

PARTICULARITIES OF LAND RECLAMATION FACILITY MANAGEMENT

PARTICULARITĂȚI ALE MANAGEMENTULUI AMENAJĂRILOR DE ÎMBUNĂTĂȚIRI FUNCiare

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Abstract.

The management of land reclamation facilities has special features determined by the complexity of the activities that are planned, organized and managed. Firstly, the special complexity of the activities results from the specificity of the elements that form the land reclamation facility: the agricultural land and the facilities built on it. Secondly, the complexity of the activities is determined by the need for these two elements to set up a consistent functional structure in order to fulfil the intended purpose, i.e. the sustainable increase of land productivity, by the effective exploitation not only of the natural resources, water and soil, but also of the genetic resources.

Key words: management, land reclamation, agricultural holding, agricultural management, water regulation management.

Rezumat.

Managementul amenajărilor de îmbunătățiri funciare prezintă particularități deosebite determinate de complexitatea activităților care trebuie planificate, organizate și gestionate. Complexitatea deosebită a activităților se datorează, în primul rând, specificității elementelor care formează o amenajare de îmbunătățiri funciare: terenul amenajat cu folosință agricolă și lucrările construite pe acest teren (Figura 1) În al doilea rând, complexitatea activităților este determinată de necesitatea ca aceste două elemente să formeze o structură funcțională unitară pentru a îndeplini scopul propus, sporirea durabilă a productivității terenului, prin valorificarea optimă a resurselor naturale, apă și sol, dar și a resurselor genetice.

Cuvinte cheie: management, îmbunătățiri funciare, exploatații agricole, management agricol, management hidroameliorativ.

INTRODUCTION

Management defines leadership activities and ability and the organization, management and management of enterprises, according to dexonline.ro in order to

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achieve a certain purpose under conditions of time, resources and costs restrictions [Guvernul Romaniei, 1998].

The need to manage land reclamation works has occurred when the latter spread to large areas, according to the planning policy coordinated by the national authorities. The management of land reclamation works was originally aimed at the technical-engineering works themselves, without dealing with the reclaimed land.

Land management was provided by the agricultural holdings operating on the lands. When the authorities realized that the economic performance on the reclaimed land did not correspond to the designed indicators, they improved the relations of water regulation management with agricultural management by upgrading the institutional conditions existing in centralized economy.

In 1966 the Land Reclamation Department was established within the Ministry of Agriculture, to provide the management of the specialist activities and to coordinate the planning and execution of the specialist works, (Figure 1 a,b,c).



a. agricultural land



b. hydrotechnical scheme of the arranged



c. agricultural land arranged for irrigation and surface drainage

Fig.1. The components of land reclamation facilities (a, b, c)

MATERIAL AND METHOD

The transition to the market economy led to major changes in the management of land reclamation works. World trends in irrigation management dominated the structure of land reclamation works, which required the implementation of an institutional reform. The reform consisted in the transfer of irrigation management to users [***, 2009].

Government Order No. 292/1991 established the set-up of the Trading Company for the Operation of the Land Reclamation Works (S.C.E.L.I.F. S.A.) structured into county branches that coordinated water regulation systems, and companies for **maintaining** pumping stations and automation purposes (S.I.S.P.A.).

Act No. 50/7 issued in 1994 established the set-up of the Autonomous Land Reclamation Agency (R.A.I.F.) subsequently renamed the National Land Reclamation Society Ltd (S.N.I.F.) by the Emergency Ordinance No. 23/27 issued in 2000, [***, 2006].

Government Emergency Ordinance No. 147/1999 established the set-up of the Associations of irrigation water users (AUAI) as legal entities. These associations were subsequently renamed Organizations of irrigation water users (OUAI). Act No. 138/2004 on Land Reclamation established the set-up of the National Land Reclamation Administration Ltd. aimed to operate, manage, maintain and repair the facilities belonging to the public/private state domain (Organization and operation regulations of the National Land Reclamation Agency on 23.07.2014, effective from 30.07.2014, [***, 2014].

