

## Developing Local Wisdom as the Basic of Integrated Extension Model in Paddy Cultivation at Lowland Ecosystem in South Sumatra

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**Abstract.** The raise and awareness of local wisdom recently, came from the raise of global socio-economic development which accompanied by a variety of environmental damages. In the future, the society will be faced with the increasing of land resources degradation and the increasing of environment devastation. On the other hand, the low capacity of the farmers themselves as well as resource and infrastructure capacity will lead to the difficulty of farmer's adaptation to these conditions. Agricultural extension in Indonesia, since the end of the 1990s was experiencing a huge organizational change. As a result, the extension service institutions, especially in rural areas are very weak. What is needed is an integrated model of education that can enhance the capacity of farmers to manage paddy production in lowland ecosystem. For more than a hundred years, local farmers in lowland ecosystem utilized lowland ecosystem for paddy farming. Paddy is the main crop that can be cultivated in almost all types of lowland area. By understanding the environmental conditions and learn from experience, farmers have successfully developed a lowland into fertile and environmentally friendly agricultural areas. This paper is intended to describe the local wisdom in paddy farming at lowland ecosystems as the basis for the development of an integrated extension model research.

**Keywords:** Local wisdom, Integrated extension Model, Lowland Ecosystem

### 1. Introduction

Agriculture production and extension nowadays is facing serious problems. The competition and the rapid land use changes in the function of arable land for non-agricultural purposes have prompted low land. Low land area in South Sumatra province is quite large, reaching 2.98 million ha and has long been recognized and managed by traditional communities. Currently the government pursued its development. Of those who had exploited an area of 368 690 hectares consisting of a shallow valley 70 908 hectares, 129 103 hectares of lowland middle, and 168.67 acres in the valley. Low land area is a potential for agricultural land, especially for food crops. Lowland rice farmers generally are local residents who seek swampy marsh land as the center of their farming activities. Various constraints contained in the swampy wetlands, biophysical, social and economic development and climate change, requires farmers to farming in a sustainable manner and require the support of agricultural extension activities. The revitalization of extension agriculture, fisheries and forestry, announced in 2005, has managed to legitimize the organization of counseling through Law No. 16/2006 on System Extension, Agriculture, Fisheries and Forestry. As a follow up to 2008 departments and agencies working to strengthen the foundations of the extension back in late 1999 to 2005 weakened. From the theoretical side, which tends to the linear extension approach, which positioned the farmers are not able to bring the object toward the improvement of the capacity of farmers to become independent farmers. Thing that happens is a dependency and stagnation innovative power and creativity of farmers. Therefore, in an effort to increase the capacity of farmers to prosper, it would require in-depth research on integrated counseling models tested, so it can be utilized by the government in expanding access and services for farmers (Yunita, 2011). Effectiveness of counseling as the spearhead role in service to the community is strongly influenced by the approach underlying the activities, including the local wisdom that

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is in the targeted communities. Local knowledge is considered very valuable and has its own benefits in the lives of farmers in lowland ecosystem. The system was developed because of the need to appreciate, maintain, and continue their lives according to the situation, condition, capacity and values are lived out in the community concerned. In other words, local knowledge then becomes part of a wise way of life, to solve all the problems they face life. Thanks to local knowledge, they can continue to thrive, it can even grow in a sustainable development (sustainable development).

## 2. Literature Review

According Sutanto (2002) peasant has a low knowledge of how land management (marginal) on an ongoing basis, including wetlands. Research on the potential and development of wetlands included in the new tropical region began after the 1950's. Excavation of cultural wisdom in these wetlands was conducted by researchers from various agencies and institutions in Indonesia and outside Indonesia, but is more focused on aspects anthropologi and ecology. Research results and Jumbler Nor (2007) showed that some local knowledge in agricultural wetlands as well as the potential to be developed that have developed in some areas in the system of organic farming or low input farming systems (LIESA). Isdijanto, et al (2007) in his research on indigenous sources of innovation in coloring technology of rice cultivation in swampy wetlands, has identified some of the indigenous people of Borneo that contribute positively to the technology of rice cultivation in swampy wetlands. So far based on the tracking study conducted by researchers in the field of social sciences and education, have not found research on models of integrated education to increase the capacity of farmers, and based on local wisdom on swampy marsh ecosystem. In addition to some of the above study, writing and Kalim Rivera (2003) on Agricultural Extension, Rural Development and the Food Security Challenge is more focused on farmers and agriculture in general, not to mention local knowledge of the community farmer's in low land ecosystem.

