
✦

The Model of Elementary Studies for Ecological and Public Utilities Rehabilitation. Case Study: Micești Village, Cluj County

Vasile SURD
„Babeș-Bolyai” University, Cluj-Napoca, Romania

✦

The village is part of the commune Tureni being situated at 5 km distance from the center, at 15 km distance from the Turda City and 25 km distance from the Cluj-Napoca City.

It disposes of a valuable natural potential which consists in a permanent stream (the Micești Valley), many drinking water sources and one natural source with salted water used for food, preserving pork meat and also in many other purposes.



Figure 1. Geographical position of the Micești Village.

The forestry of the village is disposed on an almost compact semicircle, formed of pines and spruce fires of an unchallenged aesthetic and antierosional protectional value.

Between 1960-1968 there have been cleared around 100 ha of wood which have been exploited and cultivated by the C.A.P. (1962, the Tablii and Bodes forests).

The grassland from the place called "La Grancea" has been transformed in an apples

orchard. The one from the place called "Sub Coaste", mostly used to cultivate potatoes and hemp has been transformed in a hay field from Priloage (Hornoi). Nowadays, the old lands that had had a fruit growing destination, are being sporadically exploited by the rural community's herd.

The number of the population has dramatically decreased from 1.384 inhabitants in 1966 to 387 today (15.11.2006), a waning of almost 4 times only a half of century (a lost of 22 inhabitants/year). More alarming is the waning of the school age population, from 300 pupils in 1960 to 9 today (around 32 times decrease). The village had an important role until 1968 being like a residence for the hole commune polarizing from the point of view of the administrative part all the villages situated in the proximity: Deleni, Crăiești, Săliște and Casele Micești.

The main objectives of public interest that have an intrinsic value (cultural and historical) are: The school building with very valuable original mural paintings, an important part being decomposed because of passing of time and of the smoke of the candles.

An other public building is that of the city hall (including 3 rooms, a stable and other annexes). This building, unfortunately is in an advanced state of degradation.

After 1990 there have been built two churches, one for the Pentecostal worship/cult (on the lab, instead of Victor's house) and the other one for the "Jehova's witnesses" cult (an old house bought from Vasile a Gonului and transformed in meeting place).

After 1990, an American citizen from New Jersey a missionary settled in the village together with his family. He bought the house from Barcula (Letai) and he built a new one from wood. The other foreign citizen who has a new house in the village in Italian, from Firenze. He bought Macarie's Milna's garden and he build a new modern house that he uses during summer timec (the place has a very good source of good quality water).

Before the period of collectivity there were 13 water mills in the villages (Morarasu, Ciotu, Boacsi, Sochel, Titeu, Vasile a Titienii, Augustin a Sandului, Nistor-Dugu, Dioaba, Dicu, Alexe, Rusu, Denes).

The milling of the 13 water-mills has been brought from Micești and from the nearby villages (Vîlcele, Rediu, Comșești, Deleni, Crăiești, Săliște). The only water-mill that is still working periodically is Dicu's water-mill (an old man of 80 years old, Dragan Noe).

In the same period (before 1962) the village had 4 blacksmith's trades holding activities like horseshoe making and fortifying wooden chariots and metal wheels. The smithery functioning at Dondos, inherited the name from the gipsies that worked as blacksmiths and who moved to Aiton in 1955. It was situated on the left side of Micușului Valley, on the waste land under the pine trees, across the new cemetery of Meman. The second smithery belonged to Igi and it was situated near the house of the priest called Crișan, on the other side of the house of Gligor a Pisicii. This one was closed too and the family moved in the city.

The third smithery belonged to Irimie a Huhului, which was placed near Rusu's smithery.

The fourth one, which is still working belongs to Chicinaș Ion, known as Cauaciul lui Titeiu. He learned from the gipsies Dondos blacksmithing.

In the center of the village there were the houses of the priest Crisan and of the teacher Crișan, both having two beautiful gardens with rows of flowers in front. They also had many rooms, a library and a piano. Today there lives Valentin, son of Grigoraș who has partially transformed the houses in anexes.

There have been very talented gipsy singers and players for special events such as marriages and traditional folk dances.

They were playing the violin and the cello (Bitai. Orbutul Dichii, Nitu Mochii, Toma Ianos and Ghimu of Cicodel).

In the summer of 1969 the community road has been reconstructed in order to connect the village with the communal centre. The road was made of limestone brought from the quarries of Tureni and Săndulești situated at 2 km distance one from another. Due to the fact that the new road was quite superior in quality, they introduced daily busses, thing that stimulated the commuters mouvement (especially for males) between the cities of Turda and Cluj-Napoca. Ten years since the road hasn't been maintained or repaired becoming strongly degraded. Because of this there are no more bees-connections with the village today. The 9 pupils who are commuting for the school in Tureni are walking, going by bike when the weather is fine or they are using a minivan in winter.

