THE TECHNICAL SOLUTION USED IN THE TERRITORIAL AGRARIAN FOND AMELIORATIVE PERIMETER FROM TIMIŞ COUNTY

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Abstract: *This paper presents the technical solutions takes to the degraded area's improvements from the Timiş County perimeter. These areas were formed into ameliorative perimeter in the agrarian found. The actual state of the agrarian lands is determinate by the vulnerability of their site, but also, by the management way, because of it isn't assure the improvement solutions that are necessary and isn't used the correctly agricultural systems or the culture technology that are properly. The negative influences that are caused by these facts, according with the risk natural factors, amplificatory negative processes generated. The degradation of the lands that are located into the low plain from Timiş County is determinate by the humidity excess. The multitude of the drainage systems solved this problem, but not completely. The flooding from 2005 affects a surface of hundreds or thousands kilometer. The agrarian lands lost their productive capacity because of their degraded or pollutions. All these areas were formed into the territorial agrarian fond ameliorative perimeter, where the land reclamation works is necessary. Another cause of the degradation processes is the grass land thickness that is lower, so the water stagnate tendency is higher. From these aspects, a soil levitation occurs and their humus contents decrease, also the degradation process increase. The period in which the constructive solutions proposed by the project constructor have been executed was not the proper formalities of lack of money and an auction formalities, coming as they are executed in the rainy season, late autumn, the work of sowing is generally compromised. In the ranges considered for the study, constructive solutions proposed by the designer were not always fully implemented, by waiver notes were executed some works to the detriment of others, as needs.*

Key words**:** *perimeter improvement, surface drainage, drainage, land degradation, clogging*

INTRODUCTION

The current organization of county space reveals important areas of development of extractive, petrochemical industries or wood exploitation. Specificity, conditions and circumstances in which these works are carried out, determine the stability factor decreases, so the massive increase of tangential efforts, and by reducing shear strength of constituent rocks. Overloading slopes, dynamic requests, landscape changes or groundwater and surface regime are the main mechanisms of action.

Technological activities have damaging indirect effects, twith slow action, by physical and chemical influences that lead to destruction of vegetal layer, soil removal and degradation of the hydrological regime of slopes, through stagnant waters, infiltration of superficial water following the opening of the film ends or fissuring plans by activating erosion. Masive deforestation the early twentieth century favored initiation and development of active cycle of landslides.

In terms of current technology, many of these degradations are unavoidable, negative consequences must be minimized by measures to prevent and control of land instability. Many deficiencies is non-adaptation constructions and arragements in relation to skills and vulnerability land, thanks to lack of specialized studies on factors control, weaknesses that have passed and some attempts to improve the land in the county.

Landslide in Timis county meet all three main floors that take place geomorphological processes.

Within the perimeters studied land have lost all or part of production capacity due to degradation and / or pollution. On these grounds it is necessary to interfere with rehabilitation works and

amelioration. In this case were developed in Timis county, technical projects and feasibility studies conducted on a pedological study commissioned by the OSPA Timis for identification and realization of land degradation from perimeters studied and the main soil types. Need of improvement works is that, following the floods of 2005, soils from reclaiming perimeters studied have suffered physical-chemical changes. Another cause of degradation is made up of woody vegetation infestation, thicket, etc of grassland (Fig. 1), lack of consistency of grassland (Fig. 2), accentuating its tendency to stagnation of water through clogging and existing natural outlets infestation (Fig. 3.), resulting in leaching of soil, decrease humus content and degradation of soil structure. Also, rainfall intensity on the surface in Timis county represents another favoring and contributing factor of degradation processes founded.

