

SOME CONSIDERATIONS ON THE EVOLUTION OF THE POPULATION AND THE SETTLEMENTS IN OZANA - PIRIG BASIN

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Abstract: Human habitation and the evolution of human settlements in Ozana – Pipirig basin were influenced in their development by a series of factors: socio-economic and favourable historic factors, especially natural conditions. The main demographic factors that allow us to analyse the population growth are the birth rate, death rate, natural growth rate, which were strongly marked by the economic development of the country. The human settlements, influenced by the same factors, have undergone several stages of evolution nowadays we can identify scattered villages alongside the main transport routes.

Key words: population, settlements, density, population growth, structure, migration

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POPULATION HISTORY AND GROWTH RATE

Pipirig settlement, lying in the upper basin of Ozana River, was firstly mentioned in 1437 (D.R.H., 1966, p. 119)¹ without providing prior reference to the number of inhabitants, due to the lack of statistical information. The population, as a number, has been steadily growing, due to a high birth rate and to a low immigration.

The certified narrative sources and documents avouch that in the late eighteenth century a small number of Romanians from Transylvania and other regions settled here because of the alluring physical and geographical conditions.

Since the eighteenth century, the main source of information was represented by the catagrafiile, censuses compiled for the use of the monasteries, and later, the modern censuses furthermore the development of the population is represented in table 1, figure 1.

Analysing the population growth rate, an almost continuous growth can be noticed, excluding certain periods of time.

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¹ 12th March 1437 at the Neamt Monastery: We<Ilie> Voivode, ruler of Moldavia, donate to our holy oratory, Neamt called... we determined <the border> the stronghold <div> upward and downward the monastery and the mountain which is called Neamtu <...> at the mouth of Mustei Spring, upward the Neamt <stronghold> to the road, and from there up to the Abrejie (?) to Gura Carpenului, then to the Neamt <s.n>, then straight to Hotina, then the ridge ... and Halucaii hillock and then to Pitigaiei peak (D.R.H. 1976, pag. 119).

In the nineteenth century the population increased rather fast, it doubled in short periods of time, for example in 1816 the number of inhabitants was 595, but in 1849 it reached 1147 inhabitants. Among the main causes of the growth one can mention: political emancipation, the development of commerce and handicrafts.

Table 1. Population growth rate 1773 - 2007

(Data source: Tax registrations (1773 - 1849), censuses of the population (1860 - 2002), and the statistical notebooks)

1773	1816	1820	1849	1860	1890	1899	1912	1930	1956
190	595	695	1147	1910	2582	2983	3343	3473	5437
1959	1960	1961	1962	1963	1964	1965	1966	1970	1975
5954	6164	6376	6519	6684	6815	6855	6816	7379	7856
1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
7950	7346	7404	7514	7630	7625	7575	7715	7822	7853
1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
7860	7883	8005	8100	8077	8311	8139	8271	8357	8384
1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
8371	8377	8387	8428	8520	8634	8627	8811	8846	8882
2006	2007	2008	2009	-	-	-	-	-	-
8872	8875	8893	8856	-	-	-	-	-	-

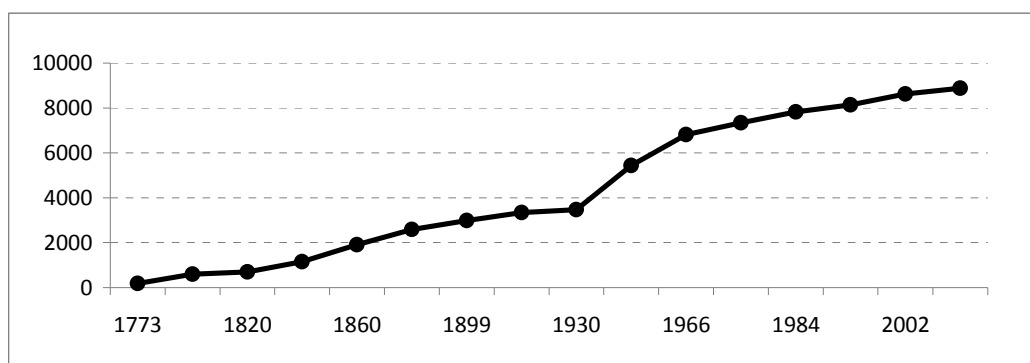


Figure 1. Population growth rate 1773 - 2009

(Sources: tax registrations (1773 - 1849), censuses of the population (1860 - 2002), and the statistical notebooks)

