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State management of public investment in road construction in Vietnam: Current situation and solutions

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Abstract

This study examines Vietnam's state management of public investment in road construction. The development of road transport infrastructure is in extremely high demand as Vietnam undergoes an economic transition. Despite the fact that the effects of the COVID-19 pandemic have caused the economy to grow more slowly recently, public investment in the transport industry has increased significantly. Several modern, large-scale road works that have been finished and put into operation are having a significant positive impact on urbanization, connecting regions, and socioeconomic development. However, public investment in road transport construction still has a lot of issues that need to be fixed. The state's weakness is one of the primary issues that reduces investment efficiency. This study analyzes the state management of public investment in road construction, according to the following contents: *legal system and policies; formulation and implementation of public investment plans; inspection and supervision by state management agencies*. The method of collecting secondary data and primary data (through sociological investigation) is used and combined with Statistical Package for the Social Sciences (SPSS) software to determine the influencing factors and find out the problems and their causes. Therefore, this study proposes a number of urgent and practical solutions to improve the state management of public investment in road construction and develop a synchronized road transport network.

Keywords: Legal document system, Public investment plan, Public investment, Road construction, Road works, State management.

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Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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1. Introduction

Investment using state capital (public investment) has become an effective tool in macroeconomic management in Vietnam, especially during the period when the global economy is in crisis and the domestic economy is in recession owing to the impact of the COVID-19 pandemic [1]. The budget for the transport industry is extremely large, taking up 35% of the total capital for all ministries. In the period 2016-2020, the total capital for the transport industry was 233.211 billion Vietnamese dong(VND), while the volume in 2021-2025 period was 252.694 billion Vietnamese Dong. The investment capital for road construction included was always the largest, at an average of 67% [2]. The synchronous and modern construction of many key projects has significantly improved the connectivity of the transportation system. Nearly 14,000 km of highways have been upgraded, renovated, and formed motorways in all regions of the country (Phapvan - Caugie phase 2, Danang - Quangngai, Halong - Bachdang bridge, Tanvu - Lachhuyen, Hanoi – Bacgiang, Hanoi – Haiphong, Halong – Vandon, Lote – Rachsoi...) [3].

Although public investment has positive effects on completing the road traffic system, which caterto economic and social development, the investment results are not high. The medium-term investment plan only met 24% of demand. During the implementation process, the ability to balance the annual budget reached 69% of the plan, but the investment is still spread out. Therefore, the allocation of adequate capital to a number of new projects and prioritized tasks has not occurred. Correspondingly, the medium-term plan was assigned late, especially the two preponderant national projects (Longthanh International Airport and North-South Expressway) which only completed the procedures to allocate capital in the second half of the 2016-2020 period [2].

According to the Global Competitiveness Report (World Economic Forum), the quality of Vietnam's road transport infrastructure ranks 102 out of 148 ranked countries and territories, and Vietnam's quality score stood at 3.1/7, lower than many countries in the region, including Laos and Cambodia [4].

Table 1 presents the World Bank’s case studies on public investment management, which Author Brumby used to compare the effectiveness and efficiency of public investment in a number of countries, including Vietnam.

Table 1.
Comparison of public investment management quality of Vietnam and other countries.

Public investment management functions	Chile	Ireland	South Korea	Brazil	Belarus	China	Vietnam	Nigeria
Orientation, project establishment and initial screening	Good	Good	Good	Average	Weak	Average	Average	Worst
Official project appraisal	Good	Good	Good	Average	Average	Average	Average	Worst
Independent appraisal assessment	Good	Good	Good	Weak	Rather good	Average	Worst	Worst
Project selection and budgeting	Good	Good	Good	Weak	Average	Worst	Worst	Worst
Project deployment	Good	Rather Good	Good	Good	Average	Weak	Weak	Worst
Project adjustment	Good	Good	Good	Good	Average	Average	Average	Worst
Project operation	Good	Good	Good	Rather good	Worst	Worst	Weak	Weak
Evaluation and audit after project completion	Rather good	Average	Rather good	Worst	Worst	Worst	Worst	Worst

Source: Toan [5].

Table 1 shows that all stages’ quality of the public investment management process in Vietnam is weak or average, with 5/8 being weak or worst. This situation exists for a variety of reasons, but the main one is the weakness in state management.

The article analyzes the state of state management of public investment in road construction in the period 2016-2022, pointing out a number of limitations and causes, which are that the legal system is still overlapping and inconsistent; planning is not appropriate, organization of plan implementation has not met requirements; inspection and supervision by state management agencies have not been given due attention. Spontaneously, the article establishes 20 criteria to evaluate this work, conducting surveys and consulting experts. The article also determines the extent of influence of the criteria. This is the basis for proposing solutions to improve Vietnamese state management of public investment in road construction.

2. Literature Review

Governments and scientists have always given great consideration to public investment and management in infrastructure construction, particularly road construction. There have also been numerous research projects on these issues.

2.1. Domestic Studies

Many studies have pointed out a series of common reasons for public investment to be ineffective, wasteful, and cause budget loss, which are scattered investment, lack of planning, and limited quality of medium- and long-term investment

planning [6-9]. Correspondingly, the authors Thuan [7] and Liem [6] mentioned that capital planning is neither feasible nor effective, and the capital allocation is spread out, although in compliance with regulations and in line with the country's economic development strategy [6, 7]. The authors Cung and Anh [8] sought the causes of prolonging progress, increasing costs, and delaying putting the works into use, reducing the efficiency of public investment [8]. The doctoral thesis by Tuan [10] analyzed the limitations of the planning work, which was the priority of formal criteria (the criteria for completing the disbursement plan) but little attention to the quality criteria (criteria for investment efficiency) [10]. The author, Phuong [9], conducted research on construction planning [9]. This result is consistent with research by The [11] showing that the medium-term investment plan for road traffic in the 2016-2020 period only meets 24% of needs, investment procedures are long [11]. Additionally, Toan [5] used the sociological investigation method to assess the status of state management in construction in terms of building and implementing plans [5].

