

Analysis of Multifunction Paddy Fields Perception

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Abstract:- Paddy field is a public property, because it provides individual benefits to the owner and communal benefits. As a public property, paddy fields have a very wide range of functions related to multifunctional benefits. It is concerning, the economic development carried out by the Indonesian State has sacrificed a lot of agricultural land, especially paddy fields. The results of high resolution image analysis are estimated that the national paddy field conversion rate is 96,512 hectares year-1 in the period 2000-2015. Such conversion rate, the current rice field area of 7.1 million ha is predicted to shrink to about 5.1 million hectares in 2045. Malang Regency, the use of paddy fields is transferred to industry, housing, tourism. This shows that the assessment of land use for industry, housing, tourism, provides an advantage 2.6 times greater than the use of paddy fields. Such an assessment makes the process of changing the function of paddy fields to other uses difficult to avoid (Bambang Rahmanto, et al. 2019). Paddy fields that are culturally protected and utilized by the community require a study to determine their potential and problems. Perceptions of farmers and community leaders about the multifunctionality of paddy fields can be used as an effort to examine their perspective on the multifunctionality of paddy fields. The study was focused on exploring the perceptions of the wetland farmer community and community leaders on the multifunctionality of paddy fields. The method uses a qualitative descriptive design using a case study technique. A multifunctional study of lowland farming based on Sudrajat's (2015) reference which is divided into three groups: 1) direct use benefits, 2) indirect use benefits, 3) inherent benefits. The research objective was to examine the perceptions of farmers and community leaders about the multifunctionality of paddy fields. The results of the study: 1) Perceptions of lowland farmers: a) Farmers' appreciation of the multi-functional direct benefits of paddy fields resulted in a high-scale value of an average of 64%, b) indirect benefits produced an average of 60%, c) inherited benefits resulted in an average of 44%. 2). Perceptions of Community Leaders: a) Appreciation of Community Figures for the direct benefits of multi-function paddy fields produces a medium scale value of an average of 58%, b) indirect benefits produce a moderate value of 41% on average, c) innate benefits produce an average of 44 %. The appreciation of high value is because farmers understand the importance of the multifunctional role of paddy fields in environmental balance based on positive experiences in managing paddy fields for years and the benefits of multi-function benefits of paddy fields are felt

by the farming community for their basic needs directly. Appreciation of medium and low values is due to the lack of interest of the younger generation to work in paddy fields and paddy fields are valued only for their ability to produce food products, while other functions have not been taken into account.

Keywords:- Perception, Multifunction, Paddy Fields.

I. PREFACE

1.1. Problems Background

The economic development that has been carried out by the Indonesian state so far has sacrificed a lot of agricultural land, both in rural areas and in big cities. Paddy land is actually a public good, because it provides individual benefits for the owner, besides that it provides communal benefits. As a public good, paddy fields have a very broad range of functions related to multiple benefits (Bambang Rahmanto et al, 2006).

It is an alarming fact that the position of agriculture in Indonesia in economic development is currently still very weak. The phenomenon of conversion of agricultural land, such as productive paddy fields to non-agricultural uses, is proof. Anny Mulyani's research results, (2018), based on high-resolution image analysis, it is estimated that the national paddy field conversion rate is around 96,512 hectares year-1 in the 2000-2015 period. Such conversion rate, current paddy fields with an area of 7.1 million ha, are predicted to shrink to only around 5.1 million hectares in 2045. Explanation from the previous year from Irawan (2006), that the changes in paddy fields in 1999-2002 were very dramatic. namely 188,000 hectares change its function every year, of which 70 percent are outside Java, while the printing of new paddy fields is only 46,400 hectares per year, while 87 percent of this number is outside Java.

BPS records state that in 2018 there was only 7.1 million hectares of paddy fields, down compared to 2017 which was still 7.74 million hectares. This was the statement of the Minister of Agrarian Affairs and Spatial Planning (ATR) and the Head of the National Land Agency (BPN), stating that the area of paddy fields in 2019 had increased compared to 2018. Data for paddy fields in 2019 reached 7,463,948 hectares or showed an increase of 358,000 hectares compared 2018. However, the area of paddy fields in 2019 was still smaller than in 2017 with an area of 7.74 million hectares. (Kompasiana, 2019., Yakob Arfin Tyas Sasongko, 2020).

