



# Preserving Agricultural Land in the Peri-urban Regions of Yogyakarta, Indonesia. From Ethics to Subsistence and Speculation

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## ABSTRACT

The paper aims to assess the motivation of farming households to retain their farms and farming activities in the peri-urban area of Yogyakarta, Indonesia. The study focuses on farm households with agricultural land located along the main roads where the highest pressure for farm land conversion is prevailing. The research shows that farmers cultivating the remaining plots are facing various problems related to incompatibility of the new environment and inconsistencies of policy implementation. Among many site factors that constrain farming in the peri-urban regions are: the irregularity of water supply due to damage or abandonment of irrigation canals, pollution from the nearby factories, and trapped farm land in between taller buildings leading to low agricultural production. Meanwhile, policies in favour of retaining agricultural land are not continuously implemented as it is evident from the higher taxes for all plots along the main roads, the lack of maintenance of irrigation canals and the poor law enforcement on illegal farm conversion. Motivation of farmers retaining farm land can be grouped into three categories, namely: cultural, ethical and survival reasons. Culturally, land inherited from parents is highly valued as heritage (*pusaka*) that cannot be converted into other uses, ethically the ultimate use of rice field (*sawah*) is to produce rice as staple food, and other farm households retain their farm land as a source of their subsistence in combination with other sources of livelihood.

## 1. INTRODUCTION

Since 2008 the proportion of the world population living in urban regions has been higher than the population in rural regions [2]. Increasing proportions of the population living in urban regions of developing countries has brought back the old debate about the agro-ecosystem in the peri-urban environment: whether to preserve agricultural lands or to convert the land towards new use and even more economically beneficial uses. Although the conversion of agricultural land in peri-urban regions tends to be viewed as an unavoidable process in order to accommodate and facilitate new and better life for its

residents [7], the rate of change of land conversion has a huge impact on the environment in general and particularly in the agro-ecosystems. Although many developing countries have a variety of land use control policy instruments for their peri-urban regions, in many cases, the implementation of this kind of policy tends to be less effective [16]. The presence of the strong power of national and global scale actors in agricultural land conversion in the peri-urban environment is one among the factors explaining for the rapid and vast changes of land use in the peri-urban areas of developing countries [3]. This can easily be proved empirically with the fact that the conversion of agricultural land occurs usually subsequent to the transfer of land rights from farmers

to the new owners who also have a relatively large non-agricultural business or are part of large national or multinational companies.

Yogyakarta inherits the best agricultural region of paddy fields originated from the rich volcanic soils of Merapi Mountain in its peri-urban region. A rapid conversion has occurred especially in the last two decades [10]. This rapid physical change goes along with the social changes which then brings further effect on the adoption of new values by the farmer population as a result of their interaction with the newcomers. Social changes that occurred in the peri-urban has positioned farmer population into an anomaly because they are faced with the duality of old values as a part of the farming culture on the one hand and the new values that emerge from the process of urbanization and environmental changes in agro-ecosystems on the other. The farming households still have agricultural lands and agricultural activities as their sources of livelihood, but at the same time new opportunities are emerging for their livelihood improvement through mobilization of parts of the household resources to non-agricultural use [13], [4].

In some of the cases, agricultural land conversions are also followed by changes in the main household economic activities from agriculture to non-agricultural ones (positive conversion), while some other farmers had lost their land due to their inability to survive in a rapidly changing environment, and then relinquish ownership of the land, which is then converted by the new owners into non-agricultural use. The decision-making process of land conversion is not something taken light-heartedly by the farmer households. Some reasons and conditions are required to convert land immediately, because farmers are also aware of the rapidly increasing economic value of their agricultural land as a result of rapid urbanization. Yet, at the same time most farmers are not well prepared to deal with rapid change with new occupations as they do not have the skills and qualifications needed to face the new situations. The majority of farmers in peri-urban region still perceive agricultural land as the main household asset from which the household livelihood derives, while the new economic actors view the agricultural land in the region as space for non-agricultural activities.

