# Sustainability levels of local wisdom based agrotourism development model (Case Study in Karangtengah Village, Imogiri District Bantul Regency, Special Region of Yogyakarta)

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**Abstract.** To anticipate and develop rural areas, the government is currently promoting rural social and economic development, including rural agribusiness and agrotourism programs. This study aims to determine the level of sustainability of the agrotourism development model based on local wisdom. The research was conducted by interviewing farmers and related parties and conducting field observations. The development of agrotourism must be continued. It could be seen from the benefits of environmental conservation, beauty value, recreational value, science development, income, business opportunities for the community, services, promotion support, production, and quality of agriculture supporting agrotourism. Hence, the Karangtengah Tourism Village management should be more serious and professional to benefit the community.

#### 1 Introduction

Sustainable development is a goal with economic, social, cultural, and environmental-ecological dimensions. This goal is a development for people either in urban or rural areas. However, in some developing countries, the number of villagers decreases, resulting in declined agricultural land productivity. This situation is the leading cause of increasing rural poverty, loss of deforestation, erosion, and productivity. The challenges faced by farmers are narrow and inadequate agricultural land [1]. Moreover, the destruction of natural resources causes migration, poverty, and hunger [2].

Rural development with an agricultural background is increasingly being developed in various regions. Indeed, it is necessary to develop rural potential, which experienced inequality during the previous period because many have prioritized urban areas. It has caused rural areas to lag in all sectors, including agriculture, although it is dominant in rural areas. The symptom is the inequality of the rural young generation who migrate to the city,

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causing neglect in the labor sector in the village [3]. Limited land causes small-scale farming to be inefficient and low farmers' income. Accordingly, this situation reduces people's motivation to work in the agricultural sector.

In developing rural areas, the government promotes social and economic development, including agribusiness and rural agrotourism programs. Tourism is one of the largest economic sectors, has good growth, and is the primary driver of world economic growth [4]. The purpose of agrotourism is to increase the necessities of life, create jobs and enhance rural development both economically and socially [5],[6],[7]. Agrotourism refers to an integrated part of government programs aimed at introducing and improving the welfare of rural communities [8]. It is a form of agricultural tourism, with various recreational facilities that can suppress the flow of urbanization and develop the economy of rural communities [9]. Rural tourism is deemed to solve rural social problems and help farmers [10]. Agrotourism acts as a catalyst for economic growth and increasing income [11].

The main obstacle to the development of the large-scale agricultural sector is narrow land ownership and poor farmers. On the other hand, it turns out that rural areas have promising potential to be developed, especially regarding the authenticity of nature, the variety of agricultural commodities, the peculiarities of customs, arts, and culture, thereby having great potential for the application of agrotourism [12]. Typical rural conditions are highly diverse for each region, thus attracting tourists [3]. This condition is also owned by Karangtengah Village, which is being developed as an agrotourism area [13]. This potential is being thoughtfully developed to improve welfare, especially for farmers.

The area of Karangtengah Village is interesting to develop because it has various potentials. This village is located on the tourist route of the tombs of the kings of Mataram. Agricultural land in this village is dominated by rice and horticulture crops and is supported by irrigation canals and fertile soil conditions. The community, besides farming rice, also develops fisheries, animal husbandry, and processing livestock waste into organic fertilizer for organic farming. Moreover, they also process agricultural products of handicraft and culinary home industries. Agrotourism management involving local culture and wisdom can increase local economic income [14]. Furthermore, it creates new jobs with the emergence of various cottage industries [15].

However, this agrotourism still needs to be developed considering the low number of tourists or visitors. Tourist visits in Bantul Regency are still dominated by coastal areas, especially Parangtritis Beach, with the contribution of new income reaching 5.41% [16] The proper planning and master plan, optimization of the potential owned is required [22]. Therefore, it is necessary to study how the agrotourism development model in Karangtengah Village. This study aims to determine the level of sustainability of the agrotourism development model.