Malang Regency, the use of paddy fields has been shifted for industry, for housing, for tourism. This indicates that the assessment of land use for industry, housing, tourism, each yielded a 2.6-fold greater profit compared to using paddy fields. Such an assessment makes the process of changing the function of paddy fields to other uses difficult to avoid (Bambang Rahmanto, et al. 2019).

Paddy field is a very important type of land use, because it is a medium that functions to produce rice for food needs and a medium to regulate environmental balance, which can reduce the rate of erosion and sedimentation and flooding. However, so far in Indonesia, from big cities to rural areas, paddy fields are valued only for their ability to produce food products, while other functions in the environmental, social, cultural and other fields are neglected. In fact, the spread of paddy fields cultivated by farmers produces environmental and socio-cultural products / services that actually have extraordinary beneficial values, but until now this function has not had a value in the economic classification or the market price has not been calculated (non-marketable good). The neglect of the multifunctionality of paddy fields causes the valuation of its value to be lower.

1.2. Purpose

The renewal in this study is to compare the perceptions of the farmer community and community leaders about the multifunctionality of paddy fields. The objectives of the research are:

- 1) Assessing farmers' perceptions about the multifunctionality of paddy fields
- 2) Assessing community leaders' perceptions of the multifunctionality of paddy fields.

II. RESEARCH METHOD

The study was focused on exploring the perceptions of the wetland farmer community and community leaders on the multifunctionality of paddy fields in Malang Regency. The method uses a qualitative descriptive design using a case study technique. A case study is a method carried out by examining in-depth information from informants who have various contexts with various dynamics in a particular time and activity (social groups or institutions, programs, processes, events) with the aim of obtaining accurate detailed data. (Creswell, 2014). The data required is the perception of the multifunctionality of paddy fields obtained from informants of rice farmers who have cultivated, enjoyed, experienced or experienced various dynamics in managing paddy fields for 10 years and perceptions from community leaders.

A multifunctional study of lowland farming based on Sudrajat's (2015) reference which is divided into three groups, namely: 1) direct use benefits, 2) indirect use benefits, 3) inherent benefits.

1. The direct benefits of paddy fields consist of the following ten elements: (1) producing food, (2) providing agricultural employment opportunities, (3) sources of Regional Original Income (PAD) through land taxes, (4) sources of PAD through other taxes, (5) preventing urbanization through created job opportunities, (6) as a means for the growth of traditional culture, (7) as a means of growing a sense of togetherness or mutual cooperation, (8) as a source of community income, (9) as a means of refreshing, and (10) as a means of tourism.
2. Indirect benefits include environmental conservation functions consisting of the following elements: (1) reducing the volume of flooding, (2) reducing erosion levels, (3) reducing the level of landslide hazards, (4) maintaining balance of water circulation, (5) reducing air pollution, and (6) reducing environmental pollution by returning organic fertilizers to paddy fields.
3. Innate benefits. Paddy fields provide multifunctional benefits for the balance of the environment and the quality of human life, especially being able to provide positive benefits for maintaining biodiversity and environmental education functions.

The questions posed in this case study are questions within the scope of the Geography study, namely about where a symptom occurs, and why it occurs there. It is hoped that the informants will be able to answer various questions. The form of the question will determine the strategy used to obtain accurate data on the perceptions of informants about the multifunctionality of paddy fields in the environment in an area. For example the following: Example questions about element number 1 direct benefits point 2, namely: "As a Provider of Employment". To assess the multifunctional perceptions of paddy fields from 2 (two) groups of informants, examples of questions that must be answered are as follows:

- 1) **What (what)**, related to the structure, pattern, function and process of occurrences on the earth's surface.
 - What is the opinion on "the function of paddy fields as a provider of employment"?
 - Is the management of lowland rice only used for lowland rice crops or is it used for other businesses as additional jobs?
 - In 1 (one) year the rice field planting pattern is carried out more than 1 (one) time so that the paddy fields function as providers of employment?
- 2) **Where (where)**, related to the location of a geographical object on the earth's surface.
 - Where is the rice field located?
 - Where is the location of the most productive paddy fields as field providers
Work in your area?

