

Land Maintenance Management in the Chisone and Germanasca Valleys

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SUMMARY

The past situation

In the last 50 years, land maintenance management in the Valleys territory has suffered a radical transformation in connection with new situations to be faced by the population and local authorities.

In the past, the routine land maintenance activities, like river beds and environment weeding were carried out by the inhabitants who also provided to keep the tracks that connected their settlements to rural areas nice and clean.

In other words, the Valleys inhabitants did land management works and control, which also included waters canalization and regularization.

Shortage of manpower was a consequence of the mountain depopulation that took place in the 1960s and 70s. This situation caused the deterioration of the environment and the land maintenance fell therefore within the competence of Local Authorities.

How things stand at present

The Local Authorities couldn't satisfy efficiently the diffused and capillary needs of the territory, so, as a result, a lack of maintenance became more and more evident.

This fact caused a progressive deterioration of the hydrogeological equilibrium, and a high fragility of the territory, especially in case of exceptional meteorological events.

All these factors engendered the demand of massive and expensive structural interventions.

Analyzing the actual situation - suggestions for future plans

To face the ordinary maintenance management in a systematic way and in order to limit the damages in case of violent and sudden climatic events, which are more and more frequent, an ordinary maintenance plan has been created

This plan, called PMO (ordinary maintenance plan) is made of:

- Analysis and individuation of geological and morphological characteristics and human settlements location
- Surveying and mapping of existing of territory defense works
- Surveying and mapping of appropriate sites for civil protection operations

- Surveying and mapping of critical points
- Project and time distribution of maintenance interventions
- Realization of maintenance interventions

In addition to the plan, a continuous monitoring of specific points of the territory (for example landslides) is made by several Total Stations Instruments that read fixed points of the ground.

Should the setting up over a Station not be possible the survey would be made by inclinometers.

As far as exceptional maintenance is concerned, you can have:

- periodical exceptional maintenance
- exceptional maintenance following unforeseen events, like landslides, earthquakes, floods, whirlwinds

Particular importance must be given to the exceptional maintenance carried out after unexpected events: this should not be a timely but temporary resolution of the problem. The intervention must guarantee a lasting protection of the settlements and the territory.

For this reason it is necessary to operate not only where the events take place but also in the surrounding areas.

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1. HISTORICAL AND CULTURAL ASPECTS OF LAND MAINTENANCE MANAGEMENT

In the last 50 years, land maintenance management in the Valleys territory has suffered a radical transformation in connection with new situations to be faced by the population and local authorities.

In the past, the routine land maintenance activities, like river beds and environment weeding were carried out by the inhabitants who also provided to keep the tracks that connected their settlements to rural areas nice and clean.

The defense of the mountain territory and the consequent regulation works were therefore considered as an integral part of the agricultural productive process; their realization took place in the periods in which farming was not usually carried out, like winter time.

In the 1950s, 60s and 70s there was a progressive urbanization of the Valley population who moved away from the mountain and agricultural areas to settle down in the industrial development centres where the great demand of workforce would guarantee better job conditions and greater incomes.

The Italian society, after years of rural and artisan ethos, is now predominantly absorbed by the emerging metropolitan culture, in which a disengaged attitude towards the rural territories seems to assert itself

Whilst the country environmental awareness took into great consideration both the residential settlements and their surroundings, the new urban trend doesn't care at all the portions of land left behind

The recall to this historic process doesn't have any nostalgic intention but it reports the deep transformation that urban life conditions have brought to the new industrial society. However, the territorial and environmental contradictions that need to be resolved are still there, in particular as far as the brittleness of the slopes, the realization of human settlements in proximity of landslide areas, the missed canalization of the waters and the missed regularization of the streams are concerned.

2. HOW THINGS STAND AT PRESENT

The resolution of territory maintenance problems, having at this point the resident population moved away, is nowadays submitted to the Local Authorities and particularly to the Municipalities and Comunità Montana (consortium of municipalities in a mountain area). These Public Authorities often act without any common coordination and don't succeed in distributing the interventions in a uniform way thus creating pockets of inadequate upkeep.

This situation causes the progressive deterioration of the hydrological equilibrium and also determines, especially in case of exceptional meteorological events, great fragility of the territory. Massive and expensive structural interventions should therefore be essential.