#### 2 Research Method

#### 2.1 Research Object and Sampling Technique

Descriptive research [17-20] on the model of agrotourism development based on local wisdom was carried out by a survey method on farmers or agribusiness actors and parties with interest in agrotourism. The center of agrotourism development in Imogiri District in Bantul Regency was Karangtengah Village consisting of six hamlets. Most of the population were farming and home industry businesses. Samples of farmers or agribusiness actors were taken from each hamlet by proportional random sampling. The data were

collected through observations and interviews with a questionnaire guide. Observations were made in areas having the potential and supporting agrotourism. To gather information, a Focus Group Discussion (FGD) was conducted with farmer groups, community leaders, and the government.

#### 2.2 Analysis

Data processing using inductive techniques, namely from facts known concretely, were generated to a general conclusion. Moloeng [21] stated that inductively searching data are not intended to prove the hypothesis formulated before the research. Descriptive analysis was performed to determine the level of sustainability of the model.

#### 2.3 Research Design

The agrotourism sustainability in this study was seen from both physical and social benefits of environmental conservation, the value of beauty, the value of recreation, and the development of science. Moreover, the economic benefits are income and business opportunities for the community, services, promotion support, production, and agricultural quality supporting agrotourism. The benefits felt by the community were measured based on their perception of whether or not there was an increase in perceived benefits: 1 for answers stating that benefits have decreased, 2 for answers stating that benefits have not increased or decreased (stagnant), 3 for answers stating that benefits have always experienced an increase. The ten benefits of agrotourism, the maximum total score was 30. After collecting the data, a descriptive analysis was carried out by categorizing the level of sustainability of the agrotourism model following the benefits. The level categorization was performed by subtracting the highest score from the lowest score and then dividing by three, which was the range of each category level, with the following formula:

$$Interval = \frac{\textit{Highest score} - \textit{Lowest score}}{\textit{Number of score categories}} \tag{1}$$

**Table 1.** Determination of the level of sustainability of the agrotourism model

Score	Score achievement	Sustainability level category
	23.5 - 30.0	High
10 - 30	16.8 - 23.4	Medium
	10.0 - 16.7	Low

### 3 Results and Discussion

The sustainability of agrotourism was determined from the physical and social benefits, particularly of environmental conservation, the value of beauty, the value of recreation, and the development of science. Moreover, the economic benefits refer to income and business opportunities for the community, services, promotion support, production, and agricultural quality supporting agrotourism. The benefits felt by the community were measured based on their perception of whether or not there was an increase in perceived benefits: 1 for answers stating that benefits have decreased, 2 for answers stating that benefits have not increased or decreased (stagnant), 3 for answers stating that benefits have always experienced an increase.

# 3.1 Public opinion regarding the benefits of agrotourism in Karangtengah Village in environmental conservation

Developing agrotourism based on local wisdom would affect land conservation. Thus, the local community welcomed this development. Most respondents felt the benefits of agrotourism based on local wisdom in land conservation. The community was aware of land conservation for the sustainability of farming and community life.

As much as 1% of the community said that the development of agrotourism reduced land conservation, 47% stated it was stagnant, and 52% mentioned an increase in land conservation. A table of public opinion scores in Appendix 1 displays a total score of the benefits of agrotourism development on land conservation of 251, with an average of 2.5. In other words, agrotourism development does not affect (stagnant) land conservation. It is in accordance with the public opinion stating that:

- a. The environment was more organized due to public awareness to protect the environment.
- b. Environmental conservation was carried out by jointly preserving the environment.
- c. Residents performed reforestation aiming to maintain the environmental sustainability.
- d. There was awareness to preserve the surrounding environment by planting beneficial plants.
- e. People were aware of the planting of plants protecting the environment.
- f. With agrotourism, it was necessary to have spaces for reforestation.
- g. People began to plant a lot of fruit and teak trees, and other plants.

# 3.2 Public opinion regarding the benefits of agrotourism in Karangtengah Village on the value of beauty

The community welcomed the development of agrotourism based on local wisdom because it affected the beauty of the environment. Respondents' answers revealed that most of them felt the benefits of agrotourism based on local wisdom on the value of beauty because they were aware of the beauty of the environment.