The village has around 1.600 ha of agricol land plus a valuable wooden land but very fragil because of the latest intensive and irrational exploitation.

There are 50 left houses in the village which could be, with minimum investment, be transformed into modern residences (they have water and electric sources). Also there are over 10 secondary residences belonging to families from the town that live in the village during the summer.

The local water resources are rich and of good quality. The village is entirely electrificated and has a digital phone network.

In the 1994's, encouraged by the political promises of the moment, a 15 km methane gas network has been assembled with own efforts. Became of the carelessness and lack of support from the abilitated authorities, the pipes system are in a very advanced state of degradation after 12 years of useless. It is than imperative to quickly connect as possible the pipes systems to the main pipe through a relating pipe with the Comsesti village. This village is going to be enriched with an own system of natural gases. In this way one could eliminate the motivation of wood exploitation.

In 1982 the Sipotul Mare source has been collected with the rural community effort. It had around 80 m, 3 of volume that supplied with water 75 households. Lately there have been collected other sources too: Sub Lazuri, La Nista and La Alastone. Also, the majority of the households have own water sources from private wells.

Because of the lack of technical assistance and money, the hole four water supplying systems have to be rehabilitated (to make the retention basins water-tights, to put the pipes deeper, under the freezing limits, to replace the old pipes with new flexible ones).

For the edilitary and ecological rehabilitation of the village for its saving from natural desaffection, in order to fortify it through technical soustaining components, technic actions and works are needed and imposed staged in two phases as follows.

First phase

A₁. The rehabilitation of the road between Tureni and Micești through major overhauls and technical protection measures.

B₁. The afforestation of the critical lands (strongly eroded away) from the proximity of the village hearth.

C₁. Connecting the village to the natural gases network.

D₁. The rehabilitation of the road between Tureni and Micești, 5 km of length, we are proposing:

- lateral ditches of 5 km for water leaking;
- stuffing the leaking ditches with flagstones of ferro-concrete;
- putting on the actual road around 10.000 m³ of smashed rock and realizing a lateral inclination of around 2%;
- putting cylindric gravel on the carriage road;
- 2 water transferring bridges for rainfall leaking;
- 3 stone on concrete blockades on the acces sector to the village road;
- the consolidation of two bridges (at Sintea, Între Păduri), on the, lower sectors, with rocks and willow trees or popular trees plantation;
- critical areas because of the snow falling improved by bushes plantation.

E₁. The process of afforestation has to lead to the end of the erosional process. This way, there have to be quickly afforested 4,5 ha of land (După Garduri, La Toaplec, La Gliganita) with species of coniferous trees and acacia.

F₁. Remaking phe pipes system for the methan gas on the Comșești-Mărtinești area (around 2,5 km of length for the record).

Material necessities

First phase (estimation):

- around 15.000 m³ of smashed stone for the repairing of the carriage road;
- 30.000 of ferro-concrete flagstones (0,50 X 0,50 cm to make to leaking gutters 5 km c 6 flagstones/line metre;
- cleaning 4 km of existing ditches;
- 2 km of digging ditches with trapezoidal division (b₁=0,50 m; b₂=0,75 m; h=0,75 m);
- 5 t of cement and 30 m³ of rocks for the lower dykes at the two bridges (La Sintea, Intre Paduri);
- 30 m³ of smashed stone to equalize the subsidiary area between the Fântina Turzii and Intre Pâraie);
- 15.000 saplings planted at four rows in order to stop the falling of the snow, on the critical sectors (Tureni-Capul Pădurii);
- 40.000 saplings (coniferous trees or acacia), with an antierosional role in protecting the village heart.

Execution

The planting of 10.000 saplings in order to stop the snow fallings and of the 40.000 saplings to stop the erosional process will be realised with the help of the citizens and of the students. The material will be obtained free from the Silvic Ward of Turda. The cleaning of 4 km

of ditches will be done also with the help of citizens.

The rest of the works and material expenses will be realised from extrafonds (centrals, county funds, UE funds etc.)

Second phase

This phase is about the execution of edilitary works capable of increasing the rural quality of life. It's about the repairing of the access roads to Făget-Cluj and Deleni-Cheile Turzii, the repairing of the village roads and the remaking of the supplying system focused on the drinking water.

It is also mandatory to have vast plantation with an important role in the ecological reconstruction of the territory.

The main works are:

A_{2a}. The rehabilitation by paving the road to Cluj-Napoca through Făget, which would reduce the distance between the village and the city with around 15 km (11,5 km have to be pavements).

A_{2b}. The paving of the main road and of the secondary roads (to the church, Pe Cot, Pe Lab 5,5 km).