Although most parcels of agricultural land in the region have been converted to non-agricultural businesses, few farmers preserve their lands for their livelihood sources although most plots of agricultural land in their surrounding has been converted to non-agricultural uses. In such a dilemmatic situation faced by farmers in peri-urban regions, there must be underlying reasons for farmland preservation by these few farming households. Even in the most extreme situation some farmers maintain farming as part of a portfolio of livelihoods to survive under the siege of the

adjacent converted lands. In this situation, irrigation channels are usually not well maintained, so that water supply also comes irregularly. This would constitute a new disincentive for agricultural activities.

In-depth research needs to be done to understand the motivation of farmers to survive by farming land in the middle of a fast land conversion rate. Despite this empirical fact, there are few farming households who are trying to survive in the rapidly changing environment by maintaining their agricultural land and farming activities.

The paper aims at explaining the diversity of motivation of farmland preservation by agricultural households in Yogyakarta peri-urban regions with a case study on the rice field owner households living in the vicinity of the western ring road of Yogyakarta City. An exploration of the existing motivation for farm land preservation, ranging from ethical to survival reasons are to be explored by a single case study method.

## 2. THEORY AND METHODOLOGY

The process of transformation of rural regions into urban ones happens very quickly in many developing countries. There is a lack of capability of the existing planning institutions in developing countries to face this new form of urbanization. In addition to causing damage to the environment, rapid and uncontrolled urbanization in developing countries leads to social differentiation and also acute poverty [17]. Urbanization in both developing and developed countries generally evolves away from the city core, and mostly at the expense of fertile farm land which is difficult to compensate. Examples from developed countries demonstrate the lack of long-term commitment to agriculture as the main cause [1], [2], [3]. In the case of developing countries, including Indonesia, the high demand for land to accommodate the growing urban economy related to manufacturing and services sectors has led to the irreversible process of agricultural land conversion [15], [16], [17].

The rivalry between various social, cultural, economic and political forces from different spatial scales (local, regional, national and global) simultaneously compete for limited physical space of lands to convert for their respective interests. Azadi Hossein et al. (2011) show an example of the struggle between the power of using a power matrix, confronting the idea of new ruralism and new urbanism and their various manifestations of social, economic and physical spatial constructing of peri-urban regions [2]. The new group of new ruralism in the peri-urban regions wants to preserve the ecological characteristics of rural, agro-ecological commitment, based on small-scale agriculture, low density, rural lifestyle farmers who remained seated as active producers. On the contrary, the new urbanism is a new group looking at peri-urban

regions as urban regions with a commitment to the city, the small-medium industries, high density, urban lifestyle positioning residents as passive consumers.



Fig. 1. Rice field bordering to a factory.



Fig. 2. Rice field bordering to a new housing.

Following the proposition of McGee (1991) if a region is referred to as “*desakota*”, analogous to the peri-urban region, there are six important features in it, namely: (1) large number of people who depend on the activities of small-scale food crop farming, especially rice; (2) increased activity of non-farming in regions previously dominated by agricultural activities; (3) high mobility of the population; (4) increased mixing with intensive land use activities of small industries, the development of fringe regions and other activities side by side; (5) increasing women's participation in the activities of non-agriculture, and (6) the emergence of zones of gray region that is not considered by public policies as a form of morphologic already resembles the city, but from the socio-cultural conditions of the community still shows strong rural characteristics [6]. The characteristics are analogous to those of the peri-urban communities in the province. It was not easy to be observed in the field as some of the characteristics of their appearance were not as clear as postulated by

McGee (1991), although the existence of some other characteristics could be easily observed visually.

High growth rate in the peri-urban region in Yogyakarta has occurred in just the last two decades. A new economic agglomeration, which is constructed on the basis of educational services, tourism and trade, has brought backward linkages to the surrounding rural regions, especially through consumption linkages and labor demand [10]. The growth of the service sector in the city of Yogyakarta peri-urban regions further provide employment opportunities to residents in the surrounding rural regions, thus encouraging economic diversification in the rural regions. Consumption linkages occur in the form of supply of foodstuffs from rural side into the peri-urban region and from peri-urban regions to the city of Yogyakarta. Dependence in consumption occurs not only locally, but also involves the suppliers from outside the province, especially for commodities such as fish, milk, fruits, vegetables and flowers.

