

HUMAN PRESSURE UPON THE ENVIRONMENT THROUGH DIFFERENT TYPES OF AGRICULTURAL LAND – USE IN BOIANU PLAIN (ROMANIAN PLAIN)

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Human activities generate pressure up the environment, which is different from one area to another or from one society to another. In Boianu Plain agricultural activities and rural areas are predominant, thus requiring an analysis of their interactions with the components of the natural habitat, and, in general, with the environment. Agriculture consists of an activity that has an impact on the environment because of the human pressure exerted through the different ways of agricultural land-use, through the consumption of chemicals, through the triggering of the soil degradation processes, and through the incorrectly exploitation of the agricultural areas.

Indices of evaluation of the human pressure

Human pressure exerted on the environment is a synthetic indicator of the quality of the environment and of the degree of artificial change of landscape. The formula applied by FAO for the calculation of this index is:

$$S = A \text{ (ha)} / N \text{ (inhabitant)} \quad (1)$$

where S = human stress, A = analyzed area, N = number of inhabitants in the analyzed area.

Applying the formula (1) for the years 1988 and 2005, it has been calculated the human pressure on the environment through different types of agricultural land-use, such as: arable lands, orchards, vineyards, pastures and hayfields, forests, using statistical data (regarding to population and land use) supplied by the National Institute of Statistics.

Human pressure is even bigger when an agricultural activity attracts areas in which initial spontaneous vegetation is replaced with different crops.

E. P. Odum and H. Odum (1972) estimated that, in the temperate zone, in order to ensure a high level of the life standard, an adult person need 2 ha of land, whose optimal structure would be the following:

- natural unmodified area – 0.8 ha; agricultural area – 0.6 ha;
- area providing wood and cellulose – 0.4 ha;
- natural area designed for constructions, industrial platforms, roads and railways – 0.2 ha.

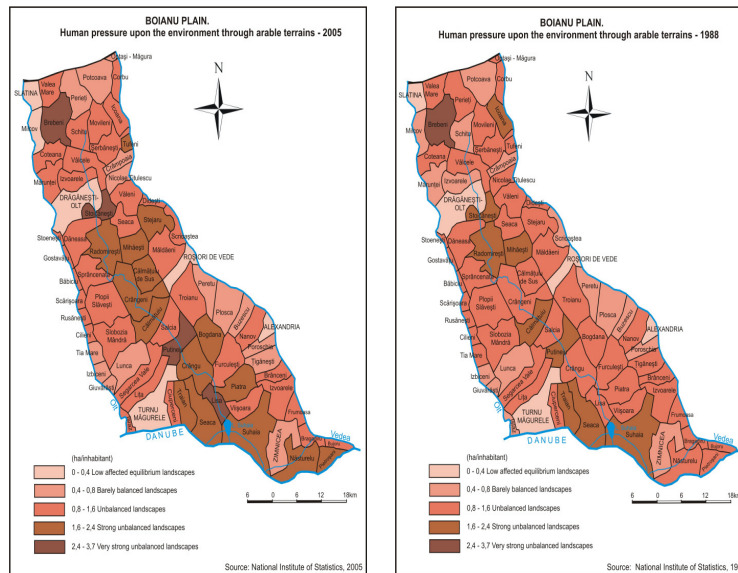


Fig. 1. Human pressure upon the environment through arable lands

According to the statistical data from 2005, the 420,600 ha of the Boianu Plain have the following structure of land use: agricultural fields (over 347,108 ha), forests (over 25,350 ha), other land utilisation (48,142 ha). The large extent of agricultural land, over 80 % (82.54 %) of the total area, proves the dominance of rural landscape in Boianu Plain, and explains the use of this index for the appreciation of the landscape status.

Within the agricultural lands, the largest extent corresponds to arable land (89.67 %), followed by pastures and hayfields (7.92 %), vineyards (2.18 %) and orchards (0.23 %).

Agricultural land-use does not provide a very different situation in the two analysed years. The small differences are given, on one hand, by the decrease in the number of inhabitants, while the agricultural area stays relatively constant, and on the other hand, through the changing of agricultural areas destination from the surroundings of cities to storehouses, commercial areas, and residential areas. Although this phenomenon is frequent, the areas that have changed their destination are relatively small when compared to the total agricultural areas in Boianu Plain, implying that they are not accurately conveyed by the statistical analysis.

The dynamics of the indices of human pressure through the agricultural land-use outline that in Boianu Plain the areas that surpass the limit imposed by FAO for maintaining the equilibrium between the components of the environment are prevalent.