B₂. The repairing and the amplification of the spring at the Şipotu Mare collecting and than at the other three collecting zones.

C₂. The digging of the two dray wells in order to store and neutralize the animal dead bodies.

D₂. Two platforms made to deposit offals from the households.

E₂. Large plantations as part of the ecological reconstruction of the national geographical space.

The remaking of the forestry of the beginning of 1950 is a first step for the ecological reconstruction of Romania, which means a reconnection of the Apuseni Mountains forests with those of the Eastern Carpathians over the Transylvanian Depression. In this case it is mandatory to replant the old forests (Butuci, În Tăblii, Cioianos-Capul Pădurii).

The plans and maps

These can be use to show the technical framework of the road and ecological rehabilitation. In the same time by using these additional figures, we can establish detail plans for each part of territory.

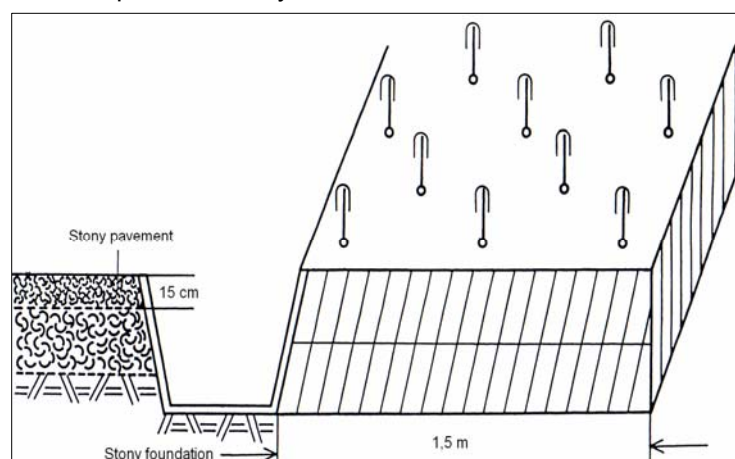


Figure 2. The cross section in the ditch and forestry against snow storm.

The pavement for the surface of the road can be realize in good conditions using limestone quarry stone from Sănduleşti quarry (1,5 km) and Tureni (1 km), also. The road foundation is enough strong to sustain the local trafic nowadays and in the future. The breadth of protection ribbon, 1,5 m, is compose by tiny trees from acacia. These can stop efficiently the snow in the dangerous sectors. The number of trees must be minimum 10/square meter. The high of the trees must be 3 m, but not more than 4 m, because their shadow became dangerous for agriculture. The ditches must be built by concret using local gravel or by buying from special factory.

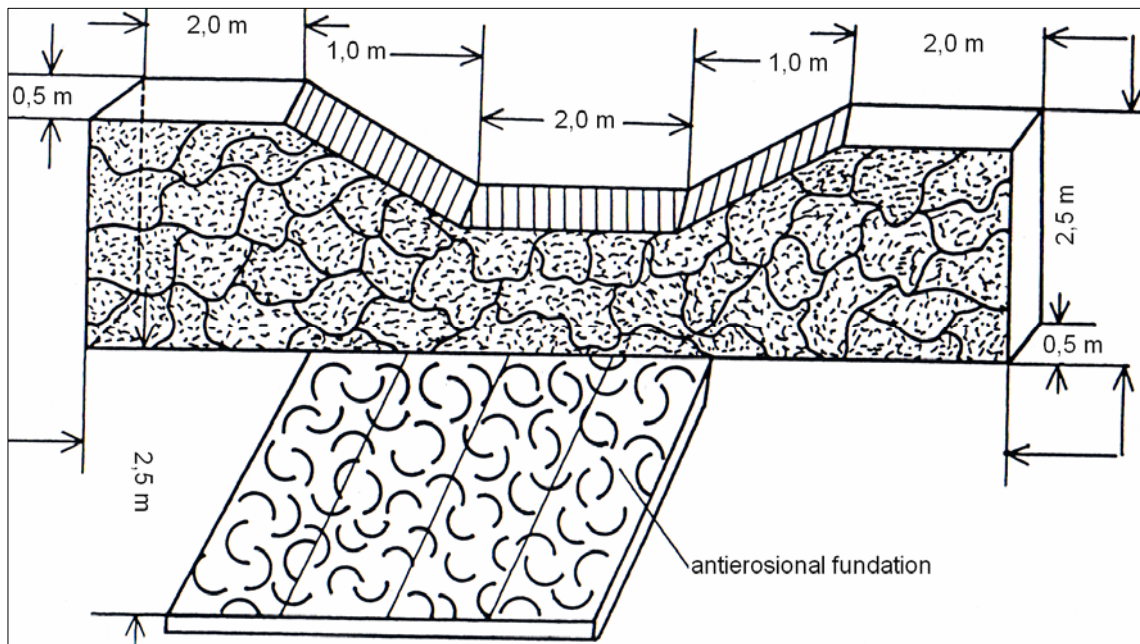


Figure 2. Ston dam for bridge protection.