In the case of the peri-urban region of Yogyakarta, Rijanta (2009) and Rachmawati & Rijanta (2012) show a significant role in the process of development in the surrounding rural regions through economic diversification and various other linkages [9], [12]. First, much of the economic activity in the region is the Yogyakarta peri-urban overflow from the city centre which cannot be accommodated because of the high price of land in the city centre. This is especially true for large-scale land utilization for apartments, hotels and university campuses. In addition, many economic activities growing in the peri-urban region are based on information and communication technology that no longer require the best location in the city centre. Such activities demand sufficient communication networks rather than physical location in the peri-urban region [12]. Second, the scale of economic activities in the region of Yogyakarta peri-urban has encouraged the emergence of new settlements that led to the increasing number of residents in the region of Yogyakarta city agglomeration. An unavoidable consequence of this agglomeration is the conversion of agricultural land through the densification process and filling the available space with new settlements. Third, urban agglomeration, including Yogyakarta peri-urban region, have strong demand for consumer goods which are then fulfilled through an interaction with its hinterland. Fourth, historically, Yogyakarta peri-urban regions already have had adequate infrastructure support since the colonial times, so that the actual development of peri-urban region also benefit from the economic history of the regions. Similarly, the capacity of local economic actors has grown since the colonial era, such as batik and silver entrepreneurs. Even at this point in DIY craft industry has grown even further towards a



though he has not been able to do it by himself. In the last year he was suffering from a sickness that does not allow him to be self-employed in his own rice fields.

Although the value of agricultural production on the agricultural land near the ring road tends to be diminishing as compared to the production costs incurred, including land and property tax to be paid every year, farming is still maintained as a source of subsistence rather than as a source of profit accumulation. In addition to the difficulties of farming on agricultural land, in the western ring road we found that most of the land parcels were flanked by two tall buildings that interfere with the process of photosynthesis in rice plants and cut production significantly. Rice grown in the paddy fields trapped between two tall buildings undergo slower and uneven maturation process. Rice plants located in some parts of sections acquire the sun light and will rip first, whereas on the other parts rice will rip more slowly and with lower production level.

There is one household case that found a new way to increase revenue from rice cultivation significantly. He cooperates with a company producing high yielding variety of rice seeds. The orientation of rice growing in his paddy fields is then intended to produce improved rice seeds and then be marketed by the company through a partnership. In this cooperation, the seed company bears most of the costs of production, while farmers provide their land and labour power to grow the paddy rice seed. The selling price of the rice seeds is very satisfactorily felt by the farmer who joins the cooperation with the company. The value of crop production received by the farmers growing rice for seeds highly exceeds the value of consumption rice in general. Through this partnership, the participating households tend to retain their agricultural land to produce high yielding rice seeds as part of their strategies to sustain the livelihoods in accordance with their skills and capabilities in farming. Reorientation of agricultural activities with local food commodities such as green beans or banana does not seem to give good results.

However, many of the household representatives also argue that regardless of how difficult it is to cultivate the existing wetland, it will still produce a staple food that they need every day. For parcels that are no longer able to generate an optimal rice yield, one household case has changed it into the production of green beans or other agricultural commodities that do not require abundant amounts and continuous supply of water as the rice plant. From field observations, some farmers changed their land use into banana plantations, perennial crops or other plants that do not constantly require a lot of manpower and irrigation water. Nevertheless those who are reorienting from rice plants to green beans or other cash crops

would not earn a higher income than they earned from rice plants.

Another difficulty is felt by one of the households analysed; it is the discontinuity of flow of water for irrigation since more and more paddy fields are now converted into buildings used for non-agricultural activities. The main irrigation canals that regularly supply the water to the regions has not performed properly as the smaller distribution canals are no longer maintained by the government and some are even severely blocked by waste from agricultural and household use. As a result, irrigation canals cannot deliver water to the fields that were usually served, even in some other parts of the irrigation water spilling onto the highway and disturbing the traffic and grind the surface of the pavement or the roads.



