SURFACE WATER POLLUTION AND ITS IMPACT ON LAND VALUE; SPECIAL REFERENCE TO HAMILTON CANAL

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Introduction

Water and the land are naturally occurring resources which assist to sustain the human life in the earth. From the early time our ancestors built their civilization along the river banks. Because fertile land and the fresh water. At that time demand of the land mainly based on accessibility of water sources and fertile soil. Nowadays this demand change in to transportation, infrastructure and sanitation facilities and etc…but still the water act as a key factor to determine the land value. (http://www.vtpi.org/tca/tca0515.pdf)Water is a basic requirement for the human being and the distribution of aquatic and terrestrial lifeof the environment.

Statement of the problem: Especially in western province the canals drain through urban areas are polluted and many bad occurrences held, land values around these canals very high. Hamilton canal drain through Muthurajawela wetland, residential areas and through the industrial zone. can be examine the water pollution and the same time potential of spread diseases, ground water contamination, flash flood prone areas along the Hamilton canal and reduction of land value with considering the other canals that recorded in wattala D.S division specially concerning with the Old Dutch canal.

Study area: Hamilton canal drain parallel to west coast of Sri Lanka from Negombo to metropolis of Colombo. A part of the Hamilton canal which belongs to Wattala D.S.division was selected for the study. palliyawatta North G.N, palliyawatta South G.N, Tibirigasyaya G.N, Elakanda G.N, Uswetakeiyawa G.N, Pattiyawala G.N, Dikowita G.N and Balagala G.N respectively as study area. Total amount of the study area was 6 square kilometers and it fullyconsists of residential area (Fig. 1).

Hypothesis: Researcher made hypothesis as there is a direct relationship between surface water pollution and land value reduction of the area.

Methodology

Sample Population- 45 of sample population randomly were selected by specifying more people according to the severity of the water pollution.

Water sample collection:- Water testing techniques were used for measure the pollution states of the canal varied according to the GN divisions. There were 9 locations were selected that scattered around the mouth of canal to the 4km post of B469. These locations were selected randomly in regular intervals and within two period of time. Water quality meter used for measure the water samples in situ conditions. By using it pH, Electrical Conductivity, TDS, DO, Salinity and Temperature were checked.
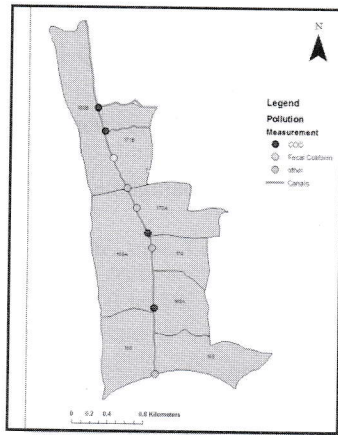
Figure 1: Sample location (Source: Field Survey 2010)

Discussion and conclusion

Table 01: Level of pollution in the study area

Parameters	pH	Turbidity (NTUs)	Conductivity	Salinity	Temperature (c°)	Total dissolve solid	Dissolve oxygen	COD (mg/l)
Mean value	6.71	30.23	0.21	0.53	28.01	1.04	1.63	153.90

Figure 02 indicates the pollution states according by the GN divisions of the study area. There were four GN divisions that high in water pollution states known as Palliyawatta North, Tibirigasyaya, Elakanda and Balagala. Dikowita, falls under medium water pollution areas whereas Palliyawatta-South, Kuruduhena and Hekitta fall under low pollution category.
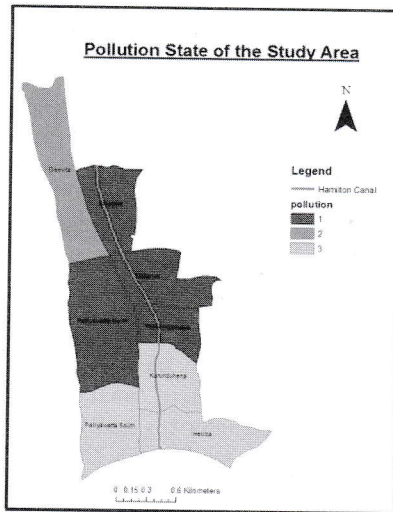