The analysis of the practical realities regarding the management of the land reclamation facilities shows that the real global management of the facilities is not operational yet, as the relationship between water regulation and agriculture is still being limited to the service contracts between the specific organizational entities of the two sectors.

Therefore, we intend to analyze several solutions to increase the managerial effectiveness of the agricultural land supplied with land reclamation works.

RESULTS AND DISCUSSIONS

The analysis of the specific management of the agricultural land supplied with land reclamation works shows that this type of management should be differentiated according to the characteristics of the activities carried out for both the agricultural land and the design of the water regulation existing on the particular land. Each type of activity has specific planning, organization and management objectives. The objectives of agricultural management are to ensure that farm activities are carried out according to the agricultural trends, in order to modernize the production processes while using agricultural resources in a sustainable manner. In order to achieve these objectives, agricultural management must have a specific job and hierarchy structure through which it can ensure the concrete actions for continuous and effective work.

The most important three issues that are characteristic for agricultural management: the sustainable use of the agricultural land according to the internal land organization method and the morphological features of the territorial units; the choice of the crop plan and crop rotation based on the land evaluation notes and the agricultural suitability class of each field/plot of land and finally the establishment of the improvement culture technologies that bring out the full potential of the facilities (specific agro-technical works, irrigation system, organic and mineral fertilization system, phyto-sanitary treatments, pH correction, etc) [Vlad *et al.*, 2006].

In the case of large water regulation systems consisting of several agricultural units, the fusion of the units in an association would provide a more effective coordination between the two types of management, i.e. agricultural management and water regulation management.

The management of land reclamation facilities is based on the principles of general management and has particularities established by its specific activities. In the case of on-site land reclamation in different time intervals, three technical stages can be distinguished, each with distinct management: design, construction and operation.

The design phase has a limited time duration in time, during which it is necessary to elaborate the design variants, out of which, the best variant is selected through technical and economic approval. The evaluation criteria for the design variants include: the area that will be occupied by the facility elements, including protection areas, necessary resources, the specific investment/ return of investment, the net income/the income gain resulting from the effect of the facility on the land of the agricultural holdings, environmental impact. It should be noted that the net income/the income gain resulting from the land facility is the direct link between the two types of management, i.e. water regulation and agriculture. The additional income obtained by the agricultural holdings after land planning is the result of the combined effect of the facility and the specific agricultural technologies applied on the lands provided with land reclamation works.

The construction phase is limited in time and requires the organization of the activities by the Gantt chart. The project schedule ensures that the resources (physical resources, labour force, operation duration) are effectively used for the successful completion of the development and rehabilitation of the degraded lands, according to the project deadlines.

The operation phase begins with the handover to the agricultural beneficiary and has a long time interval, depending on the service life of the facility components. The main objective of water regulation management is the operation of the hydrotechnical scheme according to the design parameters, in order to ensure the production of the improving effects of the facility. A permanent functional connection between the agricultural activities and the water regulation system must be ensured from this moment on.

Water regulation management must ensure the following: recording the duration and intensity of land and crop degradation produced by the water excess, soil drought, critical rainfall, critical water levels in the water supply sources, etc., monitoring the hydrological scheme in the canals and the physical condition of their drain section, controlling the groundwater dynamics and quality, tracking the water supply in the soil for each crop and soil type and also writing maintenance documents for the elements of the hydrotechnical scheme.

Water regulation management is provided by operation and maintenance organizations that perform their activities according to the demands of the agricultural beneficiaries, as stipulated in service contracts available for a fee.

The tariffs collected for land reclamation services must provide support for their use (irrigation systems, drainage and dryness, flood defense works, soil erosion control works) so as to protect the interests of the beneficiaries. At the same time, they ensure efficient water use, excess water collection and discharge, soil erosion and pollution prevention, and environmental protection support [***, 2006]. Water regulation management must provide the beneficiaries of the facilities with recommendations for the application of specific water regulation works, according to the services contracted by the beneficiaries. The recommendations include time of watering onset and size of the watering rate, initiation of agro-technical works on the lands affected by excess water, etc.

