

Analyze the impact of the climate change and human activity to the Ulz river basin and compare the protection methods

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The purpose of the study is to determine the impact of the climate change and human activity to the Ulz river basin of Mongolia. The study area is located in the taiga, forest steppe region of Mongolia, which is suitable habitat for some animal species originated in Siberia, Mongolia and Manchurian.

In this study we used two methodologies. Firstly, The MaxEnt is based on the maximum-entropy approach for modeling species niches and distribution. Secondly, we carried out Cost-Benefit Analysis (CBA) on the most suitable two scenarios to protect the buffer zone in the Ulz river basin. The cost benefit analysis estimates all costs and benefits in monetary terms and it allows to compare relatively the costs and benefits of a given activities or sectors to be ranked. We also compared potential protection methods to establish the buffer zone.

The result of MaxEnt modeling shows that the core habitat area of the animals would be distributed in our targeted area in the future 40 years using satellite and climate data. Estimating the cost-benefit analysis for two scenarios the total costs consist of economic cost, environmental cost and total benefits includes economic benefit, social benefit and environmental benefit for the year. As results of the analysis indicate the most economically and environmentally beneficial one is Scenario-1. Because three values of the analysis for the scenarios to be compared and it illustrates Scenario-1 has much higher, NVP is 6.2 million dollars than Scenario-2 from 2018 to 2030. The cost benefit analysis is potential method to evaluate competitive scenarios for implementing activities in the long run.

According to the result of the research, it can be seen that by establishing buffer zone using satellite data and GIS techniques can support household' s income due to rehabilitation and protection of ecosystem in the study area.

Keywords: Buffer zone, satellite data, cost-benefit analysis