The study revealed that 38% of respondents mentioned that the development of agrotourism was stagnant, while 62% stated there was an increase in the beauty of the environment. The table of public opinion scores in Appendix 1 depicts a total score of the benefits of agrotourism development on the beauty value of 262, with an average of 2.62. It indicates that agrotourism development affects the beauty of the environment. It could be seen from several facilities looking beautiful, especially the Tegal dam and tourist attractions for plowing and planting rice, including the farmer's museum. It is in line with the public opinion stating that:

- a. Residents wanted to practice *sabta pesona* because they realized it, and it grew within them
- b. The environment got cleaner and was more organized.
- c. There was public awareness of the need for the beauty of a tourist village.
- d. Residents established arrangements to make the environment look beautiful.
- e. The arrangements of the environment were getting more beautiful.
- f. An organized environment was still limited around the location of agrotourism.
- g. Environmental arrangements have been programmed.
- h. The environment got cleaner and was more organized, even though not all residents understood it.

# 3.3 Public opinion regarding the benefits of agrotourism in Karangtengah Village on the value of recreation

The local community welcomed the development of agrotourism based on local wisdom because it affected tourism, especially tourists. Respondents' answers uncovered that most of them felt the benefits of agrotourism based on local wisdom on recreation value. It was because they have been aware of the recreation value to attract tourists.

**Table 2**. Public Opinion Regarding the Benefits of Agrotourism Development Based on Local Wisdom in Karangtengah Tourism Village

No.	Public Opinion	Benefit	Total (Person)	Percentage (%)		
1.	Land Conservation	Decrease	1	1		
		Stagnant	47	47		
		Increase	52	52		
		Total	100	100		
2.	Beauty Value	Decrease	0	0		
		Stagnant	38	38		
		Increase	62	62		
		Total	100	100		
3.	Recreational Value	Decrease	0	5		
		Stagnant	21	17		
		Increase	79	78		
		Total	100	100		
4.	Science Development	Decrease	0	0		
	•	Stagnant	10	10		
		Increase	90	90		
		Total	100	100		
5.	Community Income	Decrease	0	0		
		Stagnant	26	26		
		Increase	74	74		
		Total	100	100		
	Business Opportunity for the Community	Decrease	0	0		
		Stagnant	8	8		
		Increase	92	92		
		Total	100	100		
7.	Service	Decrease	4	4		
		Stagnant	43	43		
		Increase	53	53		
		Total	100	100		
8.	Promotion Support	Decrease	5	5		
	• •	Stagnant	26	26		
		Increase	69	69		
		Total	100	100		
9.	Agricultural Production	Decrease	0	0		
		Stagnant	9	9		
		Increase	91	91		
		Total	100	100		
10.	Agricultural Quality	Decrease	0	0		
	<u> </u>	Stagnant	13	13		
		Increase	87	87		
Tota	1		100	100		

The study results discovered that 21% of respondents stated that the development of agrotourism based on local wisdom on tourism value was still stagnant, while 79% said there was an increase in the value of recreation or recreational facilities. The table of public opinion scores in Appendix 1 presents a total score of the benefits of agrotourism development on the recreation value of 279, with an average of 2.79.

In conclusion, the development of agrotourism affects the value of recreation or recreational facilities. It has been represented by the available facilities such as plowing tourism, planting tours, Tegal dam tours, and facilities for household purposes. It follows the public opinion mentioning that:

- a. Public awareness about tourism has grown.
- b. More and more tourists were visiting.
- c. Shows were often held.
- d. More and more objects and attractive existed so that tourists not only visited but also studied and stayed.
- e. There have been many attractions and places for research.
- f. Many tourists, both domestic and foreign, visited the tourism.

# 3.4 Public opinion about the benefits of agrotourism in Karangtengah Village on the development of science

Regarding the development of agrotourism based on local wisdom toward the development of science, the local community also welcomed it because it affected the development of science. Their opinion disclosed that most of them felt the benefits of agrotourism based on local wisdom for the development of science. The public has realized the importance of developing science to attract tourists.