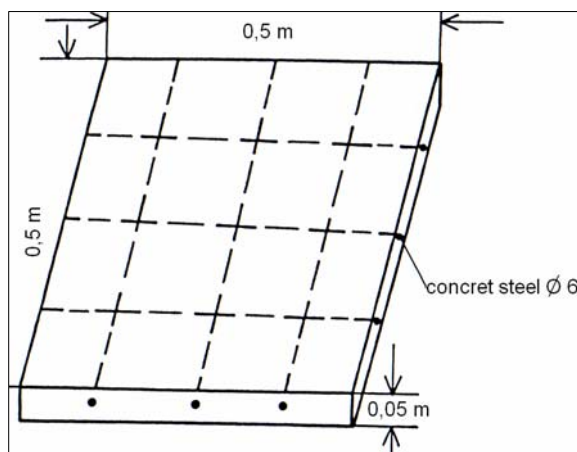


Figure 3. Concrete bay.

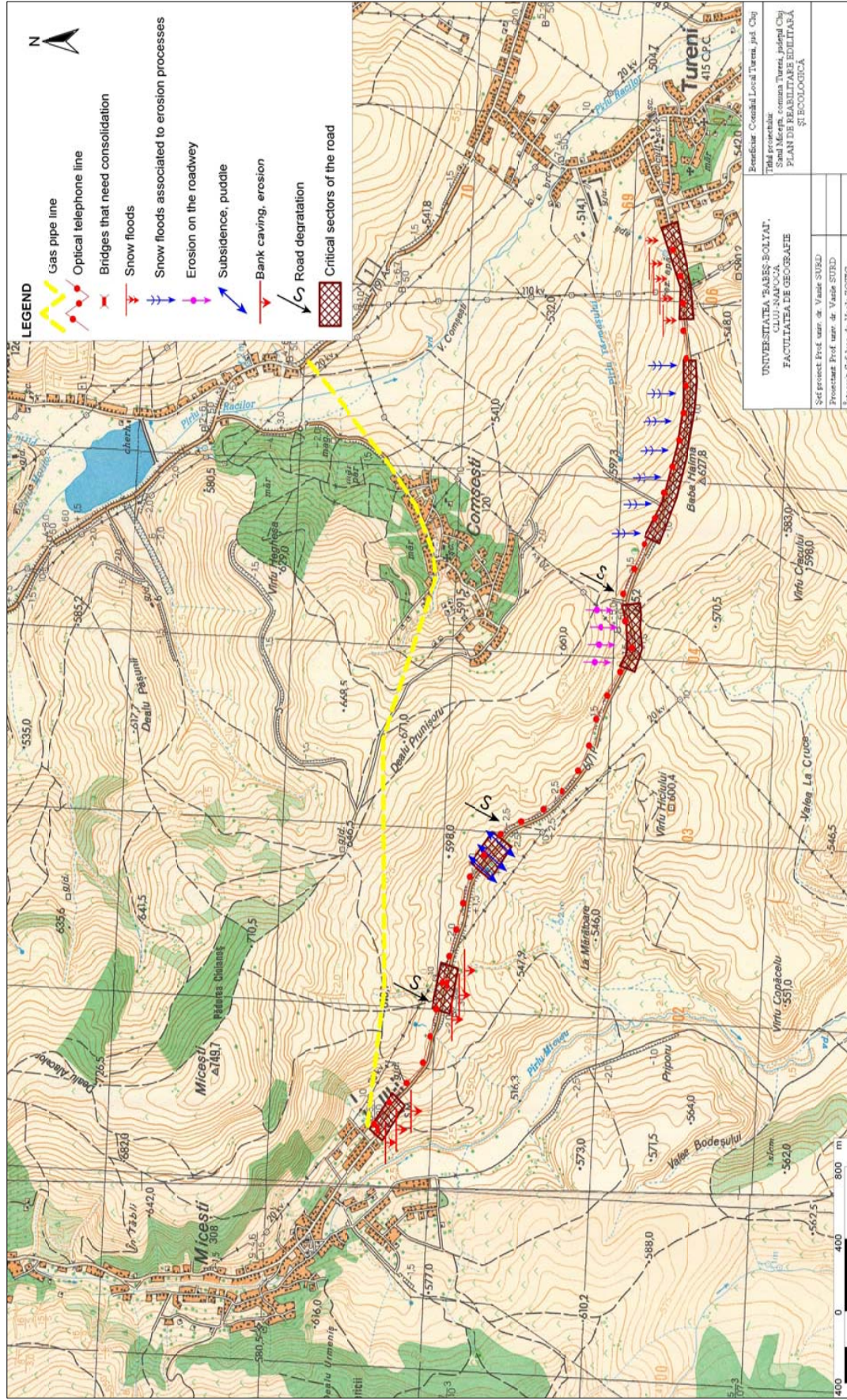
Having into account that we speak about a rural road connecting the village to the communal center, special resistance structures are not compulsory. The drainage of waters deriving from rain and snow melting has to be canalized towards collecting points so as to avoid roadway erosion.