Fig. 3. Abandoned rice field due to discontinuity of irrigation.

In addition to the economic motivations of subsistence, other economic reasons such as speculation or rent-seeking are also encountered by the majority of farm households. It seems that most efforts to maintain the land and agricultural activities in the surrounding area of the western ring road of Yogyakarta is related to the willingness of farmers to wait for a higher price, and the land will be sold at the right time, *i.e.* when there is an opportunity to buy greater sized wetland elsewhere.

They are generally unwilling to take the risk of holding cash for a long time, since at the same time they must be able to find a new and cheaper, but greater size of rice fields elsewhere as a replacement to the sold one. This way there will be a guarantee for the subsistence need of the households obtained from future rice production, while waiting for the right time to reap the benefits of maximum commercial sales of the existing lands. The price of paddy fields is now of about 30-40 percent above the market price, but the household cases maintain their intention to preserve the land for subsistence farming activities. This is one form of household strategy in maintaining their subsistence and

at the same time to take advantage of market opportunities in the future. This strategy is determined by their collective awareness that land will have higher and increasing prices from time to time in the future.

In some cases, the motivation of owners to preserve agricultural lands on the west ring road can be considered as a part of their strategy to seek for a higher land rent in the future. The more expensive the price of land, the higher the rental price of land in the future, so that some of them imagine their offspring one day will have their own business enterprises in their own land as the newcomers do on the outskirts of the ring road.

There is a case in which the wetland will be leased to other parties for warehousing or other business, or even be made their own warehouse or business if they have sufficient capital in the future. Some of the cases mentioned that some prospective successors of the land on the outskirts of the ring road would be the local village children who have become successful elsewhere. There is no exaggeration in believing that some time they would come back to their hometown and invest in the region. Better off household cases on short term do not even think of selling the land, but think ahead waiting for investment opportunities in accordance with the financial conditions of their household and readiness of their offspring to enter the business.

In addition to economic motivations, some households also mentioned socio-cultural motivations such as land to be preserved as heritage that is inappropriate for sale. This is in accordance with the socio-cultural commitment and religiosity in society and willingness to hold the mandate, particularly from their biological parents. As a legacy or inheritance of land, the parcel of land mandated as an asset must be preserved as an identity marker of the large families who left the inheritance. Because land is considered important as the identity of the big family, all family members will be consulted or offered to buy first before anyone else in case of sale. The sale of such category of land is only decided when there is an emergency that forces the land owner to sell it because of pressing demand for cash such as for paying higher education fees or for hospital costs. A decision to sell a plot of land in the past was usually going through a large family decision as a form of an informal institution that effectively prevented the sale of land and at the same time retained the land in the large family.

Javanese people also maintain a sacred value of the land as reflected in a famous Javanese expression "*sak dumuk bathuk sak nyari bumi ditohi pati*", literally meaning a woman and a piece of land deserved to be defended to death. The phrase indicates that there is a high appreciation of land value that society deserves to defend their lands as an attempt to defend the big family honour. The release of land rights in the region of research has been going on since most of the