Several doctoral theses have deeply delved into embezzlement and corruption through auditing, monitoring, and evaluating investment projects [9, 12, 13]. Specifically, the thesis by Han [12] proposed three solutions to improve the quality of the audit activities of road construction projects with state capital, which are: (1) completing mechanisms and institutions to create an environment preventing loss, waste, and negativity, clearly specifying responsibilities and sanctions; (2) expanding the scope of audit, conducting audit work at all stages of the investment process, especially the preparation stage since any error in this stage brings in severe implications; and (3) conducting audits of the economic responsibility of leading personnel, because corruption and waste come from considerably human factors [12]. At the same time, Phuong [9] proposed the establishment of a Planning Supervision Committee, implementing regulations on bidding, and ensuring transparency in contractor selection Phuong [9]. Toan [13] systematized, supplemented, and basically completed the theoretical cornerstones for supervision and evaluation projects using state capital from the perspective of management agencies [13].

The studies by Liem [6]; State Audit of Vietnam [14] and Quan, et al. [15] focused on the lack of a legal corridor and the low uniformity of laws in the field of road traffic, especially projects conducted in the form of public-private partnerships. Liem [6] studied the management of state budget investment in roads, from the perspective of macro management at the provincial level, including promulgation and implementation of legal documents, limitations, and causes [6]. Among some recent studies in this field, in the Symposium "Public Investment: Bottlenecks and solutions from the perspective of the State Audit of Vietnam [14] many articles mentioned that the implementation of the projects using public investment capital faced some difficulties due to the slow promulgation of guidelines and regulations on project selection procedures [14]. With the same point of view, the article by Quan, et al. [15] pointed out the inadequacies in making and implementing investment plans in road construction. The inadequacies are that the legal system had not kept up with the reality; imbalance between needs and capital supply capacity still existed; there was no independent, clear division between the agency preparing and the agency evaluating investment projects; initiatives only focused on financial efficiency, disregarding socio-economic efficiency [15].

Regarding the development of a unified system of criteria for allocating, monitoring, and evaluating public investment capital as well as public investment management processes in road traffic, Ngoc [16] considered how the factors affect the results of public investment in Tiengiang Province, in which the human factor plays an important role Ngoc [16]. Thuy [17] focused on studying the factors that directly affect investment in road construction with state budget, in which the personnel factor had the third highest influence [17]. With the same view, Do Van Thuan developed criteria related to the decentralization of decisions and the use of investment capital, as well as the quality of personnel in state management agencies, along with investment quality and efficiency control [7]. The doctoral thesis by Toan [13] determined the formula for the relationships between the factors affecting the supervision of construction investment projects. Consequently, the criteria of competence, professional ethics, and legal regulations has the strongest impact on the effectiveness of state management of construction investment using public capital [13].

2.2. Foreign Studies

Researchers from all over the world have conducted numerous scientific studies on managing public investment and its activities. Maintaining a reasonable rate of public investment and improving the quality and efficiency of public investment are issues that governments and many scientists are very concerned about.

In OECD [18] on Effective Public Investment Across Levels of Government, the purpose of the principles outlined was to help governments at all levels assess the strengths and weaknesses of public investment capacity, key shared responsibilities across levels of government, and set priorities for improvement OECD [18]. Rajaram, et al. [19] provided a process for evaluating the public investment management systems of governments. Particularly, 8 steps are clearly determined, including: orientation, review, and screening; investment project appraisal; independent appraisal; project selection and budgeting; bidding and project implementation; project adjustment; project operation; evaluating and auditing the project upon completion [19].

Research by Shankha and Dabla-Norris [20] pointed out the role of the public investment management apparatus. Bureaucracy, inefficiency will entail serious consequences, reducing the quality and efficiency of capital investment, therefore negatively affecting the growth [20].

In order to improve the efficiency of capital use for road transport projects, the article by Queiroz [21] presented an overview of the steps to implement the PPP (Public-Private Partnership) program in the road sector and analyzed in detail the conditions for the success of the PPP program for road transport in countries with developing economies [21]. In addition, The World Bank [22] evaluating the public investment management system in Vietnam has pointed out the

weaknesses, which are the inadequate capacity of some officials in state agencies, the unclear responsibilities in investment planning, and the uncoordinated state management apparatus [22].

Regarding the quality management of public investment projects, Yang [23] explored the role of contractors and state agencies. These two subjects sometimes have distinct opinions, affecting the quality of the project Yang [23]. Isohata [24] researched the construction bidding system in Japan [24].

On solving the problem of capital shortage and capital use management, the doctoral thesis by Litvyakov [25] analyzed the current state of PPP transport infrastructure financing in Russia, showing that non-budget sources made up a high proportion of investment capital but the capital did not meet the demand. Hence, the methods to evaluate the efficiency of road transport projects have been proposed to select the most efficient form of state participation. The thesis solved the problem of completing the financial investment mechanism and allocating and managing capital for road transport to enhance investment efficiency in Russia [25].

The above studies showed state management of public investment was significantly complex, including many contents and depending on many factors. Especially, it was more difficult since investing in road construction required large capital, long time, and many risks and uncertainties. However, the authors found that there are several important contents, including the determinants of the quality and effectiveness of this activity in Vietnam that needed further study. These contents are: (1) promoting and organizing the implementation of legal documents, (2) making plans for public investment, (3) organizing the implementation of public investment plans (4) controlling investment activities.

3. Research Methodology

To obtain data for this study, a 6-step research process have been used, combining qualitative and quantitative research.

3.1. Method of Collecting Secondary Data

Based on summary reports and projects of the Ministry of Transport, the Ministry of Planning and Investment; domestic and foreign studies such as journals, scientific reports, doctoral theses, textbooks, information on the Internet; current legal documents, the authors have generally analyzed and assessed the state management of public investment in road construction in Vietnam. As a result, they identify 22 factors (divided into 4 categories) that impact the work.

3.2. Method of Using Primary Data (Via Sociological Survey)

We have designed questionnaires to survey the opinions of experts working as project managers, researchers, contractors, project supervisors, or consultants.

