

## **Integration of Oil Palm and Cattle for Post Conflict Sustainable Development**

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### **Abstract**

*This paper aimed to explain the integration of oil palm and cattle in the concept of sustainable development in post-conflict Aceh Timur, Indonesia. This paper looked deeper on community point of view toward the integration of palm and cattle farmers, which includes the process and benefits of such integration. It is then analyzed with sustainable development in post-conflict Aceh. Taking qualitative approach design, this research was conducted in three districts in East Aceh, they are sub-district of Idi Tunong, sub-district of Nurussalam and sub-district of Rantou Panyang. Research data comprised of non-participant observation results, in-depth interviews, and documentation. Data analysis was done in three stages; data reduction, data presentation and conclusion. Results of study showed that the process of integration of palm oil and cattle carried out by the farmers community were divided to 3 types of models; naturally integrated system; cooperative integrated system; and intensive integration system. The programs yield many positive impacts towards society. Impacts were obvious both on economic sector in an increased of income and fulfilment of social and spiritual activities (worship). In addition, the use of pesticides for weeds eradication and fertilizers are significantly reduced. This fact described that types of models are aligned with on the framework of sustainable development concept, as well as to a positive peace building in Aceh.*

**Keywords:** Integration, Oil Palm, Cattle, Sustainable Development and Post Conflict.

### **Introduction**

Prolonged conflict in Aceh has destroyed various aspects of community life. Property damage and loss of life are part of concrete manifestations of the impact of the conflict. Post-MOU signing in Helsinki, development in the region has not grown as expected. Heavy damages caused delays in the development process in Aceh. For that, we need a breakthrough to accelerate the recovery of the condition by reconstructing people's livelihood. Re-development of a former conflict area, especially after the prolonged conflict should refer to the principles and concepts of sustainable development to ensure the realization of positive peace. Lambang Trijono (2009) stated that rebuildin society in post-conflict areas requires special approach and strategy, which aim to prevent re-occurrence of future conflict and to consolidate peace towards achieving sustainable peace and development. To that end, needs to better understandthe conflict and its characteristics as well as ensuring the growth of peace-building in the community come to surface. Community's economic recovery is one of the primary programs in fostering and enhancing public trust towards government, so that peace is maintained. Realizing this, the Central Government of Indonesia and the Aceh Government have implemented wide range of economic programs for the people of Aceh, from humanitarian assistance to sustainable economic development as the recovery and economic empowerment.

Particularly in rural areas, the government has made economic empowerment through the help of agriculture, plantations and farms to revive the local economy especially those badly affected by the conflict. Palm oil trees and cows are two popular economic aid programs to former GAM combatants and conflict victims to Acehese community especially those living in rural areas. In District of East Aceh, these aids have started since 2009. It was distributed to 23 communities in East Aceh district. Selection was done based on proposal submission by farmer groups. They acknowledged the benefit of this program and received financial revenues (Saifuddin et al, 2015). Government has continuously created programs to empower communities. In addition to palm oil tree aids, Aceh government has also provided assistance in the form of cattle annually. In 2011, the government of East Aceh has distributed 100 cows to 10 farmer groups in implementing *village breeding program* (Aceh Trimbunnews, 2011). Some of these cattle are traditionally raised by community within palm plantations. However, they are not equipped with the knowledge on the integration of oil palm planting and cattle breeding (Saifuddin, et al., 2016). Cattle farming within palm oil plantations can be regarded as a form of integration of plantations and farms. Some studies found out that this type of integration increased the income of the farming community. Cattle farming can be easily integrated with palm oil and rubber plantations (Handaka, et al, 2009; Bangun, 2010). Taking the above fact into concern, this paper focuses the discussion on the perceptions of farmers' community on the integration of oil palm plantation and cattle, which includes process and benefits of such integration. It is then analyzed with sustainable development in post-conflict Aceh. It aims to explain positive prospects for peace building as a result of sustainable development.