- 3) **How much (how much / many)** describes the size (distance, area, content, and time) of geographical objects in the form of numbers.
 - How much labor is required in one hectare of paddy fields from nursery processing to harvesting?
 - What is the cost of managing paddy fields per person from nursery processing to harvesting
 - how much land is cultivated
 - what is the total production per hectare
 - What is the distance between the paddy fields and the house
 - How much will it cost to produce
 - What is the average net yield of unhulled rice obtained in 1 (one) hectare / year?
- 4) **Why (why)** contains a series of time and place, background, or interaction / interdependence of human symptoms, events, and motivations.
 - Why (why) paddy fields provide employment in the study area?
- 5) **How (how)**, relating to the description of a pattern, function, and process of symptoms and events.
 - How (how) can paddy fields serve as a provider of employment to meet needs?
- 6) **When (when)**, describes the time the incident took place
 - When (when), when can paddy fields serve as providers of employment?

- 7) **Who (who)**, relates to the subject / actor of an incident or event
 - Who (who) should be involved in regulating the function of paddy fields as a provider of employment?
 - Who is employed as a laborer in managing the paddy fields?

Each of the informants' answers to each of the multi-functional elements of paddy fields in question can be interpreted as a description of the level of appreciation of each community group studied regarding the multi-function of paddy fields.

III. RESULTS AND DISCUSSION

In this study there are several different perceptions regarding the multifunctional classification of lowland agricultural land described by the informants. But even though it is measured from various points of view, it is evident that in broad terms the results of the assessment of the multifunctional perceptions of lowland paddy fields are positive in terms of economic benefits and for the balance of the environment where people live and do activities.

The multifunctional measurement of the benefits of paddy fields in Malang Regency is divided into 3 (three) classifications, namely: 1) direct benefits, 2) indirect benefits and 3) innate benefits. The aspects assessed include environmental, economic and socio-cultural aspects. For details, see the diagram below.