Nowadays the lateral drainage ditches are loaded with slime and vegetal materials that causes the rain water to efuse directly on the roadway, forming culverts (drange gullies) every time it rains. This requires interventions each and every time it rains, but, the lack of technical means and the poor

organisation makes it that these mending interventions are sporadic. Thus, we confrunt with the premature detrition of the mechanical means of transport and really low speeds (20-30 km/h). We have designed 5 thematic maps as operational support, synthesized in a chorematic model of all the infrastructural needs. Map no. 1 marks all the critical points (snowflooding, erosion, water outage etc) of the road connecting Micesti village and Tureni commune. The yellow is meant to represent the future metan gas pipe line.

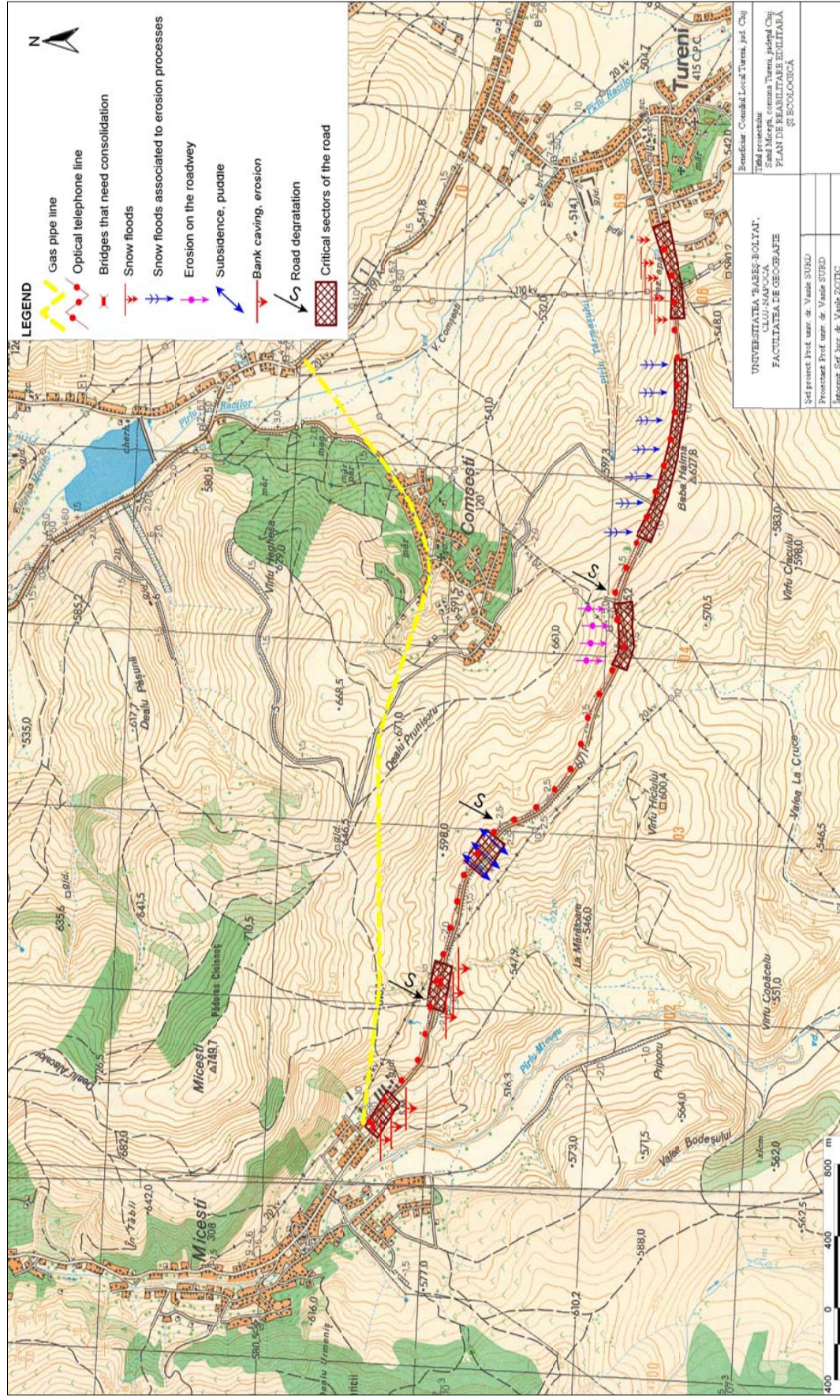
The second map marks the main sources of water supply of the village, all complying with the qualitative requirements, but still needing an intense modernisation of the captation basins and a replacement of the old water pipes. The third map depicts the main utilities functioning on water at the level of Micesti village (fountains, mills). The fourth map imbodies the main public interest utilities almost all of them being out of use. Map no. 5 marks the critical erosion areas that are to be imperatively saved by urgent afforestation. On this map, we picture the fully compact forestation space and the future areas of afforestation meant to ecologically fortify the region, and their connection with the main contiguous forms of relief (the Western mountains and the Transylvania Plain) as well.