### ***Post-Conflict Sustainable Development Concept***

Post-conflict development is peace building efforts in the former conflict region. For this purposes, various parties involved in development are required cooperate within the framework of sustainable development. According Kirbassov (nd) in The report of the United Nations Secretary-General on the "*Prevention of Armed Conflict*" (A / 55/985-S / 2001/574) has asserted that conflict prevention and sustainable development are two mutually reinforcing concepts. The relationship between these two have widely been tested in numerous academic platforms. To that end, the UN agencies and other organizations can act within the set-corridor to ensure the implementation of sustainable development goals that will contribute to sustainable peace. Furthermore, Bitterman, et al (2007) stated that sustainable approach to conflict resolution in the prolonged conflict area is effective and long lasting. This approach proposes a holistic perspective and decisions making framework to address challenges and opportunities in larger scale, including identification of root causes and triggers of the conflict. Imbalances in ecosystems and social structures as the foundations of sustainability contributed to the dynamics of the current conflict, which has uprooted in the region. Subsequently, when formulating positive peace-building concept, peace experts always consider the inclusion of environment. Since 1994, UNDP has offered the concept of human security that involves secure environment in peace building process. Castro and Galace (2008) offers ecological concept absence of violence as a characteristic of positive peace. Furthermore, UNEP (2009) in promoting construction peace stated: "The recognition that environmental issues can contribute to violent conflict underscores their potential significance as pathways for cooperation, transformation and the consolidation of peace in war-torn societies. Natural resources and the environment can contribute to peacebuilding through economic development and the generation of employment, while cooperation over the management of shared natural resources provides new opportunities for peacebuilding".

To implement sustainable development, three interrelated aspects are inter-related, namely; economic, social and environmental (Harris, 2003). Sustainable development concept was developed in 1798 by Malthus when noticing imbalances of population and land availability in the United Kingdom. More than a century later, Meadows and colleagues in 1972 published an article entitled *The Limits to Growth*. They concluded that natural resources availability is highly influential factor in economic growth. This has stirred the attention back to the concept of sustainable development. Furthermore, report entitled "*Our Common Future*" publicized by *World Commission on Environment and Development* (WCED) in 1987 provided the basis for economic development concept and its relation to the environment, sustainable aspects of development drew concern of many parties (Fauzi and Oxtavianus, 2014). At this time, the concept of a worldwide sustainable development propaganda was developed (Fauzi 2007). Academic experts agree that sustainable development principle aim to meet current needs, but not to hamper the needs for future development. Fauzi (2009) argues that sustainable development concepts are simple yet complex concept. Therefore, the notion of sustainability has very multidimensional and multi interpretations.

First aspects to consider in sustainable development are development and consumption patterns of on natural resources and environmental constraints and the second is concerned with the welfare of the future. Although sustainable development concepts emphasis on meeting the needs of future generation, it does not ignore its ability to fulfill the current development (Moldan and Dahl, 2007). Today, various definition of sustainable development were proposed by scholars (Radermacher, 1999; Spedding, 1996). They defined the concept of such development depends on the concept and usage analysis (Pierantoni, 2004). Although having variety of definition, sustainable development proposed similar goals focussing on the long term economy problem and opportunity for welfare for generations. World Commission on Environment and Development (WECD) through The Brundtland Report outlined that sustainable development does not ignore the fulfillment of the needs of future generations in meeting the needs of today's. The ultimate goal of this concept is sustainable development for better quality of life (Choi and Ahn, 2013). Goodland and Ledec (1987) explains that sustainable development is the transformation of economic development; development that optimizes economic benefits and social gains today with the acquisition does not harm in the future. This explanation is reinforced by Pirages (1977), which defined sustainable development as economic growth, which measure the sustainability reflected in the amount of consumption in the future (Weitzman, 1997). Its application in development broadly, the concept of sustainable development must be based on principles of equity, justice, integrative, long-term, and ecological sustainability, economic, socio-cultural and political (Djajadiningrat, 1992; Pearce and Warford, 1993).

### **Methods**

In general, the design of this study used a qualitative approach. The main objective of this article is to evaluate how the public's view of oil and cattle integration of sustainable development in post-conflict Aceh Timur. The research was conducted in three districts in East Aceh; sub-district of Bagok, sub-district of Nurussalam, and sub-district of Rantou Panyang. Sources of data in this study can be divided into three parts. The first non-participant observation. Second, in-depth interviews with six informants, they were five persons from farmers and one person from the government. Third, study of documentations, collecting secondary data that was relevant to the assessment, as well as printed documents and electronic media. The data was analyzed in three stages, namely data reduction, data display and conclusion (Neuman, 1997)