This study revealed that 90% of the respondents stated that the development of agrotourism increased the development of science and. However, 10% said it was stagnant. The table of community opinion scores in Appendix 1 exhibits a total score of the benefits of agrotourism development on the science of 290, with an average of 2.90. In short, the development of agrotourism affects the development of science. The community's ability to welcome tourists in terms of language, behavior, attitudes, and so on have proven it. It follows the public opinion stating that:

- a. Many tourists wanted to know the science of agriculture.
- b. More and more farmers wanted to know the science of proper farming.
- c. More and more people were curious about science, especially agrotourism.
- d. More and more people wanted to acquire knowledge supporting agrotourism activities.
- e. Many people learned and provided counseling related to agriculture.
- f. Many visitors came and carried out the research.
- g. Much research was conducted in agrotourism.
- h. There has been land use for research sites.
- i. People were increasingly motivated to acquire additional knowledge.
- j. Residents were increasingly aware of the importance of knowledge, especially agriculture.

## 3.5 Public opinion regarding the benefits of Karangtengah Village agrotourism on people's income

Similar to the previous issue, most respondents also welcomed the development of agrotourism based on local wisdom because they realized it increased their income. This

study discovered that 74% of the respondents said that the development of agrotourism could increase their income. However, 26% stated it was stagnant. The table of community opinion scores in Appendix 1 presents a total score of the benefits of agrotourism development on community income of 274, with an average of 2.74. In other words, the development of agrotourism in Karangtengah Village affects people's income. It was evident from community activities both in the culinary field, home industry, and so on, following the opinion of the public stating that:

- a. With the arrival of tourists, people's income increased.
- b. People's income increased because many tourists came to visit and stayed.
- c. Revenue increased as more tourists came.
- d. There was an added value for farmers.
- e. That was because apart from visiting tourists, they also stayed and studied.

# 3.6 Public opinion regarding the benefits of Karangtengah Village agrotourism on business opportunities for the community

The local community also welcomed the development of agrotourism based on local wisdom for business opportunities for the community because it has proven to be fruitful. In this case, respondents revealed that most of them felt the benefits of the development. They were aware that the development of agrotourism would open up opportunities to run businesses to support agrotourism.

The study results revealed that 92% of respondents stated that the development of agrotourism could open up business opportunities for the community, while the other 8% said it was stagnant. The table of community opinion scores in Appendix 1 depicts that the total score of the benefits of agrotourism development on business opportunities for the community is 284, with an average of 2.8. In conclusion, the development of agrotourism affects the business opportunities for the community. It could be seen from the increasing number of activities carried out by the community to support agrotourism; for example, many people rented out their houses to tourists. Indeed, it follows the public opinion mentioning that:

- a. There emerged many business opportunities that the community could carry out, such as stalls and handicrafts.
- b. There were many culinary stalls and tour guides.
- c. People were getting easier to open a business.
- d. There existed more culinary stalls and more varied tourist attractions.
- e. There existed many stand culinary stalls and homestays.

# 3.7 Public opinion regarding the benefits of Karangtengah Village agrotourism on services

Regarding the development of agrotourism based on local wisdom for tourist services, the local community welcomed it because it was proven to affect services for tourists. Respondents' answers indicate that most of them have felt the benefits of agrotourism based on local wisdom on services for tourists. They have realized that the services of each agrotourism stakeholder must support the development of agrotourism.

The study disclosed that 53% of respondents said that agrotourism development could improve services for tourists, 43% stated it was stagnant, and 4% mentioned it reduced service to tourists. The table of public opinion scores in Appendix 1 illustrates a total score of the benefits of agrotourism development on tourist services of 249, with an average of

- 2.49. It indicates that the development of agrotourism affects services for tourists, as seen from the better services provided by the community in welcoming tourists. It is in line with the public opinion stating that:
- a. The existence of agrotourism services in the community was getting better.
- b. The community was involved in handling agrotourism.
- c. The community was trained about tourism awareness.
- d. Tourists created an excellent impression.
- e. Tourists coming always had a good impression.
- f. With agrotourism, community services were getting better.
- g. Tourists always had a good impression and wanted to come again.

# 3.8 Public opinion about the benefits of agrotourism in Karangtengah Village on the carrying capacity of promotion

The community welcomed the development of agrotourism based on local wisdom since it was proven to affect the carrying capacity of promotion for tourists. Respondents revealed that most of them felt the benefits of agrotourism based on local wisdom on the carrying capacity of promotion for tourists. They were aware that the development of agrotourism must be supported by the carrying capacity of promotion for tourists.

