

PSU-USM International Conference on Humanities and Social Sciences

An Identification of Impacts of Area Expansion Policy of Oil Palm in Southern Thailand: A Case Study in Phatthalung and Nakhon Si Thammarat Provinces

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Abstract

Demand for palm oil is stimulating a rapid expansion of area used for oil palm plantations in Thailand. This research aims at identifying both positive and negative impacts of area expansion policy of oil palm in southern Thailand using a case study in Phatthalung and Nakhon Si Thammarat provinces. Primary data were collected using semi-structured questionnaires. Local key informants were identified using purposive and snowball selection. The analytical tool was the Analytic Hierarchy Process (AHP) containing goal, criteria and specified impacts of area expansion policy of oil palm. The results revealed that economic impacts such as increase diverse investment opportunities, generating stable income and relative competition with other area are the most important positive impacts, while social impacts such as conflicts between the government and local people and prejudice in solving by the government are the most important negative impacts. The outcome can be utilized by policy makers and concerned parties to formulate appropriate policy options.

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Selection and peer-review under responsibility of Universiti Sains Malaysia.

Key Words : Impact, Area expansion policy, Oil palm, Southern Thailand

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INTRODUCTION

Oil palm (*Elaeis guineensis* Jacq.) is an important economic crop for Thailand. Oil palm industry not only contributes to overall economic and social development but also continues to play a key role in meeting growing Thai requirements for vegetable oil. Palm oil currently becomes primary raw material for biodiesel production because oil palm has a high content and the highest potential of yield per unit area when compared to other oil crops (Hartley, 1988; Barison, 1996; Mattaon et al., 2000; Corley and Tinker, 2003). The royal Thai government has formulated biodiesel policy to decrease oil imports as well as greenhouse gas emissions and increase energy self-sufficiency. Ministry of Energy has a target of biodiesel production in 2012 being 8.5 million liters per day or 3,100 million liters per year (Yangdee, 2007). As a result, area under oil palm plantations has significantly increased in accordance with the trend in domestic palm oil consumption.

Local people and farmers are willing to forgo their traditional ways of life that are dependence on local ecosystem services such as natural forest products and river water quality in exchange for substantial economic benefits from oil palm cultivation. Impacts of area expansion policy of oil palm has been debated by environmental groups and different stakeholder groups because they have both negative and positive impacts. Generally, oil palm plantations have brought positive impacts such as increased reliable household income, secured employment, improved access to infrastructure/social services, and increase in land value. On the contrary, it has also caused deforestation, losses of food area and biodiversity, loss of access to land without adequate compensation and loss of environmental services from natural forests. Consequently, there have been widespread complaints that oil palm cultivation is not sustainable. The royal Thai government needs to recognize the trade-off impact of oil palm expansion on stakeholders.

Area under oil palm plantation in Thailand will continue to expand in the foreseeable future due to attractive economic incentive. Therefore, the research aims to identify impacts of area expansion policy of oil palm in southern Thailand using a case study in Phatthalung and Nakhon Si Thammarat provinces. The negative and positive impacts of area expansion policy of oil palm are identified as being four aspects concerning economic, social, environmental and food security impacts. The outcome of the research is expected to be useful for policy makers and concerned parties to formulate appropriate area expansion policy of oil palm to maximize positive outcome and minimize negative impacts.

RESEARCH METHODOLOGY

This field survey was implemented in four districts of two provinces. They consisted of Khuan Khanun in Phatthalung Province and Ron Phibun, Chaloe Phra Kiat and Chian Yai in Nakhon Si Thammarat Province as shown in Figure 1.

