

The analysis of the road's ecological environment and case study

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Abstract

The mileages of both urban roads and highways are in the process of rising. Therefore, the problems about road's ecological environment have been put out. This paper, analysing some basic ecological environmental problems in G Road, District Fang Cheng Gang , Guangxi Province, pointed out that the roads and highways are the products during the development of economy and society, which need to be balanced by factors like natural eco-environment and social eco-environment. At the same time, different questions occur in construction and running phase should be focused and tackled.

Key words: eco-environment, roads, slow-down policies

I. INTRODUCTION

The preservation of road's ecological environment has been advocated while protecting natural resources and upgrading ecological environment[1]. Thus, this paper analysis the reason why the preservation of road ecological environment is concentrated through investigating the current situation of the preservation of ecological environment, and the slow-down policies with an actual case.

1.The analysis of the impact on ecological environment from transportation

The impact on ecological environment comes from mainly two part: natural and social ecological environment.

1.1The impact on social ecological environment.

Social environment is the natural environment that reformed and influenced by mankind. In addition , it is the environment that human being created through social activities based on the natural environment.

For starters, as for the development of one area, the construction of road may have a big impact on the crossed-area dividing , which is likely to change the structure of population and economy rising.

Speaking of the economy development, the construction of road or highway can bring direct profit, and it will change the total industrial and agricultural productivity. This means that the GDP, the productivity of tertiary industry, export and grain yield will be increasing as well.

1.2 The impact on natural ecological environment.

1.2.1 The impact on natural resources.

During the process of pavement construction, deforestation, excavation are able to change the original natural environment, such as water loss and soil erosion, hill-creep[2]. Besides, the trees

alongside the pavement may also be destroyed through construction. It may lead to the changing of surface and soil structure, the worst may form the surface runoff.

1.2.2 The impact on water environment

Regardless of construction and operation phases, the influences on water resources still exist. Some low level road may across reservoirs when it placed alongside the river. Also, in some service stops on highways, sanitary and car wash sewage take a large proportion of general water waste. Thus, it is crucial to preserve water resources [3].

II. CASE STUDY ABOUT EVALUATION OF THE IMPACT ON ROAD ECOLOGICAL ENVIRONMENT.

2.1 The introduction of natural environment in G road, West Bay District, Fangchenggang city, Guangxi

2.1.1 Environmental specification

G road is located in south of the Peach Bay District, Fangchenggang city, and the Peach Bay District is situated in Port area in Fangchenggang city, which is 13KM away from the north of planned district, 2KM away from the south of port and 2.5 KM away from the dock. Besides, there is a large area preserving some water. To summarise, G road is placed in a crossing position between port and city centre district with stunning views and excellent plant preservation.

2.1.2 Natural environment

Fang chenggang city is nearing the sea with quadrilateral shape of land. It is 102.3KM from the most north to south and 116.8KM from the most east to west. 80% of the whole city areas are hills, and incline towards south-east and north-west.

2.2 The influence of G road in construction environment.

2.2.1 The influence in natural environment

The mileage of G road is only 0.359KM. Therefore, there is little change about the project construction.

2.2.2 The influence in social environment

There are many advantages while the construction is done. For example, it is likely to change the function of soil dramatically and upgrade the natural and humanity scenes. Besides, it could boom the tourist industry and the communication in people and resources. In addition, the living standard of people who live here will be improved.

2.3 Some slow-down policies

2.3.1 Policies in design phase

- 1) The connection between the design of road and city

While in the phase of design, try to avoid crossing some essential infrastructures like high voltage cables, underground communication system and mine factory.

- 2) When designing the roads, try to avoid crossing the large land like farms so that soil resources can be developed and used.
- 3) Fill subgrade: try to choose green plant covers the slope of subgrades instead of slurry materials, which can minimise the off-gas by car and noise pollution.
- 4) Excavation section: try to design a place for getting soil and slacken the tendency of slope. Besides, some grass and plants can be placed on the surface of slope which can reduce soil and water erosion and enhance the landscape of pavement.

2.3.2 Policies about construction phase

- 1) Try to control the height of soil filling and use soil to fill in or dig out properly.
- 2) Relocating the land so that it would be convenient for local people to farm and slow the negative impression on them.

2.3.3 Policies about vegetation

- 1) Try to preserve the trees and woods around the land that would be allocated, especially for those areas near ditches or channels.
- 2) Government should impose strictly regulations about forbidding deforestations and destroy ditches and channels in areas that would be allocated.

2.3.4 Policies about environment of water resources

- 1) The domestic sewage on construction site should be clear and transport regularly. Do not let sewage and rubbish spoil the original water resources. When

the construction is finished, clean the septic tank immediately and cover it by soil.

- 2) Authorities should prevent people from placing those construction materials like bitumen, cement and other chemical supplies near pools, wells or rivers.

- 3) The sewage of bitumen and concrete mixture should not allowed to pour into the pools.

III. CONCLUSION

In conclusion, urban roads are the products of social economic development. However, they will be restrained to environment, regardless of social and natural. As part of the new part of social eco-environment, proper solutions about design of roads should be cooperative with certain part of the social environment. Thus, it is essential to do a specific research at the beginning of the project. Comparing with other aspects and making a final decision.

In addition, more evaluation system and the application of fuzzy mathematics can be used to test the road eco-environment.

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