NECESSITY OF STAKEHOLDER MANAGEMENT IN CONSTRUCTION PROJECT LIFE CYCLE

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Abstract

Stakeholder Management throughout the life cycle of a construction project involves the processes necessary to identify the human resources, groups or organizations that could influence or be influenced by the project; Stakeholder expectations and their impact on the project, as well as developing appropriate management strategies to engage them effectively.

In recent years, this field of construction project management, along with risk management, has been very relevant due to the fact that a structured approach to identifying, prioritizing and engaging stakeholders is the key to the success of the project.

The aim of the report is to provide guidance for effective stakeholder management that will lead to quality implementation of construction projects within the deadline

Keywords: stakeholders, management, construction process, life cycle

1. INTRODUCTION

Management of construction investment projects in the construction sector is an extremely complex task that hides a number of unknowns. Effective project management must lead not only to their completion within the deadline, budget, quality safety and functional parameters requirements, but also satisfy the interests of various stakeholders (Spasova, Petrova, Mancheva 2019).

The construction projects life cycle must cover all phases from initiation and preparation, planning through design to construction and commissioning of the object. Life cycle project management provides a comprehensive and consistent management approach in all areas (Integration Management, Scope Management, Schedule Management, Cost Management, Quality Management, Resource Management, Communications Management, Risk Management, Procurement Management and Stakeholder Management) (Project Management Institute 2017). Throughout the construction project life cycle, managers face complex challenges, on the one hand, due to the different activities in the investment process, and on the other hand, due to the large number of stakeholders. In recent years, the definition of stakeholders has expanded, in addition to the traditional categories – Investors, design team, builders, suppliers, beneficiaries, now includes also regulators, lobbyists, environmental and local authority, financial community, media and who all believe they are interested in working on the project or the end result of it (Spasova 2019).

The need for high awareness and transparency and timely decision-making makes cooperation between stakeholders extremely complex and critical. Therefore, in recent years, the field of knowledge “Project Stakeholder Management” is developing rapidly due to the fact that because a structured approach to identifying, prioritizing and engaging of these stakeholders is the key to the success of the project.

The aim of the paper is to provide direction for effective management of stakeholders, which will lead to quality implementation of construction projects in accordance with the budget and the agreed deadline.

The goal is achieved through an example of the management of stakeholders infrastructure projects in the irrigation and drainage sector.
At present, the implementation of these projects is achieved within the framework of the "Rural Development Program" 2014 - 2020, Focus area 5A "increasing efficiency in water use by agriculture", namely: Measure M4 "Investments in tangible assets".

2. **STAKEHOLDER IDENTIFICATION IN CONSTRUCTION PROJECTS IN IRRIGATION AND DRAINAGE SECTOR**

Stakeholder identification in the project begins in the process of its initiation. It is essential, the management team of each investment project to identify all stakeholders (external and internal) that will interact, and which will subsequently affect the overall result of the implementation of the construction project. At this stage determines the degree of attention will be paid to various stakeholders.

The presence of different stages of the life cycle of projects in the irrigation sector - research, design, construction and commissioning, involves identifying and analyzing stakeholders for each stage separately. It should be taken into account that stakeholders in the project life cycle have different degrees of responsibility, and it may change in different phases of project development, due to which it is possible to present different connection options depending on the phases of management (Petrova, Banishka 2015).

In Fig. 1 are given the stakeholder in the Irrigation and Drainage project- research and design.

![Stakeholder Identification Diagram](image)

**Fig. 1.** Stakeholder identification in the irrigation and drainage project- Research and Design stage

Internal stakeholders include:

- **Financing Authority** – State Fund Agriculture – Paying Agency «Rural Development Programme»
- **Assignor** - "Irrigation Systems" GSC
- **Beneficiaries**
The financing of projects in the irrigation and drainage project «Rural Development Programme» in the current programming period focuses on two separate measures: sub-measure 4.1 “Investments in agricultural holdings” and sub-measure 4.3 “Support for investments in infrastructure related to the development, modernization and adaptation of agriculture and forestry”, aimed at supporting the rehabilitation of irrigation and drainage infrastructure “off the farm”. For beneficiaries under Submeasure 4.3 are defined: “Irrigation Systems” JSC; Irrigation Associations (under the Irrigation Associations Act); as well as Municipalities that have at least one Irrigation Association on their territory and apply for financial support together with it (https://www.eufunds.bg/bg/prsr/node/4199).