Fig.1 Infection with reedbeds and woody vegetation of grassland from the perimeters of improvement

Fig. 2 Lack of consistency of the reedbeds from the perimeters of improvement

MATERIAL AND METHODS

In the present study analyzed the work carried out in the following perimeters of improvement:

1. Ivanda perimeter improvement, Giulvaz village is located on the territory of the commune Giulvaz, administrative territory of Ivanda village, about 40 km southwest of the Timisoara City. Within the perimeter, with drilling have identified 2 types of soil: Mollic Gleysols, strong gleyied, salinized and weakly solonetzic; Hyposalic Solonetz, moderate gleyied, weakly salinized;

2. Crai Nou perimeter improvement, Giulvaz village is located on the territory Giulvaz village, Crai Nou locality. Within the perimeter improvement Crai Nou pedological study identified 2 types of soil, namely: Mollic Gleysols, strong gleyied, salinized and weakly sodic; Hyposalic Solonetz, moderate gleyied, weakly salinized;

Fig. 3 Infection with vegetation of natural outlets from the perimeters of improvement

3. Herneacova Lug-Stanciova perimeter improvement is located on the city Recas radius, and is located in the south-east of the Herneacova locality, between them and the Stanciova locality. In the perimeter improvement Herneacova Lug-Stanciova pedological study identified 3 types of soil namely: Gleyi-eutric Cambisols, moderate; Hyposalic gleyic Cambisols, very strong gleyied; Gleyic Fluvisols, moderate gleyied;

4. Otelec perimeter improvement, Uivar village is located on the territory of the administrative area of commune Uivar, Otelec locality. In the perimeter researched have identified these types of soil: Fluvisols, Chernozems, Vertisols and Solonetz.

5. Rudna perimeter improvement, Giulvaz village is situated on the commune Giulvaz radius, Rudna locality. The soil investigated are: Solonetz, Haplic Chernozems and Hyposodic Chernozems.

6. Johanisfeld (Johnny) perimeter improvement, commune Uivar is located on the territory of commune Uivar, Ionel locality, on Bega channel and between localities Ivanda and Meda. In the perimeter studied were identified these units of soil: Hyposalic - Hyposodic Chernozems, Gleyi-pellic Vertisols, Salic Vertisols, Sodic Vertisols, Endosalic Solonetz, Endosalic Solonetz very strong salinized;

7. Pustinis perimeter improvement, commune Uivar is located on the Uivar commune radius, north of Bega channel and west Uivar commune, on the territory of Pustiniş locality. The soils identified in the perimeter are: Hyposalic - Hyposodic Chernozems, Gleyi-pellic Vertisols, Verti-gleyic Cambisols, Vertic Chernozems, Mollic Fluvisols, Salic Fluvisols;

8. Hungarian Sanmartinu perimeter improvement, Uivar commune is located on the Uivarcommune radius, south of Bega channel and south of the Uivar commune, on the territory of Hungarian Sânmartinu locality. Soils identified in the perimeter investigated are: Hyposalic Chernozems, moderate gleyied; Hyposalic - Hyposodic Chernozems, Gleyic Chernozems, Gleyic Phaeozems; Vertic-Haplic Chernozems; Gleyi-pellic-salic-sodic Vertisols;

9. Rauti perimeter improvement, Uivar commune is located on the Uivar commune radius, north of Bega channel and in the northeast of Rauti locality. In the perimeter studied have identified following soil types: Eutric gleysols, Gleyi-pellic Vertisols, Salic-Sodic Vertisols;

10. Uivar perimeter improvement, Uivar commune is located on the Uivar commune radius. The soils investigated in the perimeter are: Haplic-Gleyic Chernozems, Gleyi-pellic Vertisols, Verti-gleyic Cambisols, Salic Vertisols;

11. Dragotina-Lug perimeter improvement, Recas city is situated on the city Recas radius, and is located in the south of the Herneacova locality, about 600 meters of this, the sides of a municipal road that connects the Herneacova locality by the Recas city. The soils identified in the studied perimeter are: Vertic-Stagnic Luvisols, Eutri Gleysols, Calcaric Regosols, Gleyic Fluvisols;