construction of ring road was completed in 1992. Nevertheless there is one factor which is a disincentive for the transfer of rights and conversion in the fields around the western ring road, the land administration problems that arise as a result of the ineffectiveness of land administration in the past. The majority of cases still preserved agricultural land as it was still inherited and used as a source of income for one or more parents (father and or mother) of a person who now controls the land. Typically a child who is farming in this region also had to support his mother and/or father as the results from the fields owned by the old relatives. Most of the land will be maintained under the ownership of the parents, because it is still used as a source of livelihood even though the person who works as a farmer is their son. In such a situation it would be difficult to sell the land because it is still used as a source of income for the older people who are respected in the family. Moreover, if the land certificates have not been assigned to their ownership of the land, they are not the owners of the land but only land operators who are effectively utilizing and/or control the land at the time. One case also mentions that the construction of a house building (some time uncompleted one) is one of the efforts to prevent the transfer of ownership on the land on the western edge of the ring road of Yogyakarta. By constructing a building on the dried rice fields and assign married children into the house will give the impression that the land is effectively utilized, as the surrounding plots are. Furthermore, the temptations of the land purchase proposals from land speculators will substantially decrease when the land is not left in the form of rice field, but it has become a residential building and/or combined with a trading business or petty services in line with the dominant land use in there. One household still maintains existing agricultural lands across the western ring road land because according to the owner is a relic of the old land, to be retained as far as possible. According to him, the land is still in the name of his parents, so if it will be sold, it is then needed to be approved by other family members. According to him there was already a plan of land use, as barn, and not to be sold to other parties,. However, this plan was limited to just discourse because in the end the plan was not given much consideration.

While the land is located just across the ring road, is now used as a home for his children. According to Mr. Tnd, he deliberately used the land to built the house in order to prevent the land be sold to others. Because the home is established, there will be no other sides that will bid the land. He also said that much of the land that is across the ring road has been sold to another party, and he is currently still having land located across the ring road.

Mr. Rtm still retains farmland located across the western ring road, because according to him the

land is a legacy of parents, and is a family heirloom, so even if only a little, it should be retained. He also argued that if the land is cultivated, it will surely deliver results. The land is no longer cultivated by Mr. Rtm, because his health conditions do not permit him to work in the field. Until now there have been no outside parties offering to buy the land, and if there were he would retain it for that reason.

From the cases that were interviewed during research activities, some answers appear related to the motivation and retention of agricultural land in this region characterized by rapid land conversion, and are also related to the ethics of human relationships with the nature. Most of the heads of the households stated that agricultural land used particularly for paddy rice cultivation must be maintained in the benefit of the coming generation. The majority of them stated that rice as a staple food source must be preserved forever, because it concerns with the survival of future generations. The following excerpt shows the reason of conduct proving willingness to sustain rice as a staple food source for future generations, which is very important: *“for a daily basic livelihood and inheritance for future generations so if possible not for sale, but to be inherited by our grandchildren” (Mrs. Ttk).*

Nonetheless some people show a more realistic thought in maintaining rice field along the western ring road, although ethical motivation is still felt in it: *“land does not belong to the parents but belongs to his descendants in the future, so if one day it will be utilized for buildings, then let our grandchildren use it” (Mr. Tnd).*

Another ethical view maintains the importance of rice field as land resource to produce food. Thus it is feared that the value will be exhausted if they are sold without careful calculation: *“rice field is inherited from generation to generation, let our kids do it themselves if they want to establish their place of business there, but if you sell it immediately, you will actually run out of money faster” (Mr. Smd).*

We therefore can say it is very clear that maintaining motivation over land for some groups of people is due to a combination of socio-economic and cultural reasons. Some informants said that their land is now an inheritance from their parents that must be maintained and retained including its initial functions as sources of staple; and, while there are outsiders who want to buy the land, their obligation is as much as possible to retain the field as sources of subsistence.

Mr. Smd's reason for that is because his parcel is situated in the most strategic location facing toward the ring road. This parcel is expected to be used solely by his grandsons to open their own business, so his reasons to maintain agricultural land are: *“our wetland is for a hereditary inheritance, if our children want to start their own businesses, then they can convert it” (Mr. Smd).*

In addition to the real reasons these fields will be passed down to his children someday so that when it he switches ownership to his son these fields may be sold or will be used for their own business. Economic motivation becomes important when discussing intergenerational transfer of land ownership in the future. Landowners now feel the urgency to pass the land to their children and grandchildren as a valuable economic asset in the future, because it is not easy for them to relinquish ownership of the land now.