## 3. Research Method

The research method is based on soft system methodology (Checkland, 1981), given the research problem is closely related to humanistic systems and complex environment. The focus of research is that there are indigenous peasant communities in the low land ecosystems on which to base the development of an integrated model of extension. The nature of the study was descriptive, to conduct a sample survey of farmers in low land ecosystem, namely Ogan Ilir, Ogan Komering Ilir, and the Banyuasin District of South Sumatra Province.

## 4. Result

Low land ecosystem in South Sumatra consists of a shallow valley, middle valley, and indept valley. The deepest part of the valley called *lebung*. Also in this region are also flowing rivers and creeks. On the banks of the river, especially a rather large river usually dry land, due to the accumulation of mud brought from the river for a long time. Condition of land like this in the view of modern science called marginal land or sub optimal, because of technical constraints, social and economic to develop the region. Not the case for the indigenous people who have lived for generations in this region. They are able to manage and use the existing land to the ecosystem is based on the experience of their community in a very long time, so it accumulates into wisdom.

Local Wisdom is still alive in the valley although modernizations society has reached this region. Some of the local wisdom that can still be found mainly in land use, management of *lebung* valley, barns and mutual cooperation. Local knowledge is not limited to things that are technical, but also include their interpretation of the environment that are part of belief systems and social norms are reflected in the expression of culture, tradition, and myth. This wisdom is the social capital for community lowlands to stay afloat and develop life in the region.

### 4.1. Land Use

Communities in lowland areas have local knowledge in the use of land based on the existing typology, including determining the types of crops, varieties and planting time. For the shallow valley, the middle and

lowlands in their use to cultivation of rice plants, crops and vegetables. As for the dry land on the border of the river they were planted with fruits like Duku, durian, rambai, coconut and banana. Lands are infertile primarily because of the high acidity they found a buffalo grazing. Besides the always inundated lowlands in or they make lebung natural fish breeding grounds. Currently in addition to managing the natural fish in lebung they also develop freshwater fish culture in cages along the river systems, such as catfish, catfish, toman and cork.

It has long been familiar with the valley of integrated farming systems and biodiversity. Lowland ecosystems utilized by various agricultural activities such as rice farming, crops, vegetables, livestock, fish and various kinds of fruits. Integrated farming and biodiversity is a local wisdom of households as a strategy to meet the family food, in addition to having economic value to increase farm household income. Before the entry of hybrid rice varieties, such as IR64, IR42 and Ciherang communities in the region recognize the various local rice varieties such as white rice, *kanyut* rice paddies, and *salek* rice. Nowadays most people have been planting hybrid rice. Only a small proportion of farmers who still use the local variety, especially for planting in the lowlands, due to this typology should be planted lowland rice is not flooded by the mass of high order, in addition to the advantages of local varieties has a long vegetative period so it is suitable for the climatic situation uncertain. Recent years, farmers often experience confusion season. During the dry season water should recede, but the rainfall is high that the valley flooded back again. At times like these hybrid seedlings in the nursery cannot be used because it was too old, while local seeds can still be used for a long vegetative period. This condition makes some farmers believe that the local rice varieties need to be maintained because it is needed in the face of climate change in the future. Communities also have knowledge in determining the fertile land for rice cultivation. Fertile lands are generally located around the river and are characterized by the presence of aquatic plants such as kiambang and water hyacinth. Soil fertility is supported by the silt brought on stream during a flood, except that the content of acid washing process can proceed smoothly.

Farmers also grow various crops and vegetables on guludan or shipyard in the swampy rice fields. This plant is used by farmers to meet the family consumption and sale to the market as an additional income. So also with poultry, poultry preferred to meet the family nutrition. Most of the farmers raise poultry such as chickens, ducks. Whereas for buffaloes and cows have only a few farmers, especially farmers who have capital.

Buffaloes in the region maintained by way of removable cages during the day and at night. The purpose of this addition to raising buffalo for sale, as well milked and the milk is processed into sugar is called "sugar ladies". Generally, the milk for family consumption, while the ladies of sugar to be sold to local markets or "circles". Currently buffaloes are increasingly threatened its sustainability because most of the grazing area has been converted into oil palm plantations owned by the company.

