

THE EFFECTS OF MINING ON POPULATION SETTLEMENTS

A.Zolzaya, B.Natsagsuren**

** Institute of Geography and Geo-Ecology, Mongolian Academy of Sciences*

Abstract

This paper studied the influences of mining, extraction and industries other than environment, ecology or socio-economical factors on rural population decrease and intensified migration.

From 2010 to 2015, accounting percentage of rural population in the provinces with large amount of mineral extracting deposits had decreased by 0.4-3.5 percent and accounting percentage of migrants in entire migration had increased by 13.2-25.86 percent. Also, this study shows the tendency of decrease in rural population and increase in number of migrants and people who have infectious diseases originated from pollution.

Key words: Mining industry, rural population, migration, infectious diseases

Introduction

Mongolia has rich in natural resources and mining sector is increasingly developed by the fact of the usage of natural resources intensively for the last years [4]. As of 2015, mining and quarrying industry sector accounts for 16.7% of gross domestic product, 90% of total exports, 63% of industrial total production and 20% of budget revenue of the country. On the other hand, nature has been losing its native color and animal husbandry, farming operations, people's livelihood, education and health [4][3] has been impacted negatively, additionally the number of rivers and lakes has been dried up, water level has been drastically reduced which shows the significant amount of negative impacts on the environment due to mineral extraction and processing [2]. Skin and colorectal diseases, respiratory diseases, infectious and cancer diseases of human increases due to the soil, water and air pollutions caused by mining operations [3].

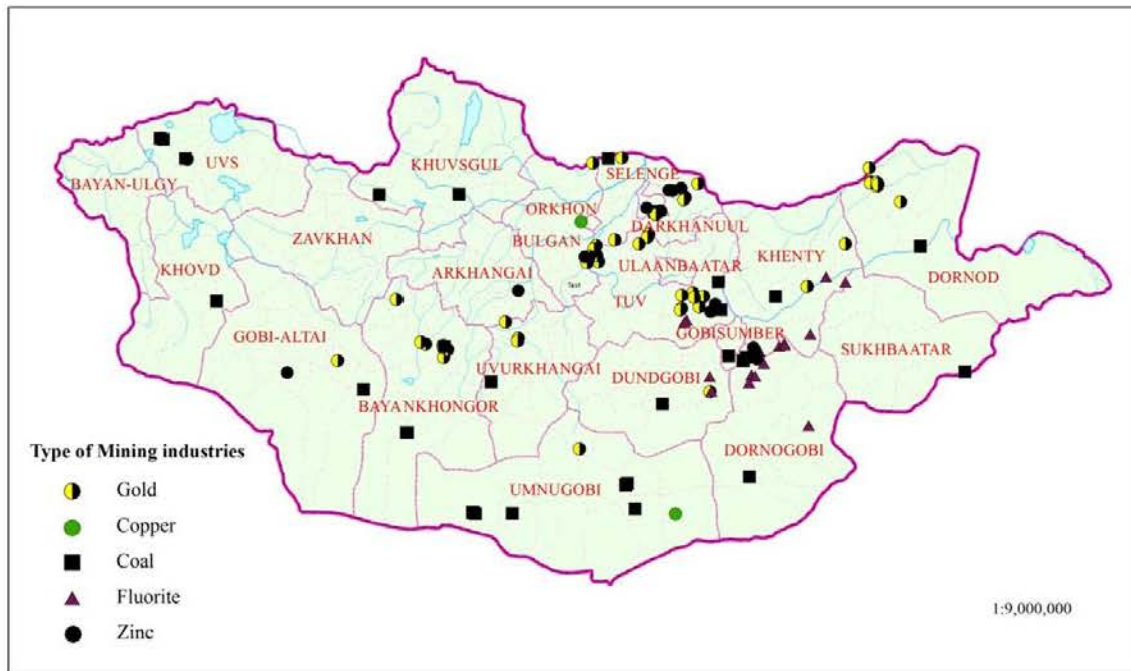
Due to mining operations, 551 rivers, 483 lakes and 1587 springs has been dried up by 2011 [3] and negatively affecting to the environment where farmers of animal husbandry, agriculture and local residents live [1] and causing difficulties to engage in their animal husbandry and agriculture which is their source of livelihood thus making them to migrate to central settlements and to stop engaging in nomadic, animal husbandry lifestyle.