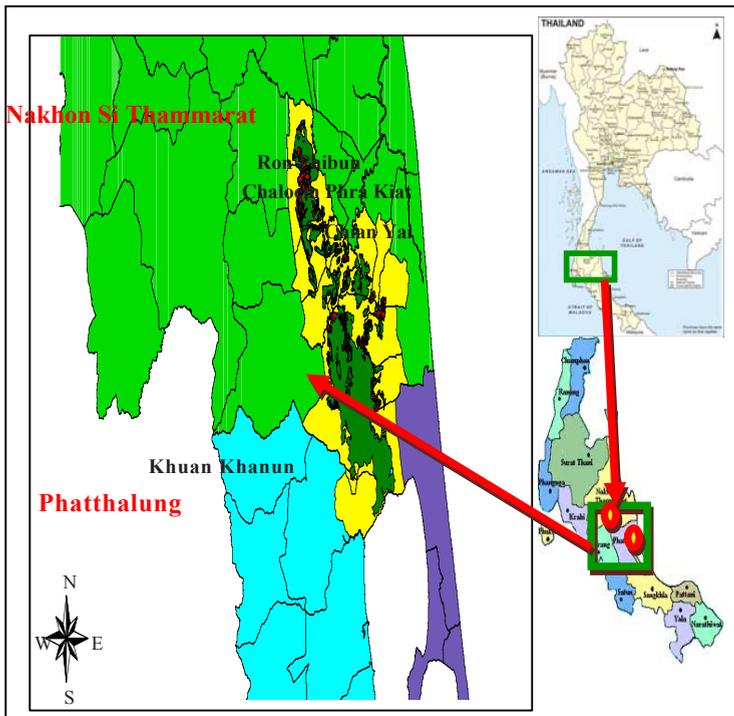


Figure 1 Location of research sites

Purposive and snowball selections of local key informants, namely four community leaders and twenty stakeholders were used. Primary data were obtained through in-depth interviews and focus-group discussions using semi-structured questionnaires. They were based on subjective judgments of these key informants to verify the criteria and determine their relative importance of economic, social, environmental and food security impacts of area expansion policy of oil palm both in terms of positive and negative impacts.

Five-point scale was used as an expression of their relative importance which was used ranging from least importance with a score of 1 to most importance with a score of 5. Analytic Hierarchy Process (AHP) method was employed as an analytical tool which was shown in Tansirimongkol (1999), Saaty and Vargas (2000) and Saaty (1994 and 2008). An application of the AHP in identifying unique and indigenous vegetables in southern Thailand can be found in Nissapa et al. (2010)

Figure 2 shows that The criteria and alternatives of An Identification of Impacts of Area Expansion Policy of Oil Palm in Southern Thailand: A Case Study in Phatthalung and Nakhon Si Thammarat Provinces