The final result is a fine chorematic model suggestively depicting the communal infrastructure and ecological main priority needs of the Micesti village (mending the roads, supplying metan gas alimentation, and afforestation of the critical areas).



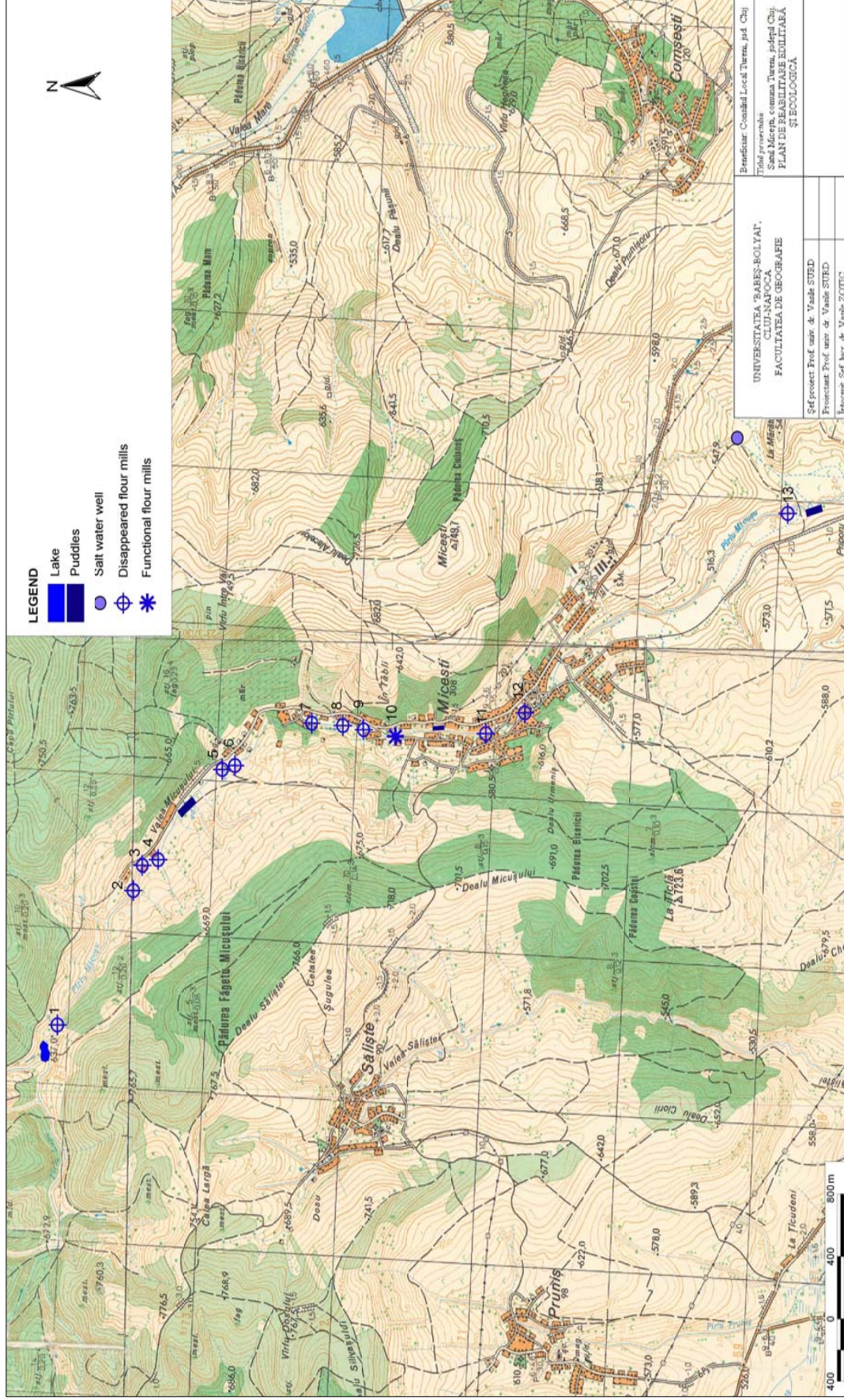
Map 1. The communal road Tureni-Micești. The critical points and sectors.

