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SUSTAINABLE DEVELOPMENT OF A MULTISECULAR VILLAGE FROM A MURES MEADOW

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Abstract:

From the studies and research carried out in this study, we present a model for a sustainable development of the Beldiu village, Teiuş city, Alba county. In the first part of the research, we present the development of the agriculture, respectively the pedological studies to date, the cultures and also the development of the irrigation system. In the second part of the research, we will present a model of strategy of the improvement of watercourse Mures. Through studies done in the area we want to attract investors for the development of small agricultural or non-agricultural businesses which will result in a certain economic development in the area. Through these methods we also want the agro-tourism development, such as the creation of places to relax, farm fishery, etc. The conclusion of these studies is to develop sustainable development projects for both communes and villages that are in the meadow, thus the development of Romania.

Key words: *business, agrotourism, meadow, development, production, sustainable*

INTRODUCTION

Located right in the heart ofMures, relatively isolated from the administrative center - the city Teiuş, Beldiu village is a picturesque place, special, fertile agricultural land and hardworking people, lately the area is strongly industrially reprezented.
Beldiu town is located in the center of Alba County, in a geographical area with a favorable climate at the foot of the hills bordering the Apuseni Mountains, in the rich and the fertile valley of Mures.
CLIMATE
Considering the existing climate data, we can say that the villageBeldiu fits in a boreal climate with wet winters and summers and mild calduroase.Temperature according to yearly averages is 9.4 ° C. Average annual rainfall is 577 mm.

Figure 1. Mures County

WATERS

From the point of view of hydrography, the territory belongs to the receiving basin of Mures witch traver

e the eastern part of the village. Phreatic waters are at different depths, depending on the geo-morphological form which there are: in the central meadow phreatic water occurs at depths of 2.5-3 m; then the central meadow appears slightly positive where the phreatic water is found at a depth of 1.5-2 m. In areas of negative ancient meadows, phreatic water in swampy areas surfaced and wetlands are found at a depth of 0, 5 to 0.8 m. On the terraces,phreatic water occurs at depths well in excess of 10 to 15 m, sometimes 20-30 m as evidenced by the appearance of springs on the terrace foreheads.
Mureşului meadow has an average width of 2.83-3 km and the depth of water during growth reaches 1.8-2.2 m. Mureşului feeding regime ispluvional. Because of the drainage slope,the river's meadows are powerful which also lead to flooding.

FLORA AND FAUNA

The relief, climate and soil conditions allowed the vegetation to grow with the altitude, starting with soft essences (willow, poplar, alder) accompanying Mures Valley and ending on terraces with grasses and bushes (hawthorn, brier, blackthorn, etc.). In this area, the main species found are hares, foxes, mices and hamsters. The birds are represented by the tits, shots, nightingales, crows, owls, ratter hawks, pigeons, starlings.

FLOOD DEFENSE WORKS

After floods in 1970, when Mures reached a historic high flow producing numerous damage (crops, livestock, housing, etc.), it was decided to build a dam longitudinal with a flood protection. Construction started in 1974, and is located on the right side of Mures and has the following features:
- height - 2.5-3.0 m;
- the width of the crest - 2.5 m;
- the width of the base - 4.0 m;
- equal slopes.

In 2013 the dam was securely placed, because there were some overheightening works and the river bed of Mures suffered some works of desilting and sanitation.

In 2014 were arranged tailboard at certain points in the dam to drain water from the polder, and during the floods it closes with valves that function as valves under pressure.

Figure 2. Beldiu Village

Figure 3.

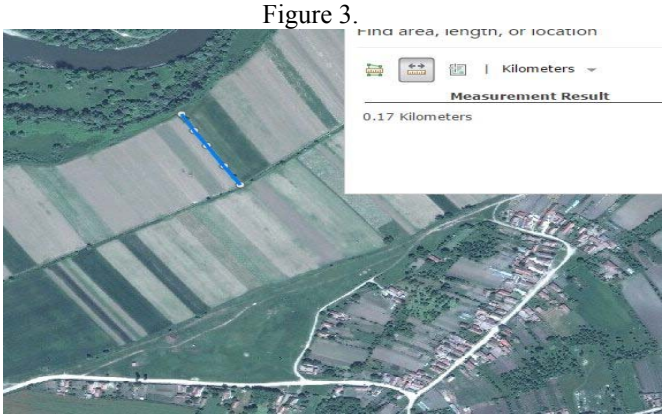

Figure 4.