Those selected were interviewed based on their previous involvement, either directly or indirectly, in public investment projects in Vietnam’s road construction. Based on their experience, they will evaluate the factors and criteria reflecting the state management of public investment in road construction. The experts basically agreed with the proposed criteria, *as well as recommending eliminating 02 factors (due to duplicate content). Thus, there were 20 factors assessed for their influence on the state management.*

3.3. Statistical Analysis Methods

Data obtained from experts is analyzed through the SPSS support tool to calculate reliability statistics and item-total statistics between each criterion and the other criteria in the category. The results show high reliability when the Cronch's alpha coefficient for each factor group is greater than 0.7, and the corrected item-total statistics are all >0.3.

3.4. Descriptive Statistics of the Study Sample

The measurements of the samples for conducting quantitative analysis were defined. According to Hair, et al. [26], the formula commonly used to calculate the size of samples for regression analysis is $n \geq 50 + 8 \times p$ (where n is the size of the sample and p is the metric for the independent variables in the model). Therefore, the samples’ integral dimensions are $n \geq 50 + 8 \times 20 = 210$. We collected 240 survey samples in total. The number received and confirmed was 234, which is higher than the number required for the data to satisfy the requirements. The data are summarized in Table 2.

Table 2.
Analysis of survey personnel information description.

Target objects		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	State management personnel	76	32.5	32.5	32.5
	Construction project owners	48	20.5	20.5	53.0
	Contractors	36	15.4	15.4	68.4
	Investors	37	15.8	15.8	84.2
	Researchers	37	15.8	15.8	100.0
	Total	234	100.0	100.0	100.0

3.5. Research Process

The research process has been carried out in six steps as follows:

Figure 1 procedure of the research process.

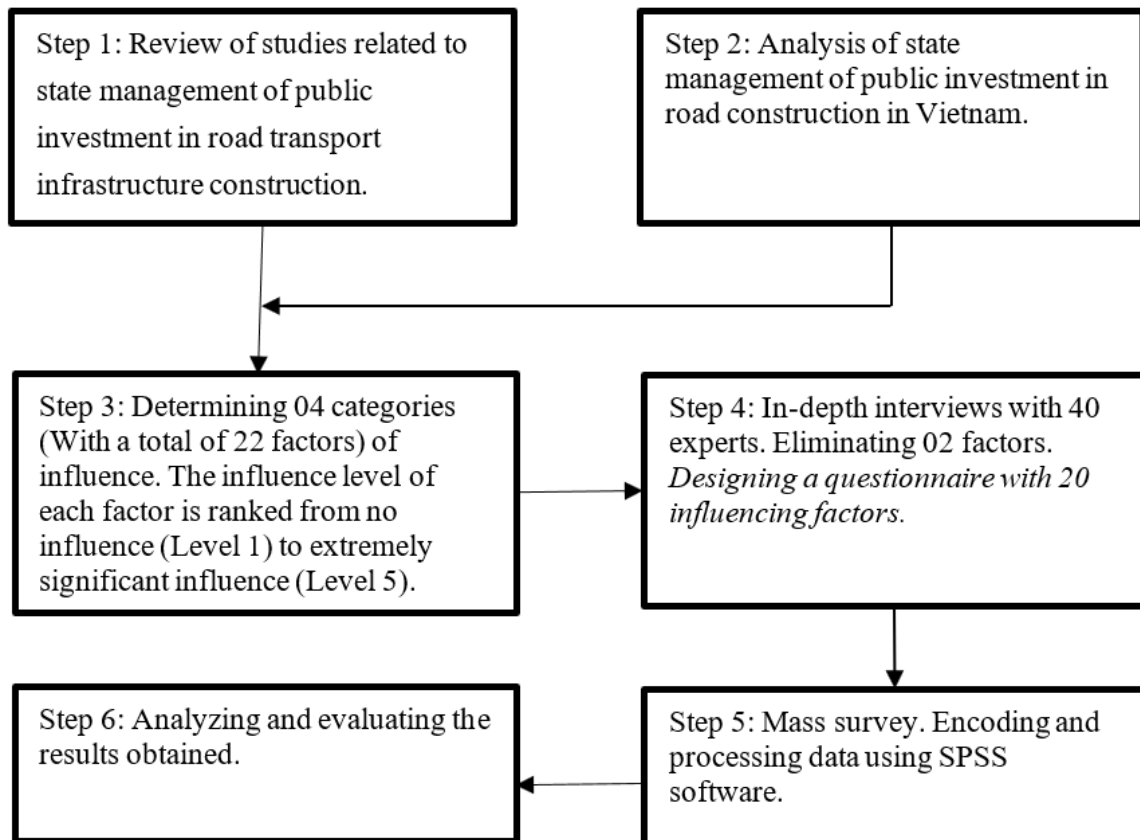


Figure 1.
The research process.

4. Analysis of the Current Status of State Management of Public Investment in Road Construction in Vietnam

4.1. Legal Document System on Public Investment in Road Construction

One of the first contents of the state management of public investment in road construction is the promulgation and organization of implementation of legal documents. Recent developments in Vietnam have led to the timely development and revision of the system of legal documents pertaining to use of public investment capital in construction. In a short time, many legal documents have been amended and promulgated, such as the Law on Public Investment (2019), the Law on Investment in the form of public-private partnership (2020), the Law on Investment, the Law on Housing, the Law on Bidding, and the Law on Construction. These are considered as effective tools for state agencies to improve the management effectiveness and efficiency.

The introduction of the Law on Public Investment No. 39/2019/QH14 in 2019 has created a uniform legal system to manage the entire process of public investment, from the formation, appraisal, verification, decision-making on budget, expenditure control, acceptance, operation, and project performance evaluation after completion.

However, the system of legal documents on state management of public investment in road construction still has many inadequacies and has not fully met the requirements. Particularly:

4.1.1. Overlapping, Conflicting and Inconsistent Contents

According to the Law on Public Investment, projects in B and C must prepare the Report on Investment Policy Proposal [27]. However, in the Law on Construction (amended in 2020), the entities that must prepare this report do not include group B or C projects [28]. Thus, the order of investment in road construction specified in the Decree No. 10/2021/ND-CP does not include the preparation of Report on Investment Policy Proposal in the project preparation period [29].

