STUDIES ON THE SUBSTANTIATION OF THE PROGRAMS CONCERNING THE RURAL DEVELOPMENT OF THE AGRICULTURE IN IALOMITA COUNTY

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Abstract. This work presents a synthesis of the environmental production studies for Ialomita County, together with some recommendations concerning a number of programs that may determine a long-term character for the exploitation of the agricultural lands: the technical and the managerial modernization for irrigations and drainage; the proper recovery and exploitation of the works against the floods; the more different assortment of the culture; the extend of the rise culture on the salted soils.

INTRODUCTION

Situated in the South-East of Romania and absorbing a significant part of the East division of the Romanian Plane, Baragan - situated in Ialomita County - is one of the oldest territorial administrative units of this country, with the following geographical coordinates: 44°20'-44°51' North latitude, 26°18'-28°06' East longitude.

This territory is situated at the interference of an old commercial road that confers even now the characteristic of a transit area between the Orient (through Constanta) and the Occident. Ialomita County is crossed by the same name river inferior flow and by the Danube, which between Borcea arm and Old Danube has an extended surface with a high agricultural potential.

MATERIAL AND METHOD

Agriculture represents the essential compound of the rural space; therefore, the rural development should be extended according to an adequate policy that should include a number of problems concerning the objectives of the agriculture, the incomes of the farmers, the territorial compounds, the juridical regime of the property, the territorial organization of the exploitations, as well as their evolution in this respect.
In order to work up a realistic agricultural policy means to know the natural and social economical potential of the respective area reflected in the environmental production studies.

The Ialomita County's climate presents an accentuated variability reflected in Figure 1 that presents a comparative study of the main elements recorded by the meteorological station Grivita during the period 1984-2005.

During a consecutive period of 22 years, the annual rainfalls recorded the minimum values of 267.2 mm (in year 2000) and the maximum values of 714.1 mm (in year 2005), resulting an average value of 455 mm. The rainfalls during the vegetation period represented between 47% (in year 1984) and 76% (in year 1997) of the total annual rainfalls, resulting an average value of 61%. Talking about Ialomita County, it is obvious that the vegetation rainfalls were dominant in respect with the rainfalls during the cold season.

![Figure 1](image)

For the entire 22 analyzed years, during the vegetation season (months 4 to 9) a variable deficit of water was produced within the limits of 166 mm (in year 2005, with rainfalls that exceeded the annual average of 259 mm) and 488 mm (in year 1990). This situation is a characteristic of the pluvial agriculture and it is reflected throughout the variability of the crops, in respect with the volume of the rainfalls. Likewise, an important water deficit happened in Ialomita County, with an average value of 362 mm for each of the 22 analyzed years, fact that underlines once again and without any doubt the need of the irrigation as an agricultural technique, in order to obtain long-term profitable economical results for the farmers in this respect.

Among the extreme climate phenomena characterizing the Ialomita County, the floods from the Danube and Ialomita River represent the highest danger for the agriculture in this area.

The hydrological events of the year 2006 evidenced once again the dominant influence of the Danube River upon the East and the Central area of the above mentioned County.

The levels of the Danube River in Fetesti section - namely above the closest area of Ialomita County - exceeded the warning quotas beginning with March 18 up to May 5, 2006 (i.e. 49 days), while the flood quota was reached on April 13 up to May 9 (23 days).

The water discharge recorded for that period (Figure 2) increased from 6005 m³/s (on March 18, 2006) up to 6910 m³/s (on April 13, 2006) when the flood quota was recorded,
reaching to a maximum value of 7450 m$^3$/s that lasted up to April 24 and 25, 2006. For a long period of time (between May 10 and 19, 2006) the water discharges continued very close to the flood value.

In order to prevent the deluge of the downstream areas, the practice to control the breach in the dam, in Vladeni area, was taken into consideration, fact that affected an area or 2444 hectares in this respect.

From the geotechnical studies, the presence of the following types of soil in the Central and East part of Ialomita County resulted: clays (clays, powder clays, and loam clays) with a yellow-fawn color with average consistency; muddy clays with reduced consistency; powdery clays with average consistency; powdery fine sand or clay soil. Within these groups of soils there are frequent argillaceous, muddy or sandy clays with thickness of 0.7-0.9 m.

For these soils the following filtration coefficients may be taken into consideration:
- Argillaceous or powdery fine sands: $K = 1 – 5$ m/day;
- Argillaceous or sandy powders: $K = 0.1 – 1$ m/day;
- Clays and powdery clays: $K = 0.01 – 0.1$ m/day.

The soils in Ialomita are represented most of the time by black earth/chernozems (carbon-based $C_k$, specific $C_n$, cambisoils CC, argillaceous-alluvial C1) and caliches (SC), alluvia and alluvia soils (A, SA), immerse alluvia soils (SAe), as well as sands, light solidified sands and cambisoi chernozems (N, CC).

In the Central and East area of the County there are soils with a high content of salt, which are not good for the plane cultures.

RESULTS AND DISCUSSIONS

From the studies concerning the environmental production we can easily see that Ialomita County has a favorable rural economical potential especially for agriculture, fishery
and aquaculture, but with limited assessment due to the climatic conditions, reflected in the multi-annual average water deficit of 325 mm, comparative with the volume of the multi-annual average water discharges of 510 mm, fact that underlines once again the arid characteristic of this geographical area.

During the vegetation period, the arid characteristic of the climate is more evident, while the deficit of the multi-annual environmental humidity is of 362 mm.

On the other hand, the arable area of this County is totally fitted for the irrigations, but both the structural modifications of the agricultural organization, and the new management of using the irrigations determine this agricultural technique - indispensable for the long-term agriculture - to be little used, no matter the Organizations of Water Users for Irrigations are already set up.

One of the evident climatic characteristics of the last years are the extreme phenomena as drought, abundant water discharges, and floods that have no regular frequency, but produce the most important loses for agriculture and for the environment as well.

The soils represent a variable fertility potential from very favorable to less favorable, but even the salty soils from the East of the County may be valued in very efficient conditions throughout the culture of the rise irrigated by flood.

CONCLUSIONS

Following the studies in the environmental production in the Ialomita County, for the substantiation of the programs concerning the long-term development agriculture, the following conclusions are obvious:

- The studied area presents a highly land potential that may increase the promotion of a long-term agriculture in this respect.
- The natural environment is of a continental type with some arid processes and with landscape like an anthrop steppe.
- The long-term agriculture in Ialomita County can be achieved as follows:
  o By the technique modernization and improvement of the exploitation management as regards the works against floods;
  o By using a sort of more assorted culture in respect with the ecological advantages of the pedoclimatic micro-zones;
  o By extending the culture of the irrigated by submersion rise with a variable stratum of water in order to assess the salted soils in the East of the County.

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