

Analysis of the Delay Reasons in Implementing Public Investments - empirical study

تحليل أسباب التأخير في إنجاز الاستثمارات العامة - دراسة تجريبية

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Abstract:

This study aims to identify the challenges that must be addressed in the procedures of public investment project management in Algeria by highlighting the obstacles that lead to exceeding completion deadlines in implementing public investment expenditures and analyzing their impact. The research paper addressed the stages of managing public investments, including planning and studies, land allocation, licensing and registration in the general state budget, project implementation and completion, and funding. This done through an empirical study of 30 public investment projects that experienced significant delays by conducting interviews with 20 project managers to determine the reasons for the delays and their contribution to exceeding the deadlines at each stage. The results concluded that the most critical phases are implementation and approval, and the most important causes leading to this phenomenon are the weakness of implementation companies and the burden of administrative procedures for funding.

Keywords: public investment, public financial management, delay, project implementation, infrastructure.

JEL: H43, H54, H57, H61.

ملخص:

تهدف هذه الدراسة إلى تسليط الضوء على التحديات التي يجب مراعاتها في إجراءات تسيير عمليات إنجاز مشاريع الاستثمارات العامة في الجزائر و ذلك بتسليط الضوء على العوائق التي تؤدي إلى تجاوز آجال الإنجاز في عملية تنفيذ نفقات الاستثمار العام و تحليل درجة تأثيرها. حيث تطرقت الورقة البحثية إلى عرض مراحل تسيير الاستثمارات العامة من التخطيط و الدراسات، تخصيص الأرض، الترخيص و التسجيل في الميزانية العامة للدولة، تنفيذ و إنجاز المشروع، و التمويل. و ذلك من خلال دراسة ميدانية لـ 30 مشروع استثمار عام عرفت تجاوزا ملحوظا في آجال إنجازها بتنظيم تنظيم مقابلات مع 20 من مديري المشاريع للتعرف على أسباب التأخير و درجة مساهمتها في تجاوز الآجال حسب المراحل. خلصت النتائج إلى أن أهم المراحل التي تعرف التأخير، هي مرحلة الانجاز و الترخيص، و من أهم الأسباب المؤدية لهذه الظاهرة هي ضعف شركات الإنجاز و ثقل الإجراءات الإدارية في التمويل.

كلمات مفتاحية: الاستثمار العام، تسيير المالية العامة، التأخير، إنجاز المشاريع، البنية التحتية.

تصنيفات JEL: H43, H54, H57, H61.

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Introduction:

Public investment management operations hold great importance in public financial management. It serves as the government's mechanism to create economic, social, and sustainable development. This aspect of public expenditure possesses distinctive characteristics that set it apart regarding procedures and processes. This is due to the significant allocated amounts and the complex technologies involved, making it difficult to control. Moreover, the implementation duration often spans several years, extending beyond the budget cycle and frequently exceeding the medium-term budget framework. Effectively managing the cost and time of public investment projects is a challenging and complex process influenced by various factors and circumstances. In this research paper, we aim to analyze the underlying reasons behind this phenomenon, given its negative impact on missed development opportunities, lack of control over public expenditures, and the need for reassessment, thereby increasing pressure on the state's general budget through increased investment expenses, characterized by its large scale and multi-year nature. To address this subject, we have identified the following problematic: What are the principal factors that contribute to delays during the management stages of public investment projects in Algeria?

In order to address this issue, drawing upon existing literature and prior studies, the following hypothesis can be formulated: The causes of delays related to the completion stage of public investment projects are among the most important reasons that significantly contribute to delays during the management stages of these projects.

Temporal-spatial framework of the research: The study was conducted on public investment projects funded by the state's general budget in the province of Ouargla from September to December 2022.

Research population and sample: A selection was made of a group of public investments that experienced significant delays during all stages of their implementation, exclusively financed by the state's general budget from 2017 to 2022. Thirty projects that suffered from delays were chosen.

Adopted approaches: To study this phenomenon, a descriptive approach was adopted in presenting the various concepts and literature of the study, as well as previous research—this involved gathering and analyzing concepts to define them. The deductive approach was employed during the field study.

Research tool: The study employed a semi-structured interview using semi-closed questions with open-ended responses to extract the underlying reasons that impede the control of completion deadlines. The interviews were conducted with 20 managers responsible for proposing and implementing public investment projects across the following stages:

1. Planning: studies and preliminary appraisal of public investment project.
2. Land allocation.
3. Approval: Selection of new investment for approval in the budget.
4. Procurement and completion contracts.
5. Implementation of public investment projects.
6. Funding: annual appropriation for the completion of public investment.

Previous studies:

1. "Gains from Reducing the Implementation Delays in Public Investment: Murat Ozbilgin, 2020 (Ozbilgin, 2020)

In this study, the researcher examined the benefits of controlling the implementation duration, reducing delays, and exceeding deadlines for public investments. The researcher relied on Turkish data during the period from 2000 to 2010. The study found that lowering the implementation duration of public investments increases their benefits by 1.9% and can reach up to 2.7% with integrated efficiency and improvements in public investment management.

2. " Delay in Public Investment Projects" Raphael Espinoza, Andrea F. Presbitero (Espinoza & Presbitero, 2022)

In this study, the researcher addressed the delay in implementing public investments as a significant reason for the general rule stating that the returns from public investments are lower than expected at the time of decision-making. The researcher relied on available data from the World Bank as the basis for the study. The research found that 60% of projects experienced more than a year of delays, and planning and preparation for implementation played a crucial role. Additionally, country-specific characteristics play a fundamental role in this matter.

3. "Factors for Time and Cost Overrun in Public Projects" (Shehryar Idrees, Muhammad Tariq Shafiq) (Shehryar et Shafiq, 2021).