The twentieth century was characterised by oscillations. The first cause of the increase/decrease was represented by the two World Wars I and II. Population doubled in the first half of the century when it reached 6816 in 1966, compared with the beginning of the century, around 1900, when there were only 2983 inhabitants. Another important step in the evolution of the population was in the middle of the 20th century when a part of the population around Bicz Lake, was moved in another settlement, Leghin.

The highest peak was reached in 2005, when there were 8882 inhabitants, but after that, the number decreased, due to the lowering birth rate and the international migration. Significant lower rates were recorded during the World Wars I and II, emphasised for World War I, between 1912 and 1930 when the population grew with only 130 inhabitants. In the next period, 1930 - 1940, the population remained relatively constant, showing a slightly growing tendency. After World War II and as a result of it, the famine and the draught recorded between 1947 and 1948 led to higher mortality and lower birth rate. After 1950 the demographic dynamics showed a revival, recording a higher rate of natural increase, which was maintained until the 1989, when industrialization led to a high rate of natural increase. In these circumstances, the census on the 5th of January 1977 recorded a growth, the population reached 7346 inhabitants, and later 8139

inhabitants (the Census on the 7th of January 1992). After 1992 the population continued to increase, but at a slower pace and including periods of stagnation.

The historical, economical, social and political factors in the population growth rate in Pîpirig were of utmost importance, leading to alternate periods of growth and stagnation, but all in all showing a growing tendency throughout the centuries.

The main demographic indicators that allow us to analyse the growth rate - the birth rate, the death rate, the rate of natural increase, morbidity and fertility - were marked by the strong economical development, which was felt in the entire country. From the demographical point of view Pîpirig is well populated, in 2006 there were 8872 inhabitants.

NATURAL MOVEMENT AND TERRITORIAL MOBILITY

The 20th century brought great changes into the economical field, which led to considerable increase in the number of inhabitants. The two components of the demographic dynamics: the natural movement and migratory movement will be analysed further on in order to highlight their role in the growth rate of the inhabitants and in changing the natural landscape. The important role was played by the natural movement, which was high, above the national average from 1930 till 2002.

The birth rate has continuously decreased from 38‰ in 1930 to 20.6‰ in 1992, until it reached 12‰ in 2002, a value high above the national average of 9.7 ‰, and after 2002 it tends to slightly decrease, approaching the national average (table 2).

At the same time there is a deceleration in death rate, with oscillations from 17‰ in 1930 to 6.7‰ in 1966 (nevertheless below the national average of 8.2‰), after 1966 it increased to 9.5‰ in 1992 and decreased again to 6.5‰ in 2006, due to slight aging phenomenon. Taking into account the number of deaths recorded at Pîpirig City Council in 2006, the following aspects were noted: there was a high percentage of deaths caused by diseases of the circulatory system, followed by tumours and deaths caused by the external causes, with lethal result, such as car crashes and accidents.

Table 2. Natural movement of the population 1930 - 2006

(Data source: the censuses from 1930, 1956, 1966, 1977, 1992, 2002 and statistical yearbook 2006)

	1930	1956	1966	1977	1992	2002	2006
Birth rate (‰)	38	43,6	21,4	23,8	20,6	12,0	11,0
Death rate (‰)	17	10,8	6,7	7,2	9,5	7	6,5
Rate of natural increase	21	32,8	14,7	16,6	11,1	5	4,5