- **Project management team**

  The project management team shall contain at least the following staff:

  - Team leader, who organizes the team of experts, manages the project activities and communicates with other stakeholders.
  - Project coordinator, who coordinates the individual activities, carries out the management of the project documents and the preparation of the reports, as well as participates in the information and publicity activities;
  - Irrigation Engineer, who monitors the quality implementation of all activities inherent in the sites for reconstruction and / or restoration of irrigation systems;
  - Financier having the main task to plan, monitor and report cash flows of the project;
  - Lawyer, whose main task is complete legal and regulatory service project.

- **Designer** - Contractor of activity "Pre-investment research and design"

- **Consultant**– Pursuant to the Spatial Planning Act (2001, amended, SG No. 21, 2020) performs conformity assessment of investment projects

- **Audit Consultant** - Performs an audit of the implemented projects in order to provide additional assurance regarding the legality of the costs, the effective implementation of the project activities, as well as compliance with the specific regulatory requirements of the European Union.

- **Publicity Consultant** - Provides services for providing visualization, publicity and information of investment projects in connection with the requirements of the "Rural Development Program” 2014 - 2020.

  The management of the internal stakeholders is carried out through contracts, according to Public Procurement Act. In this way the distribution of the tasks and responsibilities of the project is outlined, as well as the distribution of the possible risks.

External stakeholders include:

- **Local government** in the person of the Municipal administration and the Municipal Council

- **Local community**

  At this stage of the project development, the sensitivity of the population to the problems related to the environment and sustainable development will assess the environmental sustainability of the project. Of great importance for the success of the project is the local community to be enlightened and informed so as to obtain a balance between achieving the project goal and social factors in society.

- **Private owners**

  In the case of private owners are farmers who are expected to be users of irrigation infrastructure. Their requirements are extremely important for the investment strategy of the beneficiary, and their satisfaction is one of the determining factors for the success of the project.
- **Regional Inspectorate for Environment and Water**
  Given the specifics of the project, conducting assessment procedures of environmental impact will allow beneficiaries implementation of the investment plan.

- **Basin Directorate, Directorate "General policy on irrigation and fisheries" by Ministry of Agriculture, Food and Forestry, Eco-organizations, Media, etc.**
  The construction stage of the project and commissioning presupposes the existence of other internal and external stakeholders, such as including main contractor; subcontractor, suppliers, consultant within the meaning of the Spatial Development Act, carrying out construction supervision of the site, etc. (Fig. 2)

**Fig. 2.** Stakeholder identification in the irrigation and drainage project- Stage Construction/Execution

Stakeholder analysis is equated to:
- identification of all potential participants in the project and related information, including roles and responsibilities, qualifications, interests, knowledge, expectations, etc.
- identification of key stakeholders
- identifying the impact or support that each of the stakeholders can provide
- analysis of the probable reaction of the stakeholders in different situations during the project implementation

In order to ensure full identification of the stakeholders, very often in this type of investment construction projects it is necessary to use expert assessment, from which to obtain specialized knowledge and good practices in the field of management.

Based on the stakeholder analysis, the following is prepared:

- Register of stakeholders with information on their identification, assessment of opportunities to influence the project, classification (internal / external; supporters / opponents, etc.);
- Stakeholder management strategy which defines the approach for increasing the support for the implementation of the construction project and reducing the negative effect throughout the life cycle.

Table 1 gives an example of a strategy for effective stakeholder management in irrigation projects.

<table>
<thead>
<tr>
<th>Effective management of stakeholders in the irrigation sector</th>
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<tbody>
<tr>
<td><strong>Internal stakeholders</strong></td>
</tr>
<tr>
<td>Needs and expectations:</td>
</tr>
<tr>
<td>✓ Identified, classified and prioritized stakeholders in the different stages of the project life cycle</td>
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<tr>
<td>✓ Effectively managed relationships</td>
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<tr>
<td>✓ Fully committed to achieving the project goal</td>
</tr>
<tr>
<td>✓ Successful completion of the individual stages of the project within the specified period, with the required quality and according to the budget</td>
</tr>
<tr>
<td>Strategy:</td>
</tr>
<tr>
<td>✓ Accurate and clear identification and classification of the potentials and expectations of the stakeholders for each stage of the project life cycle.</td>
</tr>
<tr>
<td>Achievement method - Interest/power matrix, grouping stakeholders according to the level of their powers and degree of concern regarding the results of the project</td>
</tr>
<tr>
<td>✓ Building and maintaining effective communication and good relationships</td>
</tr>
<tr>
<td>Method of achievement - clear and precisely established communication channels, continuous feedback, meetings for exchange of information on project progress, cooperation between stakeholders</td>
</tr>
<tr>
<td>✓ Maintaining a continuous commitment to the project</td>
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</tbody>
</table>
Method of achievement - stimulation and motivation, ensuring active participation in the different stages of the project life cycle
Involvement of all members of the project management team in the activities for engaging the stakeholders
✓ Ensuring satisfaction as a result of project management

Achievement method – Creating a sense of partnership, integrating the interests of stakeholders in project management
✓ Satisfaction of the requirements of the stakeholders according to their level of power / interests and influence / impact

Table 1. Strategy for effective stakeholder management in irrigation projects

Given the specifics of construction projects in the irrigation and drainage sector, it is important to know that the management of stakeholders varies depending on the stages of the project - research, design in different phases, construction and commissioning. For this reason, a stakeholder management strategy needs to be developed for the entire project life cycle.