This study focused on analyzing the underlying causes of delays and cost overruns in the completion phase of public sector projects. A total of 48 potential factors were identified from the literature, followed by semi-structured interviews to categorize these reasons into ten distinct categories. A survey was subsequently employed to perform a hierarchical analysis of these factors. The results indicated that the primary reasons include: 1) court-issued Stay Orders, 2)land acquisition and compensation, 3)Relocation of overhead and underground facilities, 4)delay in payments, 5)unrealistic time schedule imposed in the contract, 6)unavailability of drawings/designs on Time, 7)rework due to errors in design or variation orders, 8)poor site management and supervision, 9)lack of coordination among Stakeholders, 10)unrealistic cost estimates.

4. "Causes of delay to public infrastructure projects according to engineers representing different contract parties," Hesham Saleh Rabayah, Maha Ayoush, Majed S. Al-Alwan : (Rabayah;, and others, 2019)

This study focused on the causes of delays in completing infrastructure projects. The researchers classified 56 reasons into eight groups based on previous studies. They then selected a sample of public projects represented by roads owned by Jordan's Ministry of Public Works. Through a questionnaire directed at engineers representing the three parties involved: the project owner (client), the contracting contractor, and the technical consulting body responsible for monitoring, the researchers identified several reasons, including payment delays (funding) slow decision-making, non-alignment of the service location with what was approved in the specifications (planning and studies), and problems in providing annual financial allocations (funding).

Research Gap: Despite the fact that many previous studies have addressed the phenomenon of delays in the preparation and execution of public investment projects, there is still a gap in the analysis of the causes of this phenomenon and its contribution according to the stages of

public investment management. To complement these studies, this research contributes to determining the duration of delays associated with each stage of public investment project management. The aim is to assess the extent of contribution and relative importance of factors related to each stage in the overall delays experienced by many public investment projects in low-income countries. This allows for the development of a scientifically grounded analysis based on empirical study, which contributes to addressing this phenomenon and building a scientific framework for possible solutions, whether at the level of international, governmental, scientific, or economic stakeholders.

Research Methodology: The study relied on a literature review and previous research on the subject to determine the phenomenon and identify its variables and components. In addition, the researchers' field experience in programming and monitoring public investment expenses was considered. Preliminary interviews were conducted with managers responsible for overseeing the implementation of public investments, including local executive directors and engineers managing these projects.

Afterward, the study proceeded to select a sample comprising 30 infrastructure projects that do not require complex techniques for their completion in order to eliminate the technical complexity as a significant factor affecting the project deadlines. Therefore, the focus of the study was directed towards infrastructure projects in the domains of education, sports, vocational training, culture, and housing.

Public Investments Nature: Public investments refer to all projects undertaken by the government. The Organization for Economic Co-operation and Development (OCED) defines public investments as capital expenditure on tangible infrastructure (such as roads and government buildings) and intangible infrastructure (such as human capital development, innovation support, research, and development) for more than one year (OECD,2014, P4).

The International Monetary Fund (IMF) defines public investments as government spending on the creation or improvement of physical assets, including both economic infrastructure (such as airports, roads, railways, water and sewerage systems, electricity utilities, and telecommunications) and social infrastructure (such as schools, hospitals, and housing) (Miller & Hart, 2017, p. 7). According to Algerian legislation, order N° 124 issued by the Ministry of Finance on August 15, 2023, public investments are classified into three categories (Ministry of Finance) (order n°124, M.F., 2022):

1. Material infrastructure, which encompasses physical public infrastructure.
2. Immaterial assets refer to non-physical and non-monetary public assets such as research and development expenses and information technology programs.
3. Subsidies are provided to administrative entities to implement or acquire investments in the abovementioned categories.

From these definitions, we can determine the general characteristics of public investments:

1. They are projects undertaken by the government or its subdivisions (regional governments).
2. They encompass both tangible and intangible infrastructure.
3. They aim to meet public needs for more than one year.

Therefore, public investments refer to the public expenditure on projects that aim to create public benefits over more than one year by increasing productivity or raising the living standards of citizens.

Public investment characteristics: The study of public investments has attracted the attention of numerous international and national organizations due to their distinctive features compared to other public expenditures (Fainboim, I, and Others, 2013, P366). The most important ones are:

1. Public investment projects require substantial financial allocations expended over multiple-year budgets. This uniqueness sets them apart from operational or recurring expenses (Derbal et Hasnaoui, 2023, P24).
2. The control process of public investment is a complex endeavor, as it involves making decisions at a singular moment. However, the interplay of various technical and organizational aspects during the planning, implementation, and financing stages often leads to cost overruns and delays, creating financial risks and budgetary challenges.
3. Aligning annual budget allocations (funding) with the project's physical progress is challenging, exerting significant pressure on either the progress or the financing aspect.
4. The realization of public investments necessitates the obligatory inclusion of current expenditure, maintenance, and restoration, which must be considered.

Challenges of Establishing and Managing Public Investment:

One of the key challenges in the establishment of public investments is their yield. High expectations often accompany public investments upon their approval, and the state bears significant costs to establish them. However, their social returns often need to be more vital and present than promised (IMF, 2022, 25). This is due to the following difficulties:

1. **Planning complexity:** Planning for public investments is a complex process requiring multiple bodies' involvement and conducting various studies. This is typically mandated by many countries and usually includes economic, financial, social, environmental, and regulatory feasibility assessments and approvals from multiple ministries and bodies.
2. **Decision-making challenges:** When deciding to authorize the execution of public investment, the government is faced with a pivotal choice that puts numerous significant financial allocations at stake for multiple years. These allocations are based on hopes that may not be realized in the near term, and the exact profitability cannot be precisely calculated. It becomes challenging to persuade the legislative body to approve all these financial allocations.
3. **Public investments as breeding grounds for corruption:** public investment projects have been and continue to be susceptible to corruption and misappropriation of funds.
4. **Inherent planning errors in public investment:** Numerous studies (Andrew, 2014; Flyvbjerg, 2009) have emphasized that deviations in planning and estimations, particularly in expected costs, completion time, and anticipated benefits, are prevalent and significant in public investments.