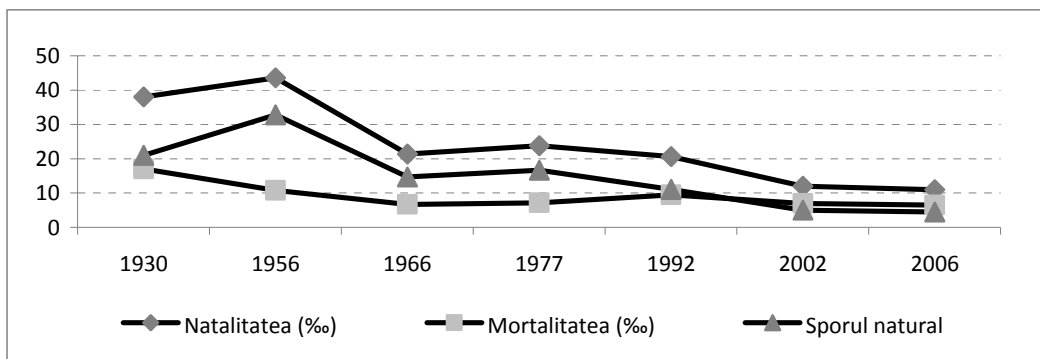


Figure 2. Natural movement of population 1930 - 2006

Although the quality of the medical services augmented, the factors of the increasing death rate are multiple, such as: economic development, health and hygiene conditions, the general level of

education of the population concerning a particular lifestyle (diet, tobacco and alcohol consumption) or having a certain dangerous job. In addition there is an increasing percentage of older population, over 60 years, with a high mortality rate. This is the result of the emigration of the younger generation to urban areas or, in many cases abroad and the result of the decline in the birth rate.

The natural growth rate represents the most relevant demographic indicator for the natural evolution of the population. It is the result of natural population growth, representing the difference between birth rate and death rate. This demographic indicator shows best the situation at a certain time and the growth rate tendency of the population. The natural growth rate increased from 21‰ in 1930 to 32.8‰ in 1956, and thereafter it steadily declined, reaching 5‰ in 2002. Remarkable is that throughout the years after 1989, the growth rate remained above the national average (-2.7‰).

MIGRATORY MOVEMENT

Even though the area is not seen as excessively attractive and the natural growth rate is declining for the last period under survey, the population should have increased if the still negative migration rate had not interfered.

Recent fluctuations in the growth rate are a result of labour migration - particularly young people in search of a better paid job and of a more attractive social life. This is the case for people aged between 20 and 40 years old, who have graduated from professional schools or high schools and who are qualified workers in different fields, and they decided to work in the plants where they have trained. Permanent migration towards countryside areas, including Pipirig, generally includes people over 40 years old, as a result of lower incomes from industry (textile, food industry, etc) or unemployment. We are talking about workers that when the national companies underwent reorganisation, failed to readjust and had to return to their birth place in the countryside, most of them engaging in subsistence agriculture.

The mobility of the population in the area is nowadays complicated by the seasonal or predetermined departures abroad, the favourite destinations being Italy, Spain, Germany, France, Greece, Israel, etc., a phenomenon which is reflected especially in the number of departures, estimating around 500 people in 2007. Permanent migration towards Canada or the United States is extremely important and increased from 1995 till 2005.

Temporary migration of the workforce is escalating, as it can be noticed mainly in the lack of specialised workers in different fields. This complicates the survey as there is no exact account of each group of emigrants, the external migration of the active population generates difficult demographic and social issues, which cannot be accurately understood.

THE POPULATION STRUCTURE

The structure is a complex qualitative characteristic which assesses the socio-economical potential of a certain region. Gender structure: from this point of view the population is balanced, but there is a slight predominance of the male population after 1966.

The percentages of the large age groups (young, adults, elderly) show aspects of rejuvenation, maturing or aging for the entire population as well as for work force. There is a clear dominance of the younger generation (youngsters and young adult) over the elder one (60+ years) at that particular time and which is seen as an extremely favourable demographic and economic term. Analysing the population structure according to the age group between 1992 and 2002 from the table, one can point out that although the younger population has a still high percentage, it decreased reaching 24.3% in 2002 (2002 Census). The adult population increased in time, so in 2002 it recorded a rate of 59.2%, due to an aging phenomenon. The same happened to the population over 60 years old, which witnessed a steady growth due to the improving living standards and sanitary conditions, so that it reached 16.5% in 2002.

