The land fund is an important natural resource, in its own nature and specificity, different from other goods, and it refers to land areas located within the territorial limits of a state. Romania has a significant development potential but with little use, holding 0.18% of the world surface occupying 17th place, and 5.41% of the European surface occupying 12th place. In the past 20 years, the management of the Romanian land fund was poor, not taking into account the conservation of land resources and their effective capitalization. The laws governing the land fund were incorrectly applied, in an uneven way, causing damage to the population and the budget state.

Keywords: resources, poor, land fund, development, evolution, land reclamation

1. Introduction

Lands of all kinds, regardless of the destination, ownership title or public or private domain to which they belong, is the land fund of Romania.

Depending on the destination, the lands are:

a) agricultural lands, namely: productive agricultural lands - arable, vineyards, orchards, vineyard nurseries, tree nurseries, hops and mulberry trees, pastures, hay fields, greenhouses, solariums, growth rooms and other such -, the lands with forest vegetation, if not forming part of forest arrangements, forest pastures, the ones occupied with construction and agrozootechnical installations, fishery arrangements and land reclamation, the technological roads and of agricultural exploitation, platforms and storage areas that serve the needs of agricultural production and the unproductive lands that can be designed and used for agricultural production;

b) lands with forest destination, namely: the forestlands or those that serve for crop, production or forest management, lands for afforestation and the unproductive lands - rockery, slopes, blocks, ravines, gullies, streams - if they are included in forest arrangements;

c) lands permanently under water, namely: minor beds of watercourses, lake basins at maximum retention levels, the bottom of the inland maritime waters and the territorial sea;

d) urban lands found in urban and rural localities, on which the buildings are placed as well as other structures of the residens, including farmland and forestland;

e) lands with special destinations such as those used for road, railway and air transport, with buildings and associated installations, hydraulic engineering constructions, for heating, electricity transmission and gas, telecommunications, for mining and petroleum exploitation, pits and dumps of any kind, for defense, beaches, natural parks, natural monuments, archaeological and historical sites and others alike.

In the last decades in Romania, flawed and uneven application of the land laws led to the capitalization of the land fund in the personal interest of some private persons, thus prejudicing the state of significant revenue.

In the context of EU integration, Romania must quickly adapt its agricultural economy and rural development. At this point, Romania started implementing various programs aiming a more
efficient capitalization of land resources and their conservation taking into account their category of use.

Since the adoption of the first agrarian reform of 1864 promulgated by Alexandru Ioan Cuza which granted 1,892,927 hectares of land to peasant families, freeing them of feudal tasks, it has been 151 years, yet we are still witnessing a seizure of land by individuals who are under the protection of the state.

2. The structure and evolution of the land fund in Romania

The land fund is an essential component of national wealth, wealth which must be used, protected and enhanced in full compliance with the interests of society. Over the years in Romania, the way that lands are used has changed along with the needs of the population, areas occupied by buildings gaining ground at the expense of lands used for agricultural purposes as we can see in the table below.

<table>
<thead>
<tr>
<th>Method of use of the land fund</th>
<th>1990</th>
<th>2000</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>23,839,071</td>
<td>23,839,071</td>
<td>23,839,071</td>
</tr>
<tr>
<td>Agricultural</td>
<td>14,769,028</td>
<td>14,856,845</td>
<td>14,611,883</td>
</tr>
<tr>
<td>Arable</td>
<td>9,450,395</td>
<td>9,381,109</td>
<td>9,389,254</td>
</tr>
<tr>
<td>Pastures</td>
<td>3,262,509</td>
<td>3,441,667</td>
<td>3,273,961</td>
</tr>
<tr>
<td>Meadows</td>
<td>1,465,364</td>
<td>1,507,190</td>
<td>1,541,854</td>
</tr>
<tr>
<td>Vineyards and nurseries</td>
<td>277,371</td>
<td>272,252</td>
<td>210,270</td>
</tr>
<tr>
<td>Occupied with water, puddles</td>
<td>6,685,371</td>
<td>6,457,283</td>
<td>6,742,056</td>
</tr>
<tr>
<td>Occupied by buildings</td>
<td>903,571</td>
<td>867,839</td>
<td>835,997</td>
</tr>
<tr>
<td>Roads and railways</td>
<td>:</td>
<td>583,256</td>
<td>758,303</td>
</tr>
<tr>
<td>Degraded and unproductive lands</td>
<td>:</td>
<td>388,147</td>
<td>309,895</td>
</tr>
<tr>
<td>Other surfaces</td>
<td>1,481,101</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: 1998 - 2015 NATIONAL INSTITUTE OF STATISTICS

Romania’s agricultural land is 61.29% of the total land fund (approx. 14.6 mil. Ha, of which 64.2% arable land, 32.9% natural pastures and hayfields and 2.7% orchards and vineyard) 28.3% forests and other forest vegetation lands; 10.4% building area of settlements, waters, roads, railways and unproductive lands (INS Tempo Online, 2012). The agricultural sector and rural economy in general continues to have substantial growth potential, but is insufficiently exploited. In 2006, the costs on agriculture, forestry, fishing and hunting from the state budget were 4.048.4 million lei representing 9.9% and in 2013 the same expenses were equal to 5.811.8 million lei, representing 6.39%. Instead in 2012 the agricultural sector generated 6.924.752 million Euro representing 6.01% of the total gross value added, in decline (in 2005 it was 9.52% of total GVA).

