The Model of Organic Paddy Farming Practices by Revitalization the Values of Local Wisdom in Malang Regency

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Abstract. This research is aimed to find the best formulation model of organic paddy based on local wisdom. This study used a qualitative approach with survey methods, in-depth interview with snowball sampling, and FGD (Forum Group Discussion). The subject consisted of village elders, heads of farmer groups, and organic farmers. The SWOT (Strength, Weakness, Opportunity and Threat) analisys is used to identify factors that influence local wisdom and development strategies. The study was conducted in Malang Regency which covers several are Kepanjen District, Gondanglegi District, and Lawang District. Research was conducted from April to August 2018. Data were tabulated and analyzed descriptively. Result showed that a few farmer in three study sites practiced an organic farming systems in Malang Regency, namely Kepanjen, Gondanglegi, and Lawang. The result also showed that, Lawang District still applies local wisdom in its agriculture, among others. The underlying weakness is the increasing of migrating culture by village youth and the lack of local wisdom in agriculture. Strategy that can be developed is intensively socialization of organic farming based on local wisdom to village youth, thus the village can be used as an ecotourism area.

1. Introduction
Indonesia is one of the country with the biggest population growth in the world. Indonesia is an agraris country and most of the people derive their main income in agriculture. Paddy (Oryza sativa L.) commodity is still a strategic commodity. This food crop in the top among other food crop commodities, such as corn and soybean [1]. It is not only a staple food for the people but also the economic source for most farmers in rural areas. In addition, it plays role in various aspects of social, economy, national politics and security [2].

Indonesia is currently the third greatest producer of paddy in the world. Concurrently, organic paddy consumption has been increasing each year as a result of dietary changes associated with
population growth and economic development. This condition makes Indonesia to be a leading of
global organic paddy consumer [3].

Organic farming has been attracting greater attention in recent years in Indonesia as a result of the
growing preference of farmers and consumers for safety and health benefit of organic products and
governmental promotion of organic product [4]. Organic farming system have been known to support
the diversity of a wide range of taxa, including microorganisms, arable flora, invertebrates, birds, and
mammals, which benefit from organic management leading to increases in abundance and or species
richness [5].

Its rate of growth of globalization in various fields, especially in agriculture are very influential and
have a major impact on farming in the processing of land. Where traditional farmers with a strong
tradition of local wisdom, as the times to be fading.

Actually forefather that applied the organic farming technology. Further knowledge and experience
in this field are derived hereditarily to their grandchildren and used as guidance in behavior. It is
known as “local wisdom” that is local ideas that is wise, full of wisdom, implanted valuable and followed by the citizens when dealing with the environment and its contents [6].

Lately, moral value contained in the local wisdom had eroded so has led to a moral crisis that is
threatening the sustainability of the environment. Unwittingly or not in the end we had left a heavy
burden for future generations, such as environmental damage. The awareness of the environment
decreasing had uttered agricultural cultivation methods which are more environmentally friendly and
utilize local resources where farming was carried out.

Farmers in Malang Regency use local wisdom in their organic farming. In agriculture understanding, local wisdom is a local knowledge of farmers in particular area influencing their
farming behavior. They are hoped to be able to live together with nature and society. [7] added that
local wisdom is not only showed in technical things but also in belief and social norms. The purpose
of the present study was to find the best formulation model of local wisdom management based on
habitat manipulation.

2. Research Methodology

2.1. Material and Methods
This research was conducted from April to August 2018. The location coordinate of paddy field plot
of was in 08°09’42,6” South Latitude and 112°33’40” East Longitude and place side by side. The plot
surrounded by conventional paddy field.

Organic farmers population in this research was farmers who lived in Kepanjen district,
Gondanglegi district, and Lawang district Malang Regency. This district was chosen because it is the
central areas of organic farm and society which farmers are always in use with the natural resources
and environment. [8] added that Data collection techniques used are through direct observation of
farming system, interviews with snowball method and filling out a list of local wisdom questions. A
series of deep interviews was conducted in order to indentify knowledge and attitude of farmer on
organic farming system. The interview were conducted with six key persons, four men and two
women.