Thus, in terms of the quality of the rural social environment, the slight aging of the population is seen as a less favourable aspect in the settlement, leading to an increase in the

number of pensioners, to the reduction of the workforce, an increased morbidity, etc.. This increase was confirmed by the 1992 Census which recorded 260 persons elder than 75. This group is not represented by financially supported or inactive population most of them are engaged in different activities, such as breeding.

Although the religious structure was insufficiently studied, it gives a better view of the humanised landscape. Pipirig, as well as the entire Neamt County, is characterised by an extremely simple structure, the Orthodox population exceeded 99.7% in the 2002 Census, the rest were divided into the old rite Christians, Pentecostals and Roman Catholics.

The ethnic structure showed virtually no conflict situation, which demonstrates the integration of the ethnic groups, tolerance, and a smaller dispersion of the latterş Gypsy communities are absent in most villages excepting Stâncă. There is a majority of Romanians, over 99.9%, (this happened because all the inhabitants went on records as Romanians), in addition there are a Hungarian, a Ukrainian and a German.

The economic and occupational structure

The economic activities have diversified in the entire region since the beginning of the 20th century, but in the same time the logging has intensified and the first timber factories appeared, and new occupations were developed:

- protection of the forest which entails permanent forestry activities;
- agriculture is still the main occupation (breeding and feeding);
- also now people begin to train as craftsmen especially wood processing.

After World War II there were great changes in the occupational structure as a result of the new economic activities. The number of people involved in wood processing is raising simultaneously new exploitation fields are founded.

- Oil exploitations develop;
- The decrease of illiteracy;
- Telecommunications;
- Means of transports;
- Tourism.

The year 1989 was a turning point for industry, the forestry activities decreased in intensity, other branches were reorganised or privatised (telecommunications, transport, constructions, etc), and all lead to a series of changes in the economical background.

POPULATION DENSITY

This indicator is influenced by a series of factors, such as: natural, historic, economic, technical and social factors, which reflects the social background and the degree human coverage of the settlements. Special surveys use the so called corrected density which represents the number of inhabitants per unit of area, namely the inhabited surface, number of rooms, etc., each could be analyzed differently according to a particular situation.

Table 3. Evolution of population density 1816 - 2000
(Data source: the censuses from 1930, 1992, 2002, 2009 statistical yearbook)

1816	1820	1849	1890	1899	1912	1930	1956	1966	1977
3,07	3,02	3,58	13,10	15,00	17,00	17,70	25,80	34,60	37,20
1992	1993	1994	1995	1996	1997	1998	1999	2000	-
41,40	42,40	42,60	42,90	42,50	42,60	42,60	43,50	44,10	-

Population density has changed as a result of population growth and it included a constant increase, excluding World War I and II. The average density was 44 square kilometers in 2009. Higher densities were recorded in Dolhești, Pipirig, Boboiești, the first settlements in the upper basin of

the Ozana River. The lowest densities were recorded in Pluton, Stâncă and Leghin, the last dating back to the building of the Bicaz dam, when the upstream inhabitants had to be relocated in different area, including this settlement (table 3, figure 3).