Regarding the adjustment of programs and projects, there is currently a difference in the adjustment of investment policies for key national projects between the provisions of the Law on Public Investment (Article 43) and the Decree No. 114/2021 /ND-CP on December 16, 2021, of the government on the management and use of ODA(Official Development Assistance), causing difficulties for investors [30].

Regarding the appraisal and approval of investment policies, the implementation process carried out in accordance with the Law on Public Investment and the Law on Investment still has many inadequacies, lacking clear implementation process and specific instructions as it involves several laws and industries. Which projects are approved for investment policies, which projects must be tendered to select investors, or which projects must be auctioned, and so forth, remain unclear [27, 31].

In addition, there are some inadequacies and contradictions in legal documents. The Law on Public Investment does not mandate the inclusion of an environmental impact assessment report in the preparation of dossiers and procedures for

investment policy decisions, whereas the Law on Environmental Protection mandates the inclusion of such an assessment during the investment preparation phase. Furthermore, the projects of asset purchase and information technology application are classified as projects with construction components according to the provisions of Article 6 of the Law on Public Investment, although their construction components take up drastically small proportion, constituting 1-5% of the total project investment. Therefore, it is necessary to collect appraisal opinions of construction specialized agencies. This reduces the application of the Law on Public Investment [27, 31].

4.1.2. Many Problems in Decentralization and Authorization in Investment Management

The Law on Investment and the Law on Public Investment are currently the highest legal documents on decentralization in management. Nevertheless, as a matter of fact, leaders of many localities are afraid of responsibility and are confused about implementation, making the disbursement of public investment capital delayed. Moreover, some localities have taken advantage of the defects of the decentralization process, accompanied by the lack of supervision and weak management of the central government, along with the low quality of planning, leading to rampant, overlapping, and inefficient investment. In addition, since there are no clear regulatory documents, investors and state management agencies are still confused about exercising their powers and responsibilities. For instance, in Build-Operate-Transfer projects, who is responsible for the management of the road corridor, project enterprises or the Department for Roads of Vietnam?

Furthermore, the regulation "The medium-term and annual public investment plans were adjusted by the People's Councils at all levels" (the Law on Public Investment) makes the adjustment of annual capital plans between agencies and units wait until the meeting of the People's Council, consequently leading to a delay in disbursement [27].

Regarding the decentralization of the preparation of Report on Investment Policy Proposal, the Law on Public Investment stipulates that it is the responsibility of the Presidents of the People's Committees at all levels. Nonetheless, for projects that investors are not specialized agencies directly under the People's Committees at all levels, assigning these agencies to make reports on investment policy proposals has brought difficulties. There are even cases where they do not have enough capacity to prepare or lack understanding of the project. At the same time, the lack of clear delineation between project-making agencies and appraisal agencies also engenders confusion in the implementation process.

4.2. State Management of Public Investment Planning in Road Construction in Vietnam

The Ministry of Transport bases its investment plan on the plans of its project management units and provincial Departments of Transport. The public investment plan is developed over a 5-year period, and the details of each year help the management work more strictly and publicly. In the public investment plan, the annual capital plan closely follows the financial plan, in line with the total income of the country as well as the allocation of public investment capital for infrastructure construction.

However, the development of public investment plans for the periods 2016-2020 and 2021-2025 still has some adequacies:

- The public investment plan is not really suitable for the needs, still has to be adjusted when implemented to reach the balance between the needs and the ability to mobilize capital.
- The regulations on development of a 5-year plan and detailed arrangement of capital sources for each project cause inconsistencies with the regulations on the 3-year public debt repayment plan [18].
- The arrangement of a specific project list in 5 years does not create flexibility in the capital management of the government. The important national projects are still short of capital (the capital has been allocated to other projects). Many ODA projects have been arranged in the medium-term plan, but the disbursement cannot be implemented, while many other projects having investment policies and capable of capital disbursement are not arranged in the medium-term plan. For example, the project of upgrading National Highway 63 from kilometer 74 to kilometer 112 has been approved by the Ministry of Transport in the Decision No. 1782 since 2014. However, due to the delay in progress, it was not until 2019 that there was a policy to upgrade from kilometer 110 to kilometer 112. Up to now, the above bidding package has implemented about 80% of the volume, and accumulated investment capital for the project is 261 billion VND, but no capital has been allocated. The final 13 km portion has a very high traffic density but a narrow (less than 5.5m) road surface that cannot accommodate the volume of traffic and is frequently congested, having a high accident rate [3].

4.3. State Management of Organization of Public Investment Plan Implementation in Road Construction in Vietnam

The state has steadily increased its investment capital in recent years, making up around 30% of GDP. A significant change has been made as a result of increased capital for the construction of transport infrastructure has resulted in a significant change. In 2021, the capital was 43,401 billion VND, 52,310 billion in 2022, and is expected to be 94,161 billion in 2023, ardently encouraging economic restructuring, increasing production capacity, advancing urban civilization, and modernizing the nation [2]. However, there are still several constraints and flaws in the way recent construction investment projects using public investment capital have been implemented, notably as follows:

- The investment capital for road transport is still mainly based on state budget and ODA capital; thus, it has not really taken the initiative in adding other resources. The ability to balance capital from the central budget is not enough for the projects already planned in the medium term, leading to many projects having to prolong their implementation time and switch to capital allocation at a later stage.
- The implementation process goes through many cumbersome procedures with a low disbursement rate. Several major works and projects have been approved but have not been implemented for many years, are behind schedule,

or have low quality, causing waste and losses. For examples, consider the project of construction investment of some sections of the North-South Superhighway in the East and Trung Luong-Can Tho expressway [3].