![Figure 1. Evolution of agricultural spending from the state budget](source)

Source: conducted by the author based on data processed by the National Institute of Statistics

Also, since 2000 the Romanian government has implemented various projects to reduce the degraded and unproductive lands, thus reducing their area of 636,101 hectares in 2000 to 500,937 hectares in 2013.

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3. Land fund improvement works

During the period 1950-2000, the world economy has increased 7 times and unprecedented, the world population increased from 2.5 to 6.1 billion inhabitants, raising the living standards.

The intensive exploitation of natural resources led to the economic development but not without having serious effects on the natural planetary system. The four ecosystems that represent food sources (forests, pastures, farm lands and fisheries) are severely affected by poor management that also limits the environmental conditions for the generations yet to come.

To counter the effects of man but also those that nature itself is risking in creating them, each State has the obligation to protect its natural resources arranging development infrastructures in rural areas. These restoration and development projects of the land fund must have an implementation period of 25 years and must be drawn on individual spaces, based on specific criteria established on hydromorphological zones. Such a project should include the development in time and space of all the infrastructure works, the activities and services which will ensure the sustainability of natural resources for future generations.

Until 1990, in Romania were invested approximately $ 10 billion in the development of projects for improving the land fund.

- 2.2 million ha for soil erosion control;
- 3.2 million ha of drainage works - to combat excess water drainage on agricultural land, of which 157,000 ha arranged with closed drainage. Before execution of the drainage ditches, some of these lands were protected against floods by damming, achieving 1.181 km of dam on the Danube embankment and 1,183 km of dam on inland rivers. Also for flood protection and regulation of water flow, there were executed 115 dams and polders and in hilly areas approx. 1,100 lakes (ponds);
- 3.1 million ha arranged for irrigation;

Land improvement works that can be implemented to maintain, control and alleviate the effects generated through the destruction factors, both natural and human, are materialized in:

Figura 2. Types of improvement works to the land fund

![Diagram of improvement works](image)

Source: conducted by the author

The public institution which operates, manages, maintains and repairs the land fund improvement in the public or private state, declared of public utility is the National Agency for Land Reclamation. The initial value of the goods that belong to the public and the private domain of the state, managed by ANIF is 6.580.138.765,44 lei, in which the constituted heritage value of goods belonging to the public domain is 6.416.047.431,84 lei, and the value that belongs to the private domain of the state is 164,091,233.60 lei.
Financing Administration’s current expenses is covered from own incomes and from subsidies from the state budget, and the administrative expenses, materials and personnel necessary to conduct the Administration’s activities are covered total or partial from subsidies from the state budget.

**Figure 3. The value of assets managed by ANIF**

![Diagram showing Revenues and Expenses]

- service charges for irrigation, desiccation and drainage, flood prevention and combating soil erosion perceived to the beneficiaries,
- interests and penalties paid for the services rendered for which payment has not been received in time,
- proceeds from the lease of public property and private state,
- proceeds from decommissioning of land reclamation infrastructure,
- exploitation of wood and herbaceous mass resulting from the maintenance and regeneration of forest plantations,
- fees for issuing technical and specialized opinions,
- income from other conducted activities,
- studies, design and applied research related to its activity,
- technological equipment related to land fund improvement,
- expert appraisal of land fund reclamation works in the infrastructure,
- exploitation, maintenance, repair and management of land fund improvement,
- environmental protection through land fund improvement works and monitoring the impact of these works,
- other personnel expenses,
- other expenses for the maintenance and protection of land fund improvements.

*Source: conducted by the author based on data processed by the [www.anif.ro](http://www.anif.ro)*

All beneficiaries or their heirs are forced to pay the National Agency for Land Reclamation a price corresponding to each category of works:
- irrigation facilities management;
- management, exploitation, maintenance and repair of the drainage facilities with water drainage by pumping;
- management, exploitation, maintenance and repair of the drainage facilities with gravity drainage of the water;
- management, maintenance and repair of the works to combat soil erosion.