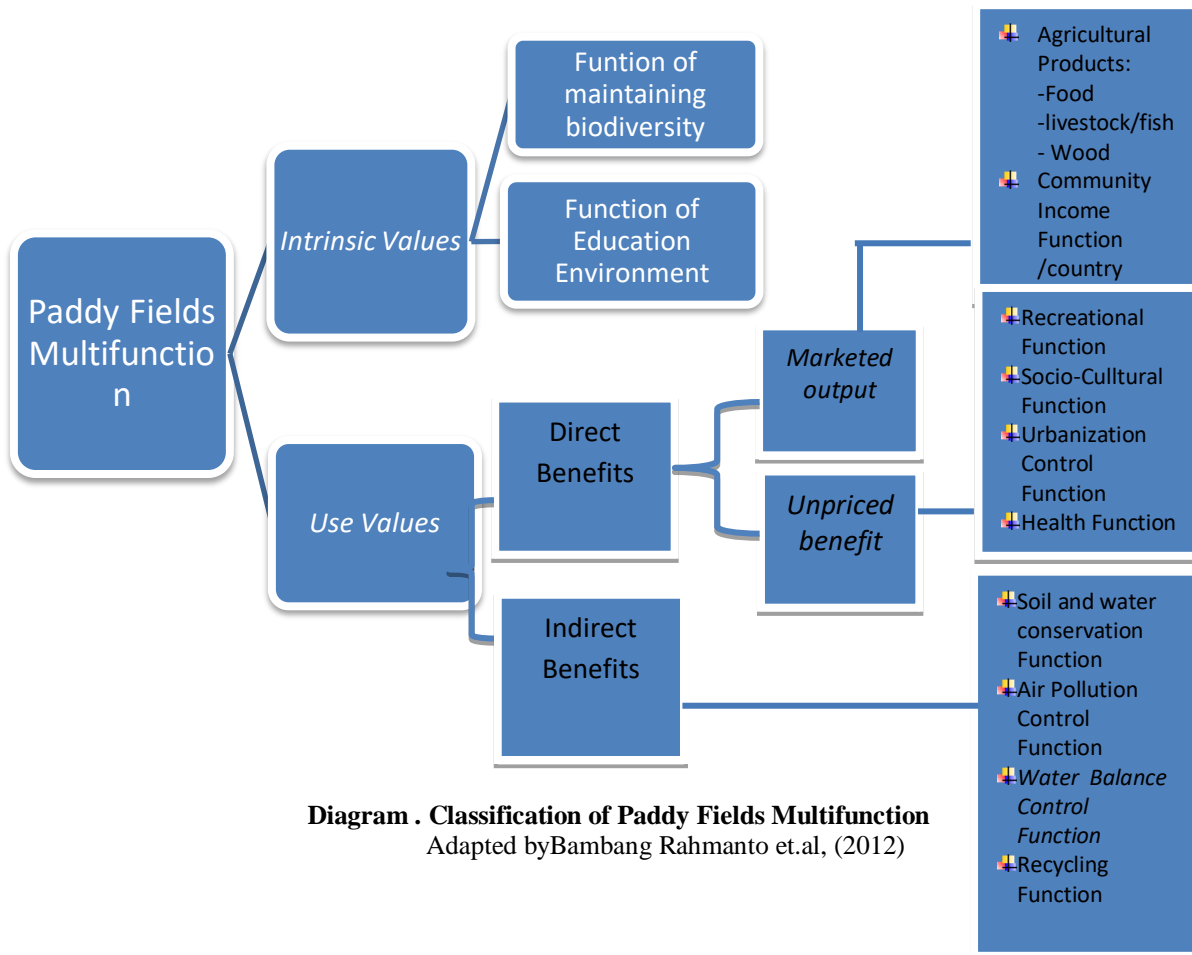


Diagram . Classification of Paddy Fields Multifunction
Adapted by Bambang Rahmanto et.al, (2012)

Based on the multi-function diagram of wetland farming above, the results of the multifunctional measurement of paddy fields from two layers of society, namely the Rice Farmers and Community Leaders are as described below:

3.1. Perceptions of the Rice Farmers Community.

Rating Description: 0 - 12% Very low; 13 - 37% Low; 38 - 62% moderate;

63 - 87% High; 88 - 100% Very high

3.1.1. Benefits of Direct Use

The score of farmers' perceptions of the multifunctionality of paddy fields shows that their appreciation of the direct benefits is higher than the indirect and inherent benefits. The average percent value of each of the multifunctional elements of paddy fields is as follows:

- Perceptions and appreciation of farmers about "Producing food ingredients", amounted to 85%
- Perceptions and appreciation of farmers about "Providing job opportunities", amounted to 70%
- Perceptions and appreciation of farmers about "Sources of PAD through land taxes", amounted to 56%
- Farmers' perceptions and appreciation of "Sources of PAD through other taxes", amounted to 41%.
- Perceptions and appreciation of farmers about "Preventing urbanization", amounted to 63%
- Perceptions and appreciation of farmers about "means of growing a sense of togetherness / mutual cooperation", amounted to 63%
- Perceptions and appreciation of farmers about "Sources of community income," amounted to 73%
- Perceptions and appreciation of farmers about "refreshing facilities and scenery", amounted to 67%
- Perceptions and appreciation of farmers about "means of tourism", amounting to 55%

3.1.2. Indirect benefit / function of environmental preservation

- Perceptions and appreciation of farmers about "Reducing the chance of flooding", amounted to 58%
- Farmers' perceptions and appreciation of "Reducing the chances of silting rivers" amounted to 64%.
- Perceptions and appreciation of farmers about "Reducing the chance of landslides", amounted to 60%
- Perceptions and appreciation of farmers about "Maintaining a balance of water circulation", amounted to 48%
- Perception and appreciation of farmers about "Reducing air pollution" amounted to 66%
- Perceptions and appreciation of farmers about "Reducing environmental pollution", amounted to 65%

3.1.3. Innate benefits

- Perceptions and appreciation of farmers about "educational facilities", amounted to 36%
- Perceptions and appreciation of farmers about "means to maintain biodiversity" amounted to 51%