To face the ordinary maintenance management in a systematic way and in order to limit the damages in case of violent and sudden climatic events, which are more and more frequent, an ordinary maintenance plan has been created by the Turin Province since 2001.

The project was created in order to

- guarantee an efficient level of maintenance to the provincial territory;
- coordinate the necessary maintenance interventions.
- to deal with monitoring activities and rapid interventions aiming at the safeguard the hydrogeologic equilibrium of the area

The demand of organizing the activity of land maintenance in a functional and rational way derives from the consideration that, whilst massive infrastructural interventions are better organized, the ordinary maintenance of the territory results insufficient and episodic.

3. STRUCTURE OF ORDINARY MAINTENANCE PLAN (PMO)

The structure of the Ordinary Maintenance Plan of the territory has been elaborated on the base of the followings assumptions:

- the ordinary maintenance of the territory is not limited to a particular part of the area, but it is a complex activity that needs to be planned and periodically repeated
- the ordinary maintenance of the territory is aimed to keep watercourses, slopes and existing works in good level of efficiency
- the ordinary maintenance of the territory, being a preventive intervention of ground defense, needs tools of planning and projecting;
- a tool of planning and territory maintenance management has to be structured in order to allow the analysis of a unity of basin or of a significant area in terms of geomorphic, hydraulic and forest effects

4. PRELIMINARY OPERATIONS FOR THE REALIZATION OF AN ORDINARY MAINTENANCE PLAN

In order to organize an Ordinary Maintenance Plan in an effective way it is necessary to do a whole series of preliminary operations like:

- the adjustment and the geotagging of the grounds and hydraulic works
Cadastrale:
- the cartographic representation of the Public and Private waters
- the analysis of the Territorial Forest Plans
- the analysis and the individualization of morphological and geologic territorial aspects, together with the position of human settlements
- the analysis of information received from monitoring instruments fixed on the ground like, for example, total stations with continuous reading points fixed on the ground or inclinometers, that analyze and check the situation of greater risk on the territory.

Of particular importance in this preliminary phase is to have access to an efficient and updated Real Estate Register and Cadastre.

The Cadastre describes the real estate from a geometric and administrative point of view, while the Real Estate Register detects the real rights' holders.

The Italian Department of Inland Revenue has started some important revision and reorganization of the Cadastral Survey Information: mainly uniting the Cadaster (registry of the "objects") with the Real Estate Registry (registry of the "subjects") and the Public Goods Registry. It will be possible to have a complete and updated inventory of all the Real Estate (land parcels and buildings) with a perfect correspondence between censused objects and relative owners.

On this database it will be possible to overlap the technical cartography in order to have a unique cartographic base, on which the existing hydraulic defense works have to be inserted too, so that the Cadastral Survey Organization of the same can be looked up by all citizens.

5. COMPOSITION OF THE ORDINARY MAINTENANCE PLAN

The general maintenance plan is divided into several basin plans which deal with the upkeep of a specific portion of land with the same geomorphic characteristic; this is done in order to suit the interventions on the ground in a more efficient way.

Each basin plan is constituted by:

- a general report about the widespread organization of the main environmental and physical parameters of the examined territory, that is to say: morphological, hydrographic and hydrological elements, geologic characters and geomorphic structures, self-sown vegetation and use of the ground.
- A technical account, aiming at the individualization of the practical aspects illustrated in the above mentioned general report.

Particular notice is given to:

- the analysis of the problems of environmental upheavals that happened in the past
- the constructional typology and materials used for the existing works with reference to their efficiency and functionality during the years,
- the analysis of the existing works and their actual functional state
- the analysis of the actual critical situations, due to lack of maintenance.

The technical report shows the punctual areas that need more maintenance and the interventions that have to be carried out; it also organizes the operational formalities for the works that have been planned.

A maintenance report that locates and describes every single planned intervention, that indicates the operational typology of every suggested intervention, that proposes management decision too. The interventions are organized in order to meet their deadline they, which is related to their priority on the territory. For every single intervention a form indicated the priority and the cost. Therefore the maintenance report consists in a sort of usage guide for every single intervention.

A schematic maintenance handbook that picks up the single interventions forms comprehensive of the relative cartography and photographic documentation. cartography showing the intervention areas and the single interventions.

BIOGRAPHICAL NOTES

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Academic experience: Dipl. in Surveying

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