Fish farming is done in most of lowland areas using cages. Only a small proportion that use the pool. Cages are placed in the rivers that flow in the dean of residential areas. In general, the villages in the area around the river valley are making it easier for citizens to control their cages. While in the border river that is already used by communities to plant fruits. Fruit crops such as Duku, durian and rambai not only significant economic, but also socially meaningful. In general, orchards, this is an inheritance from their parents. Some farmers do not share the heritage garden, but still owned by the extended family, so the garden has become a symbol of family ties.

## **4.2. The Management of *Lebak Lebung***

Lebung valley is the region and partly swampy lowlands in the middle of the natural fish breeding grounds. Management of this lebung lowland area regulated by the (law) at the district level. The law does set up an auction system for the management of lebung valley. Auction winner is the person who is entitled to retain lebung swampy area, the local language of the winning bidder in the "pengemin". Although the absolute right to control the region pengemin auction, but in practice there is still a thriving local wisdom. Wisdom is seen as if the region is at a rice field farmer, the farmer can catch fish by paying a certain amount of money to pengemin, and farmers are given priority compared with others. However farmers in the region

if there is a farmer-owned artificial lebung the farmers it will be the 50 percent of the fish at the last harvest, which accumulated in the artificial lebung.

In addition, lebung manager should not interfere with the interests of wider society, as if it lubing public transport links to the manager lubing not build a fence in the area or if they should still be made to build a fence line where the boat and speedboat still can pass.

### **4.3. Food Barn**

Barns have long been known by people in the valley. Barn's existence traditionally not only as a physical building to store grain, but also contains the values of mutual aid and have a symbolic and spiritual meaning. Barns also reflect the social status of someone. Barn like this local wisdom born of the community as a social institution that is currently getting eroded by modernization. First farmers made granaries in their fields, but now they make a barn in the house, because it's security reasons. In fact, many farmers' barns empty because all the crops are sold directly, as urged by necessity, or to pay the debt costs of production. Currently there are efforts from the government to revitalize the barns. Food basket is defined as the agencies rural / urban villages engaged in the storage, distribution, processing and trade of foodstuffs established and managed by the community. Fundamental change of principle barns are about food trade. This indicates that the food is no longer viewed as traditional commodity farmers but has become agribusiness commodities. In these context barns institutional activities related to grain storage and processing activities intended to suspend sales and marketing at the desired product in order to provide added value. Besides these institutions are encouraged to perform a variety of business activities within the scope of agribusiness.

### **4.4. Mutual Aid**

There are two types of mutual aid societies that exist in the valley, the first mutual cooperation for mutual interest and mutual assistance for public facilities or purposes of the leadership. In terms of their local mutual aid to cultivate common interests such as land they call "*kelaban*" or "*perarian*", while mutual aid to public facilities or purposes of their leaders call "*splice*". Values contained in the "*kelaban*" are the value of the exchange based on equality. Farmers who have small farms can divert excess days of mutual aid to the families of others, or sell it at farmers with wide land. While the value of the "*sambatan*" is based on sincerity, respectively. Both types of mutual cooperation is still alive in the valley is the social capital in solving common problems that are difficult to overcome if implemented individual. In "*kelaban*", the group was formed based on emotional closeness, not like the farmer groups established by the proximity of lands or place of residence. The number of members of the group is also diverse, generally between 10 to 20 people. Working time mutual aid is generally only half a day, usually host only provide snacks for participants of mutual aid. Activities normally done with, among others, to cultivate the land and planting, and harvesting. As for the "*sambatan*" in the form of improved roads, cleaning the mosque, the manufacture of sports fields, or activity for purposes of the village or hamlet.

## **5. Conclusion**

Lowland ecosystem in South Sumatra Province consists of a shallow valley, mid valley, and indept valley. The deepest part of the valley called lebung. Local knowledge that is still living in the valley despite the modernization of society has reached this region. Some of the local wisdom that can still be found mainly in land use, management lebung valley, barns and mutual cooperation. Local knowledge is not limited to things that are technical, but also include their interpretation of the environment that are part of belief systems and social norms are reflected in the expression of culture, tradition, and myth. This wisdom is the social capital for community lowlands to stay afloat and develop life in the region. Therefore, this local knowledge can be used as reference in developing an integrated model of extension, integration between disciplines, expertise, and synergizing the purpose.

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