



The territorial land planning in consideration of natural belt and zones' features

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Abstract

The study shows possibilities to improve land quality by researching ways to implement proper policy of protecting and using land that is suitable to the features of the local land by carefully integrating it into the soum¹³ development plan using participatory approach. The study looked into the causes of land degradation beyond the overuse of land carrying capacity, improper land use activities and climate change that has become evident in almost all the natural belt and zones in Mongolia.

The study includes nationwide collection of data on natural zones and belts and transferring it into a digital mapping system. The database provides key meanings of the factors affecting the natural zones, individual features and characteristics of each zone. The livelihood activities of the local people residing in these areas, and the use of the land, the types of existing land use of these areas were identified as well as forms of land uses in these zones and belts.

We discovered that the land is currently used for 130 different types purposes. It is evident that as the purpose and types of land use increase natural yield, service and capacity are decreasing. Thus, a rational plan that includes the appropriate type of land use in line with the features of the natural zones and belts in which it locates is necessary. By allowing the forms of land use in consideration of features of zones and belts of Mongolia, our study shows that we can keep the negative impacts of excess use of land, overgrazing, and degradation of the land at minimum as well as avoiding any reduction in the natural yields.

Introduction

In the recent years, the negative impact like degradation and overuse of land carrying capacity has become evident in almost all the natural belt and zones in Mongolia due to the improper activities of land use and climate change. Therefore, it is absolutely necessary to develop a rational plan suitable to the features of natural belt and zones in order to reduce the negative impact. As the purpose and types of land use increase natural yield, service and capacity are decreasing. Thus, it shows that it is possible to improve land quality by researching ways to implement proper policy of protecting and using land that is suitable to the features of the local land. One of such possible

¹³ [Small administrative unit of a province.](#)

ways is developing soum development plan based on the local land resources and the participation of the local residents.

Methods

In the study we have use the methodology outlined in the soum territorial development plan, approved by the order no.A/139 (2019) of the Head of ALAGAC, which proposes a holistic approach that consists of 3 main parts: (i) analysis on the condition and resources of nature, (ii) socioeconomic data relevant to the whole territory of the soum and the types of land use, and (iii) creation of database and processing the data. A study on natural resources and conditions is done based on the 11 core data types, that is topographic, climatic, demographic, geological and hydrological data, and data on above-ground natural resources, flora and fauna, soil, and forestry. Socioeconomic study is conducted using data on demography, employment status, and information pertaining to economic growth like animal husbandry, agriculture, light industry, service industry, and mining.

Based on the principles of development, that is ecologically sustainable, environmentally friendly, economically beneficial, and various suitable solutions of land use types, the secondary information was compared with the primary data, which is collected from the total of 16,450 local residents representing different zones – 1,560 residents from high mountain zone, 878 from mountain taiga zone, 8,710 from forest steppe zone, 4,560 from steppe zone and 2,302 from Gobi zones.

Results

The tendency of dividing Mongolian territory into zones and belts was practiced by scholars in their respective field of studies, namely Yunatov.A.A, 1968; Tsegmid.Sh, 1962; Avaadorj.D, 2003; and Dash.B, 2005. They have divided the Mongolian territory into natural zones based on the characteristics: the amount of heat decreases due to the reduction of solar radiation that forms the climate in the Northern hemisphere; natural conditions are different in each latitude; temperature and humidity regimes; air flow characteristics; unique surface conditions; elevation; and composition of flora and fauna in differentiating one area from another.

Such natural zone information is collected nationwide and transferred into the digital mapping system. The database provides key meanings of the factors affecting the natural zones as well as the individual features and characteristics of each zone. We have determined the mapping of the natural zones based on these information and database.