This study discovered that 69% of respondents stated that the development of agrotourism could increase the carrying capacity of promotion for tourists, 26% said it was stagnant, and the other 5% mentioned it reduced the carrying capacity of promotion for tourists. The table of public opinion scores in Appendix 1 displays a total score of the benefits of agrotourism development on the carrying capacity of promotion for tourists of 264, with an average of 2.64. In other words, the development of agrotourism affects the carrying capacity of promotion for tourists. It was evidenced by the many promotions carried out by the manager through social and electronic media such as billboards on the edge of the highway, leaflets, and so on. It follows the public opinion stating that:

- a. The promotion was still not good; it required reliable marketing.
- b. The promotion was carried out through electronic and print media.
- c. The promotion was conducted through social media and exhibition activities.
- d. There was a lack of promotion; it was only performed at certain events.
- e. Many tourists came because they knew about agrotourism through promotions from electronic and print media.
- f. The promotion was carried out by travel agencies and electronic and print media.

## 3.9 Public opinion regarding the benefits of agrotourism in Karangtengah Village on agricultural production

The respondents welcomed the development of agrotourism based on local wisdom because it affected agricultural production. The majority of them felt the benefits of agrotourism based on local wisdom on agricultural production. They were aware that the development of agrotourism motivated the community or farmers to increase their agricultural production to attract tourists.

The study revealed that 91% of respondents stated that agrotourism development could increase agricultural production, while 9% said it was stagnant. The table of community opinion scores in Appendix 1 presents a total score of the benefits of agrotourism development on agricultural production of 282, with an average of 2.82. In conclusion, the development of agrotourism affects agricultural production. It was evidenced by the

increase in rice productivity from 7 to 7.2 tons per hectare. It follows the public opinion stating that:

- a. Agricultural yields increased because they were often used as research sites.
- b. There has been public awareness of agricultural management in line with extension procedures.
- c. The was counseling on appropriate agricultural regulations to increase production.
- d. Agricultural production increased because it was widely used as a place of research.
- e. As long as agrotourism was based on agriculture, many places were used for agricultural research to increase production. The results increased because they followed the directions of the extension workers.
- f. Production increased because there were counseling and management.
- g. Production increased because it was often used as a place for research.

# 3.10 Public opinion about the benefits of agrotourism in Karangtengah Village on agricultural quality

Finally, the community also welcomed the development of agrotourism based on local wisdom as it affected the quality of agriculture. Respondents revealed that most of them felt the benefits of agrotourism based on local wisdom on the quality of agriculture. They finally realized that the development of agrotourism motivated the community or farmers to increase production and agricultural quality to attract tourists.

The study revealed that 87% of respondents said that agrotourism development could improve the quality of agriculture, and the other 13% stated it was stagnant. As shown in the table of community opinion scores in Appendix 1, the total score of the benefits of agrotourism development on agricultural production is 287, with an average of 2.87. In essence, the development of agrotourism affects the quality of agriculture. It was indicated by the awareness of the farming community to switch from conventional to organic farming, especially organic rice, following the public opinion stating that:

- a. There was a lot of counseling and guidance about farming, thus increasing the agriculture quality.
- b. There was awareness of the benefits of agrotourism in the agricultural sector.
- c. The community was aware of agrotourism, especially the quality of farming.
- d. There has been the utilization of existing natural resources to support the quality of farming.
- e. Farmers took advantage of existing resources to improve agricultural quality.
- f. Many farmers managed farming with organic systems.

The sustainability of agrotourism was seen from the physical and social benefits of environmental conservation, beauty value, recreation value, and the development of science. Moreover, the economic benefits refer to community income and business opportunities, services, promotion support, production, and agricultural quality supporting agrotourism. The benefits felt by the community were measured based on their perception of the perceived benefits. The ten benefits of agrotourism, the maximum total score was 30. After collecting the data, a descriptive analysis was performed by categorizing the level of sustainability of the agrotourism model based on the benefits. Table 3 displays more clearly the sustainability of agrotourism based on local wisdom.

Table 3 demonstrates that the community is highly supportive of the sustainability of agrotourism development based on local wisdom. The development of agrotourism based on local wisdom benefitted the community through environmental conservation, beauty value, recreational value, knowledge development, income, business opportunities for the

community, service, carrying capacity of promotion, production, and quality of agriculture supporting agrotourism. The total community opinion score was 2,712, with an average of 27.12, indicating a high level of sustainability for the development of the Karangtengah Tourism Village based on local wisdom.