The value of rice farmers' perceptions of the multifunctionality of paddy fields shows that in general the

farmers' appreciation of direct benefits is on a high scale with an average value of 64%. The elements of direct benefits that received the highest value appreciation were a) function as a food producer with a value of 85%, followed by b) sources of community income amounting to 73%, c) providing employment opportunities amounting to 70%, d) refreshing facilities and a total view 67%, e) means of growing a sense of togetherness / mutual cooperation amount to 63%, f. Preventing urbanization is 63%, g) PAD sources through land taxes are 56%, h) tourism facilities are 55%, and h) PAD sources through other taxes are 41%. Most of these numbers fall into the high classification (63 - 87%), only 1 (one) element has a moderate value of 41%. This value indicates that the paddy field's multifunction is felt directly by the farming community.

In general, the elements of indirect benefits, farmers gave moderate appreciation, with an average of 60%. High appreciation for the following three elements of environmental conservation function: a) Reducing air pollution with a value of 66%, b) Reducing environmental pollution with a value of 65%, followed by Reducing the chance of silting rivers with a value of 64%. The other functional elements belong to the medium category. This value shows that farmers understand the importance of the role of paddy fields in environmental balance based on the fact of their experience in managing paddy fields for years.

Farmers' perceptions of the inherent benefits, in particular a) the function of paddy fields as a means of education show low appreciation with a value of 36%, and moderate appreciation for b) a means of maintaining biodiversity with a value of 51%. This fact is caused by the lack of interest from the younger generation to work in paddy fields.

3.2. Perceptions of Public Figures

Rating Description: 0 - 12% Very low; 13 - 37% Low; 38 - 62% moderate;

63 - 87% High; 88 - 100% Very high

3.2.1. Direct Benefits

- Perceptions of Public Figures about "Producers of foodstuffs", amounting to 81%
- Public Leaders' Perceptions of "Providing job opportunities", amounted to 64%
- Public Leaders' Perceptions of "Sources of PAD through Land Tax" amounted to 61%
- Public Leaders' Perceptions of "Sources of PAD through other taxes" amounted to 47%
- Perceptions of Public Figures about "Preventing urbanization", amounted to 58%
- Perceptions of Community Leaders on "The means for the growth of a sense of togetherness" amounted to 42%
- Public Leaders' Perceptions of "Sources of Community Income", amounting to 56%
- Perceptions of public figures about "refreshing facilities and scenery" amounted to 64%
- Perceptions of Community Leaders about "Tourism Facilities", amounting to 50%

3.2.2. Indirect benefit / function of environmental preservation

- a. Perceptions of Public Leaders about "Reducing the chance of flooding", amounted to 61%
- b. Perceptions of Community Leaders about "Reducing the chances of silting rivers", amounted to 36%
- c. Perceptions of Community Leaders about "Reducing the chance of landslides", amounted to 31%
- d. Perceptions of public figures about "Maintaining the balance of water circulation", amounted to 33%
- e. Perceptions of Public Leaders about "Reducing air pollution" amounted to 42%
- f. Perceptions of Public Leaders about "Reducing environmental pollution", amounting to 42%

3.2.3. Innate benefits

- a. Perceptions of Public Leaders about "Educational Facilities", amounting to 36%
- b. Perceptions of Community Leaders on "Means to Maintain Biodiversity" amounted to 44%

The value of community leaders' perceptions of the multifunctionality of paddy fields shows that in general the community leaders' appreciation of the direct benefits of multi-function paddy fields yields an average value of 58% (moderate). The elements of direct benefit that received the highest value of appreciation were: 1) function as a food producer with a value of 81%, followed by 2) Providing 64% of job opportunities, 3) Facilities for refreshing and views "amounting to 64%. Meanwhile, other elements produce moderate values, namely: 4) Sources of PAD through land taxes amounting to 61%, 5) Preventing urbanization amounting to 58%, 6) Sources of community income ", amounting to 56%, 7) Tourism facilities amounting to 50%, 8) Sources of PAD through other taxes amounting to 47%, 9) Means of growing a sense of togetherness amounting to 42%. Medium scale value is due to community leaders whose attention to the function of paddy fields is still more focused on producing foodstuffs.