There are many causes of inadequacy. Firstly, despite being in the plan, investment projects have not yet received funding, and it takes 3–4 years until things change. When receiving capital, the price changes, and the project also changes, the approval must be started over, making the implementation take a long time. Secondly, due to problems with construction site clearance, many ongoing projects have to stop. On the other hand, some legal provisions are not appropriate. For example, the Decree No. 15/2021/ND-CP on project management (Articles 13 and 36) regulates that group B projects must submit to the Ministry of Construction for appraisal. For projects located in different provinces, the time taken to move, coordinate, and supplement, appraisal documents is prolonged, affecting the implementation time [32].

4.4. State Management of Inspection and Supervision of Public Investment in Road Construction in Vietnam

During the process of implementing transport projects with public investment capital, the government and the Ministry of Transport always determine the inspection, supervision, and quality assurance of traffic works as the top priorities. Through the inspection, a plague of mistakes can be pointed out at almost every stage, including policy formulation, appraisal, approval, acceptance, payment, and settlement.

According to the data from the National Assembly's supervisory team, in the 2016-2021 period, there were 3,085 state-funded projects with losses and waste. The total damage was 31,795.2 billion VND, of which 19,464.8 billion VND were at the local level and 12,330.4 billion VND were at the central level [3]. Specifically, in the Table 3:

Table 3.

The number of projects using state capital with losses and waste.

Year	2016	2017	2018	2019	2020	2021
Number of projects	590	840	422	125	923	185

Source: Ministry of Transport [3].

In the period of 2015-2019, the State Audit conducted a thematic audit of road construction investment in the form of PPP in 74 projects, detecting violations of 140,216.7 billion VND, collecting and submitting the state budget of 7,619.8 billion VND and making a decrease of 65 years and 3 months to collect fees [3].

The inspection and supervision of general public investment and public investment in road construction are not only carried out by specialized agencies, but also conducted by social organizations, unions, and communities (referred to as community supervision). The community's supervision promptly reports to the authorities what needs to be rectified, handling and condemning actions that affect the quality of work, environmental safety, and sanitation, contributing to the prevention of negativity and wasting public investment capital. In 2021, thanks to the community's supervision, 577 projects with violations (from many sources of funding), 452 projects with results of handling violations, and 328 projects that the investor has remedied were detected [33].

The inspection and supervision activities still contain several flaws, albeit with positive results. Firstly, the community supervision work lacks clear instructions. The legal basis system, the criteria for regulating the investment process are also inadequate. Moreover, the sanctions are not stringent enough. It is essential to have an inspection and control mechanism before, during, and after construction investment, particularly for the road transport sector.

The aforementioned review of the state's recent management of public investment in road construction in Vietnam reveals that, notwithstanding the gains that have been established, there are still numerous limitations. These restrictions are primarily brought on by the inconsistent legal system; ineffectively operated state management apparatus; the deficiencies in management personnel' quality, capacity, and sense of responsibility; and the inspection and supervision work that has not received the proper attention. These serve as the foundation for the authors' suggestions for the following solutions to complete this work.

5. Survey and Assessment of Factors Affecting the State Management of Public Investment in Road Construction

The above analysis shows that recent state management of public investment in road construction still has many shortcomings that cannot be solved synchronously. Addressing the areas with the most inadequacies should take priority. The authors have built 20 influencing factors, divided into 04 categories: (1) legal document system for public investment, (2) investment planning, (3) organization of investment plan implementation, (4) Control of investment plan implementation. The implementation process was mentioned in Section 3. Among the 4 categories, categories (2) and (3) have been studied in documents [7, 13, 15] for construction projects in general or evaluated as policy planners. In this study, based on the qualitative research results and group discussion, the authors take new factors (1) and (4) into account. The legal document system is a management tool to ensure that investment activities are going in the right direction and attaining objectives. Only a synchronous legal system with a completed legal framework guarantees the effectiveness and efficiency of the state management. In addition, controlling activities is also of critical importance in enhancing investment efficiency and ensuring implementation results fit the goals set.

Table 4 displays the results of the evaluation of the factors' influence levels and the correlation between them. Table 4 also ranks the factors in order of influence and provides comments.

Table 4.

Survey results of the influence of factors on state management of public investment in road construction.

Symbol	Contents	Mean	Std. deviation	Minimum	Maximum	Order of influence
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Factors of legal document system on public investment					
PL1	The regulations on decentralization are clear and specific	2.873	0.799	1.00	5.00	4
PL2	The legal framework on public investment is fully enacted	2.724	0.816	1.00	5.00	1
PL3	The forms of public investment are clearly regulated	3.336	0.892	1.00	5.00	17
PL4	Relevant stakeholders have a proper awareness of public investment management activities	2.969	0.815	1.00	5.00	7
2	Factors of investment planning					
KH1	The investment plan ensures transparency	3.358	0.827	1.00	5.00	19
KH2	The plans to implement investment proposals in line with investment strategic objectives of all levels are developed	3.343	0.868	1.00	5.00	18
KH3	The instructions for the investment plan implementation are clear	3.276	0.798	1.00	4.00	15
KH4	The responsibilities of the stakeholders for the investment plan are clearly defined	2.833	0.811	1.00	5.00	3
KH5	The list of investment projects in accordance with the strategic plan orientation is developed	3.313	0.789	1.00	4.00	16
KH6	Human resources and organizational apparatus to implement the plan are identified in a specific way	3.015	0.849	1.00	5.00	9
3	Factors of organizing the implementation of investment plans					
TC1	The capital mobilization to completely meet the needs of the plan has been organized	2.917	0.888	1.00	4.00	6
TC2	The investment capital is allocated in accordance with investment objectives	3.105	0.852	1.00	5.00	12
TC3	The publicity and transparency in investment capital allocation are ensured	3.455	0.732	2.00	5.00	20
TC4	The investment management apparatus is organized and operated effectively	3.075	0.762	1.00	4.00	11
TC5	The allocation of capital to investment projects is guaranteed on schedule	2.731	0.833	1.00	4.00	2
4	Factors of controlling the implementation of investment plans					
KS1	The system of legal documents providing for the inspection and supervision of investment is fully developed	3.187	0.860	1.00	5.00	14
KS2	The system for effective investment supervision and inspection is developed	2.993	0.771	2.00	5.00	8
KS3	The criteria of investment process control is fully developed	2.902	0.754	2.00	5.00	5
KS4	The truthfulness and objectivity of the inspection and supervision of investment activities are guaranteed	3.179	0.866	1.00	5.00	31
KS5	The sanctioning system to handle violations is specific, clear and strong enough	3.030	0.822	1.00	4.00	10

