

# Project Management of Irrigation Systems

Vanghele Cristian  
„Andrei Şaguna” University of Constanta  
[cvanghele.flg@gmail.com](mailto:cvanghele.flg@gmail.com)

## Abstract

*The management of irrigation systems projects is a fairly recently emerging field, and its importance has been greatly increased due to the fact that, on a European and international scale, more and more actions take place in some projects.*

*The project represents a sum of activities that lead to a common goal and require a significant consumption of resources (human, material, financial, equipment, documentary information and time). The implementation of a project implies an initial moment and a final moment of the project, ie a duration of realization. The initial moment is considered the one in which the decision is made to proceed to the design of a project, and the final one is the one in which closes the last activity foreseen by the project.*

*Project management consists of planning, organizing and managing (tasks) and resources to achieve a certain objective, given the existence of constraints on time, resources and costs.*

*The purpose of this paper is the analysis of projects and programs specific to the field of agriculture in general and irrigation systems in particular through regional and national development programs, closely correlated with the analysis of internal and external factors that determine the elaboration of managerial policies at macroeconomic level regarding the implementation of some projects specific to the agriculture branch.*

**Key words:** management, project, agriculture, irrigation, decision.

**J.E.L. classification:** E61

## 1. Introduction

The management of irrigation systems projects is a fairly recently emerging field and its importance has been greatly increased due to the fact that, on a European and international scale, more and more actions are being carried out in the framework of some projects, which are a sum of activities lead to a common goal and require a significant consumption of resources (human, material, financial, equipment, documentary information and time).

The research methods used in this paper are: fundamental research, applied research, development research, by: observing and measuring phenomena, creating hypotheses and models, forecasting, establishing the level of importance, Testing model hypotheses through experiments, tests, tests.

## 2. Theoretical background

Managing activities at macroeconomic level in agriculture involves the implementation of technical-economic, social and cultural policies by implementing current and prospective strategies with the help of managerial tools specific to each branch of agriculture, including an important role it is the responsibility of the managerial policies for the implementation of technical-economic-financial projects with adequate finality and efficiency in each field of activity specific to agriculture in general and irrigation systems in particular.

In project management a program includes several projects; a project can be further broken down into subprojects, groups of activities and actions. The project manager coordinates a team, the complexity of the project requiring the participation of more than one person (C. Scarlat et al,

Bucharest, 2002, p.6). In some organizations, projects are the primary mechanism used to coordinate and integrate all processes and functions, starting with production, research and development, ending with marketing, staffing and financing activities (Hobday, 2000, p. 873).

A project can be designed on different levels, covering issues of different dimensions. Therefore, it is important to detail the concepts of project management. Despite the extremely large variety of programs and projects, there are, however, some general features that we will find, regardless of geographic or temporal dimensions, and without the size of budgets or teams being of any importance. On the other hand, even simple enumeration of definitions of these general characteristics can help us to better outline the internal approach of a project.

Project management is a fairly recently emerging field, and its importance has grown significantly due to the fact that, on a European and international scale, more and more actions are taking place in some projects. The resources used by these projects (especially the financial ones) have an increasing role (see the PHARE or SAPARD programs) in economic development and their scope is increasing.

The project is a sum of activities that lead to a common goal and require a significant consumption of resources (human, material, financial, equipment, documentary information and time). The implementation of a project in the field of agriculture involves an initial moment and a final moment of the project, thus a duration of realization.

The initial moment is the one in which the decision is made to proceed to the design of a project, and the final one is the one in which the last project activity is closed. The project management consists of planning, organizing and managing (controlling) the tasks and resources which aims at achieving a certain objective, given the existence of constraints on time, resources and costs.

Projects and programs - From a theoretical point of view, there is a distinction between project and program concepts, although often they are used in equivalent terms. In project management a program includes several projects; a project can be further broken down into sub-projects, groups of activities and actions. Programs, like projects, have a clearly defined leadership. There is first a program / project manager / manager (Project Manager, Project Manager, Project Coordinator, Team Leader).

More and more authors conceive the projects as multidisciplinary approaches, serving multiple purposes and running in complex environments, being the very way to respond to complexity. (Bargaoanu, 2006, p. 47).

The link between development and project management is now explicitly grounded in the multi-annual development strategies of several states. Particular attention is paid to the concept of a „project-oriented society” as „a society that frequently uses projects and programs to run relatively single processes, of medium or large complexity” (Gareis, 2005, op. Cit., Bârgăoanu , 2006, p. 46)

There is an equally important difference between the project as a result of the conception process (R & D) and the implementation process of the design (implementation of the project). Although each of these processes corresponds to projects according to their definition, their specificity is different.

The management methods are also different in the two cases - theoretical management in the first case and practical management in the second case. In the case of archeology, there are also programs (national archaeological research programs) composed of projects (archaeological research projects) . This structured approach should allow not only a more efficient organization of the general archeology issue, but also (in principle) an allocation of resources corresponding to the interests of the research strategy in this field.

### **3. Management of projects in the public sector of agriculture and irrigation systems**

Project management has the role of directing it in such a way as to maintain at any moment the balance between the contradictory requirements, related to the three characteristic factors of the project: quality, budget and term (Opran et al. , 2002, p. 95). The general management method - is the argument that the literature promotes an improper assertion: „the method of project management presents several variants” (Constantinescu et al, 2007, p. 60).