It is essential that the project manager and the project management unit continuously monitor the key factors for the success of the project and the strategy for effective stakeholder management. Periodic review of stakeholders, evaluation and timely updating of changes is required.

3. STAKEHOLDER COMMUNICATIONS PLAN

The success of the construction project throughout its life cycle is related to the strength of the stakeholder relationships that are created through pre-planned, timely and effective communication. The planning of the communications is prepared on the basis of the register of the interested parties and the strategy for their management.

The necessary information for determining the communication channels is: Stages and Phases in the project and the respective stakeholders and Organizational dependence between the stakeholders in the project.

Effective planning of communication channels will contribute to achieving the most appropriate ways for the transfer of information between stakeholders in the implementation of a project in irrigation and drainage sector. It is essential to plan the way of obtaining the information, i.e. within what period and during what period to transmit and receive operational and extraordinary information. It is necessary to describe the measures to be taken in case of non-compliance with the set deadlines and periods.

4. DISTRIBUTION OF INFORMATION

At the project initiation stage, the project management team needs to prepare an information management plan that will allow control of the distribution and archiving of documents related to the implementation of all contracts within the scope of the project. Given the volume of work, complexity, time frame of implementation and scope of the project, the use of a system for rapid tracking and storage of documents will be crucial for the success of the project. For example, all documents can be uploaded to a central web-based server, where, depending on access rights, each of the registered stakeholders can view, download and edit the documents uploaded to the platform.

This information management system (IMS) has the following advantages:

- Uploading, downloading and viewing documents, ensuring through access rights that certain documents cannot be accessed by unauthorized users;
- All project documentation, letters, minutes of meetings, reports are prepared centrally;
5. MANAGE STAKEHOLDER ENGAGEMENT

Stakeholder engagement management is a process of meeting their needs and expectations, solving problems, encouraging their participation in the various stages of project implementation. It should be taken into account that this process takes place throughout the project life cycle.

The management of stakeholder engagement depends on the prepared register of stakeholders, the prepared strategy for their management, as well as on the project management plan (Fig.3).

As a result of stakeholder engagement management, changes may occur, but for projects in the irrigation sector funded by the Rural Development Program, these changes should not affect the scope of the project.

All change requests are processed and entered through an integrated change control process.

The stakeholder register is updated on the basis of changes that have occurred during the implementation of the project or as a result of its general condition.

The project management plan is updated when necessary to reflect new requirements of stakeholders, when improving the communication plan, when changing the management strategy, etc.

![Diagram](Fig.3. Manage stakeholder engagement - data flow)
6. MONITORING OF STAKEHOLDERS’ INVOLVEMENT IN CONSTRUCTION PROJECTS

Stakeholder engagement is monitored throughout the project life cycle. It aims to maintain and increase the effectiveness of stakeholder engagement activities, as well as to change and improve the adopted strategy for their management.

In this process the project team confirms and adjusts as needed the stakeholder communication, and engagement steps with the goal of optimizing stakeholder relationships and motivation to meet project objectives.

Various methods can be used to perform the monitoring, including analysis of data from various possible alternatives, decision-making techniques, communication skills, teamwork skills, matrix for assessing stakeholder engagement, project progress meetings, etc.

Based on continuous monitoring, information is collected and analyzed on the project work, the activities of the stakeholders and their level of support, a request for change, as well as updates of the project management plan, the communication management plan, the stakeholder register and risk register.

7. CONCLUSIONS

The creation of sustainable construction in our country is unthinkable without effective and quality management of stakeholders throughout the life cycle of investment construction projects. Therefore, the application of a structured approach, including identification of stakeholders in the various stages of the project life cycle, effective planning of communications between them, preparation of an information management plan, management of stakeholder engagement and monitoring of their involvement is a prerequisite for quality implementation of construction projects within the scope, benefits, budget and agreed term.

ACKNOWLEDGMENTS

The research presented in this report is funded by the Center for Research and Design at the University of Architecture, Civil Engineering and Geodesy under Contract No D 122/19

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