Comments on the obtained results:

- All 20 factors have certain levels of influence on the state management of public investment in road construction, with the largest value being 3.35, and the smallest being 2.72. All factors are close to the average value of 3.076, showing that there are many aspects that have impacts on managerial work simultaneously, and none of them are overwhelmingly dominant.
- Each factor has a different level of influence. Correspondingly, *it is necessary to thoroughly consider the factors with low influence, having an average value <3.0, to proactively give directions and solutions to remedy because these are the factors that reflect inadequacies, inappropriate issues, and needing improvement (ordered in the column (7)).*
- It can be seen that the factors of legal document system on public investment play an important role and need special attention in the management process, when three quarters of the factors have the levels of influence less than 3.0, which are the clear and specific regulations on decentralization, the wholly and synchronously enacted legal framework on public investment, and the relevant stakeholders having proper awareness of public investment management activities. This result reflects the actual status of the legal system on construction investment in Vietnam, which is incomplete with many inadequacies and contradictions between legal documents.
- *According to the ranking from 1-20 in column (7), the factors ranked first (factors with mean less than 3) reflect the most existing problems in state management of public investment in road construction. In particular, these prominent issues have the following contents: legal framework system, state management apparatus, control and evaluation of investment activities, awareness, capacity, and quality of cadres in state agencies in charge of public investment management. This is the basis for the authors to offer practical solutions to help improve this works' efficiency.*

6. Solutions for Improving the State Management of Public Investment in Road Construction in Vietnam

6.1. Completing the Legal Framework for Public Investment in Road Construction

This solution is necessary and has great significance in creating the environment, legal framework, and institutions to enhance the efficiency of public investment in general, and public investment in road transport infrastructure construction in particular.

6.1.1. Regarding the System of Legal Documents

To remove the "blockage" in recent public investment, it is essential to amend the Law on Public Investment and the Law on Investment in the direction of: (1) strong decentralization, delegation of authority to decide on the investment in programmed, projects by sector or field for heads of ministries, ministerial-level agencies, and localities. (2) The Law on Public Investment is currently offering a reverse process: divide capital first, then select projects, while it is advisable to do the opposite and change the regulations on capital recording (since it leads to funding for project preparation, appraisal, approval, and implementation). (3) Guidelines on the implementation of the law (sub-law documents) must also cover and create a corridor for the inspection and supervision of public investment activities.

The 2019 Law on Public Investment serves as a framework law, mainly dealing with problems in public investment procedures, not with issues related to bidding, land, construction, or environmental protection. Therefore, according to the authors, it is necessary to clarify the role of the Law on Public Investment with specific, clear, and easy-to-understand legal documents. In the field of road construction, when it comes to adjusting construction activities, the Law on Public Investment should focus on investment decisions, funding plans, measures for ensuring sufficient capital sources, measures for limiting debts and prolonged construction duration, pending works due to lack of capital, or irrational allocation of capital. Other issues from the preparation of pre-feasibility study report, feasibility study report, survey, design, construction, quality assurance, acceptance, handover, and putting the project into use should be followed by the Law on Construction.

6.1.2. Regarding the Decentralization Mechanism of Investment Management and Accountability

The state needs to amend and complete the decentralization mechanism of investment in road construction, in the direction of strengthening the responsibility of all levels and leaders, focusing on the inspection and supervision of investment decisions and capital use decisions to avoid overlapping, fragmentation, spread, and lack of synchronization. In addition, it is necessary to enhance accountability, both vertically and horizontally. That is to say, it explains to the National Assembly, government, ministries, and branches for state management, and simultaneously to the People's Councils at all levels, voters, and citizens where the investment is implemented.

6.2. Completing the Apparatus Organization of State Management Agencies on Investment in Construction of Road Transport Infrastructure

The state management apparatus for public investment includes the National Assembly as the legislative body, the government (the Ministry of Planning and Investment, the Ministry of Finance, the Ministry of Construction, etc.), the State Audit, the Government Inspector, the People's Committees at all levels, and specialized agencies at each level. Improvements should focus on the following areas: Inspecting the functions and tasks of the agencies involved in the work, consolidating the organizational structure, reducing the managerial focal points to avoid overlapping duties and tasks, saving costs and enhancing management efficiency.

- Unify the focal points for state management of road transport infrastructure, construction and architecture planning, urban, and industrial infrastructure and parks development, etc., by consolidating the state management agencies. The Ministry of Transport and Ministry of Construction can merge at the central level. At the provincial and city levels, the Department of Transport can be merged with the Department of Construction. At district and town level, the Office of Transport can be merged with the Office of Construction (or Office of Urban Management). In fact, some provinces have piloted merging some departments, such as merging the Department of Construction with the Department of Transport in Lao Cai and Ha Giang.
- The merger is based on the orientation of reducing the focal points. However, we should retain some units (general departments, agencies, management units, etc.) that play particularly important roles should be retained and not merging them with other. For instance, the Department of PPP under the Ministry of Transport should not be merged with other units of the Ministry of Construction [31].
- Complete the functions and tasks of the organizations after performing the reduction of focal points;
- Review the professional qualifications of personnel to arrange jobs appropriately, avoiding the status of underutilizing their capacity and easily engendering boredom, pessimism, and negative influence on common work.