 Table 3. Public Opinion Regarding the Benefits of Agrotourism Development Based on

 Local Wisdom in Karangtengah Tourism Village

No	Score achievement	Sustainability level category	Frequency	Percentage (%)
1	23.5 - 30.0	High	90	90
2	16.8 - 23.4	Medium	10	10
3	10.0 - 16.7	Low	-	-
Tota	al		100	100

#### 4 Conclusions and Recommendations

#### 4.1 Conclusions

In conclusion, agrotourism must be continued. Its development was presented from the physical and social benefits through environmental conservation, beauty value, recreation value, and science development. Furthermore, the economic benefits comprised income and business opportunities for the community, services, promotion support, production, and agricultural quality supporting agrotourism.

#### 4.2 Recommendations

The research results underly the following recommendations. More serious and professional agrotourism management is required to provide overall benefits, environmental conservation, beauty value, recreational value, scientific development, income, business opportunities for the community, services, promotional support, agricultural production, and quality supporting agrotourism.

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## APPENDICES

**Appendix 1. Public Opinion Score** 

No.	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>	Average/ Continuity
1	2	3	3	3	3	3	3	3	3	3	29
2	2	3	2	3	3	3	2	2	3	3	26
3	2	3	3	3	3	3	3	3	3	3	29
4	3	3	3	3	3	3	3	3	3	3	30
5	2	3	3	3	3	3	3	3	3	3	29
6	3	3	3	3	3	3	3	3	3	2	29
7	2	3	3	3	3	3	3	3	3	3	29
8	3	3	3	3	3	3	3	3	3	3	30
9	3	3	3	3	3	3	3	3	3	3	30
10	2	2	3	3	3	3	2	3	3	3	27
11	1	3	3	3	3	3	3	3	3	2	27
12	3	3	3	3	3	3	3	3	3	3	30
13	2	2	2	3	3	3	2	2	3	3	25
14	2	2	2	3	3	3	3	2	2	2	24
15	3	3	3	3	3	3	2	3	3	3	29
16	2	2	3	3	3	3	2	3	3	3	27
17	3	3	3	3	3	3	2	3	3	3	29
18	3	3	3	3	3	3	2	3	3	3	29
19	2	2	2	3	3	3	2	2	3	3	25
20	2	2	2	3	3	3	2	2	3	3	25
21	2	2	2	3	3	3	2	2	2	2	23
22	2	3	3	3	3	3	3	3	3	3	29
23	2	2	3	3	2	3	2	3	3	3	26
24	3	3	3	3	3	3	2	3	3	3	29
25	2	3	3	2	2	3	1	1	3	3	23
26	2	3	3	3	2	3	3	2	3	3	27
27	2	2	2	3	2	3	2	2	3	3	24
28	2	3	2	3	2	3	1	1	3	3	23
29	2	2	3	3	3	3	2	2	3	3	26
30	2	3	3	3	3	3	3	3	3	3	29
31	2	3	3	3	3	3	3	3	3	3	29
32	2	3	3	3	3	3	3	3	3	3	29
33	3	2	2	2	2	3	3	3	2	2	24
34	3	2	2	3	3	2	2	1	2	2	22
35	2	2	3	3	3	3	2	2	3	3	26
36	2	3	3	3	3	3	3	3	3	3	29
37	3	3	3	3	3	3	3	3	3	3	30
38	3	2	2	3	3	3	3	2	3	3	27
39	3	2	2	3	3	3	3	2	2	2	25
40	2	2	3	3	3	3	2	3	3	3	27
41	3	3	2	2	2	3	2	2	3	2	24
42	3	3	2	2	3	3	2	2	3	3	26
43	2	2	2	3	3	3	3	3	3	3	27
44	2	2	3	3	2	3	3	3	3	2	26
45	3	3	3	2	2	3	3	2	3	3	27
46	3	3	3	3	2	3	3	2	3	3	28
47	3	3	3	3	3	3	3	3	3	3	30
48	3	2	3	3	3	3	3	3	3	3	29