The selected informants were those who have local wisdom knowledge, experience, in the paddy
field farming system. With the knowledge creteria of the culture in which they live. The selected key
person were sub-village chief, three farmers, a worker women and staff of Malang District Agriculture
Office. Test the validity of data was done by triangulation method [9].

2.2. Analysis and Interpretation of Data
Data analysis was done by interactive data model analysis. The result was analyzed by series of
scientific selection, as follows: sorting, organizing and data condensation. Further, the data were
grouped, interpreted and cocluded. Data condensation is an analysis of collected data in order to sort
through, classify, remove unnecessary and organize data. Condensation data also means grouping data
in their respective places, so that conclusions can be made. A focus group discussion was adopted to clarify the strategy based on the stakeholder participation. The duration of the discussion was 60 minutes.

Figure 1. Research locations in Kepanjen district (top-left), Gondanglegi district (top-right), and Lawang (bottom)

3. Results and Discussion

3.1. Knowledge and local wisdom of organic paddy cultivation
The numbers of local wisdom in the cultivation of organic paddy can be traced from what they have done in the past, and some still survive and are implemented at this time. The results of research on local wisdom in Malang Regency, especially in the Kepanjen district, Gondanglegi district, and Lawang district be seen in Table 1.

Table 1 shows the high appreciation of organic farmers to nature and the environment. Farmers use organic fertilizers because they realize that the use of straw and husk are beneficial for the fertility of farmland. Similarly, the use of natural enemies is increased rather than using various pesticides. At the same time, the farmers let the unripe paddy grain to grow.

Although in some conditions it looks like a mysticism [10], found that burning incense during planting period is used to spread a pleasant fragrance and to give blessing to paddy fields. The offerings of contents (tumpengan, kulupan, urap, ingkung, flower and coins) are provided and placed in the corner of paddy fields as for Dewi Sri. This whole local wisdom shows a form of gratitude and a high appreciation of nature and the environment.

Previously, this concept of sustainable agriculture has long been discussed, before the farmers have practiced it. Not exploited entirely conscious or not. This farm management is based on "adaptation strategy, anticipation strategy, and cropping mechanism" in which far from exploitation of the land [11]. Technically, farmers do not use the land excessively. In terms of social capital and mutual cooperation gathering can be a good example of networking and cooperation among farmers have who been helping each other and supporting mutual progress.
Table 1. The traditional stage of organic paddy cultivation in Malang Regency

| No | Periods                        | Activity                                      | Description                                                                 |
|----|--------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------|
| 1  | Planting preparation           | Determining planting day                      | pranata mangsa rules                                                       |
|    |                                | Cleaning of the field's bank                  |                                                                             |
|    |                                | *Mopok Galeng*                                | Making border between the paddy field and sidewalk                         |
|    |                                | Grounding and straw weathering                | Initial fertilizers were obtained by farmers from natural fertilizers, especially straw and other local organic materials. |
|    |                                | Processing land with buffalo and cow (ngluku)| Plowing of the ground                                                       |
| 2  | Organic rice cultivation      | Preparation of seeds                          | Common ready to plan seed is 40 days old                                    |
|    |                                | Rituals (*Slametan wiwitan*)                  | Praying                                                                     |
|    |                                | *Tandor pari*                                 | Providing offerings (*tumpeng*, *kulupan*, *urap*, *ingkung*, flower and coins) placed in the corner of rice fields for *Dewi Sri* (Goddess) |
|    |                                |                                                | Burning the incense                                                        |
| 3  | Maintenance                   | Fertilization                                 | Using horticultural waste, straw, husks, organic waste, animal waste        |
|    |                                | Scare crow such as                            | To repel bird pests                                                        |
|    |                                | The use of natural enemies                    | Letting spiders and snakes live there to prey on *wereng* and rats          |
|    |                                | Construction of the hut                       | Construction of a small house in the middle of paddy fields, for the farmer’s shelter |
| 4  | Harvest                       | Determining harvest day                       | Using pranata mangsa rule using                                             |
|    |                                | Harvest festival (*slamaten dherep*)          | The ceremony done after the harvest, by praying together as a form of gratitude |
| 5  | Handling and processing       | Storing paddy in the barn                     | Reserving paddy for future use                                             |
|    |                                | Exfoliation of rice with *lesung*             | Although few grains are destroyed, most of the rice nutrients are not lost  |
| 6  | Marketing                     | For self-consumed or selling purpose          | Sold in the form of rice bonds                                              |
| 7  | Institutional                 | *Arisan gabah*                                | Gathering of farmers in Lawang district                                     |