6.3. Improving the Capacity and Ethical Qualities of Personnel in State Management Agencies on Public Investment in Road Transport Construction

In order to enhance the efficiency of state management of general public investment and public investment in road construction, it is necessary to elevate the capacity of officials, civil servants, and public employees (overall referred to as cadres) in the system of state management agencies on construction investment. Specifically:

- Specific regulations on ethical standards of management personnel should be developed. There are a plague of instances of capital loss and waste in the construction of road transport infrastructure, due to the impact of ethical qualities, sense of responsibility, and limited professional competencies of personnel in charge of management work. As a result, when choosing project owners and project management units, it is essential to carefully consider the conditions in the spirit of professionalism, facilitating them to improve their professional qualifications.
- We need to develop standards for evaluating personal for each position, including leadership, general management, capital planning, making and appraising estimates, investment capital settlement, financial inspection, and audit, among others.
- The management personnel should be evaluated in terms of quantity and quality for specific classifications, which are standard and non-standard types. At the same time, a specific plan on recruitment, training, and retraining, as well as arrangement of cadres and civil servants in the management apparatus, should also be prepared.
- The sense of responsibility of management personnel, especially the state management, agencies' leaders, needs improving. These individuals are liable and accountable for any problems that arise under their management from when the investment policy is formed to the point when the project is finished. The state should severely punish acts that result in investment capital losses, such as poor investment choices, careless investment management, collusion between contractors and supervision consultants, ties between interest groups to commit embezzlement, corruption, waste, etc., and recover assets to compensate for the state's losses.
- The form of organization of the management apparatus according to the needs should be piloted. Hiring staff on a contract basis should be implemented instead of appointment-by-terms. We will only renew positions that properly complete their tasks. Recruitment and promotion, especially for the positions of director, general director, head of management unit, etc., must be based on competition and talent, and salary and income are paid as an agreement.

6.4. Strengthening the State Management Agencies' Supervision and Assessment and Community Supervision

The state needs to develop mechanisms and policies so that public investment in road construction in particular can be closely monitored by the National Assembly, the National Assembly Standing Committee, government, social organizations, People's Committees at all levels, media agencies, and residents. For investment inspection, examination, and supervision to be effective, some solutions are proposed.

- Specifically, and clearly define the tasks, powers, and responsibilities of state management agencies in the investment implementation process. The strengthening of public investment management decentralization can only achieve the desired goal when associated with increasing financial transparency and accountability at all levels.
- Strictly report on investment supervision and evaluation, attaching the responsibility of competent personnel to the responsibility to implement the supervision reporting regime, and specifying the forms and levels of punishment for violating individuals or organizations. This helps ministries and branches properly assess the implementation of road construction investments and have a timely and appropriate direction plan.
- Regular and continuous supervision and evaluation are necessary. It is necessary to clearly define the functions and tasks of inspection, control, and supervision. Each function must be divided into two types: regular (periodically) inspection and irregular inspection when there are signs of violation. The function of regular inspection should only be assigned to the governing body, the Inspectorate, and the State Audit.
- Enhance the community supervision by: thoroughly giving cadres a clear understanding of the role and position of the Community Investment Supervision Board, regulating specific responsibilities of Fatherland Front at all levels, especially commune Fatherland Front in propaganda and mobilizing community to participate in supervision work, especially those who are knowledgeable about investment.

- Develop sanctions to handle units that fail to promptly and fully report on investment performance to the Investment Information System. Publicize all information on the status of capital allocation, capital plan, estimates, and final settlement of investment capital in each project, work, and unit.
- Develop inspection and control procedures before, during, and after the road construction investment.

(i) Pre-investment control: Prior to investment, supervision is carried out through the process of making investment projects and planning investment capital. To monitor this process, first of all, it is necessary to provide clear and transparent evaluation criteria and regulations, making supervision active.

(ii) Control during investment implementation: During the implementation process, the responsibility for supervision of capital management mainly belongs to the project owners. State management agencies will carry out inspections and controls when necessary. The supervision also needs to ensure the ventilation to facilitate and accelerate the project's progress.

(iii) Control after the completion of the investment: It is necessary to control and check right from the time of payment, to improve the legality and responsibility of each payment. Eliminate the thought of waiting only until the final settlement is completed to check and only after the settlement to take responsibility if a mistake is identified.

7. Conclusion

The study has analyzed the current status of state management of public investment in road construction in Vietnam, pointing out the achievements as well as limitations and inadequacies in the following aspects: Promulgating and organizing the implementation of legal documents has overlaps and inconsistencies, the decentralization of management is not clear, having many flaws; public investment planning is not closely aligned with reality and lacks flexibility; there is little coordination between the planning and implementation stages; and conducting inspection and supervision activities has not been effective.

In addition, 20 influencing factors, divided into 4 categories, have also been defined; in-depth interviews with consulting experts have been conducted; and SPSS software has been used to quantify the influence, and identify the factors that reflect the most inadequacies in state management of public investment in road construction. Accordingly, 04 solutions have been proposed to complete this work, which are: (1) completing the legal framework for public investment in road construction, (2) completing the apparatus organization of state management agencies on the construction of road transport infrastructure, (3) improving the capacity and ethical qualities of personnel in state management agencies on public investment in road transport construction, (4) strengthening the state management agencies' supervision, assessment, and community supervision. In solution (1), the authors have provided the scope of regulation of the Public Investment Law for construction investment activities. In the solutions (2), (3), the authors boldly propose merging a number of state management agencies, at the central, provincial, and city levels... to reduce functional and task overlap, assigning responsibilities associated with the work position. In solution (4), the process of inspection and control before, during, and after making construction investments is proposed. This serves as the foundation for enhancing the effectiveness of public investment and enabling the gradual development of a synchronized and modern road transport network to accommodate socioeconomic development needs.

In the future, the authors will delve deeper into the disbursement of investment capital to continue improving state management of public investment in road construction in particular and in infrastructure development in general.