Figure 2: Pollution state of study area (Source: Field Survey 2010)

With respect to the pollution levels, highest land values were found in the Palliyawatta south, Hekitta and Kuruduhena GN divisions representing with   2, 00,000 rupees per perch(Fig. 03). Lower amount goes for Dikowita GN division by representing with 96,875rupees per perch. This was mainly due to distance away from the urban area and dweller place of fishers. Therefore population behaviour pattern have led reduce the land value addition to the water pollution in the study area. Compare to Palliyawatta North, Tibirigasyaya, Elakanda and Balagala fall to the medium level land value representing between 97,000 and 1, 70,000 rupees per perch.
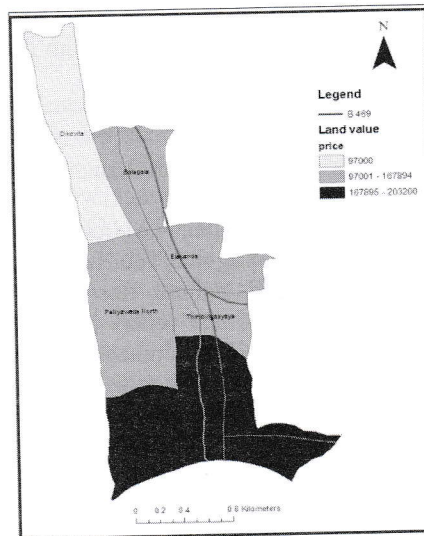

Figure 2: Land value variations in the study area (Source: Field Survey 2010)

Though the water pollution was high but the land value represented medium category due to the urban and industrial states in the Palliyawatta North, and Tibirigasyaya. In addition to that fish market contributes to increase the land value of the Elakanda GN division. Prominent factor to increase the land value in medium level in Balagala GN division was the Kerawalapitiya Industrial zone; this GN division attracts more of industries rather than the inhabitants. Dikowita GN division drop in to lower level of land value due toits emerge as a fishery village while far away from the junction this situation further proved by proportional land market values model.

Statistical Analyzing
H_0= there is no relationship between surface water pollution and land value reduction
H_1= there is a relationship between surface water pollution and land value reduction
H_{0a}: $\beta = 0$
H_{1a}: $\beta \neq 0$
Here check the above hypothesis at 95% confidence level or 5% significant level. According to the variable't value' is -3.098. According to the above $H_0$was rejected. Significant value of pollution level is .004. According to statistical theory there is a direct relationship between surface water pollution and land value reduction
Land value reduction is an effect that occurs as a result of surface water pollution. This effect is specify in the 'State of Environment 2001'to check the relationship of these two variables were detected famous historical economic valuable Hamilton canal which build in 1821 by the BritishengineerGarvin Hamilton. Many of primary data collection methods and secondary data collection methods used to prove the hypothesis of surface water pollution's

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impact on land value. Land value reduction of the area was an ongoing problem of the area. Water pollution caused mainly for this situation. Land value was high in where water pollution was lower such as the Palliyawatta south, Hekitta and Kuruduhena GN divisions by representing about 2, 00,000 rupees per perch. Land value show in a moderate state (between 97,000 and 1, 70,000 rupees per perch) in where water pollution is high: Palliyawatta North, Tibirigasyaya, Elakanda and Balagala GN division. Land value was lower in Dikowita GN division representing about 96,875rupees per perch where pollution level represent moderate state, With the level of water pollution social structure of the area (fishing village) enhance this problematic situation in area. Other than the pollution, researcher identified flood hazard, social structure, land ownership type, infrastructure facilities between canal banks and same time distance from the junction worsen reduction of land value.

References

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