The people store the yields in the granary that has been prepared, so the yield will not be eaten by pests. Lawang farmer usually hung some yield which has been given by the headman top of granary.
Besides, the damage can be avoided by giving sesajen to all of farming tools, such as sickles, hoes, machetes, etc.

Based on the analysis that has been done toward the data obtained, it shows that still apply local wisdom Lawang farmer which contains some fundamental principles such as:

1. **Expediency principle**
   Local wisdom of the Lawang district allow them to minimize environment damage which is resulted from the use of chemicals and encourage the implementation of organic farming which emphasizes the use of natural materials and increase recycling process.

2. **Togetherness principle**
   Local wisdom of the Lawang district intend to revive the tradition of mutual cooperation, which is longer done in the society. The implementation of mutual cooperation in activities is intended to ease the burden of farmers, for example, manpower needs in the planting and harvesting.

3. **Love and religion principle**
   In Kepanjen Society, the willingness to sacrifice time, energy and thought in farming activities is a form of wisdom that comes from the philosophy of humanism (affection). With a sense of affection between them, it will foster a sense of unity so that there is a feeling of camaraderie.

4. **Manner principles**
   Lawang societies still follow the tradition about some manners that need to be followed, including taboo when dealing with biotic and abiotic environment. There are believed to be associated with the emergence of paddy spirit, such as sincerity of paddy plants to grow and produce optimum yields.

3.2. **Strategy developed**

There are strengths included awareness that intensive farming systems have a negative impact and the existence of key person farmer that have good cooperation to subsequent increased local wisdom. The weakness is the increasing of migrating culture by village youth and the lack of local wisdom in agriculture. The opportunities were farmer groups is increasing and collaboration with other farmer groups that have implemented local wisdom. While the threats the local wisdom inheritance take its rise faded because discontinuous local wisdom transfer the rising generation (Table 2). Based on the SWOT analysis this study proposed two strategies consisted of the development strategy that needs to be carries out is the sustainable development of farmers and the improvement of cooperation with other farmer groups that have implemented organic farming systems with revitalization the values of local wisdom as well as with other stakeholders.

### Table 2. Analysis of strengths, weaknesses, opportunities, and threat

| **Strengths** | **Weakness** | **Opportunity** | **Threat** |
|---------------|--------------|-----------------|------------|
| Awareness that intensive farming systems have a negative impact | The increasing of migrating culture by village youth and the lack of local wisdom in agriculture | The increasing and collaboration with other farmer groups that have implemented local wisdom | The local wisdom inheritance take its rise faded because discontinuous local wisdom transfer the rising generation |
4. Conclusion

Result revealed that in general, farmer know that the local wisdom. Final conclusion the reason farmers do not pratice organic farming systems because the conventional system that they have practiced so far is very easy and can defend local wisdom. The knowledge of farmers about the local wisdom is actually enough and especially in the Lawang district there are still local wisdom. The development strategy that needs to be carried out is the sustainablle development of farmers and the improvement of cooperation with other farmer groups that have implemented organic farming systems with revitalization the values of local wisdom as well as with other stakeholders.

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