The management system of public investment:

According to international and national organizations interested in the topic of public investments, the management of public investments goes through the following stages:

Firstly, the planning and study stage: During this stage, the authorized body proposes the public investment and conducts all necessary studies and appraisals. It begins with the project's initial assessment, preceding its selection and authorization. Mature studies are

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conducted, as defined in Executive Decree n° 20-403 (Algerian Government, 2020), which specifies the order of studies as follows:

1. Preliminary studies: These are the initial studies for the financial and economic assessment of the project, determining its economic, social, and environmental impacts and the targeted population. This aligns with the practices adopted by the World Bank (Jay-Hyung and others, 2020).
2. Feasibility studies: These studies aim to determine the technical, economic, financial, social, environmental, and regulatory feasibility of public investment. They also assess the ability to control the associated risks (Decision N° 03, Algerian Ministry of Finance, 2023).
3. Studies for preparing implementation, exploitation, renovation, and maintenance of the public investment.

It should be noted that positive results are required to progress from preliminary to feasibility studies. Similarly, positive results from the latter are necessary to proceed to studies to prepare implementation, exploitation, renovation, and maintenance. Positive outcomes are essential for approving the project as a proposed item in the general state budget and authorizing its execution.

Secondly, the stage of land allocation for implementing public investment: This stage is included in the technical study phase, which requires the availability of land for conducting the study. Although most organizations still need to address this stage extensively (Miller & Mustapha, 2016), they identify that one of the significant challenges in low-income countries is land acquisition and allocation for public investment. This process involves multiple procedures and takes a considerable amount of time. Therefore, it is considered one of the crucial stages when studying the delay in completing public investments due to the significant time and cost it requires.

Thirdly, approval: selection of a new public investment and legal authorization: To execute a public investment, it must be authorized within the law that encompasses the general budget. The authorization includes the project's material, financial, and spatial limits.

Fourthly, procurement and contracting stage for implementation: After obtaining the authorization and registering the public investment within the general state budget, the responsible body designs the rulebooks and requests the necessary permits and licenses to initiate the competition for the implementation contracts.

Fifthly, the stage of the implementation of the public investment: During this stage, the contracted institutions initiate the execution of the contracts by carrying out the necessary work specified in the rulebooks and contracts to complete the public investment.

Sixthly, Funding: the stage of financing: This stage runs parallel to the stage of material implementation. It involves allocating annual appropriations from the general state budget to finance the physical implementation of the public investment project. This is because public investments span multiple years and require annual allocations.

Seventhly, the stage of utilizing the public investment: to put the public investment into service and use it to providing the expected services and goods, operational and recurrent expenses are required .

Delay in completing public investment projects:

Exceeding the expected deadline for implementing public investment projects is a common occurrence. For instance, academic studies and practical experiences, such as the study conducted by Limodio (Limodio, 2021), affirm that 80% of projects experience delays, with 55% being delayed by at least 20% of the specified time. These delays are caused by various factors and reasons that hinder project progress. Some of these factors include:

1. Centralization of decision-making related to project authorization and financing.
2. In low-income countries, obtaining land for project implementation, especially within urban areas, is challenging.
3. There are lengthy procedures for concluding public contracts for execution involving multiple stages and numerous procedures, including appeals. Which was dealt with by a study (Chusu, Milne, and others, 2023)
4. Preliminary comprehensive studies address all potential risks that may impede project progress.
5. Not considering the factor of time as a significant importance in the completion of public projects.

Impacts of Delays in Public Project Completion: The delay in completing public investments has significant consequences, summarized as follows:

1. Delays lead to cost escalation due to increased fixed and variable costs resulting from price hikes. Various studies have highlighted this: (Flyvbjerg, 2009); (Ahsan & gunawan, 2010); (Collier and others, 2016); (Serebrisky, and others, 2017); (Gurara, and others, 2021)
2. Delays diminish the effectiveness of public investments by taking advantage of the opportunity to start their use and derive the anticipated benefits and returns.
3. Delays in the implementation phases of public investments lead to underutilization of allocated funds. A study by (Ahsan & gunawan, 2010, P8) found that only 30% of the World Bank loans designated for public projects were utilized within five years, while the expected utilization was 90%. This immobilizes financial resources for years without effective employment, leading to missed opportunities.
4. A delay in project approval and conclusion creates a time gap between the completion of studies and the commencement of public investment execution. This reduces the accuracy and comprehensiveness of the studies.
5. Delays in the implementation phases of public investments exert significant pressure on the general budget, as new projects require authorization and registration.

The delay in public investments is defined as the difference between the actual and expected project completion time. (Espinoza & Presbitero, 2022).

Data Collection:

The data used in this study were sourced from the Directorate of Programming and Budget Monitoring at the provincial level. This directorate is responsible for collecting all statistical data for various sectors and preparing the program for public investment projects while preparing the general budget law. It ensures continuous monitoring of the implementation process of public investments and prepares reports on the causes of deviations in project deadlines and proposed costs. It also examines the expected impacts of public investment, such as job creation and anticipated benefits. Additionally, semi-structured interviews were

conducted with executive and project managers overseeing the studies and projects. The interviews involved 10 executive directors and 10 project managers.