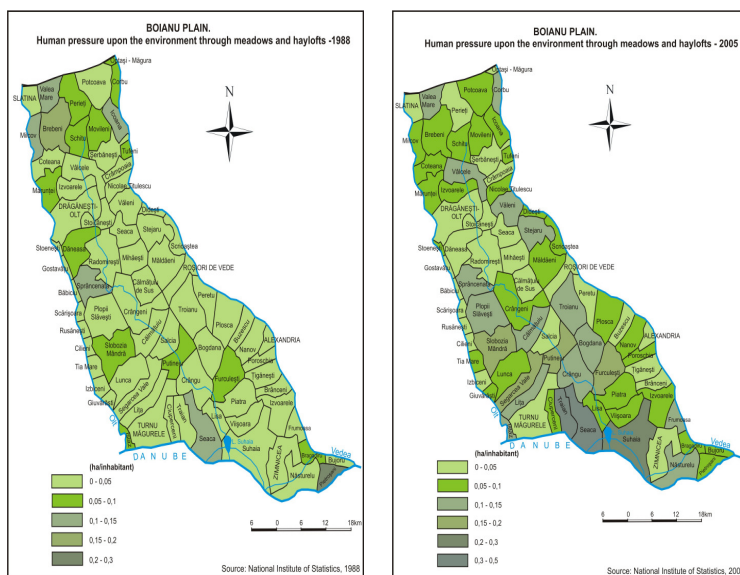


Fig. 2. Human pressure upon the environment through meadows and haylofts

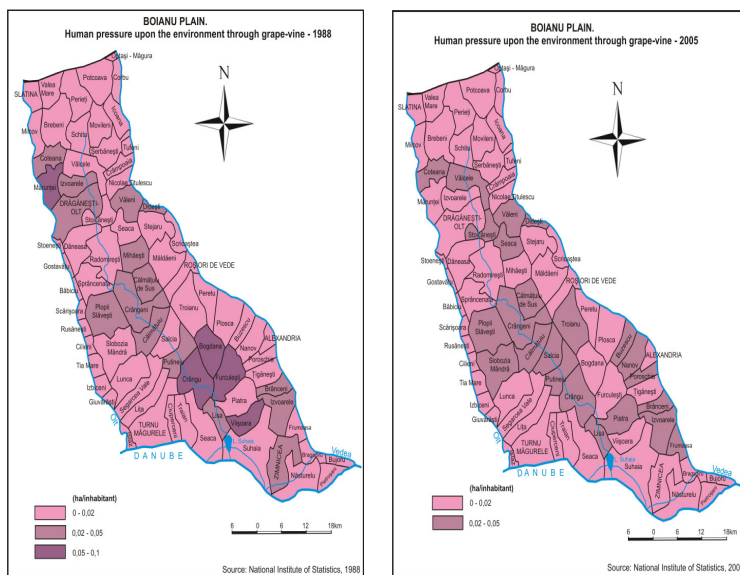


Fig. 3. Human pressure upon the environment through grape-vine

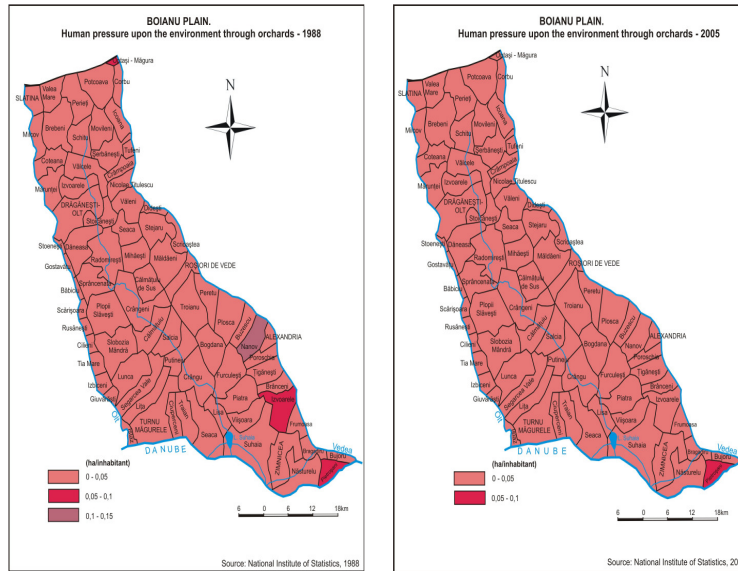


Fig. 4. Human pressure upon the environment through orchards

The **arable lands** are prevailing on the interfluvies and on the medium and upper terraces of the Danube and Olt rivers, where they possess 89.67 % (311,246 ha) of the agricultural area. The analysis concerning the two years, 1988 and 2005, reveals, as in the case of pressure through the agricultural land use, minor differences (*fig. 1*).