Method and material

a. Research area

There are 96 mining operator companies in Mongolia which submitted their operational report to Ministry of Mining and other relevant organizations in 2015 and these companies are conducting their operations on territories of 19 provinces and extracting 5 different types

of minerals. From total of 125 mineral deposits conducting the mineral extraction, 20% is in Tuv province, 10.4% is in Khenty, 10.4% is in Dornogobi, 10.4% is in Selenge, 7.2% is in Bayankhongor and remaining 41.6% is in other provinces. Licensed areas that are being used by mining is 222.227 thousand km square by 2015, which takes 18.94 percent of Mongolian total territory. Considering the accounting percentage of licensed areas in total area of the particular province, 41.69% in Gobisumber, 38.27% in Orkhon and 36.69% in Uvs, which is higher compared to other provinces. But for Arkhangai, Khuvsgul and Uvurkhangai provinces, 3.3-4.9 percents of total area is accounts for licensed area of mineral exploration and extraction.



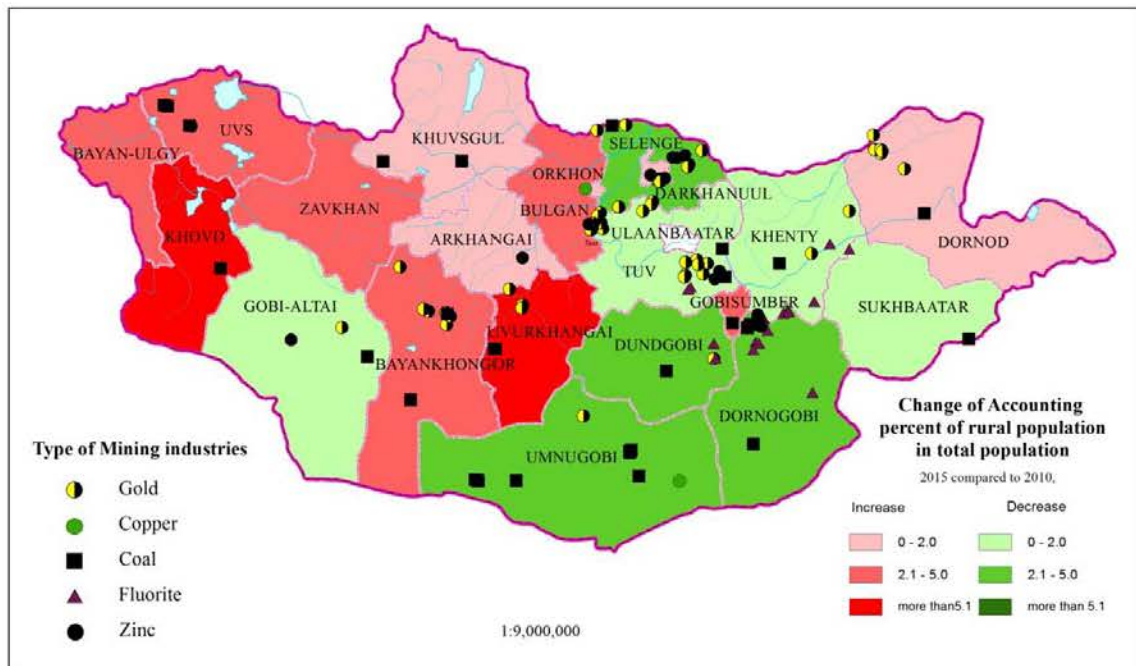
Picture 1: Location of Mining industries

b. Method and material

This study set the locations of companies, deposits conducting mineral extraction and mining operations in Mongolia from 2010 to 2015 and estimated the population changes, percentage of the migrants, human and animal diseases changes in settlements or rural areas during that time interval by the methodology to estimate statistical indicators made by National Statistical Office [5] and processed, analyzed the estimation using quantitative and qualitative research methods.

Result

Population location: In 2015, rural population growth in Mongolia was increased by 0.65 percent. For provinces, rural population accounts for total population of Selenge, Dornogobi, Umnugobi, Sukhbaatar, Tuv, Gobi-Altai and Dornod provinces was decreased by 0.4-3.5 percents and increased in other provinces, but growth of rural population is low in most provinces compared to total population growth.



Picture 2: Change of rural population

It is becoming impossible to engage in animal husbandry due to the negative impacts of environment including pasture decay, drying up of rivers and water, soil contamination by the causes of mining and mineral extraction, thus rural population is migrating to cities and other settlements.

