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The thesis Submitted for the Degree of M.Sc (In the Field of Geography and Urban Planning)

**Environmental reverse engineering and population balance  
(Case study: Zabol city)**

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## **Abstract**

One of the important problems of developing countries, especially in the first stages, is the existence of an important phenomenon of internal migration, and it still continues in some countries. During the half-century from 1320 to 1375, the population of Tehran has increased 12 times, and this growth rate has wide-ranging consequences. Marginalization, unemployment, the spread of crime, unbalanced urban growth, high pressure on urban services and infrastructure, environmental pollution, noise and cultural conflicts, all are the product of this large volume of immigration, which the destination of immigration does not have the power to absorb and digest this number of immigrants. . These migrations are caused by the repulsive factors of the origin and the attractiveness of the destination, but with the passage of time, the said factors are relatively balanced, and there is a possibility that the attractiveness factors of the destination will decrease and its repulsive factors will increase instead. It seems that this is happening and the repulsive factors of cities such as Tehran and possibly other big cities such as Mashhad, Tabriz, Isfahan and Shiraz will gradually increase and we will see a kind of reverse migration to smaller cities or villages for the city of Zabol. which in the past had a lot of importance for agriculture, today we are facing water shortage and even drought, Hamon lake, which was the main source of life for the residents of the region, is facing drought today, and with the revival of the lake, this issue can be important and in some way grow and Bring development back to this city. The purpose of this research is to investigate environmental reverse engineering and population balance of Zabol city, and this research is based on a combination of descriptive-analytical methods and based on library, documentary and field studies and the statistical population of this research is Zabol city. Data analysis will be done using one-sample t-test, paired t-test, factor analysis, SWARA weighting model and VENSIM software. The results show that with the decrease of the water entering Hamon Lake and the lowering of the lake water level and due to the increase in population in the 100-month period, the migration of the population from Zabol city has been more. Therefore, conditions should be provided for the return of Sistani immigrants to the region.

Key words: environmental reverse engineering, population, equilibrium, Zabol city