K.O. Rusakova
S.M. Shagoyan, research supervisor
L.A. Zaika, language adviser
National Mining University, Dnipro, Ukraine

Demographic Evaluation Of The Object Using The Method Of Potentials

Before the construction of public facilities, shopping centers, it is necessary to determine its location. You need to take into account not only the population, but the distance between settlements.

The object of this work is to determine the most advantageous position of the object in the system of settlements.

The present interest of the study is that the method of potential is considered not only in theory but also is used to solve a task where the elements are real towns.

Demographic potential was first proposed by John Stuart in 1958. This is a relatively new definition that characterizes the habitability of area. Stuart defines potential as a measure of the availability of people to a certain point, it can be used to analyze the supply area resources with the expectation of their accessibility.

$$Vi = \sum_{j=1}^{n} \frac{Pi}{dij}$$

Vi – potential
Pi – population i-th point
Dij – distance between points

Practical application of the method of potentials:

We have a system of settlements: A (v. Ihren), B (h.a. Pridneprovsky), C (v. Chapley), D (v. Lyubimovka). There are 2300 people living in A, in B – 7000, in C – 3500, in D – 2500. The distances between points: AB – 3,2 km, BC – 1,9 km, BD – 6,2 km. Select an item for construction of a supermarket Silpo.

Calculate the demography of each of the points in the system using the method of potentials, write down data in the table and carry out the necessary calculations.

	A	B	C	D	A	B	C	D
A	-	3,2	5,1	9,4	2300	7000/3,2	3500/5,1	2500/9,4
B	3,2	-	1,9	6,2	2300/3,2	7000	3500/1,9	2500/6,2
C	5,1	1,9	-	8,1	2300/5,1	7000/1,9	3500	2500/8,1
D	9,4	6,2	8,1	-	2300/9,4	7000/6,2	3500/8,1	2500
Vi					3714,4	**14000.7**	6460,27	3477,8

We see that the greatest potential is characterized by the point **B**, so supermarket Silpo should be built in the housing area Pridneprovsky.

Thus, the method of potentials can be used by the employees of construction companies, economists, architects when planning the location of building.