### **Results and Discussion**

Saifuddin, et al (2016) concluded that the integration of palm oil plantation and cattle by the community occurred in three models namely; First; palm oil plantation and cattle integration process occurs naturally without the knowledge and modern technology. This happened due to the fact of reduced land for grazing as large portion of land has been planted with palm trees. Second, the integration takes place through the cooperation of farmers with palm trees smallholders. Smallholders do not own cattle and ranchers (cattle farmers) do not own palm trees. However, they arrange mutually beneficial deal where ranchers do not have to think about a place to release their cows, while the smallholders of palm trees no longer need to clean up the grass in their plantations. Third; intensive cattle maintenance. Cows are raised within the plantation with release schedules. Such integrations differ from that was done by palm trees companies which also can be categorized into three models, namely *intensive, extensive and transformative* (Iwantoro Gratitude, 2014). He added, company's goals of cattle-palm integration program; (A) to obtain organic fertilizer, cattle raising is done intensively in cages. (B) Cows enabled to eating weeds / grass growing in the oil palm plantation and given additional feed amplifier / concentrate and water. (C) integration with the aim of utilizing the labor force cows to transport the oil because of a shortage of labor in the oil palm plantation. However, the farming community still gain many benefits of the integration process. According to them, the integration model has several benefits such as; (1) self cleaning of the land, no longer need to sprayweeds with pesticides; (2) The cow manure can be used as fertilizer for palm trees. But the development of the oil very slowly if the fertilizer from cow manure, chemical fertilizer is better for the accelerated development of the oil. Therefore, although there is manure from cow dung, still they use chemical fertilizers to boost the growth; (3) improve of revenue from the sales of the cows; (4) low maintenance which provides time for farmers to do other activities, both economically productive or social activities. This kind of integration model takes only 2 hours a day to take care of the cows. Here is interview with respondent in the field. Abdullah stated: "... Usually, taking care of cows took us a lot of time, because we released cows in the morning and looked for them back in the afternoon to put in a cage. Feed must also be provided in the stable to feed at night, so that we in addition to releasing the morning, it should also work for the cow from 3 pm until sunset.

As a result, we often missed afternoon prayers. However, with this integration model we only need 2 hours to maintain the cow, the rest can be used for other work, such as planting chillies, ginger and other short term plants. In addition, should there social event such as death, wedding party, as well as social activities and others, we no longer worried to leave a pet cow "(interview in Alue Siwah Serdang, June 3, 2016). Other respondent (Saifuddin, village head of Alue Siwah Serdang) added that: "... We, as a trustee of the village have a lot of social activities. They can be implemented given plenty of time allocated as the result of the integration of oil palm trees and cows. In addition, Salat Asar (sunset prayer) can be maintained. This is because prior to this integration we must find feed for cattle and cows to look for cages. This is done from 3:00 pm to dusk, sometimes even at the time of the evening we have not yet returned home "(June 3, 2016 interview).

However, according to Saifuddin, this integration also has a negative impact on them. They no longer able to plant other plants in the plantation. He stated: "... We are aware that palm trees require a lot of food (water consumption), so that should not be mixed with other crops. Trees may not bear fruit. Besides if there are cattle in oil palm plantations, the negative impact is no longer possible because cows may eat our plants. "(Interview, June 3, 2016). While the other respondent (Jufri) mentions raising cattle in palm trees plantation will help maintain the plantation. As for him, as he releases his cows into other people's palm trees plantation, while keeping the cows, he also cleans the palm trees plantation as a form of his gratitude (remuneration). He knows that if palm trees plantationowner hose down the grass, his cows will experience feeding shortage. Additionally cow dung is collected in cow stables taken by the local community for use as fertilizer on crops. He said 10 cows can produce about 1.5 tons of dirt within a period of 7 months (interview, June 3, 2016). Furthermore, according to Sutimin (Chairman of the Aquaculture Farms) that the integration of palm trees plantation and cattle is very good, because he thinks the cows housed in the area of plantation will benefit from manure fertilizer. Six cows expected to produce 1 ton of dirt within a half months. If the cow dung is fermented as fertilizer, the palm trees plantation farmers can save 50% of chemical fertilizer use. Thus, this model is excellent for community economic empowerment programs, and they have never experienced a negative impact on the oil as a result of this kind of program (Interview in the village of Alue Dondong 2, District Rantau Panjang Perlak, July 16, 2016). In line with the above facts, according to Budiman with the integration of oil and cattle are many benefits that can be felt by farmers synergistically. For example cows released in palm plantation can help cleanse the plantations. Then the leaves of palm fronds can also be used to feed cattle. He had tried this, but it was rather complicated and requires machine. As a result he prefers rice husk and pulp to feed the cow when stabled, besides easily obtained also better for cattle growth (Observations and interviews with Budiman, Member of the Group Buda Power Tani, the village of Alue Dondong 2, District Rantau Panjang Perlak, July 17 2016). Almost the same with that of Saifuddin (previous respondent), according to Budiman, integration program of oil and cattle also have a negative impact that cows are released in the area of palm trees plantation will eat the leaves of the palm. This will affect the growth and production of palm oil because damage in leaves. But the impact of this was not so significant or very small compared to the benefits obtained from cattle (Interview, July 17, 2016).