The elements of indirect benefits in general Community leaders give moderate appreciation the following elements: a) Reducing the chance of flooding with a value of 61%, followed by an appreciation of elements b) reducing air pollution with a value of 42%, c) reducing environmental pollution with a value of 42% . Other functional elements produce low appreciation, namely: d) Reducing the chance of silting rivers by 36%, e) Stakeholder perceptions about maintaining a balance of water circulation amounting to 33%, f) Perceptions of stakeholders about reducing the chance of landslides amounting to 31%. This fact is because in Indonesia up to now paddy fields are valued only for their ability to produce food products, while other functions in the environmental, social, cultural and other functions have been ignored or have not been taken into account.

The public figures' perceptions of the innate benefits, especially the function of paddy fields as a means of education, show low appreciation with a value of 36%, and moderate appreciation for a means of maintaining

biodiversity with a value of 44%. This fact has the same cause as the appreciation of indirect benefits, namely because until now paddy fields are valued only for their ability to produce food products, while other functions in the environmental, social, cultural and other functions have been ignored or have not been taken into account.

Direct benefits relate to the provision of food, the provision of job opportunities, the provision of a source of income for the community and the region, the means of fostering a sense of togetherness and mutual cooperation, means of preserving traditional culture, means of preventing urbanization, as well as facilities for tourism, refreshing and scenery where all these elements are basic needs that are needed and yearned by every human being and should be fulfilled for the fulfillment of survival.

Indirect benefits are related to its function as a vehicle for balance and environmental preservation in which all humans live and do activities. Meanwhile, the innate benefits are related to its function as a means of education to improve the quality of life, and a means of maintaining biological diversity. Therefore, paddy fields must be sustainable. The shift of the function of paddy fields to non-agricultural uses, besides having an impact on decreasing agricultural production and the emergence of environmental ecological degradation, will also have an impact on a broader dimension related to aspects of changes in the economic, social, cultural and political orientation of society.

IV. CONCLUSION

4.1. Perceptions of Farmers

- a. The direct benefit of the perception value of rice farmers on the multifunctionality of paddy fields is the value of appreciation on a high scale with an average value of 64%. The value of this appreciation shows that the multifunctionality of paddy fields has been felt by the farming community directly during processing, enjoying, experiencing or experiencing its benefits.
- b. In general, indirect benefits farmers in Malang Regency give moderate appreciation with an average of 60%. High appreciation for the following three elements of environmental conservation function with an average value of 65%. This value shows that farmers understand the importance of the role of paddy fields in environmental balance based on the fact of their experience in managing paddy fields for years.
- c. Farmers' perceptions of the inherent benefits, in particular: the function of paddy fields as a means of education showed low appreciation with a value of 36%, and moderate appreciation for b) a means of maintaining biodiversity with a value of 51%. This fact is caused by the lack of interest from the younger generation to work in paddy fields.

4.2. Perceptions of Public Figures

- a. Direct benefit, in general, community leaders give an appreciation of the multifunctionality of paddy fields showing moderate appreciation with an average value of

- 58%. This value is due to community leaders whose attention to the function of paddy fields is still focused on producing food.
- b. Indirect benefits in general, Community leaders give moderate appreciation with an average value of 41%. This fact is because in Indonesia up to now paddy fields are valued only for their ability to produce food products, while other functions in the environmental, social, cultural and other functions have been ignored or have not been taken into account.
- c. The innate benefits of community leaders' perceptions of the function of paddy fields as a means of education show low appreciation with a value of 36%, and moderate appreciation for means of maintaining biodiversity with a value of 44% with an average value of 40%. This result has the same cause as the indirect benefit factor, namely because until now, paddy fields are valued only for their ability to produce food products, while other functions have not been taken into account.

Paddy fields must be sustainable. The shift of the function of paddy fields to non-agricultural uses, besides having an impact on decreasing agricultural production and the emergence of environmental ecological degradation, will also have an impact on a broader dimension related to aspects of changes in the economic, social, cultural and political orientation of society.

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