Migration: Number of migrants in total population of entire Mongolia was 3.52 percent in 2015, which is decreased by -1.8 percent compared to 2010. Accounting percent of total number of migrants in Mongolian provinces that has a number of mineral deposits including Selenge (25.86), Umnugobi (25.85), Orkhon (16.06), Tuv (13.43) and Darkhan-Uul (13.2) in 2015 has been increased by 13.2-25.86 percents than it was in 2010, which is relatively higher than other provinces. But for Zavkhan, Khovd, Dundgobi and Uvs provinces, accounting percent of migrants in total population is decreased, which shows the stable settlements of population at these provinces.

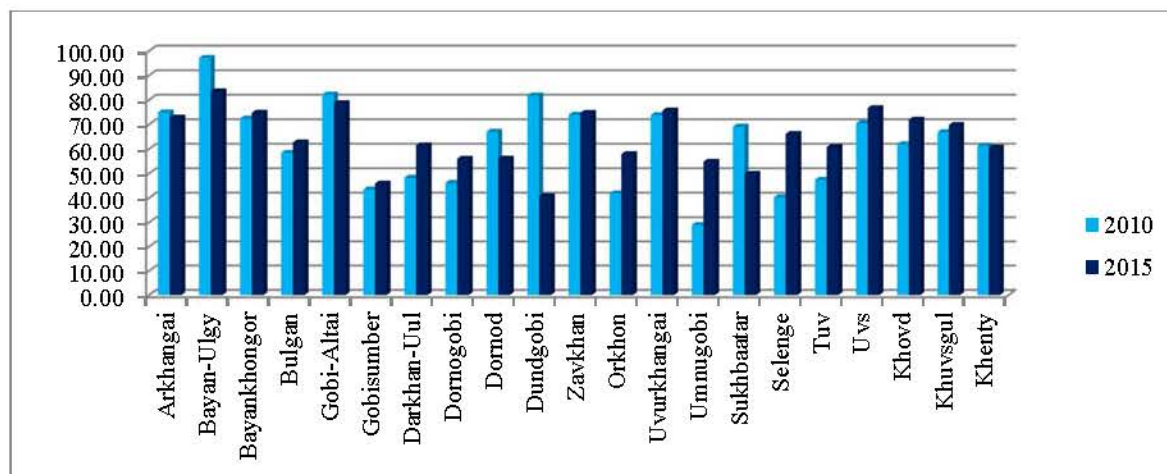
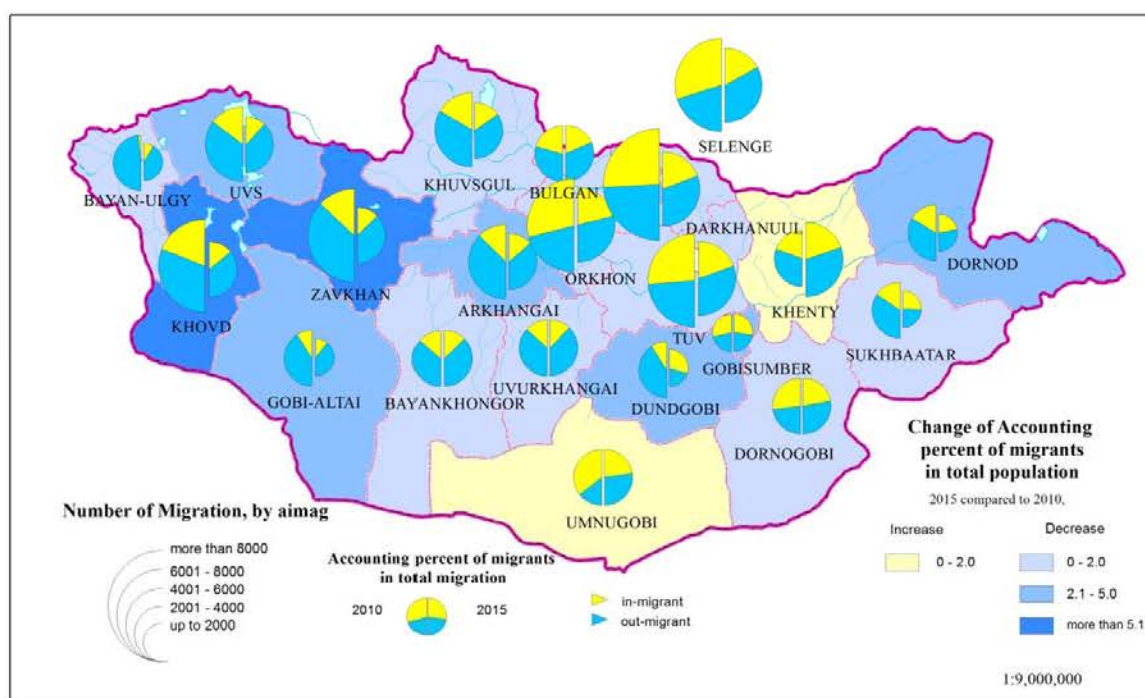


Table 1: Accounting percent of migrants in total migration

Number of migrants, especially to different city, province or soums is expected to increase in those provinces that has an ongoing operation of mining extractor, manufacturing companies by the influences of mineral extraction.