12. Herneacova -Recas perimeter improvement is located on the city Recas radius, and is located on the east side of Herneacova locality. Soils identified in the perimeter investigated are: Vertic-Chernozems, Vertic-Stagnic Cambisols, Calcaric Regosols;

13. Sintilic-Gogenova perimeter improvement, Recas city is situated on the Recas city radius, and is located on the east side of Herneacova locality and near Stanciova locality. The soils identified in the perimeter investigated are: Stagnic Luvisols, Vertic-Stagnic Luvisols, Calcaric Regosols, Haplic Arenosols;

14. Brăneşti perimeter improvement, Burău is situated on the Faget city radius, on the border with the territories Dumbrava and Fârdea communes. Soils identified in the perimeter investigated are: Stagnic Luvisols, Albic Luvisols, Dystric Cambisols;

15. Faget perimeter improvement Cărciobina hill town is situated on the Faget city radius. Soils identified in the perimeter investigated are: Haplic Luvisols, Stagnic Luvisols.

RESULTS AND DISCUSSIONS

Table 1

Improving works executed in the perimeters

Nr crt.	Perimeter name – area (ha)	Work value (thousands lei)	Type of work performed	Observations
1	Perimeter improvement	341,495	Land shaping	7900 mc
			Scarifyings	88,5 ha
			Sowings	88,5 ha
			Service roads reprojects	3130 ml
			Pipe culvert Dn 800 mm	1 pc.
			Fertilization NPK 200 Kg/ha	88,5 ha
2	Perimeter improvement "Crai Nou" 80 ha	306,107	Land shaping	31200 mc
			Scarifyings	78 ha
			Sowings	78 ha
			Service roads reprojects	650 ml
			Fertilization NPK 200 Kg/ha	80 ha
3	Perimeter improvement "Herneacova –Lug-Stanciova" 107,03 ha	542,843	Land shaping	6000mc
			Scarifyings	56,31 ha
			Sowings	32,08 ha
			Service roads reprojects	1000 ml
			Cleanup of vegetation	11,5 ha
			Forestry plantation	1,06 ha
			Coastal Channels 11 buc	2020 ml
			Pipe culvert Dn 800 mm	3 pc.
			Double wattleworks	3 pc.
4	Perimeter improvement "Otelec" 210 ha	764,006	Land shaping	42000 mc
			Scarifyings	204,8 ha
			Sowings	204,8 ha
			Service roads reprojects	1450 ml
			Pipe culvert Dn 800 mm	8 pc.

			Cleanup of vegetation	11,8 ha
5	Perimeter improvement "Rudna" 170 ha	614,383	Land shaping	38000 mc
			Scarifyings	167 ha
			Sowings	167 ha
			Service roads reprojects	3000 ml
			Pipe culvert Dn 800 mm	3 pc.
			Cleanup of vegetation	23 ha
			Fertilization NPK 250 Kg/ha	170 ha
6	Perimeter improvement "Ionel" 166 ha	639,827	Land shaping	35000 mc
			Scarifyings	160 ha
			Sowings	160 ha
			Service roads reprojects	1950 ml
			Pipe culvert Dn 800 mm	7 pc.
			Cleanup of vegetation	10 ha
			Fertilization NPK 250 Kg/ha	166 ha
7	Perimeter improvement "Pustiniş" 173 ha	611,202	Land shaping	32000 mc
			Scarifyings	168,5 ha
			Sowings	173 ha
			Service roads reprojects	700 ml
			Pipe culvert Dn 800 mm	6 pc.
			Cleanup of vegetation	3 ha
			Fertilization NPK 200 Kg/ha	173 ha
8	Perimeter improvement "Sânmartinu Maghiar" 204 ha	772,999	Land shaping	48000 mc
			Scarifyings	199 ha
			Sowings	204 ha
			Service roads reprojects	1750 ml
			Pipe culvert Dn 800 mm	7 pc.
			Cleanup of vegetation	11 ha
			Fertilization NPK 250 Kg/ha	204 ha
9	Perimeter improvement "Răuți" 122 ha	542,571	Land shaping	38000mc
			Scarifyings	118,8 ha
			Sowings	122 ha
			Service roads reprojects	3400 ml
			Pipe culvert Dn 800 mm	6 pc.