The Model of Elementary Studies for Ecological and Public Utilities Rehabilitation.
 Case Study: Micești Village, Cluj County



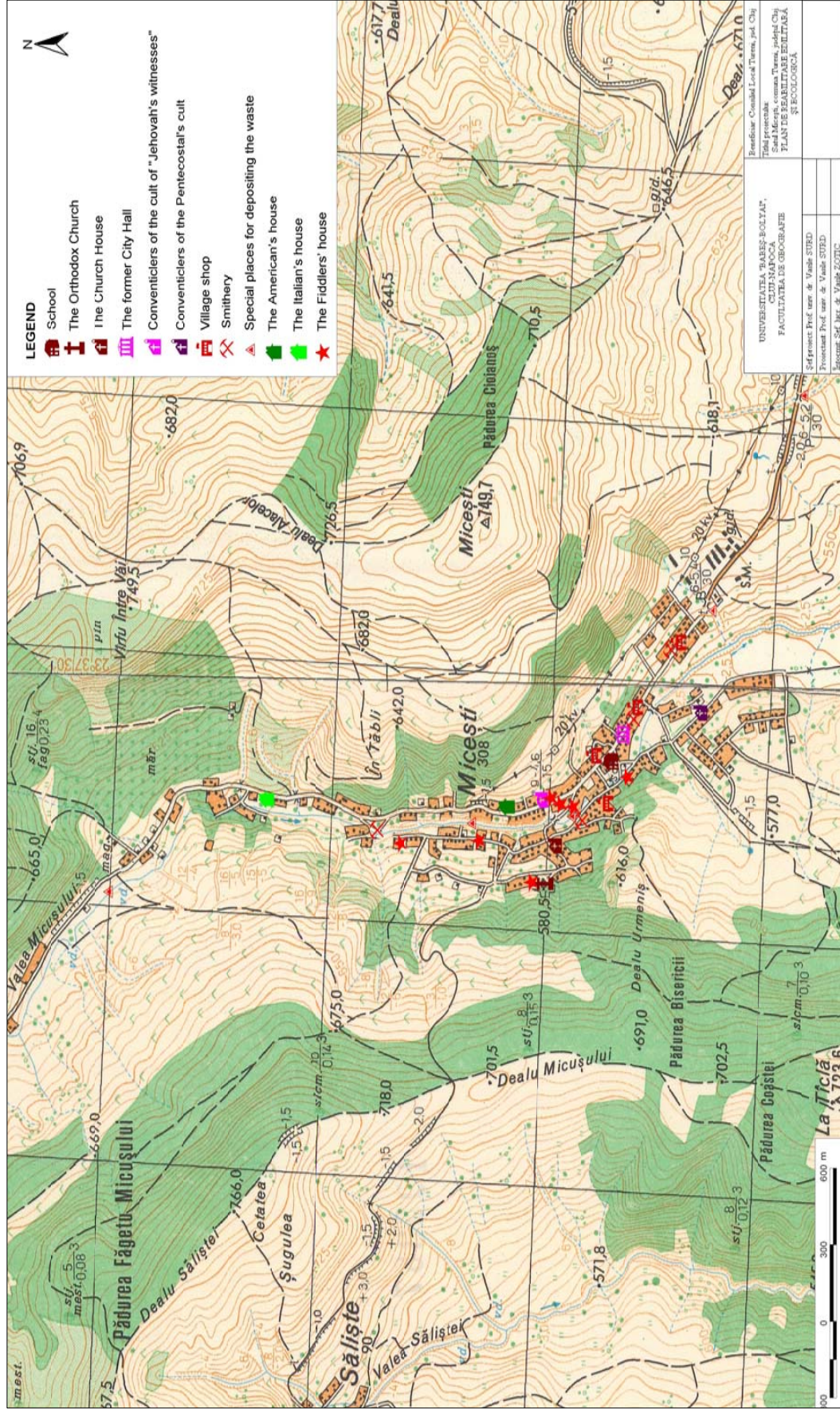
Map 2. Water delivery.