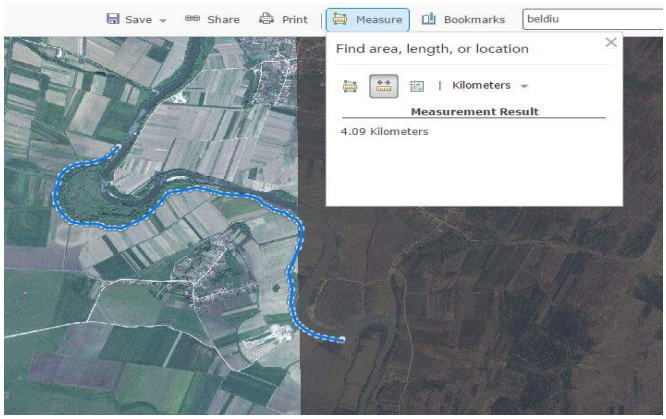

Figure 5.

The village had an irrigation system with a watering sprinkler specifically designed for vegetable growing, unfortunately the system was scrapped years ago. The system could be rehabilitated with minimal costs (cleaning channels and purchase of new pumps, pipes and sprinkler).

Since 2005 the villagers gave up growing vegetables because of low purchase price, as a result the cultivation of certain crops (wheat, canola, soy, corn, etc.). On this occasion we could redesign an irrigation system watering these crops for the benefit of a better production.

EXISTING LAND IMPROVEMENT WORKS

Profile number	Probe number	Depth (cm)	pH	Conductibili-ty (µS/cm)	Soluble salts (%)	Humus (%)	Clay (%)
P1	1-1	0-30	7,04	92,8	0,03	3,8	36
	1-2	30-60	7,06	149,3	0,05	2,6	48
P2	2-1	0-30	7,88	221,0	0,08	3,1	42
	2-2	30-60	8,17	192,0	0,06	2,4	34
P3	3-1	0-30	7,65	128,4	0,04	5,2	26
	3-2	30-60	8,00	123,3	0,04	4,3	30
P4	4-1	0-30	8,17	180,3	0,06	5,0	25
	4-2	30-60	8,30	184,4	0,06	4,1	22

Figure 6.

ASPECTS OF SOIL QUALITY

A pedological study was conducted, in which the team got soil samples from depths: 0-30cm and 30-60 cm. Geomorphological studied perimeters are uniform, which has enabled average samples.

Physical and chemical analyzes were performed in the Paedeological laboratory of the Faculty of Agriculture in Bucharest.

Profile number	Humidity (%)	CH	CO	CC	CUA
P1	29,34	7	13	23	10
	28,71	11	17	25	8
P2	27,55	10	15	23	8
	26,94	8	12	24	12
P3	24,92	6	9	22	13
	21,66	7	11	23	12
P4	27,31	6	9	22	13
	21,96	5	8	22	17

Figure 7.

Main soil types identified are:

P1 - preluvosoil (argillic brown Soil)
P2 - eutricambosoil (I-mesobasic brown Sol)
P3 - Faeoziom (Cernoziomoid)
P4 - Faeoziom (Cernoziomoid).

Soils contains no soluble salts studied and no risk of salinization.

Figure 8.

Figure 9.

Figure 10.

Figure 11.

Figure 12.

CONCLUSIONS

Natural environment, resources and risks

Strong points:

- Rich nature and varied cultural resources
- Abundant resources (water, soil, etc.)

Weaknesses:

- Soil and water
- Improper waste disposal
- Contradictions in the sustainable use of resources
- Risks in certain areas (floods, pollution, subsidence)

Opportunities:

- Development and enhancement of fish stock
- The practice of ecological agriculture
- Development of alternative energy forms
- Use of landscaping advantage
- The use of intact environment as unique element
- Use of the economic benefits of nature.

Methods of study:
- collection of data and relevant information on the Beldiu village;
- processing in ArcGIS Online;
- sampling and chemical analysis of soil samples, performed in the pedological laboratory of the Faculty of Agriculture pedological Bucharest;
- interpreting the results of measurements;
- analysis of sustainable development strategies developed for similar places.

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