Abdurrahman said that the benefits received from palm trees plantation and cattle integration was great economically, especially for their children's education. Should they need money for their children education, they just need to sell cow to raise money. Similar with other respondent, he also believes that with the integration program is beneficial as they no longer need to mow the lawn or sprayed because cattle eat grass. This naturally reduces the operational costs of maintenance of palm trees plantation. They also benefit from access time that they could use to do other activities like planting ginger, turmeric and maize. Therefore, according to Abdurrahman, that integrative system is very beneficial to farmers. This model is suitable for community economic empowerment programs, governments need to adopt this model in formulating policy for community empowerment. (Interview with Abdurrahman, Seuneubok In the village, District Nurussalam, July 18, 2016). However, the integration of cattle and palm oil conducted by community farmers were not under initiation of the government. Cattle and farms were managed separately by separated department (Ministry of Plantation and Ministry of Animal Husbandry) with no coordination between the two institutions. As a result, cattle assistance from Ministry of Animal Husbandry are not integrated properly and scientifically with the aids of palm trees through the Ministry of Plantation. Integration occurred coincidentally when beneficiaries of cattle aids and palm trees were accidentally the same (Saifuddin, et al., 2016). This was also reinstated by field officers for palm trees aid. He stated that few people who have obtained cattles also received palm trees. Farmers received *Bali Cows*, which is used as a breeding parent, either Bali Brahmin.

As a result, the integration process has not yet providesignificant economic benefits as it was in many other areas in Indonesia (Interview with Mr. Basaruddin, staff of the Ministry of Forestry and Plantation East Aceh, June 4, 2016). Taking a look into the concept of sustainable development agreed by experts (Harris, 2003), which includes three aspects of development; *economic, social and environmental*, it can be said that Acehese community has practiced integration system of palm trees plantation and cattle. Even though they are not familiar with sustainable development, they have been practicing for such integration in the framework of sustainable development. Where integration does not only boost their economies, but also social development, because there is a partnership between plantation and cattle owners in addition, integration has also increased the intensity of social activity. On the the environmental aspect, use of pesticides and chemical fertilizers that can damage the earth element is reduced. This ultimately led to the quality of soil fertility and water. Another aspect is a novelty study is the integration turned out to have a positive impact on spiritual development (praying). Taking conclusion, it can be said that the palm trees aid program and cattle program from the government, while the integration came from community, is potential for peace building as developed by UNDP (1994) through the concept of human security and UNEP (2009) which states that natural resources (environment) can contribute to peacebuilding through economic development and employment. While the cooperation in managing it is an opportunity for peace building.

### Conclusions

Palm trees aids and cattle aids to former GAM combatants and conflict-affected communities in Aceh is one of the economic reintegration activities undertaken by the Government of Aceh for the sustainability of peace. Economic reintegration activities undertaken by the government is the transformation of economic development as one of the targets of sustainable development. Accidentally, the aidintegrated with each other and was beneficial to farmers to increase their income. The aids have also open up new jobs for other people in the vicinity. It is relevant to Goodland and Ledec (1987) which states that sustainable development aims to optimize the economic and social benefits. Integrated systems of palm plantation and cattle carried out by the farming community can be categorized into three models namely; natural integration without the knowledge and modern technology, integration through cooperation with cattle ranchers and smallholders, and intensivelycattle integration, where raising cattle stabled in the palm plantation. This integration model is considered very suitable for the economic empowerment of post-conflict societies. It is because of this integration does not only increase revenue, but also has provided vast opportunities for farmers to conduct social activities and can keep praying as worship obligatory for Muslims. This fact has unwittingly affect the spiritual peace and social well as free from economic deprivation. This is in line with the objectives to be achieved in a sustainable development that provides a better quality of life (Choi and Ahn, 2013). In addition, from the environmental aspect, this integration also have a positive impact on environmental preservation, because there has been a reduction in the use of pesticides in eradicating the weeds in the area of the palm. such an approach is in line with the concept of human security is offered UNDP (1994) that involves the security environment in the construction of peace.

For that, The government of East Aceh need to pay attention to the integration model carried out by the farmers, so that they can implement it scientifically to gain maximum benefit economically, socially and environmentally. In addition, theoretically sustainable development should be implemented in a comprehensive manner based on the principles of equity, justice, integrated, long-term sustainability of the ecological, economic, socio-cultural and political (Djajadiningrat, 1992; Pearce and Warford, 1993). Hence sustainable positive peace will be realized and kept durable in Aceh, and issue of separatism among the people will disappear.

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