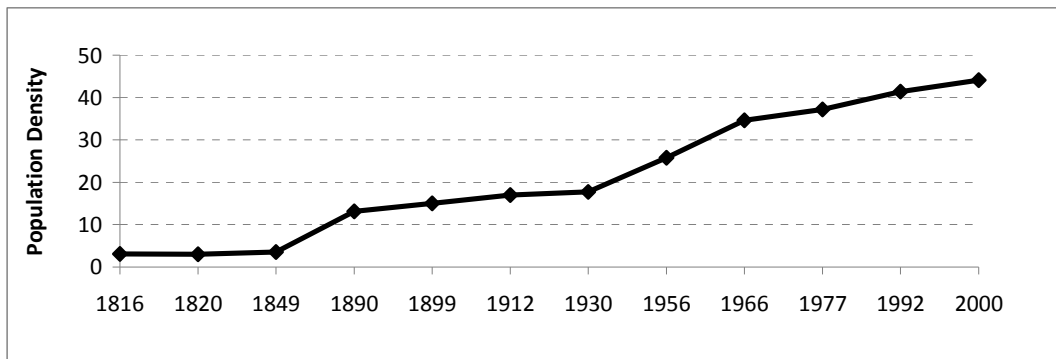


Figure 3. Evolution of population density 1816 - 2000

RURAL SETTLEMENTS

Population history

Stânișoara Mountains, whose rock composition is less resistant to erosion, are divided by many basins, among which Pipirig basin can be found. Ozana water catchment area lies in this basin, making the transition towards Neamt sub - Carpathian basin. Archaeological diggings conducted since 1974 near Leghin, brought to light two cremation burial grounds, chips of china, iron buckles, amber and broken glass. It was proven that these relicts date back to the third century or the beginning of the fourth century A.D. and are the marks of a Dacian population (Barliba, 1980).

The succession of migratory peoples over the Moldavian territory, especially the Tatar - Mongol invasion in 1241, affected the area in different degrees and lasted till the 14th century, in addition it forced the population to redraw from certain areas and to seek shelter in the higher mountains. Some inhabitants settled there and engaged in agricultural activities. For centuries in the Middle Age, their destiny was closely connected to the Neamt and Secu Monasteries, whom the inhabitants joined to form parishes since the beginning of the 15th century.

The first reference of this geographical area was drawn in the 12th of March 1437, a royal decree (a donation) concerning Neamt Monastery, then during the reign of Ștefan the Great it was mentioned in another document, the 27th of July 1501 (Bogdan, 1913). The emergence and strengthening (empowering) of the Secu Monastery, generated a long conflict in the establishment the border between the two monasteries, so in 1604 (Catalog. doc. moldov., 1957) new mile stone was set. An official document regarding the existence of population from Pipirig basin is Census of Moldavia from 1772 - 1773 which listed 38 houses with 38 Birnici. A birnic is a householder who has to pay a tax to the local monastery where the family settled. However, the number of families could have been higher because there were families that did not pay taxes and those families were not mentioned, such as priests, widows and very poor.

Otzellowitz drew up a topographical map in 1788 and it mentioned Pipirig, Pățâlgieni, Dolhești, Boboiești and Pluton, with their smaller hamlets: Cujbeni and Tărățeni, in present habitat.

The number of inhabitants significantly increased toward the end of the 18th century as a result of a high birth rate and of the fact that shepherds from Țara Bârsei, Brețcu, Siliștea Sibiului, Sadova-Câmpulungului and Vrancea (Ungureanu, 1964) settled here.

The evolution of the number of settlements in Ozana basin can be observed in the Tax Censuses drew up for the use of the monasteries. Thus in the 1816 census there were listed 119 taxpaying families and 7 no tax paying families, to sum up 126 families. The census further mentioned: the serf working in the monastery's fields and breeding sheep (Istrate, 1979).

The following censuses provide information about other types of no tax paying families, but with special duties in the monastery, for exemplification the 1832 census is rendered below (Catagrafia anului 1832, fila 1 - 3).

EVOLUTION OF VILLAGES

Natural factors

The rural settlements in the mountains are influenced by a series of factors: natural, socio-economic and economic factors. From the geographical point of view Ozana water catchment provided favourable conditions early human settlement.

Relief

The slopes are not too high, with less steep slopes, large terraces, and enabled early human settlement. The highest population density is on the lower and middle terraces (4 - 6 m, 11 m), of Ozana and Pluton rivers, less prone to flooding within the basin. The villages extended on the terraces of the nearby valleys for economic reasons, such as proximity to a water source and the transport infrastructure, but this influenced negatively the flow of the rivers, especially in spring, resulting in discontinuities, which gradually led to the reduction of the flow due to the increasing population.