Data Processing:

Since the standard duration for each phase of public investment projects varies depending on the size and type of the project, the projects were divided into four homogeneous groups based on the expected duration and the financial authorization value for their implementation, as follows:

- Group 1: Projects with a financial authorization value ranging from 100 to 150 million Algerian dinars, consisting of 8 projects
- Group 2: Projects with a financial authorization value ranging from 150 to 250 million Algerian dinars, consisting of 8 projects
- Group 3: Projects with a financial authorization value ranging from 250 to 400 million Algerian dinars, consisting of 7 projects
- Group 4: Projects with a financial authorization value ranging from 400 to 600 million Algerian dinars, consisting of 7 projects

Distribution of Delay Duration across Stages of Public Investment Implementation:

To determine the contribution of reasons related to each stage of public investment implementation, the research was designed as follows:

1. **Standard Time** refers to the predetermined time for each stage.
2. **Actual Time:** This represents the time to complete a stage.
3. **Delay:** It is the difference between real-time and standard time.
4. **Stage-related Delay** refers to the time duration attributed to a specific stage.

Research Design: The delay in public investment implementation affects all stages, from the planning and study stage to land allocation, budgetary selection and approval and registration, project execution, and completion. The study also includes allocating financial resources, as it plays a crucial role in contributing to the overall delay duration. Therefore, the calculation of the delay duration is as follows:

Total Delay Duration: The difference between the actual duration taken to complete all stages and the standard duration adopted for implementing such projects.

Delay Duration in a Stage = Actual duration required to complete the specific stage - Standard or legal period adopted for implementing this stage for such a project - Delay duration due to reasons unrelated to this stage + Delay duration in other stages attributed to the specific stage.

The equation can be expressed as follows:

$$DTs_n = RTs_n - STs_n - DT_{(CNCSn)} + \sum_{n=1}^{n=6} DTs_n(ccs)$$

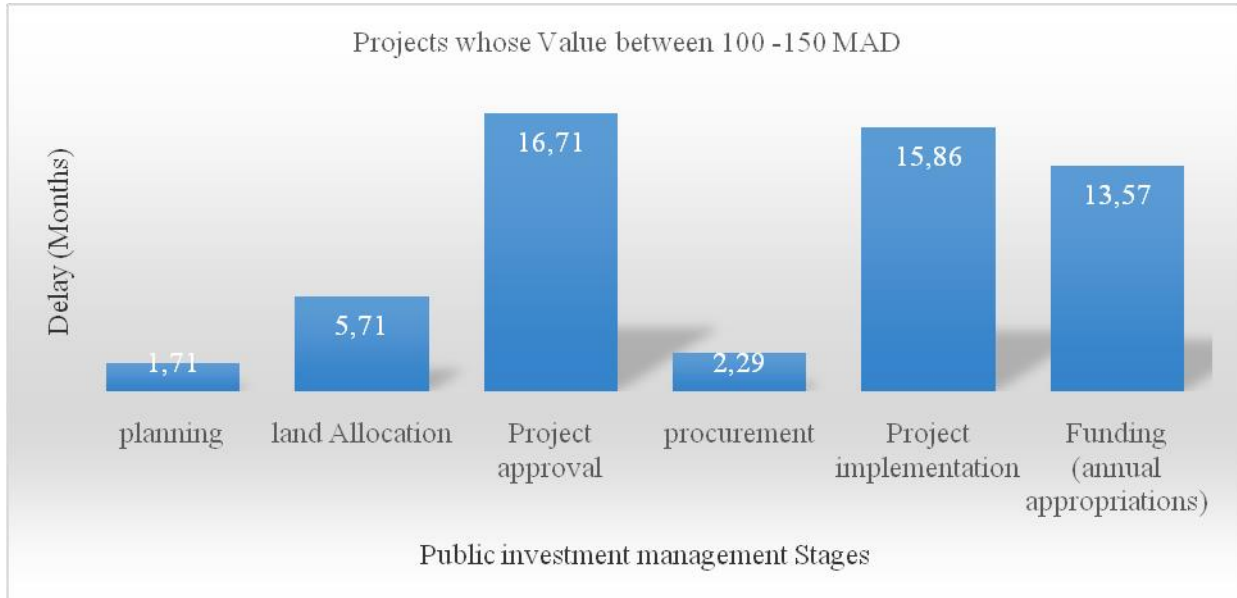
Where: DTs_n is the delay time related to stage N, RTs_n the actual time for executing stage N, STs_n the standard or legal time for stage N, $DT_{(CNCSn)}$ is the delay time in stage N and for reasons not related to this stage, $\sum_{n=1}^{n=6} DTs_n(ccs)$ is the sum of the delay times in other stages that are due to reasons related to stage N

For example:

Delay duration related to the planning and study stage = Actual duration of all studies and preliminary appraisal - Standard duration for conducting all studies and preliminary appraisal in such projects - Delays due to reasons unrelated to the studies + Delays in other stages due to reasons related to the planning and study stage.