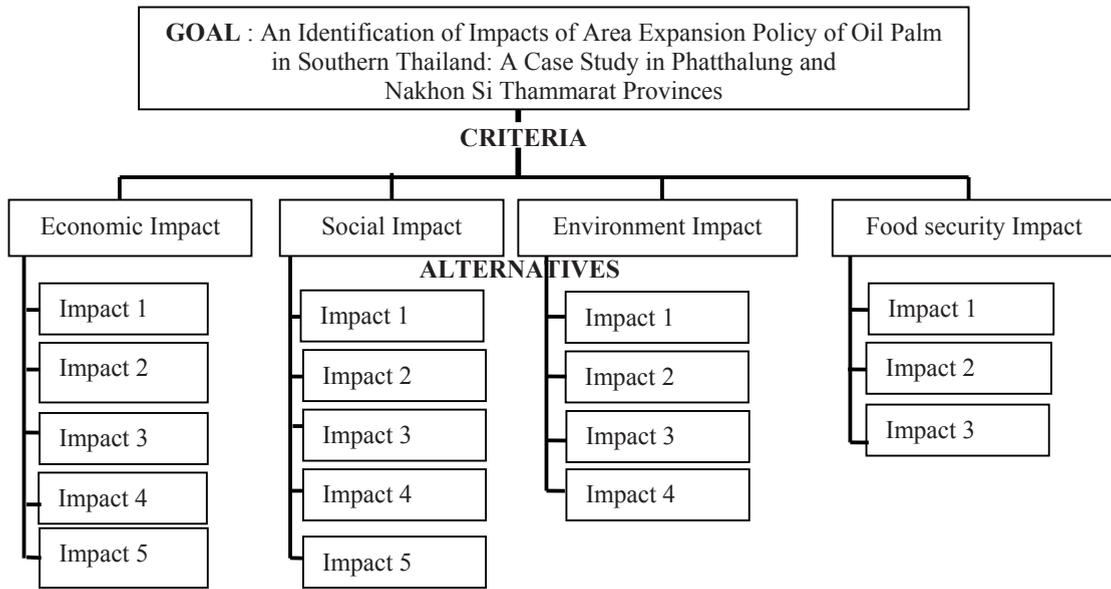


Figure 2 Hierarchical structure containing criteria and alternatives for An Identification of Impacts of Area Expansion Policy of Oil Palm in Southern Thailand: A Case Study in Phatthalung and Nakhon Si Thammarat Provinces

RESULTS AND DISCUSSION

Figure 3 shows that economic impact is claimed as the most prominent positive impact (0.663) of area expansion policy of oil palm followed by food security impact (0.209), environmental impact (0.097) and social impact (0.030), respectively.

Oil palm starts to produce fruit after three years after its planting and remains productive for more than twenty-five years (Eksomtramage, 2011). Moreover, oil palm normally harvests all through the year and provides satisfactory returns due to perceived high prices. Annual average price of oil palm fresh fruit bunch in 2011 was 5.34 baht per kilogram or approximately 0.6 USD (Office of Agricultural Economics, 2012) which was comparatively high. Therefore, oil palm plantations provide stable income for oil palm farmers.

Most labor for oil palm plantations is hired external labor. Harvesting is often done by external harvesting teams who are paid according to the weight of fruit harvested and deliver oil palm fresh fruit bunches to ramps by pick-up trucks. Their wages vary depending on harvested outputs, but they are usually higher than the minimum wages for industrial labor in Thailand (Dallinger, 2011). AgriSource (2005 quoted by Dallinger, 2011) stated that only 10 percent of Thai oil palm planters were fully managing their farms by themselves.

Hence, oil palm production provides labor opportunities as well as intermediate and downstream industries in community. New opportunities for formal employment attract mobilization of labor to the community. However, employment benefits depend on scale of plantation.

Perceived ease of managing oil palm plantation is another reason for shifting from traditional activities to oil palm cultivation. Oil palm cultivation brings about better livelihood for oil palm farmers and indigenous people related to increased income and improved living conditions. However, independent smallholder oil palm farmers' ability to maximize benefits from oil palm production is constrained by unfavorable market structure, low yields and poor access to fertilizer and finance.

Figure 3 shows that social impact is claimed as the first negative impact (0.581) of area expansion policy of oil palm followed by economic impact (0.255), environmental impact (0.119) and food security impact (0.045), respectively.

Agricultural activities are mainstay of local people, but they are deprived of land acquisition. Land rights is supervised by royal forest department. Unclear land rights and lack of transparency lead to inequitable outcomes. Moreover, they cause conflicts between officials and local people which are still widespread and tend to be centered on the issue of land and compensation for lost land access. At the same time, main problems in the area are not still sincerely solved by officials though they perceive these problems well. Another problem is stealing oil palm bunches which oil palm owners are lost.

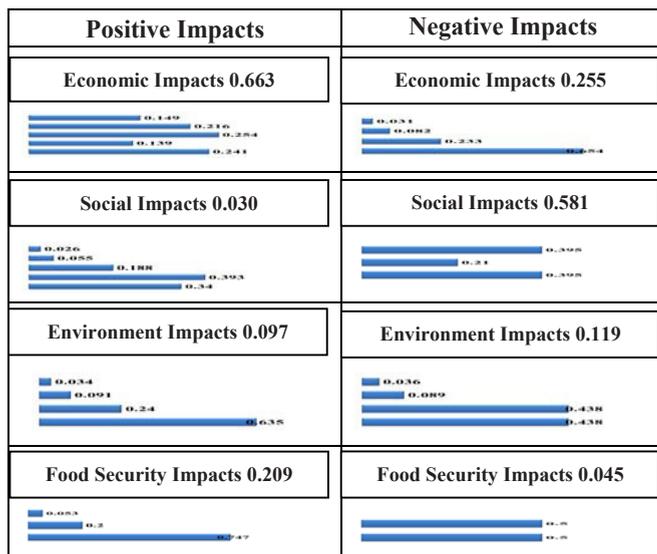


Figure 3 Identification of positive and negative impacts of area expansion policy of oil palm