Public projects in agriculture and irrigation systems are tools for implementing the administration strategy, public authorities, using investment resources for a limited period and in a strict localization at national or local level.

The specific feature of public projects in agri-culture and irrigation systems as compared to those in the private sector is that the powers and competencies of program and project actors at the level of central or local public administration are established by the Public Finance Act. That is why the Government, the Ministry of Public Finance and the authorizing officers have specific tasks in budget management. The main credit ordinator (heads of public authorities, specialized bodies of the central public administration as well as those of some autonomous public institutions) have the competence to approve the projects and to monitor these programs, for which they will submit regular monitoring reports.

Unlike private sector projects, projects in the public sector of agriculture and irrigation systems have the following features:

- Evaluation of each project must be done in the general context of the concept of modernizing public services at national or local level;

- In contrast to private-sector projects, the public sector is evolving in a relatively open, complex environment with an impact on the population of a city, region and even national impact;

- The socio-economic substantiation of public projects will take into account not only their direct and immediate effects but also the propagated and perspective effects that manifest themselves more or less diffusely in the life of the collectivity, at the level of the individual or the collectivity, by the modification level of education / training, health, comfort, income, unemployment rate, etc.

- The analysis and the system of criteria underlying the evaluation of a public sector project of agriculture and irrigation systems have a distinctive character and it is necessary to personalize them at project or community level, taking into account the geographical diversity and areas of public interest , from complex industrial projects to cultural, educational, health projects, etc.

- Specific and diversity of public services in agriculture, as manifested in the life of the collectivity: projects that are fully self-financing, projects that, although they earn some income during their lifetime, must be financially supported, projects that by their nature and / or destination does not generate revenue by exploiting them;

- If the valuation of commercial projects in the private sector is the fundamental objective to which their existence and success are reported is the "profit", in the case of public projects in agriculture and irrigation systems, we will be faced with multiple economic, social, ecological, etc. but also of cultural diversity. The primary objective of any public service in agriculture and irrigation systems can be considered the social wellbeing of people, but it involves the simultaneous optimization of several variables.

- Apart from some industrial services projects, public sector projects in agriculture and irrigation systems have a relatively low technical complexity and, implicitly, require a lower investment effort than private sector investment projects. In contrast, in the private sector, profit being the general objective for any economic agent, financial analysis plays a key role in the underpinning studies of the economic decision.

On the other hand, public projects in agriculture and irrigation systems need to have the most solid and complete foundation, because it is "public money" and the benefits obtained in the community interest. The citizen contributes to the formation of public funds by incurring taxes, taxes, etc., but needs to be properly informed about the spending, utility and efficiency of the destinations to which these funds are directed. Knowing the specificity of public sector projects is a condition for the quality of the process to substantiate their opportunity, feasibility and efficiency. The methodology of elaboration of substantiation documents (opportunity and feasibility studies) should be based on a unitary concept that takes into account the particularities of the public sector, as well as those of the field of application of public works: agriculture, energy, water , urban planning, etc. The methodology must also satisfy other requirements concerning the following aspects:

- conditions specific to the Romanian public sector regarding the organization of space, localities, customs, elements of history, culture, landscapes;

- specific of each application domain that determines the diversity of public works;

- compatibility with the Romanian legislation and with the requirements of the European Union institutions;
- compatibility between the substantiation documents that constitute the information flow of the investment process;
- satisfaction of the three functions of the feasibility study:
- evaluation of economic, social and economic opportunity, utility and acceptability,
- evaluation of technical and economic-social feasibility,
- elaboration of the implementation and exploitation strategy of the project.

The content of the feasibility studies for the public projects respects the framework content and the general methodology for the elaboration of these documents, so that the elements of analysis of the economic and social environment, the market of services and their evolution over the life cycle of each project will not be missed. Appropriate institutions will be required to support location, environment, allocation and / or optimization of resource use, as well as a thorough analysis of the technical and financial feasibility of the project. and, last but not least, the effectiveness of the project will be based, in particular in the light of the interests of the community and of the social, ecological impacts, etc.

As regards the project management at the level of the irrigation systems in Romania, it materialized in the implementation of some projects at national and regional level as part of the National Rural Development Programs and of the general governmental policies and general public development strategies of the agriculture sector in general and irrigation systems in particular. From this point of view in Romania, Romania's Governance Program for the period 2014-2020 required socio-economic analysis of rural development on the following global levels at macroeconomic level:

- socio-economic analysis of rural development in Romania;
- increasing the competitiveness of all types of agriculture and increasing the viability of farms;
- sustainable management of natural resources and combating climate change;
- Romanian economy and quality of life;
- professional development;
- local development and LEADER.

#### 4. Conclusions

Extending project management to most areas of activity as a way to respond to the increasingly demanding organizational environment and to make changes in a knowledge-based society has led to the emergence of a so-called project-based organization . The project-based organization is widespread in traditional areas such as construction, but also in new industries such as telecommunications and information technology. It is generally found in areas of high technology and "high value capital goods".

It is also the project that requires departmental structuring, giving rise to a number of advantages that can be remembered: running projects according to standardized procedures, unity of approaches and implementation methodologies, implementation of projects at a professional level, projects gaining visibility in the whole the organization makes use of project management tools more efficient, it can standardize the methods of reporting and monitoring the evolution.

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