Through interviews and reviewing project files, the data regarding the expected duration for implementation - for each stage of these projects - was collected and compared with their actual deadlines. The differences representing the delay duration were identified, and the average duration for each stage and each group of these projects was calculated. The results were as follows:

Fig. 1: Chart representing the average delay time according to the public investment management stages for eight projects whose value is between 100 and 150 million AD

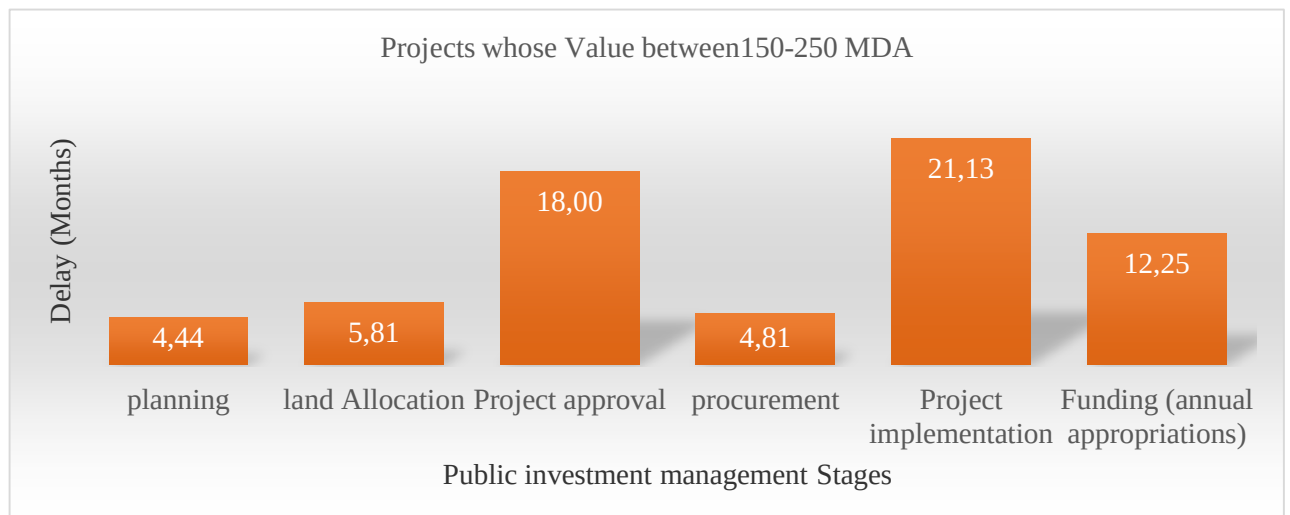


Source: Prepared by researchers based on Data Collected.

Based on the above chart in fig. 01, it can be observed that the order of delay duration for the first group, consisting of eight projects with a value of 100-150 million Algerian dinars, was as follows:

1. Firstly, the project selection and approval stage of the project had an average delay duration exceeding 16 months compared to the standard duration for such tasks.
2. Secondly, reasons related to the material implementation stage of the project had an average delay duration exceeding 15 months.
3. Thirdly, reasons related to the financing stage had an average delay duration exceeding 13 months.
4. Fourthly, reasons related to the land allocation stage for project implementation had an average delay duration exceeding five months.
5. Fifthly, reasons related to the contract signing stage had an average delay duration exceeding two months compared to the standard period.
6. Sixthly, the study stage had an average delay duration of more than a month compared to the standard duration for such projects.

Fig. 2: Chart representing the average delay time according to the public investment management stages for eight projects whose value is between 150 and 250 million AD

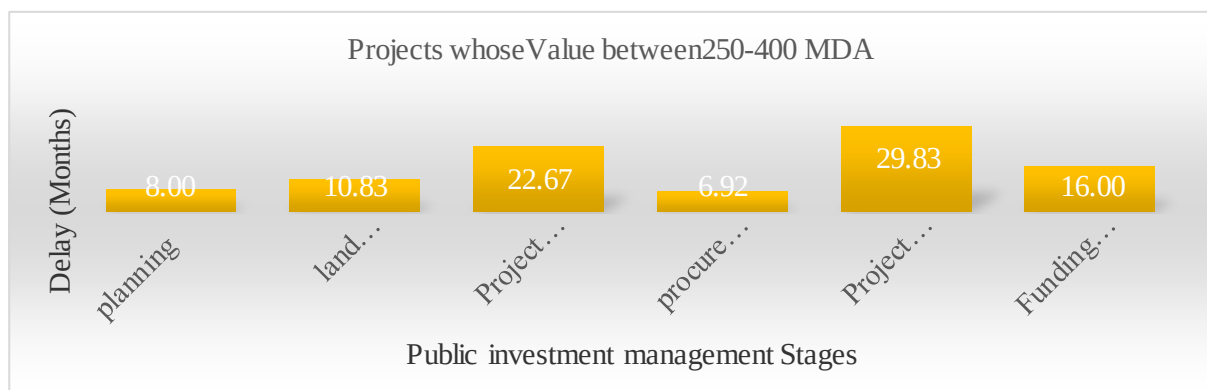


Source: Prepared by researchers based on data collected.

From the above chart in fig. 02, we can observe the order of delay duration for the second group, consisting of eight investment projects with a value ranging from 150 to 250 million Algerian Dinars, as follows:

1. Firstly, reasons related to the material implementation stage of the project had an average delay duration exceeding 21 months compared to the standard duration for such projects.
2. Secondly, reasons related to the project selection and approval stage had an average delay duration exceeding 18 months compared to the standard duration.
3. Thirdly, reasons related to the financing stage had an average delay duration of approximately 12 months compared to the standard duration.
4. Fourthly, the land allocation stage had an average delay duration exceeding five months compared to the standard duration.
5. Fifthly, reasons related to the procurement and contract signing stage had an average delay exceeding four months.
6. Sixthly, reasons associated with the study stage had an average delay duration exceeding four months.