Generally, prices of oil palm fresh fruit bunch are unstable due to seasonality in demand and supply and marketing or a combination of two. As a result, oil palm farmers face risk of income instability. In 2015, Asean Economic Community (AEC) may cause smallholder oil palm farmers are unable to comparative compete in production and marketing with Indonesian and Malaysian oil palm farmers being leading producers and exporters in the world market because smallholder oil palm farmers' cost of oil palm production are comparatively higher than Indonesian and

Malaysian oil palm farmers. Consequently, smallholder oil palm farmers will be adversely affected from trade liberalization and price risks.

The continual expansion of area under oil palm plantation generates pressure to alter forest and land use which lead to increased access, increased poaching, increased human settlement and increased conflicts. Cleared forest areas for oil palm plantation contribute serious consequences including soil erosion because there are fewer trees to absorb excess rainfall which increase surface run-off from rainfall and further lead to risk of long and severe flooding. Furthermore, soil erosion and flood make land degradation including acidic soil which is unsuitable for crop plantation.

The forests of Thailand are known for their outstanding species richness and endemism. Oil palm expansion is a threat to continual existence of some animals because it has led to deforestation and biodiversity loss (Koh and Wilcove, 2008). Loss of forest has led to decreases in hunting activities and availability of non-timber forest products such as wild fruits and traditional herbs. Reduced access to these forest resources changes traditional food consumption patterns. Accordingly, people in community now purchase more food items than in the past.

CONCLUSIONS AND RECOMMENDATIONS

Area expansion policy of oil palm conduce a trade-off between positive and negative impacts among different stakeholders to which the royal Thai government needs to pay attention for them. This research result summarizes that economic impacts are the most important positive impacts, whereas social impacts are the most important negative impacts.

The results of this research lead to the following recommendations:

1. Land development department should be able to ensure that oil palm cultivation occurs in areas where benefits outweigh environmental costs, and identify non-forested and abandoned areas that are suitable for sustainable oil palm cultivation.
2. Improved policy should lead to more equitable land allocation and reduce conflict with local communities. In addition, the royal Thai government should intervene to maximize development outcomes for communities and minimize adverse impacts.

ACKNOWLEDGEMENT

The authors would like to express gratitude for grant provided by National Research University (NRU), Prince of Songkla University (PSU).

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APPENDICES

Table 1 : Identification of positive impacts and negative impact of area expansion policy of oil palm

Positive Impact	AHP scores	Negative Impact	AHP scores
Economic impacts	0.663	Economic impacts	0.255
Generating stable income	0.241	Risk of income stability	0.654
Increase of employment	0.139	Increase competition under the ASEAN Economic Community (AEC) scheme	0.233
Increase diverse investment opportunities	0.254	High investment costs	0.082
Relative competition with other area	0.216	Price risks	0.031
Additional household income	0.149		
Social impacts	0.030	Social impacts	0.581
Better livelihood	0.340	Prejudice in solving by the government	0.395
Establishment of farmer group	0.393	Increase of crimes in community	0.210
Mobilization of labor	0.188	Conflicts between the government and local people	0.395
Better relationship in community	0.055		
Variety of agricultural activity	0.026		
Environmental impacts	0.097	Environmental impacts	0.119
Increase of green covered areas	0.635	Loss of forest areas	0.438
Protection of forest fire	0.240	Soil problems	0.438
Habitat for aquatic animals in ditches between oil palm rows	0.091	Prolonged and severe floods	0.089
Maintenance of soil fertility	0.034	Increase of pests	0.036
Food Security impacts	0.209	Food Security impacts	0.045
Better food access	0.747	Loss of areas for production of food	0.500
Increase food area for community	0.200	Loss of free food/ natural food	0.500
Increase variety of food sources from higher income	0.053		