References

- [1] N. V. Tam, N. B. Ngoc, N. Q. Toan, D. T. Hai, and C. A. Tung, "The impact of the COVID-19 on the construction industry in Vietnam," *International Journal of Built Environment and Sustainability*, vol. 8, no. 3, pp. 47-61, 2021. <https://doi.org/10.11113/ijbes.v8.n3.745>
- [2] Ministry of Transport, "Document No. 8562/BGTVT-KHDT, Socio-economic development plan and public investment plan for the period 2021-2025 on August 28, 2020," 2020.
- [3] Ministry of Transport, "Summary report for 2016, 2017, 2018, 2019, 2020, 2021," Retrieved: <https://mt.gov.vn/vn>. 2021.
- [4] OpenDevelopment Vietnam, "Global competitiveness report 2019," Retrieved: <https://vietnam.opendevopmentmekong.net/vi/topics/infrastructure/> [Accessed September 2022], 2022.
- [5] N. Q. Toan, "Evaluation of state management of construction investment using state capital in Vietnam," *Journal of Construction Economics*, pp. 14-21, 2018.
- [6] H. C. Liem, "State management of investment of road transport infrastructure construction from the state budget in Ha Nam province," Doctoral Thesis in Economic Management, Ho Chi Minh National Academy of Politics, 2018.
- [7] D. V. Thuan, "Research on state management of public investment in road construction in Vietnam," Doctoral Thesis in Construction Management, University of Transport and Communication, 2018.
- [8] N. Cung, D. and N. T. Anh, *Supervising and evaluating the implementation process of the overall economic restructuring project*. Hanoi: Research Institute for Central Economic Management, 2015.
- [9] T. M. Phuong, "Development of transport infrastructure for meeting the requirements of industrialization and modernization in Vietnam," Doctoral Thesis in Economics, Institute of Development Strategy, Hanoi, Vietnam, 2012.
- [10] C. Q. Tuan, "Some solutions to improve the efficiency of using investment capital from the State budget managed by Hanoi city," Doctoral Thesis in Economics, Academy of Finance, Hanoi, Vietnam, 2009.
- [11] T. V. The, "Factors affecting private sector investment in the form of public-private partnerships (PPP) in the field of road traffic infrastructure in Vietnam," Doctoral Thesis in Investment Economics, National Economics University, Vietnam, 2021.
- [12] T. T. N. Han, "Completing the content, process and methods of auditing of road and bridge construction projects with state capital, implemented by the State audit," Doctoral Thesis in Economics, Academy of Finance, Vietnam, 2012.

- [13] N. Q. Toan, "Completing the supervision and evaluation of construction investment projects using state budget in Vietnam," Doctoral Thesis in Construction Management, University of Civil Engineering, Vietnam, 2019.
- [14] State Audit of Vietnam, "Seminar on "Public investment: Bottlenecks and solutions from the perspective of the State Audit," Retrieved: <http://baokiemtoan.vn/nhung-nut-that-trong-dau-tu-cong-27603.html>. 2023.
- [15] L. Quan, N. T. T. Dung, D. V. Thuan, and B. M. Hung, "Completing the planning and implementation of plans of public investment in road infrastructure construction in Vietnam," presented at the E3S Web of Conferences 403, 07009 (2023), ESCP-2023, 2023.
- [16] L. T. B. Ngoc, "Public investment management in Tiengiang province," Doctoral Thesis in Finance and Banking, Hochiminh University of Banking, 2021.
- [17] C. T. Thuy, "Research on the factors affecting the state management of investment in road transport infrastructure construction using state budget in Vietnam," Doctoral Thesis in Investment Economics, National Economics University, Vietnam, 2018.
- [18] OECD, "Recommendation of the council on effective public investment across levels of government", Retrieved: <https://www.oecd.org/regional/regional-policy/Principles-Public-Investment.pdf>. 2014.
- [19] A. Rajaram, T. M. Le, K. Kaiser, J. H. Kim, and J. Frank, *The power of public investment management: Transforming resources into assets for growth directions in development*. Washington, DC: World Bank, 2014.
- [20] C. Shankha and E. Dabla-Norris, "The quality of public investment the B.E.," *Journal of Macroeconomics, De Gruyter*, vol. 11, no. 1, pp. 1-29, 2011. <https://doi.org/10.2202/1935-1690.2288>
- [21] C. Queiroz, *Launching public private partnerships for highways in transition economy transport papers, TP-9*. Washington, DC: The World Bank Group, 2005.
- [22] The World Bank, "Public investment management in vietnam: Assessment and reform priorities to remove bottlenecks," Retrieved: <https://documents1.worldbank.org/curated/zh/732391559571081907/pdf/Public-investment-management-in-Vietnam-assessment-and-reform-priorities-for-overcoming-the-bottlenecks.pdf>. 2018.
- [23] C.-P. Yang, "Factors affecting the performance of public projects in Taiwan," *Journal of Construction Research*, vol. 7, no. 01n02, pp. 207-225, 2006. <https://doi.org/10.1142/s1609945106000621>
- [24] H. Isohata, *Research on development history of management of procurement system construction in Japan*. Chiba – Japan: Nihon University, 2009.
- [25] S. S. Litvyakov, *Public-private partnership in financing transport infrastructure in the Russian federation*. Moscow: Dissertation for the Degree of Candidate of Economic Sciences, 2014.
- [26] J. F. J. Hair, R. E. Anderson, R. L. Tatham, and W. C. Black, *Multivariate data analysis*. New York: Macmillan Publisher, 1998.
- [27] National Assembly, "Law on public investment No. 39/2019/QH14 on June 13, 2019," 2019.
- [28] National Assembly, "Law on construction No. 50/2014/QH13 on June 18, 2014," 2014.
- [29] Government, "Decree No. 10/2021/ND-CP on management of construction investment costs on February 9, 2021," 2021.
- [30] Government, "Decree No. 114/2021/ND-CP on the management and use of ODA capital on December 16, 2021," 2021.
- [31] National Assembly, "Law on investment No. 61/2020/QH14 on June 17, 2020," 2020.
- [32] Government, "Decree No.15/2021/ND-CP on project management on March 3, 2021," 2021.
- [33] Ministry of Planning and Investment, "Summary of overall investment monitoring and evaluation report in 2021," Retrieved: <https://giamtsatdautuocgia.mpi.gov.vn/pages/chuyenmuctin.aspx?idcm=342>. 2021.