The beneficiaries of the land reclamation facilities, together with those who benefit from their operation, must pay a fee for the management of the works [Postamentel et al., 2022].

CONCLUSIONS

The analysis of the issues presented in the present study results in the following conclusions:

1. Land reclamation facilities are the main means of production in modern agriculture.
2. Land reclamation facilities consist of agricultural lands and the water regulation works applied to these lands.
3. The increase in the production potential of the agricultural lands supplied with land reclamation works is supported by the application of specific land reclamation management.
4. The management of land reclamation facilities makes a clear distinction between agricultural land management and water regulation management.
5. The positive economic effects of land reclamation facilities reach the highest level when the two management types are correlated, even if they are carried out by different organizational entities, i.e. agricultural holdings and on-site operation organizations.
6. The correlation between the two management types is based on the service contract between the two organizational entities.

7. To improve the global management of land reclamation facilities, it is necessary to extend the collaboration between agriculture and water regulation through some measures such as the following:
 - reorganizing the services of forecasting and watering application warning;
 - monitoring the groundwater evolution (levels, quality);
 - monitoring the efficiency of underground drainage;
 - identifying the areas that require the secondary drainage measures, etc.
8. The improvement of the overall management of land reclamation facilities would lead to a sustainable exploitation of the water and soil resources, as well as of the genetic resources.
9. Law amendments would ensure watering control in agricultural holdings and this would prevent the side effects of irrigation (soil salting, swamp formation).
10. Watering control should be the responsibility of the facility operation and maintenance organizations.

REFERENCES

1. **Postamentul Mariana, Mărăcineanu Florin, Constantin Elena, 2022** - *Tradiție și actualitate în managementul irigațiilor din România*. Editura EX TERA Aurum, București
2. **Vlad Virgil, Stan (Ignat) Marina Grațiera, Nilca Ioana, Gavriluță Ioan, 2006** - DexTer-2 - Sistem suport de decizii și expertiză privind managementul terenurilor agricole. Institutul Național de Cercetare-Dezvoltare pentru Pedologie, Agrochimie și Protecția Mediului – ICPA București [https:// icpa.ro/site_ vechi/ proiecte/ Proiecte%20nationale/ dexter/Dexter.htm](https://icpa.ro/site_vechi/proiecte/Proiecte%20nationale/dexter/Dexter.htm)
3. **Regulamentul de organizare și funcționare al Agenției Naționale de Îmbunătățiri Funciare** din 23.07.2014, în vigoare de la 30.07.2014.
<https://lege5.ro/gratuit/ggydcnrzgy/regulamentul-de-organizare-si-functionare-al-agentiei-nationale-de-imbunatatiri>
4. **Banca Mondiala, 2009, Proiect de reabilitare si reforma irigatiilor**. Analiza economică a sectorului de irigații. Raport final Ministerul Agriculturii, Padurilor si Dezvoltarii Rurale Banca Mondiala
5. **Guvernul României, 1998, Manualul de management al proiectelor**, https://ro.wikipedia.org/wiki/Managementul_proiectelor
6. **Parlamentul României, Camera Deputaților, 2009 - Raportul Comisiei parlamentare de anchetă** privind situația sistemelor de irigații, precum și a altor sectoare de îmbunătățiri funciare,
7. **Monitorul Oficial Nr. 70/25, 2006** - Norme metodologice din 23 noiembrie 2005 privind calculul și plata tarifelor pentru serviciile de îmbunătățiri funciare. Ministerul Agriculturii, Pădurilor Și Dezvoltării Rurale [https:// lege5. ro/Gratuit /gi2tsnbzgu/norma-metodologica-privind-calculul-si-plata-tarifelor-pentru-serviciile-de-imbunatatiri funciare](https://lege5.ro/Gratuit/gi2tsnbzgu/norma-metodologica-privind-calculul-si-plata-tarifelor-pentru-serviciile-de-imbunatatiri-funciare)
8. <https://dexonline.ro/definitie/management>