Fig. 3: Chart representing the average delay time according to the public investment management for 07 projects whose value is between 250 and 400 million AD

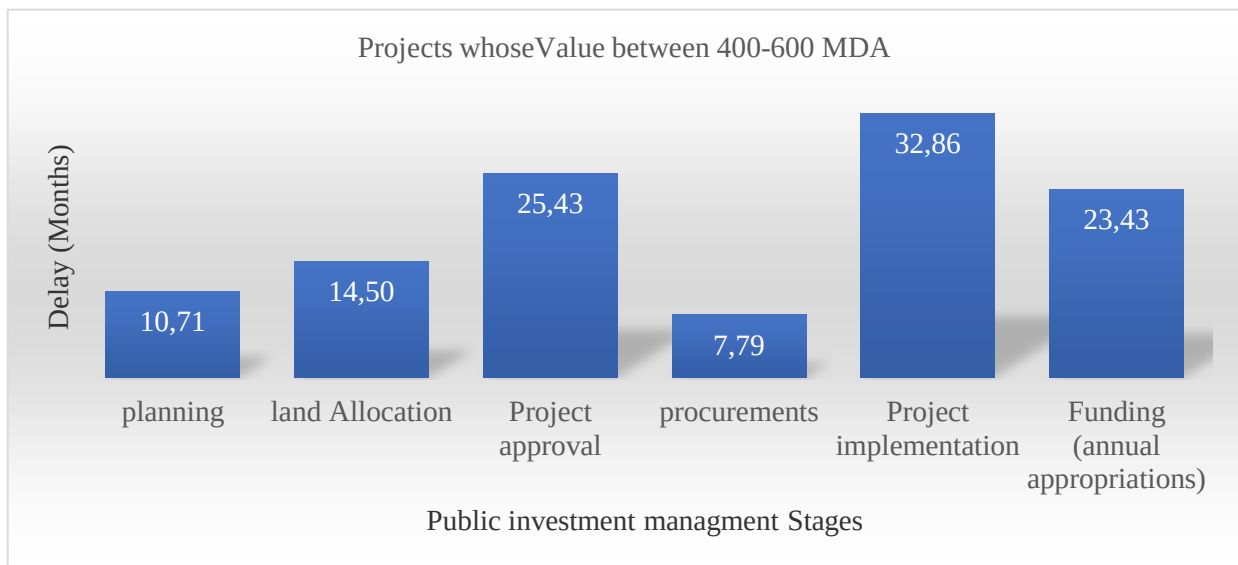


Source: Prepared by researchers based on data collected

From the above chart in fig. 03, it can be observed that the average delay duration order for the third group, consisting of seven projects with a value ranging from 250 to 400 million Algerian Dinars, is as follows:

1. Firstly, reasons related to the material implementation stage had an average delay duration exceeding 29 months compared to the standard duration.
2. Secondly, delays attributed to the project selection and approval stage had an average delay duration exceeding 22 months compared to the standard duration.
3. Thirdly, reasons related to the annual funding stage had an average delay duration of 16 months beyond the standard duration.
4. Fourthly, reasons associated with the land allocation stage experienced a delay with an average duration more than 10 months beyond the standard duration.
5. Fifthly, reasons related to the studies or planning stage had an average delay duration of 8 months beyond the standard duration.
6. Sixthly, the procurement and contract signing stage had an average delay duration exceeding 6 months beyond the approved duration.

Fig. 4: Chart representing the average delay-time according to the public investment management for 07 projects whose value is between 400 and 600 million AD



Source: Prepared by researchers based on data collected

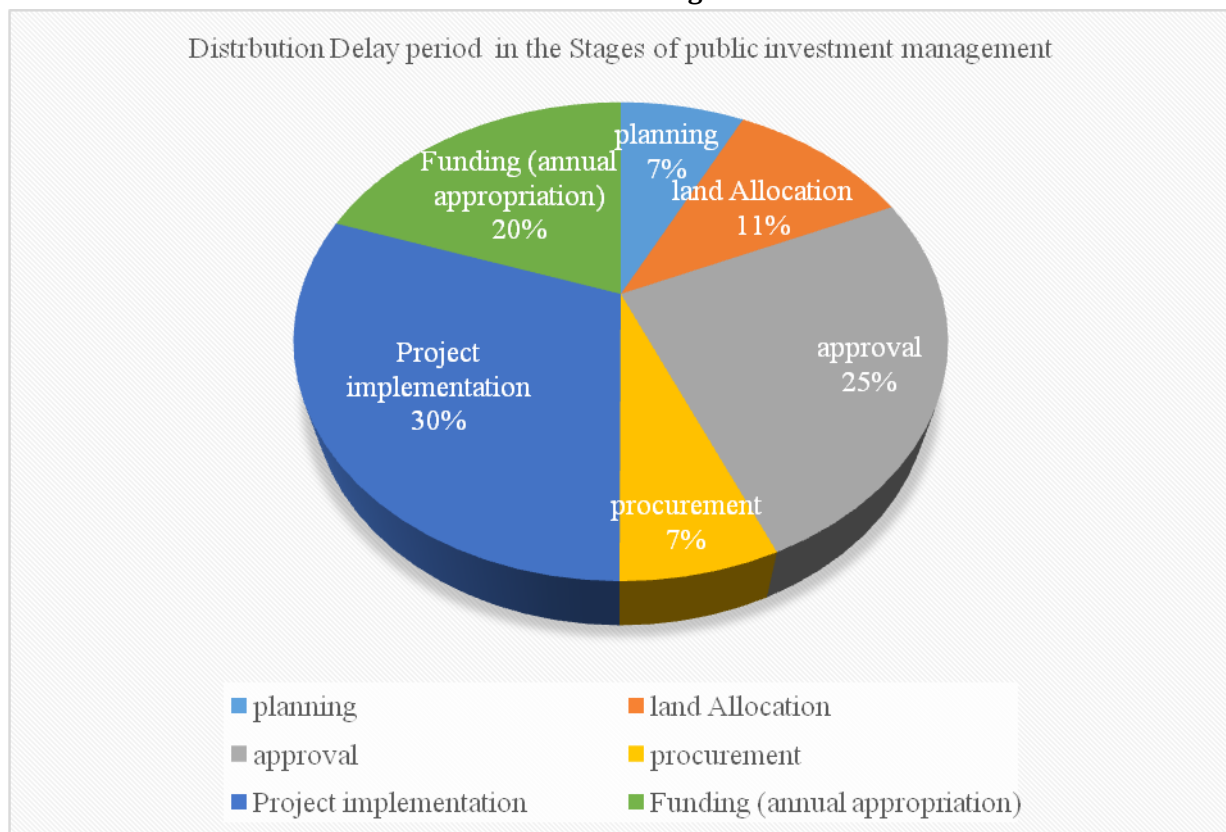
From the above chart in Fig. 04, it can be observed that the average delay duration order for the fourth group, consisting of seven projects with a value ranging from 400 to 600 million Algerian Dinars, is as follows:

1. Firstly, the delay duration attributed to the material implementation stage had an average delay duration exceeding 32 months compared to the standard duration.
2. Following that, the delay duration attributed to the project licensing selection and approval stage had an average delay duration exceeding 25 months compared to the standard duration.
3. Thirdly, the delay duration associated with the annual funding stage had an average delay duration of more than 23 months beyond the standard duration.

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4. Next, the delay duration attributed to the land allocation stage experienced a delay with an average duration exceeding 14 months beyond the standard duration.
5. Fifthly, the delay was attributed to reasons related to the planning and studies stage, with an average delay duration exceeding 10 months beyond the standard duration.
6. Lastly, the delay duration attributed to the procurement and contract signing stage had an average delay duration exceeding 7 months.

Fig. 4: The pie chart representing the distribution of delay-time on the Stages of public investment management



Source: Prepared by researchers based on data collected From

According to the above pie chart fig. 05, it is evident that:

1. The largest delay occurred in the material implementation stage of the project, accounting for 30% of the total delay duration.
2. Following that, the stage of project selection and approval from the Ministry of Finance within the general budget, with a delay duration representing 25% of the total delay duration,
3. Thirdly, the stage of allocating annual appropriation (annual funding) for 20% of the total delay duration,
4. Subsequently, the stage of land allocation contributes to 11% of the total delay duration,
5. Then, the planning and studies stage experiences a delay duration representing 7% of the total delay duration,

6. Lastly, the procurement and contract signing stage encounters a delay duration of 7% of the total delay duration,

Results discussion:

Through the analysis of the data collected from the databases of various administrative bodies and institutions involved in the study, as well as the statements of project managers in public investment management obtained during the field study, it was found that the most significant delay duration occurs in the material implementation stage of the projects. This indicates that the reasons related to the project execution stage significantly contribute to increasing the delay duration by 30% of the total duration.

Furthermore, the stage of selection and approval within the general budget suggests that the factors related to the licensing procedures for public investment play a significant role in delaying by 25%.

Next, the reasons related to the stage of financing and the allocation of annual financial credits contributed to a delay duration of 20%.

Then, reasons related to the stage of land allocation for public investment accounted for 11% of the delay duration. Lastly, the reasons related to the planning and procurement stages contribute to a delay duration of 7% for each stage.

In addition to these results, through the interviews conducted with officials responsible for public investment management from the planning and study stage to the final implementation and delivery of the project, the study identified the following reasons, ranked according to the stages followed in public investment management:

First: Material Implementation Stage of Public Investment:

1. **Companies committed to implementation:** in sixteen interviews, participants stated that the primary cause of the delay can be attributed to the companies committed to implementation, which suffer from structural deficiencies in their capacity to execute such projects despite possessing the required qualifications as stipulated in the rulebook. These deficiencies manifest in the following aspects:
 - a. Noticeable lack of control over administrative management or project management in relation to their executives.
 - b. Resorting to the utilization of inexpensive labor, resulting in the recruitment of unskilled workers, thereby impacting the productivity, quality of the workforce, the efficiency, and effectiveness of the implementation.
 - c. Lack of an organizational structure that ensures proper task distribution, responsibility allocation, and communication quality
 - d. Inadequate cost control and poor time management.
 - e. Inadequacy or unfitness of equipment and resources for implementation,
 - f. Many contracting entities opt to abandon projects and bear the associated penalties, compared to the losses incurred from completing the execution process.

2- Climate Challenges: The study was conducted in a region characterized by harsh climatic conditions, known for its severe spring and summer climates. Therefore, 17 out of 20 participants in the interviews confirmed that the second obstacle hindering control over the material implementation period of the project is attributed to the climate, as follows:

- a) Wind phenomena or high temperatures are among the reasons set by technical monitoring bodies to prevent the implementation of particular significant works, such

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as constructing structures and paving roads. This obliges implementing companies to respect these instructions and suspend work.

- b) The climate affects the workforce involved in construction projects, and their productivity may decrease, or they may need to stop working during periods of high temperatures, winds, or rainfall.

3- Administrative Procedures: Eleven participants in the interviews identified one of the leading causes of delays as the heavy administrative procedures borne by the implementing companies, such as:

- a) Licenses for exploiting quarries or mines, cutting roads, or relocating electrical, petroleum, gas, or water pipes and permits related to electricity or water supply and utilization,
- b) Licenses related to the importation of specific products or the transportation of sensitive materials, among others,
- c) Other administrative statements.

4- Supply System: Some of the participants in the interviews attributed the delay in the material implementation stage of the projects to the following reasons:

- a) Fluctuations in the supply system of raw materials, equipment, and spare parts for machinery,
- b) Unstable prices of materials, particularly in the last three years.