In the calculation of tariff IF are included the following expenses:
- expenses for the exploitation of the infrastructure from every land fund improvement for each component / category of drainage with water eviction by pumping and drainage with gravitational water eviction and expenses for maintenance and repair of the infrastructure from every land fund improvement for each component / category of drainage with water eviction by pumping and drainage with gravitational water eviction;
- expenses for infrastructure protection from each land fund improvement for each component / category of works of irrigation, drainage with water eviction by pumping and drainage with gravitational water eviction and soil erosion control, as appropriate;
- expenses to ensure the security of the infrastructure of each land fund improvement for each component / category of works of irrigation, drainage with water eviction by pumping and drainage with gravitational water eviction and soil erosion control, as appropriate;

- material expenses, other than those included in categories above.

The tariff of land fund improvements is calculated separately for each of the four components / categories of works as the ratio between the sum of total expenditure for each component / category of works and the sum of the total surfaces for each component / category of works and the same price value is determined in order to ensure equitable exploitation of land fund improvement to protect the interests of all beneficiaries, to prevent inefficient use of water, excess moisture, soil erosion and pollution and to promote environmental protection in accordance with environmental standards.

In 2014 land fund improvement works were allocated funds from the state budget in the amount of 58,383,000 lei, of which for external and irredeemable revenues worth 16.4 million lei. There were executed works in the amount of 42,076,403 lei.

In 2014 for the irrigation works were allocated funds worth 8.705 million lei for a number of 5 investment objectives. There were executed works in the amount of 7,589,234 lei, representing 87% of the amount allocated.

For drainage works, were allocated funds worth 12,434,000 lei. There were executed works in the amount of 8,272,223 lei, representing 67% of the amount allocated.

For fighting soil erosion works, were provided funds worth 10.947 million lei. There were executed works in the amount of 8,322,461 lei, representing 76% of the amount allocated.

For further land fund improvement works were provided funds worth 9.897 million lei of which were executed works worth 1,822,402 lei, representing 18% of the allocated amount.

Since Romania joined the European Union, both Romanian state and private institutions received significant sums granted for implementing projects to improve the land fund, both in the design phase (conducting field studies and elaboration of economic and technical documents) and the actual execution phase of the works (conducting the actual works for the land fund improvement).

**Figure 4. Amounts invested in improving the land fund in 2013-2014 - lei**

[Source: conducted by the author based on data published by ANIF]

The low level of GVA achieved in agriculture affected the amounts allocated for future investment. Although, in 2011, 18.9% of GVA in agriculture returned in the sector in the form of investment, however, the gross fixed capital formation in agriculture remains 25% below average.

For the period 2014 - 2020 MARD set up the directions of the new development and investment project which aims continuing the development program established in 2007 (for the period 2007-2013) and which is considered one of the most important works, of ampleness that Romania badly needed, namely, that in the irrigation sector.

Irrigations are a key factor in obtaining high and relatively stable productions from year to year, with favorable implications for food security of the population.
In January of 2011 the Ministry of Agriculture and Rural Development stated "Rehabilitation Project and irrigation sector reform" strategy aimed at solving problems such as:
- the technical condition of irrigation infrastructure;
- organizational and financial capacity of users to maintain the irrigation systems;
- reduced ability of users to contribute to the modernization of the system;
- irrigation facilities not adapted to user requirements.

Like any other investment, even this one is based on a set of principles (Fidman Merck at, January 2011):

a) Technical and economical viability of irrigation systems, which translates into cost recovery of operation and obtaining a profit, after applying irrigation.

b) Interest of users. Investments are made only at the request of the potential beneficiaries. Without the active involvement of the users, any investment is not sustainable and this kind of principle should be excluded.

c) Contribution. Farmers who will benefit from investments must have their own contribution to the rehabilitation / upgrading or creating of new facilities.

d) Economic capacity. Irrigation is a higher stage in the development of farms. Irrigations are not available to any farmer capacity being required meeting certain economic conditions, which means: capacity of organization, market orientation, financial capacities and technical skills / expertise.

e) Crops suitable for irrigation. Crop structure practiced on irrigated land must allow covering all irrigation costs, including maintenance of facilities and contributions to rehabilitation / modernization, and getting a consistent profit for the users.

f) Adaptation to the demand. The modernization must satisfy the users demands on irrigation methods adopted by the users.

g) The support of any irrigation systems, not only those administered by ANIF; the strategy aims to support the development and modernization of local irrigation facilities, new facilities or fundamental redesign of the ANIF facilities that can even be separated or modified.

This project had an implementation period of 4 years, over an area of 400,000 ha minimum. The project funds were secured from a World Bank loan (80%) and the Romanian Government contribution (20%) and are structured in the following investment categories: Civil construction- 68%, Goods - 20%, Consulting and Training - 8%, Operational costs - 4%.