Vasile SURD

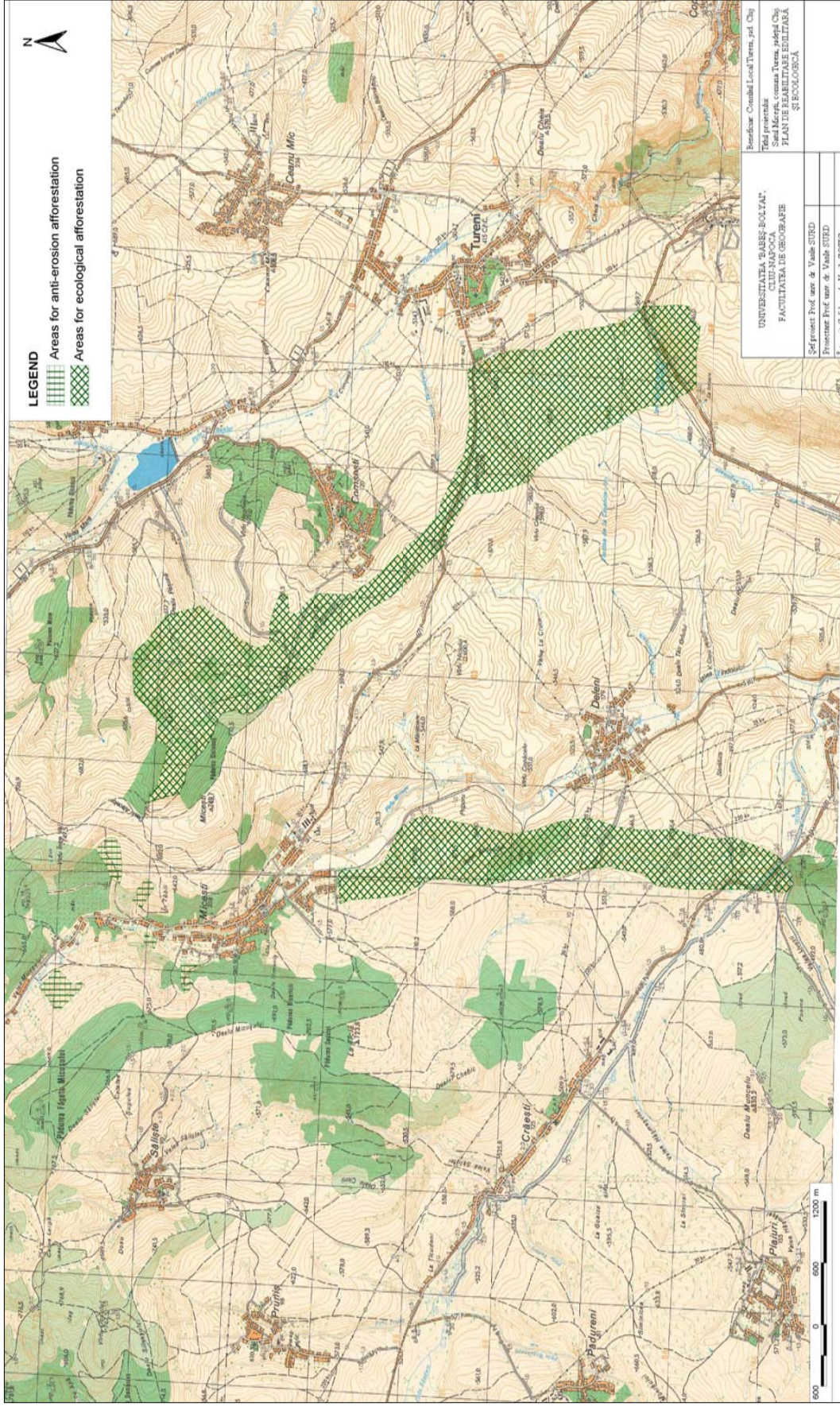


Map 3. Mills and other hydraulic utilities.

The Model of Elementary Studies for Ecological and Public Utilities Rehabilitation.
Case Study: Micești Village, Cluj County



Map 4. The infrastructure of the settlements.



Map 5. The forestation.

**The Model of Elementary Studies for Ecological and Public Utilities Rehabilitation.
Case Study: Micești Village, Cluj County**

Many works can be realised by citizens' support, including the pupils from school by planting the trees. At the same time this kind of work will be recognized as school activity for protecting the environment.

This paper is meant to be a minimum support for the Council and Mairry of Tureni, that could be detailed in actual and factual plans, ready to be used in applying for communitary rural development funds.

Bibliography

- Badescu, Gh.** (1972), *Ameliorarea terenurilor erodate*, Editura Ceres, București.
- Benedeck, J.** (2004), *Amenajarea teritoriului și dezvoltarea regională*, Editura Presa Universitară Clujeană, Cluj-Napoca.
- Bold, I., Crăciun, A.** (1999), *Organizarea teritoriului*, Editura Mirton, Timișoara.
- Chira, Carmen** (2000), *Drumuri urbane și piste aeroportuare*, Editura Mediamira, Cluj-Napoca.
- Surd, V.** (2002), *Introducere în geografia spațiului rural*, Editura Presa Universitară Clujeană
- Surd, V., Bold, I., Zotic, V., Chira, Carmen** (2005), *Amenajarea teritoriului și infrastructuri tehince*, Editura Presa Universitară Clujeană, Cluj-Napoca.