Second, the project selection and approval stage within the general budget: The participants identified the following reasons:

- a) Delays and exceeding deadlines in implementing projects lead to a backlog of ongoing projects, which affects the possibility of approving requests for selection and approval of new projects. The heavier the workload of the administrative body responsible for implementation, the lower the chances of accepting requests for new project selection. The more control the public authority has over completing projects within the specified deadlines, the greater its opportunity to accept proposals for inscribed of new projects for its benefit.
- b) The need for accuracy in the studies submitted with the proposed project makes the Ministry of Finance (General Budget Directorate) cautious about selecting and approving projects based on inaccurate studies.
- c) Despite their urgent need, proposed projects are not included in the priorities stipulated in the government's public policy and government action plan, hindering their approval and implementation.
- d) The limited financial resources of the government during the study period (2017-2022) led the government to select and approve necessary and significant projects, particularly those directly impacting large population segments.
- e) Project proposed for inclusion in the state budget are examined once a year when preparing the draft budget law for the next year. This causes all propositions that were not accepted to be delayed for an entire year until renewing the inscription demand and examining them.

Third, Funding: all participants in the interviews attributed the delays related to financing to the following reasons:

- a) More allocating annual appropriation for projects compared to the required amount, limiting progress in implementing investment projects.
- b) Linking the commitment process to the availability of financial appropriations, according to Article 120 of the 2017 Finance Law, restricts the ability of project managers to enter into implementation contracts (Derbal et Sadek , 2019, P 65).
- c) Delayed receipt of total financial appropriations at the beginning of the year has shortened the timeframe for executing expenses related to public investments, particularly commitment procedures, thereby impeding progress in project implementation.
- d) Lack of flexibility in transferring financial appropriations from one public investment project to another, from one sector to another, or from one ministry to another.

Fourth: The stage of allocating land for the establishment of public investment: The number of participants in the interviews has several main reasons that led to exceeding the approved deadlines for such projects, which we can summarize as follows:

- a) Cumbersome procedures for land allocation for the construction of public investments.
- b) Numerous disputes over land ownership, especially considering that most of the studied projects were built within the urban areas of cities, make these disputes more common.
- c) Complex procedures for clearing the land from various obstacles, such as relocating electrical wires, gas and petroleum pipelines, etc.
- d) Failure to resort to expropriation for public benefit due to other considerations,
- e) Limited availability of land in the real estate reserve.

Fifth: The planning, appraisal, and study stage: 16 out of 20 interview participants attributed the factors of exceeding the standard deadlines in the implementation of projects, which belong to the study stage, to the following reasons:

- a) The inaccuracy of financial, economic, social, environmental, technical, and regulatory studies is a primary reason that generally affects all stages of public investment implementation.
- b) Insufficient proficiency among those supervising these studies limits their comprehensiveness, accuracy, and timely completion.
- c) The need for high-quality digital databases significantly impacts the accuracy of the studies.
- d) Insufficient high-level and specialized qualifications of the human resources responsible for conducting the studies affecting their quality.
- e) The significant time gaps between the study stage and the initiation of material project implementation have also affected the relevance of these studies.

Sixth: the procurement and conclusion of contracts for completion: All participants in the interviews attributed the factors that cause delays and exceed the completion deadlines, which refer to the stage of concluding contracts, as follows:

- a) Delay in publishing public procurement announcements in daily newspapers.
- b) Limited circulation and readership of newspapers, reducing the number of competitors and subsequently affecting the quality of submitted financial offers.
- c) Numerous appeals and subsequent procedures

- d) Going through multiple procedures and committees, each of which raises reservations that need to be addressed.

Conclusion:

In summary, effective management of public investments requires strong time management. The more the process of implementing these facilities exceeds the standard timelines, the greater the missed opportunities become. Furthermore, the significant impact of delays directly translates into inflated investment expenses, putting additional strain on the overall general budget to finance new projects. Hence, this study aims to identify the reasons for the delay in implementing such facilities. The implementation process is divided into several key stages: the planning and study stage, the allocation of land for public investment, the project selection and approval stage within the state's general budget, the procurement and contract award stage, the material implementation stage of the project, and finally, the annual funding stage to progress the implementation.

To analyze the reasons and distribute the duration of delays across these stages, 30 projects were selected that experienced significant delays compared to the standard timeframe for completing such projects. Collecting and processing the data and conducting interviews with 20 officials responsible for managing these stages of the projects under study found that the material implementation stage was the most delayed, accounting for 30% of the average delay duration. Therefore, the reasons related to this stage should be given priority in addressing and studying potential solutions. The next stage in terms of delay was the project selection and approval one within the state's general budget, accounting for 25% of the time overrun. Hence, the reasons for this stage are also considered fundamental, including delays caused by other ongoing projects. However, this does not negate the role of different stages in creating this time gap, such as the funding stage, which accounts for 20% of the delay, followed by the land allocation stage for the construction of these facilities at 11% of the time lost, and then the planning, studies, and appraisal stage, as well as the stage of concluding implementation contracts and orders, each accounting for 7% of the delay time.

Therefore, we urge researchers, as well as officials responsible for managing such projects, to consider these reasons and take them into account when finding solutions, or at least consider them when planning the completion of such projects.

Recommendations: Based on this study and the analysis of the reasons, some recommendations can be made to enhance the performance, efficiency, and effectiveness of managing public investments:

1. Consider time as a primary determinant in completing public investments, given the missed opportunities resulting from delays in their implementation.
2. Develop a guideline for managing all stages of public investments, considering both time and cost as key factors.
3. Provide training for project managers and all stakeholders involved in managing public investments.

Research prospects: This study has revealed several prospects that researchers can explore, such as:

1. The impact of exceeding the established deadlines on the performance of public investments,

2. The influence of digital transformation on the expected benefits of medium- and long-term public investments,
3. Establishing criteria for evaluating the effectiveness of public investments in low-income countries.

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