Mrs. Ttk's reason to maintain is for the source of daily meals and it is also still profitable business; she also argues that the land could not be sold. When asked about taxes, she also revealed that the annual tax for the land is quite high at almost Rp 200,000,00 per annum, but the benefit from the land around the ring road is still more favourable than the tax that must be paid. Given the most substantial need for her family to fulfil subsistence only, the incomes from farming are still sufficient. Mrs. Ttk also adheres to this principle which can be categorized as ethical reason: *“if the fields are forced to be sold, the important thing is to buy more rice to eat and the need to replace rice field (sometimes paddy is sold but we must be re-buy rice on another day)” (Mrs. Ttk).*

Nonetheless, what Mrs. Ttk stated can actually still be debated, because if the sale of paddy fields in the ring road could be done and then she buys cheaper rice field in another location, it still appears that the ethical issues would appear elsewhere. It seems that the more limited amount of rice, every effort of rice field preservation around the ring road turns into a zero-sum game situation when viewed from the overall total availability of rice fields in the surrounding region.

The reason of Mr. Pwt to retain agricultural land for rice cultivation is that rice is used for the basic needs of his parents as the legal owners of the fields, and as long as his mother is still alive the rice field will be retained. At the same time the price continues to rise and future selling of the land will be very favourable. In addition a high tax expense is not an issue at all because the future owners of rice fields will be well-off people who feel that the tax is not a significant burden for them, more especially because the tax is borne jointly by three brothers as the future owners of the land: *“my brothers, all three of them, right now are so well-off, that they don't want to sell the rice fields now. The land is cultivated for the meal of our mother, while waiting for its price to continue to rise” (Mr. Pwt).*

For those who turned out to have sufficient land on the west ring road as heritage it has become a vehicle for speculation to obtain the highest possible price. Or, in other words, the ability to retain ownership of paddy fields in the western ring road is actually owned by the local well-off people, who have a strong bargaining position in the face of large investors who continue to arrive. A schematic presentation of the

motivation of farmers to preserve agricultural land in the peri-urban region of Yogyakarta is provided in Table 1.

Table 1. Motivation to preserve agricultural lands in the peri-urban region of Yogyakarta, Indonesia.

General motivation	Detailed motivation to preserve agricultural lands
Economic	<ul style="list-style-type: none"> <li>• Fulfilment of subsistence for households and parents</li> <li>• Speculation for higher land price in the future</li> <li>• Expectation for better future self -investments</li> </ul>
Socio-cultural	<ul style="list-style-type: none"> <li>• Land as a symbol of social status</li> <li>• Land as a symbol of the family identity</li> <li>• Land as a sacred inheritance</li> </ul>
Ethical	<ul style="list-style-type: none"> <li>• Land as a source of staple food must be maintained</li> <li>• The benefit of agricultural land should not be changed</li> </ul>

#### 4. CONCLUSION

Motivation for preservation of agricultural land in the western ring road of Yogyakarta can be grouped into economic motives (the fulfilment of subsistence, speculation for better land values, expectations for better future investments), socio-cultural motives (land as a symbol of social status and family identity, land as sacred inheritance) which is worth dying for, and ethical motives (land as a source of staple food for coming generation must be maintained, and the benefits of the land as agricultural land should be preserved for ever). The strength of the perception of the land as an economic commodity in the society living in the region seems to have influenced most of the land conversion.

The price of land is too high in comparison to the actual market price or land price standard from the government. Communities are most likely to see land as an economic commodity while only a small fraction can see it ethically; land as a legacy of future generations should not be changed, so the conversion to different uses would be only possible for purposes that cannot be avoided anymore.

By observing the process and the results of the change of ownership of land in the western ring road region, it seems necessary that the government's commitment and continuous and earnest effort should be made for the agricultural land on the outskirts of urban regions to be maintained. Constant and consistent commitment and efforts do not seem to be found in this region. Efforts to attract farmers to survive on farming activities in the form of subsidies and support facilities and infrastructure and agricultural

production, which is indeed perceived by the people, it is not sufficient to hold the conversion and transfer of ownership. The efforts made by the government have small intensity and impact to hold the ground of conversion, when compared to the efforts made by business and industry to convert land on the outskirts of the western ring road, including a bid price of about 40 percent above the market price.

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