No.	$\mathbf{X}_{1}$	$\mathbf{X}_2$	$X_3$	$X_4$	X <sub>5</sub>	$X_6$	<b>X</b> <sub>7</sub>	<b>X</b> <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>	Average/ Continuity
49	2	3	2	2	2	2	2	1	2	2	20
50	3	3	3	3	3	3	2	3	3	2	28
51	2	2	3	3	3	3	2	3	3	3	27
52	2	2	3	3	3	3	2	2	3	3	26
53	2	2	3	3	2	3	2	3	3	3	26
54	3	3	3	3	3	3	3	2	3	3	29
55	3	3	3	2	2	3	1	1	3	3	24
56	3	3	3	3	3	3	3	3	2	3	29
57	3	3	3	3	3	3	2	3	3	2	28
58	3	2	3	3	3	3	2	2	2	3	26
59	3	3	3	3	3	3	2	2	3	3	28
60	3	2	3	3	3	3	2	3	2	2	26
61	3	3	3	3	3	3	3	3	3	3	30
62	3	2	3	3	3	3	3	3	3	3	29
63	3	3	3	3	3	3	3	3	3	3	30
64	3	2	3	3	3	3	3	3	3	3	29
65	2	3	3	3	3	2	3	2	3	3	27
66	2	2	3	3	3	3	3	3	3	3	28
67	2	2	3	3	3	3	3	3	3	3	28
68	2	2	2	2	2	3	2	2	3	3	23
69	2	2	3	3	2	3	2	2	3	3	25
70	3	3	3	3	3	3	3	3	3	3	30
71	3	3	3	3	3	3	3	3	3	3	30
72	3	3	3	3	3	2	3	3	3	3	29
73	2	3	2	3	2	3	3	2	3	3	26
74	3	3	3	3	3	3	3	3	3	3	30
75	3	3	3	3	3	3	3	3	3	3	30
76	2	2	3	3	2	2	2	3	3	3	25
77	3	3	3	3	2	3	2	3	3	3	28
78	3	3	3	3	3	3	3	3	3	3	30
79	3	3	3	3	3	3	3	3	3	3	30
80	3	3	3	3	3	2	3	3	3	3	29
81	3	3	3	3	3	3	2	3	3	3	29
82	2	2	3	3	2	3	2	3	3	3	26
83	2	2	2	3	2	3	2	2	3	3	24
84	3	3	3	3	3	3	3	3	3	3	30
85	2	2	2	3	2	3	2	2	3	3	24
86	2	3	2	2	3	3	1	3	3	3	25
87	2	3	3	3	2	3	2	3	3	3	27
88	3	3	3	3	3	3	3	3	3	3	30
89	3	3	3	3	3	2	3	3	3	3	29
90	2	3	3	2	2	3	3	3	3	3	27
91	2	2	3	3	2	3	2	3	3	3	26
92	2	2	3	3	2	2	2	3	3	3	25
93	3	3	3	3	3	3	3	3	3	3	30
94	3	3	3	3	3	3	2	3	3	3	29
95	3	3	3	3	3	3	2	3	3	3	29
96	3	3	3	3	3	3	2	3	3	3	29
97	3	3	3	3	3	3	3	3	3	3	30
98	3	2	3	3	2	3	3	3	3	3	28
99	2	2	3	3	3	3	2	3	3	3	27

No.	<b>X</b> <sub>1</sub>	$\mathbf{X}_2$	<b>X</b> <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	<b>X</b> <sub>6</sub>	<b>X</b> <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>	Average/ Continuity
100	3	3	3	3	3	3	3	3	3	3	30
Total	251	258	279	290	274	284	249	264	282	287	2,718
Average	2.51	2.58	2.79	2.90	2.74	2.84	2.49	2.64	2.82	2.87	27.18

### Description:

 $X_1 = \hat{Environmental}$  Conservation

 $X_2$  = Beauty Value

 $X_3$  = Recreational Value

 $X_4$  = Science Development

 $X_5 = Income$ 

 $X_6 =$  Business Opportunity for the Community

 $X_7 = Service$ 

 $X_8$  = Promotion Support  $X_9$  = Agricultural Production

 $X_{10}$  = Agricultural Quality