			Cleanup of vegetation	3 ha
			Fertilization NPK 250 Kg/ha	122 ha
10	Perimeter improvement "Uivar" 87 ha	308,913	Land shaping	18000mc
			Scarifyings	84,8 ha
			Sowings	87 ha
			Service roads reprojects	300 ml
			Pipe culvert Dn 800 mm	6 pc.
			Cleanup of vegetation	2 ha
			Fertilization NPK 250 Kg/ha	87 ha
11	Perimeter improvement "Dragotina Lug" 59,88 ha	467,403	Land shaping	14376 mc
			Scarifyings	18 ha
			Sowings	13,24 ha
			Service roads reprojects	2700 ml
			Pipe culvert Dn 800 mm	4 pc.
			Cleanup of vegetation	8,98 ha
			Forestry plantation	6,96 ha
			Drainages	5,93 ha
			Outlets	3 pc.
			Coastal Channels	700 ml
12	Perimeter improvement "Herneacova Recaş" 91,94 ha	475,816	Land shaping	21700 mc
			Scarifyings	20 ha
			Sowings	1,24 ha
			Service roads reprojects	3700 ml
			Pipe culvert Dn 800 mm	3 pc.
			Cleanup of vegetation	7 ha
			Forestry plantation	7,6 ha
			Drainages	18 ha
			Outlets	4 pc.
			Coastal Channels	700 ml
13	Perimeter improvement "Macedonia" 159,63 ha	605,805	Land shaping	27000 mc
			Scarifyings	35 ha
			Sowings	15 ha
			Outlets	4 pc.

			Pipe culvert Dn 800 mm	3 pc.
			Drainages	18 ha
14	Perimeter improvement "Brăneşti –trup Burău" 120,72 ha	510,875	Land shaping	6000 mc
			Scarifyings	6 ha
			Sowings	32 ha
			Service roads reprojects	4400 ml
			Pipe culvert Dn 1000 mm	5 pc.
			Cleanup of vegetation	27 ha
			Weirs	8 pc.
			Outlets	5
			Fertilization CaCO3 15000 Kg/ha	32 ha
15	Perimeter improvement "Făget – dealul Cârciobina" 88,65 ha	420,650	Land shaping	20500 mc
			Forestry plantation	2,42 ha
			Sowings	88,65 ha
			Service roads reprojects	3800 ml
			Pipe culvert Dn 1000 mm	2 pc.
			Pipe culvert Dn 800 mm	1 pc.
			Cleanup of vegetation	18 ha
			Sources catchments	6 pc.
			Outlets	5570 ml
			Fertilization CaCO3 15000 Kg/ha; NPK 250kg/ha	25 ha/38 ha

Work performed shows such:

Fig. 4 Modeling of land in the improved perimeters

Fig. 5 Natural outlet reassembled

Fig. 6 Discharge of water channels executed in improved perimeters

CONCLUSIONS

- The total value of works in those perimeters was7924,895 mii lei (1947148 EUR 31.12.2008) for a total improved surface of 1929,85 hectares (1008EUR/ha).
- Ameliorative works designed in the perimeter weren't executed in all cases in the optimal period;
- Some designed work, beneficiary requirement had not been made, to the detriment of other works;
- Exploitation of work performed is insufficient (grazing on these surfaces was made immediately after arised), which led to compromise their.
- Works executed on these perimeters were not correlated with all the necessary works on these areas. Because of different owners remained infected and clogged channels that compromise the functioning of the executed works;
- The cost of works from these perimeters do not justify the additional production that result from these areas;

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