<table>
<thead>
<tr>
<th>Activity</th>
<th>minimum Budget</th>
<th>medium Budget</th>
<th>maximum Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation of main infrastructure of ANIF systems</td>
<td>285.290</td>
<td>490.107</td>
<td>944.369</td>
</tr>
<tr>
<td>Interior infrastructure and federations</td>
<td>153.121</td>
<td>178.004</td>
<td>232.677</td>
</tr>
<tr>
<td>Technical assistance for institutional development</td>
<td>2.765</td>
<td>2.765</td>
<td>2.765</td>
</tr>
<tr>
<td>Studies</td>
<td>285</td>
<td>285</td>
<td>285</td>
</tr>
<tr>
<td>Working visits</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Unforeseen</td>
<td>10.000</td>
<td>10.000</td>
<td>10.000</td>
</tr>
<tr>
<td>User contribution</td>
<td>-44.041</td>
<td>-66.811</td>
<td>-117.705</td>
</tr>
<tr>
<td>TOTAL</td>
<td>409.135</td>
<td>614.065</td>
<td>1.072.106</td>
</tr>
</tbody>
</table>

Source: Fidman Merck at, January 2011

Unfortunately, as in the past 18 years neither through this program have not been made investments in the rehabilitation / modernization of irrigation systems, but only costs for the annual maintenance and repair of some systems, namely those in which there have been requests for water from farmers.

The program 2014 - 2020 of NRDP (National Rural Development Program) will have a better orientation towards advanced irrigation systems that will contribute to water use efficiency, amenities and equipment which will lead to lower energy consumption and equipment for production and use of renewable energy.
Adaptation to the climate change effects is another reason why it is essential establishing, expansion and upgrading of the irrigation facilities, promotion of new technologies and new practices of agricultural management and also the adoption of risk management measures, the establishment of forest belts for protection of the field.

These actions will result in combating excessive drought, improving local climate, losses caused by the vulnerability of rural communities to climate change effects and the efficient use of freshwater resources.

Although there have been made important investments in developing new processes and agricultural products in particular for the introduction of innovative techniques and technologies with a total value of 1.533 mil. Lei - at the end of 2013 the percentage of total volume of investments at the national level remained very low, only 3.7%.

4. Land fund Improvement Organizations (OIF)

The organizations and federations of organizations in land fund improvements are those individuals or legal persons holding under a valid title of ownership or use, land served for irrigation or drainage and flood defense works or for soil erosion control.

These organizations operate within a clearly defined area of land, landscaped with land fund improvement works and in the status and their name is specified the main activity which they are conducting according to the sector to which they belong (irrigation works, for drainage, soil erosion control or flood defense).

The Land fund Improvement Organizations have the following attributions:
- contracts of provision of services land fund improvement;
- provides land fund improvement services to its members;
- collect fees for the provided services from the organization’s members and from the persons who are not members in order to cover the costs of such services;
- rehabilitates, modernises and develops the infrastructure for land fund improvement in its territory;
- applies credits and presents guarantees according to the legislation in force;
- carries out other activities provided by the law;

Currently, in Romania were set up a total of 509 OIF’s on a total surface of 1,668,109 ha in the territory of 24 counties, of which most OIF’s were established in Braila county.
5. Conclusions

The natural environment in Romania is characterized generally by a good state of conservation of the natural resources of soil and water, traditional landscapes and a remarkable biological diversity. However, some of these resources are subjected to some pressure factors having effects on their productive potential, quantitative and qualitative. Regarding the land fund surface, between 2006 - 2012 there was a slight decrease in agricultural land (0.79%) and an increase in unproductive and degraded land areas (11.6%). In the year 2010, over 1.3 million ha of agricultural land is unused due to the insecurity of the production factors in small holdings, improper functioning of agricultural markets, restrictions determined by natural factors (climate, landform, edaphic features etc.), disputes between owners etc.

Romania is one of the most important EU countries in terms of biological diversity. Also in Romania are found the most bio-geographical regions in the EU, namely 5 of the existing 11, with the following layout: Mainland (53% of the country surface), alpine (23%), steppe (17%), of pannonian (6%) and pontic (1%).

In 2014, in the land fund improvement works were invested 42,076,403 lei (54% more than in 2013) of which about 40% were irredeemable European funds, thus registering a notable increase.

Certainly we can recognize the importance of external funds in these projects that our country has great need and should take advantage of these funds more in the future, but also we can observe an awareness and assumption of the people and authorities of the need to invest in the land fund improvement works.

References

2. Legea 138/2004 a imbunatatirilor funciare, republicata si actualizata
4. Programul National de dezvoltare rurala 2014 - 2020
5. Raport de activitate ANIF 2013,
6. Raport de activitate ANIF 2014
7. www.insse.ro
10. www.europarl.ro