

Suitability Mapping Questionnaire

This survey form is used to identify the suitable locations for constructed wetlands in the Philippines. The survey is divided into three parts as follows:

Expert's Profile: The target participants of this survey are those experienced individuals who have expertise on researching, constructing, and implementing constructed wetlands in the Philippines.

Part 1. Site Suitability Criteria for Constructed Wetlands

The aim of this part is to compare each factor to one another based on its relative importance. The factor should be initially determined based on related literature. The result of this part will be used to quantify the weights of each factor, which is the input for the Analytical Hierarchy Process (AHP). This AHP is one of the many techniques commonly used for a multicriteria decision-making (MCDM) process (in this case determining the most suitable location for constructed wetlands).

Part 2. Site Suitability Criteria for Constructed Wetlands

The aim of this part is to reclassify the factors based on their appropriateness for constructed wetlands using a scale of 1 to 10, with 1 being not appropriate and 10 being very appropriate. The result of this part will be used as input to the GIS mapping by providing the reclassification of the layers of criteria maps used in the GIS.

Part 3. Site Suitability Buffer Zones

In this part, you will be asked to provide the minimum distances (approximate) in meters that constructed wetlands must be located from the buffer zones listed. The result of this part will also be used as input to the GIS mapping.

Weight Assignment, Criteria Reclassification, and Buffer Distance Identification for Suitability Mapping of Constructed Wetlands Survey

Good day!

We are senior BS Civil Engineering students at the University of the Philippines Los Baños. Currently, we are working on our undergraduate theses on the topic "**Suitability Mapping of Constructed Wetlands for Wastewater Treatment Using ArcGIS**" in different provinces in the Philippines where:

*ANG focuses on the province of **Laguna**, which is a Non-coastal area.

*CFDC focuses on the province of **Bulacan**, which is a Coastal area.

*RJC focuses on the province of **Negros Oriental**, where the best practice of Constructed Wetland in the country is located.

For us to identify suitable locations for constructed wetlands, we need to determine the weights of the relevant site selection factors. Kindly answer our survey questions to provide your expert opinion on this matter.

The survey will be divided into three parts. The first part will involve a comparative analysis of each factor based on its relative importance. In the second part, categories will be reclassified according to their appropriateness. Finally, the third part will focus on suggesting minimum distances that constructed wetlands must be located from the buffer zones.

We assure you that your answers will be intended for academic purposes only.

*** Indicates required question**

Expert's Profile

1. Full Name *

2. Email address

3. Position *

4. Affiliation *

Part 1 . Site Suitability Criteria for Constructed Wetlands

In this study, the determining factors in siting constructed wetlands are land use, slope, soil type, distance to water bodies, and distance to population centers.

1. **Land use** – considers the adequacy of particular land use to build a constructed wetland. For instance, burnt areas are classified as very appropriate since it is an open space with no to little vegetation while forests are classified as not appropriate due to obstructions and high vegetation.
2. **Slope** – considers the cost of excavation and embankment.
3. **Soil type** - considers the appropriateness of soil in construction and operation. Generally, it is desired to use impermeable (clay) since wastewater is involved.
4. **Distance to water bodies** - considers the distance of transport from the constructed wetlands unit to the water body discharge point.
5. **Distance to population center** – considers the distance of wastewater collection from the source to the constructed wetlands unit.

In this part, you will be asked to compare each factor to one another based on its relative importance. You may refer to Table 1-1 to answer the survey questions.

Table 1-1. Nine-level scale for pairwise comparison.

IMPORTANCE LEVEL	DESCRIPTION	NUMERICAL VALUE
Equally important	Two elements have equal importance	1
Moderately More Important	Experience or judgment slightly favors one element	3
Strongly More Important	Experience or judgment strongly favors one element	5
Very Strong More Important	Dominance of one element proved in practice	7
Extremely More Important	The highest-order dominance of one element over another	9
Intermediate Values	Compromise is needed	2, 4, 6, 8

Source: Saaty, 1987

Part 1. Site Suitability Criteria for Constructed Wetlands

Instruction: Kindly choose the number of your preferred choice based on your opinion on which of the factors is more important.

-9 = being your most preferred choice is on the left side

1 = being the choice of both criteria are of equal importance

9 = being your most preferred choice is on the right side

Note: The negative signs are only used to imply more importance to the criteria on the left side.

5. 1.) Land Cover VS Slope *

Land Cover	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Slope
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Mark only one oval per row.

1.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

6. 2.) Land Cover VS Soil Type *

Land Cover	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Soil Type
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Mark only one oval per row.

2.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

7. 3.) Land Cover VS Distance to Water Bodies *

Land Cover	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Distance to Water Bodies
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Mark only one oval per row.

3.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

8. 4.) Land Cover VS Distance to Population Points *

Land Cover	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Distance to Population Points
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Mark only one oval per row.

4.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

9. 5.) Slope VS Soil Type *

Slope	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Soil Type
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Mark only one oval per row.

5.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

10. 6.) Slope VS Distance to Water Bodies *

Slope	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Distance to Water Bodies
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Mark only one oval per row.

6.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

11. 7.) Slope VS Distance to Population Points *

Slope	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Distance to Population Points
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Mark only one oval per row.

7.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

12. 8.) Soil Type VS Distance to Water Bodies *

Soil Type	-9	-8	-7	-6	-5	-4	-3	-2	1	2	3	4	5	6	7	8	9	Distance to Water Bodies
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Mark only one oval per row.

8.) -9 -8 -7 -6 -5 -4 -3 -2 1 2 3 4 5 6 7 8 9

13. 9.) Soil Type VS Distance to Population Points *

Soil Type	-9	-8	-7	-6	-5	-4	-3	-2	-1	2	3	4	5	6	7	8	9	Distance to Population Points
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Mark only one oval per row.

9.) -9 -8 -7 -6 -5 -4 -3 -2 -1 2 3 4 5 6 7 8 9

14. 10.) Distance to Water Bodies VS Distance to Population Points *

Distance to Water Bodies	-9	-8	-7	-6	-5	-4	-3	-2	-1	2	3	4	5	6	7	8	9	Distance to Population Points
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Mark only one oval per row.

10.) -9 -8 -7 -6 -5 -4 -3 -2 -1 2 3 4 5 6 7 8 9

Part 2. Site Suitability Criteria for Constructed Wetlands

Instruction: In this part, you will be asked to reclassify the categories based on their appropriateness for constructed wetlands using a scale of 1 to 10, with 1 being not appropriate and 10 being very appropriate.

17. Slope*

Mark only one oval per row.

	10	9	8	7	6	5	4	3	2	1
0% to 8%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8% to 18%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18% to 30%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30% to 50%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50% and above	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3. Site Suitability Buffer Zones

Instruction: In this part, you will be asked to provide the minimum distances (approximate) in meters that constructed wetlands must be located from the buffer zones listed below.

18. Surface Water (m) *

19. Protected Areas (m) *

20. Built-up Areas (m) *

21. Coastlines (m) *

Feedbacks/Comments

22. Do you have any suggestion or comment? *

Thank You!

Should there be more information needed, you can respond to the following email:

Students:

xxx

Thesis Adviser:

xxx

Thank you very much for your time and consideration in providing your expertise on this matter.

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