in Lanchang-Mekong countries. Since the quality, quantity, and price of rice have a vital impact on the living of the local people, it is, therefore, a must-do task for the local government to ensure the quality, quantity, and price of rice to be at an acceptable level to the society. However, up until now, no common rice standard has been introduced to the region rice trading market just yet. It is considered as an urgent task for the related countries to quickly form such standard in order to ensure the sufficiency of rice trade in the region, which will lead to the further construction of reasonable quota of rice trade to withstand the destruction of unforeseeable natural disasters or food crisis.

In geo-economical aspect, the establishment of common rice standard is a major tool to help maintain the well-being of regional rice trade market. It can influence the demand and supply relationship among the rice exporting countries and rice importing countries in Lanchang-Mekong area. Also, other trading techniques that ensure the fairness of rice trading can be further introduced accordingly. This helps making it possible to diminish or minimize the level of the impact of tariff and other trade barrier that hurt both exporting and importing countries. A new, friendly, and acceptable form of trade barrier can be introduced to help integrating local economy. This will result in the trade cooperation between the countries in a win-win situation.

In geographic environmental perspective, the main reason for 2 Thai rice-related projects to get approved by the LMC commission is the projects would help diminishing or minimizing the impact of climate change on the rice production in the region. Monitoring and tracking the changes in climate with updated technologies as well as the analysis on big data can bring benefits to the rice farmers as they will know exactly the right time and location to grow rice paddy, and the rice production is more likely to reach its maximum point. Furthermore, the projects also provide information for the traders to predict the future trend of rice market, which will enable them to the possibility of avoiding economic loss.

With these 4 reasons, the study argues that the existing geographic relationship theory is insufficient to explain the real reasons for the projects to get approval by the LMC commission. In this case, the idea of geographical environment should also be taken into consideration. Therefore, the researcher suggests that the geo-culture, geo-politics, geo-economics, and geo-environment should be included in the geographical relationship theory.

5. Conclusion

Based on the in-depth interview and literature analysis, this article has analyzed the reasons for the 2 Thai rice projects to be approved by the LMC commission. The researcher has found out that the rice culture, demand of food security, economic integration, and sustainable environmental development are the main reasons behind the approval of such projects. "The rice standard project" focuses on the establishment of common rice standard on rice quality in Lanchang-Mekong region in order to minimize the impact of technological barriers from rice importing countries in the area as well as to improve the rice productivity of rice exporting nations. The rice producers can understand the preference of the rice consumer better,

[1637]



while trading activity in regional rice market can run smoother with a common rice quality standard. On the other hand, the project “Development of Rice Pest and Natural Disasters Monitoring, Forecasting and Warning Center for Sustainable Rice Production under Climate Change in Mekong-Lanchang Sub-Region” is about the constructing of a physical center that gathers and records information on rice pest, natural disaster, and the level of climate change in the region. This information center will provide updated information to the relevant parties including farmers, traders, government agencies, and etc. It can help minimizing the impact of rice pest and natural disasters, which will result in the guarantee of food production within the region.

Moreover, due to the limit of the existing geographical relationship theory, which makes it almost impossible to analyze the reasons for the approval of the 2 Thai rice-related projects. In this case, the influences from geographical environment perspective need to be taken into consideration. Therefore, the researcher suggests that the future studies on LMC should take environmental influence into account. Meanwhile, environmental perspective also should be added in geographical relationship theory.

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