The villages expanded gradually occupying the hilly slopes of the interfluves, which had previously been communal pastures and hay fields. Large areas of the forests were cut down for the same purpose, but also as a source of income, exploitation and wood processing being the main occupation of the inhabitants.

This took a toll on the environment when landslides were more intense (photo), because of this the National Forest Company began reforestation of areas at risk of landslides.

The climate characterized by atmospheric calm, low thermal amplitude of 18 - 20° C, rainfall between 700 - 800 mm per year, moderate wind power and thermal inversions during the colder season provided favourable conditions early human settlement.

Socio-historic and economic factors

The socio-historic and economic factors have been extremely important for the evolution of the settlements, for exemplification see below:

- the estates of Neamt and Secu monasteries. The network of settlements in the upper basin of Ozana river is closely related to the monasteries;
- after the allotment of 1864 the population grew, villages extended and new settlements appeared, the monasteries receded, but they still lead an important economic role for the entire Ozana valley till the beginning of the twentieth century;
- the intersection of trade routes linking the extra-Carpathian Moldavia and Transylvania, led to the recognition of the basin as a connecting area, as there was easier access to the neighbouring regions due to the multitude of defiles below 1000 m, such as Petru Voda and Stânișoara. Villages developed for geographical and socio - historic reasons not at the intersection of trade routes, but upstream in more sheltered places, along the valley of Ozana and its main affluents. Hence, villages expanded downstream in the second half of the nineteenth-century after the allotment;
- migration flows are a consequence of social-economic background of the 18th century Transylvania on the one hand, and on the other hand of the natural attractiveness of Carpathian and sub-Carpathian areas. In time, such flows developed due to socio-economic ties between the mountains and the plains (exchange of products). Families from Transylvania settled down in family based household associations that later evolved into villages. *Boboi* is an example of a typical village and the surname *Boboi* is a proof of the evolution (Mihordea et al., 1966);
- exploitation of wood plays an important role in population growth, leading to migration flows from the Bistrita Valley, mainly during 1910 - 1930, hence the population of Pipirig, Boboiesti and Pluton almost doubled, a widespread phenomenon recorded after 1920 when Mihăieț Company is founded and starts the exploitation of forests.

THE STRUCTURE OF THE VILLAGES

Typology: most of the settlements occupy terraces with altitudes of 2 - 4 meters, 6 - 8 meters, 9 - 10 meters, 15 - 20 meters and less 30 - 40 meters. The old terraces of 4 - 6 feet, 6 - 8 feet with plan terraces is protected against floods. The households were scattered linearly and gradually the gaps between the existing buildings were filled in a linear layout, but maintaining the poles.

The middle of the 20th century represents a demographic boom, that led to the filling the terraces near the river bed, the gentle slopes of terraces and land between terraces, sometimes having a amphitheatre like aspect.

Nowadays the villages have generally a linear aspect, scattered at the feet of the versants, not too far from the axis of the river bed, excluding some villages where the distance can reach up to 1 km (Pipirig).

Number of inhabitants: there are average populated villages, 500 - 1500 inhabitants. Regarding the **occupation of the inhabitants**, agriculture is mostly practised (planting, breeding and feeding) but there are some industrial branches (mining, wood exploitation and processing, crafts).

CONCLUSION

Human habitation and the evolution of human settlements were influenced in their development by a series of factors: socio-economic and favourable historic factors (commercial routes, transport infrastructure, the monasteries, migrations, forestry and wood processing), as well as advantageous natural conditions.

The settlements went through several stages:

- first stage happened after the formation of the nuclei of the habitats, in which the natural factors and the monasteries played an essential role;
- the second stage corresponds to the moment when the settlements took shape, in the 18th century, due to the migratory flows and to the allotment, in addition to the natural factors;
- the historic-economic stage took part at the end of the 19 century and the beginning of the following one, when the settlements extend along the main valleys, their tributaries and their lower third;
- the next stage, recorded the expansion of the villages along the main transport routs, but with an emphasis on the scattered aspect.

Analysing the population and the formation stages of the settlements, one can identify the way in which they visibly affected the environment through deforestation, landslides and excessive use of the pastures.

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