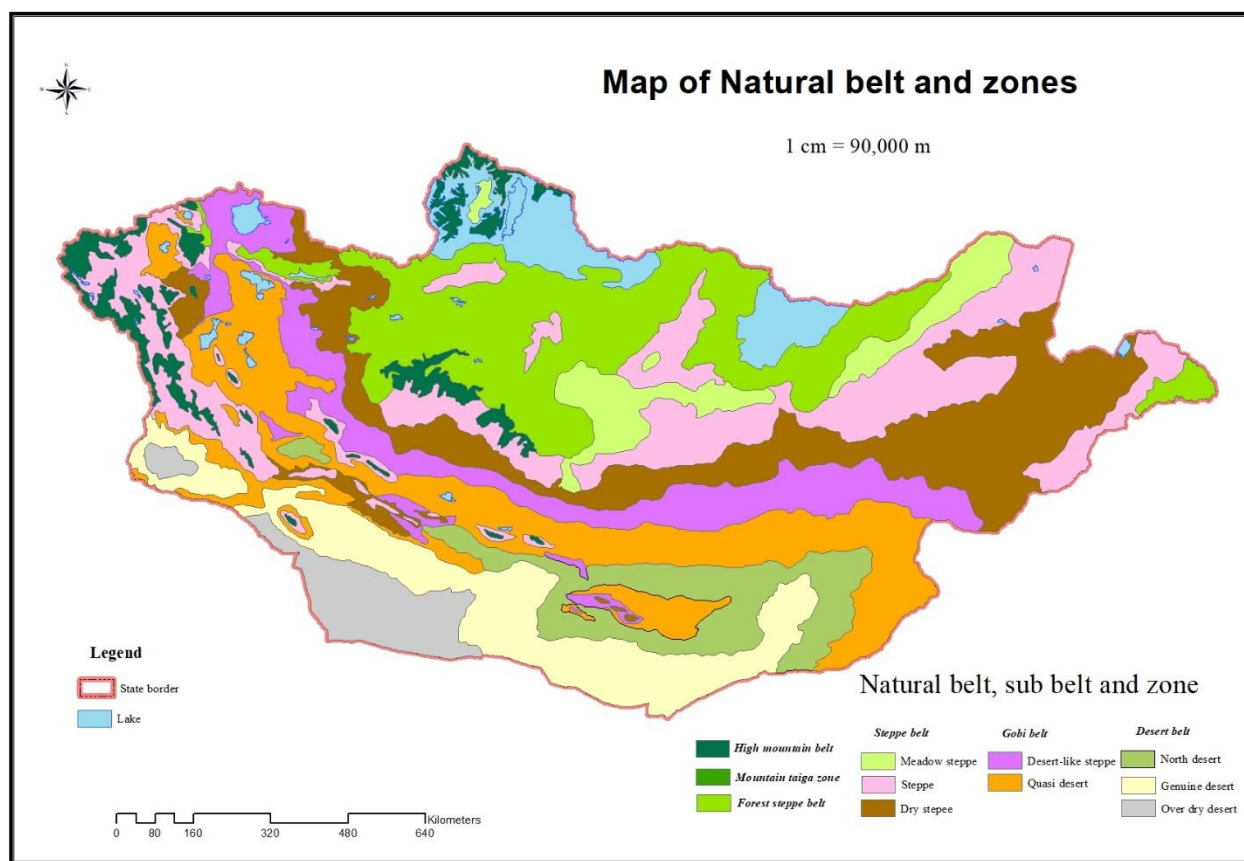


Figure 1. Map of Natural Belt and Zones of Mongolia

When mapping and determining the area covered by natural zones and belts in Mongolia with appropriate factors, high mountain belt that is 3.6 percent or 5,711,628.3 hectares that is the lowest, mountain taiga zone 4.3% or 6,725,556.7 ha, forest steppe 15.1% or 23,813,912.9 ha, and great steppe zone is 34.3% or 59,979,158.7 ha, the highest land covering zone. From that, 22.8% or 35,980,610.5 ha is Gobi zone, 19.0% or 30,082,860.1 ha is desert zone.

Upon determining the features of the area, livelihood activities of the local people residing in these areas, and the use of the land, the types of existing land use of these areas were identified as well as forms of land uses in these zones and belts.

According to the land use types in these zones, currently the land is used for 130 different types purposes. At minimum in the high mountain zones land is used for about 60 different purposes, and at maximum in the forest steppe zones the land is used for about 130 different types of purposes and are included in the territorial land use planning. The study result indicates that there are 60 types of land use in the desert zone, 70 in gobi zone, 80 in high mountain zone, 90 in mountain taiga zone, 110 in steppe zone, and 130 in forest steppe zone.

Therefore, when developing land use planning, first it needs to be defined in which zone the soum territory belongs to and determine the most appropriate uses suitable to the features of the zones and belts.

Discussion

There are total of 130 different forms of land use in the country. Soum development plan shall be developed based on the features of these belts and natural zones to which it belongs to. For example, Bayangol soum of Selenge province belongs to the forest steppe zone, and there are 20 planning measures included for the soum. Out of that, 5 forms of land protection measures, 8 forms of measures of proper land usage, 5 measures for proper usage and protection of land, and 2 measures of rehabilitation of land.

The result of the study shows that the forms of land use in consideration of features of zones and belts of Mongolia have the minimum impact on soum land use. The key here is to have appropriate development plan considering the natural zones and belts and the features of the area and implement it thoroughly.

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