In 1988, the human pressure exerted through pastures and hayfields recorded bigger values in the northern part of the Plain (Iminogu Plain), as well as in the Danube Flood-plain, where one could find marshes. The highest values of human pressure exerted through these means could be found in the following communes: Pietroșani, Brebeni, Seaca, Sprâncenata, Icoana, Valea Mare, and Milcov (*fig. 2*).

In 2005, the human pressure exerted through pastures and hayfields reveals an increase of this index, on one hand due to the leaving in fallow of some agricultural fields, and on the other hand due to the extension of fields dedicated to communal pastures. The biggest values of human pressure were recorded in the following communes: Traian, Seaca, and Suhaia (*fig. 2*).

Presently the total area cultivated with vineyards in Boianu Plain covers 7,572 ha, which represents 2.18 % of the area covered with agricultural lands. In 1988, the smallest values of human pressure exerted through the vineyards were found in the following communes: Viișoara, Crangu, Furculești, Bogdana, and Mărunt. In 2005, the biggest values were recorded in the following

communes: Călmățuiu de Sus, Plopii-Slăvitești, Crângeni, Izvoarele, Slobozia Mândră, Stoicănești, Coteana, Vâlcele, and Văleni (*fig. 3*). The vineyard crops decreased after 1989, at the same time with the abolition of the APCs (Agriculture Production Co-operatives). In the communes where vineyards replanting had taken place, the crops were in disorder, intercalated between other crops, and with hybrid species that, once with the acceding to the European Union, must be replaced in compliance with the *Agriculture File* of negotiation for acceding and with the *Laws of grapes and vineyards in the system of common organisation of the wine market*.

The orchards, with a percentage of 0.23 (768 ha) are less representative, because the study area taken is a plain. In 1988, the human pressure exerted through orchards was higher due to the large extension of orchards (*fig. 4*). After 1989 the areas decreased quickly. This process led to a smaller human pressure exerted through fruit growing. The plain areas previously occupied by orchards were transformed into arable lands (*fig. 4*).

In 2005, the human pressure exerted on the environment through non-agricultural areas (constructions, communication networks, water, etc.) was reduced (< 0.4 ha/inhabitant).

Conclusions

The main factor is in fact the inappropriate agricultural land-use. The value of 3.1 ha of arable land per inhabitant does not reflect the real disequilibrium. The land use and mainly the agricultural techniques and crop maintenance are the leading issues.

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Resume

Les activités humaines exercent une pression sur l'environnement, qui diffère d'une espace à une autre. Dans la Plaine de Boianu dominent les activités agricoles et l'espace rural, en imposant ainsi une analyse de l'interaction de ces activités avec les composants de l'espace naturel et de l'environnement en général. L'agriculture se constitue dans une activité avec impact sur l'environnement par l'intermédiaire de la pression humaine exercée à l'aide des divers moyens d'utilisation agricole de terrains, de la consommation des substances chimiques, du déclenchement des processus de dégradation des terrains, de la mauvaise exploitation des surfaces agricoles etc. La pression humaine sur l'environnement dans la Plaine de Boianu par l'entremise des divers moyens d'utilisation agricole (terrains arables, pâturages, prés, vignobles, vergers) a été calculée pour les années 1988 (la période communiste) et 2005 (la

période d'après). On a constaté que la pression humaine sur l'environnement est assez augmentée, cela grâce à l'extension (l'élargissement) des surfaces cultivées au désavantage de la végétation naturelle, celle-ci en se réduisant jusqu'aux petites surfaces situées dans les lieux moins favorables à l'agriculture. Le mauvais usage des terrains a des effets sur les propriétés physiques du sol, en mettant en évidence les effets de la sécheresse et en augmentant les dépenses d'entretien des cultures.

BIBLIOGRAPHY

- DUMITRAȘCU, MONICA (2006), *Les modifications du paysage dans la Plaine de l'Olténie*, Editura Universitară, București.
- MANEA VINTILĂ, GABRIELA (2001), „Indici de apreciere a artificializării peisajului în Parcul Natural Porțile de Fier”, *Comunicări de Geografie*, vol. V, pag. 593-597, București.
- SENCOVICI, MIHAELA (2006), „Utilizarea terenurilor agricole în Câmpia Târgoviștei”, *Revista Geografică*, t. XII, pag. 154-161, București.
- MUICĂ, CRISTINA (1991), „Influența modului de utilizare a terenului asupra dinamicii peisajului”, *Terra*, nr. 2, pag. 16-19, București.
- *** (2006), *Geografia României*, vol. V, Editura Academiei, București.