Picture 3: Change of Migration

Human morbidity - Although the mineral extraction, mining operations have large extent of positive impacts on socio-economical development of countries and communities, it has a significant amount of negative impacts on environment and health.

During the research, accounting percent of people with infectious diseases has been increased by 70.9 percent in entire Umnugobi province which has the highest rate and for other

provinces including Dundgobi, Khovd and Tuv, this number has been increased by 30.4-42.3 percent, which reflects the high rate in entire country.

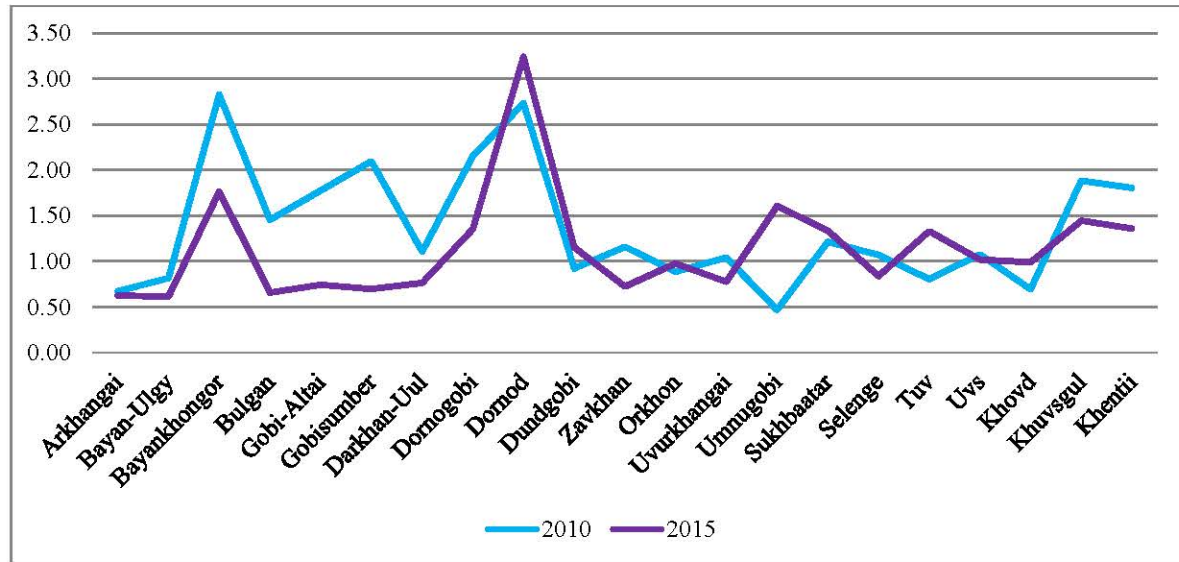


Table 2: Change of infectious diseases

Discussion

Although mining sector creates employments supporting the mining at the beginning of operation, it tends to decrease henceforth [6]. Increases in number of mineral deposits and operations, greatening in mining and industrial centers has a lot of positive impacts on socio-economical development of a country and a community, but making the possibility or opportunity to engage in animal husbandry and farming very tight due to number of negative impacts of environment including soil and water pollution, drying up of rivers and lakes on surface, decreases in water level underground, reduces in plant species and pasture degradation. Also, human morbidities including skin and colorectal diseases originated from pollution, respiratory diseases, infectious and cancer diseases increase significantly due to increases in environmental pollution [3]. Number of the people who are diseased with infectious diseases in provinces which has number of deposits with mineral extraction is higher compared to other provinces. Due to the mining operations which has negative influence on stable engagement in farming and settlements of the population, this population is expected to raise the population concentration in cities and communities by migration.

Conclusion

- More the number of deposits with mining operation and mineral extraction increases, more the number of people in that particular rural area decreases and number of migrants increases.
- Due to the negative impacts on environment from mining, number of the people who are diseased with infectious diseases are increasing.
- Many factors of environment and socio-economy influences to the population settlements and mining extraction, operations are studied on this research. It is

necessary to further study and analyze many factors of environment and socio-economy influencing on population settlements and future tendency.

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