Study of Community Based Contract Implementation in The School Revitalization Program in Bangli Regency

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ABSTRACT

This study examines the implementation of Community Based Contracting (CBC) in a school infrastructure revitalization program in Bangli Regency. It aims to evaluate how the self-managed construction scheme impacts financial optimization, social participation, and managerial dynamics. Using a qualitative descriptive approach with case studies of two different schools, the study highlights the application of Value Engineering (VE) principles through the Contract Change Order (CCO) instrument. It found that the CBC method provided significant budget flexibility without changing the final nominal value of the work. Overruns on structural and architectural items were successfully rationalized, allowing for the reallocation of funds amounting to 12.42% to 19% of the contract value. Beyond technical efficiency, the CBC approach can foster a sense of ownership among stakeholders through their participation in design decision making and stimulate the local economy by leveraging local labor and material supply chains. However, the study found operational challenges, particularly the excessive workload experienced by teachers due to their dual roles as educators and project managers, in addition to the complexity of construction tax administration. Ultimately, this study concludes that although CBC is highly effective for holistic budget and facility optimization, further intensive technical and administrative assistance is needed to ensure that the primary tasks of educators in schools are not disrupted.

Keywords: Community Based Contracting, School Revitalization, Value Engineering, Contract Change Order, Budget Optimization.

1. INTRODUCTION

The quality of educational facilities and infrastructure is a fundamental pillar in achieving the National Education Standards to realize competent human resources. The management of facilities and infrastructure is not merely a technical support mechanism, but a strategic factor that directly affects the improvement of educational quality and the learning process in schools [1]. However, Indonesia still faces significant challenges with a high number of educational institutions experiencing physical damage. Responding to this urgency, the government issued Presidential Instruction Number 7 of 2025 concerning the Acceleration of the Implementation of the Construction and Revitalization Program for Educational Institutions [2]. This policy emphasizes the massive acceleration of school repairs to ensure the safety and comfort of the teaching and learning process.

In 2025, the paradigm of educational infrastructure development implementation underwent a highly significant transformation. The President of the Republic of Indonesia affirmed the directive that "there must be no schools with collapsed or damaged roofs, and there must even be no schools without toilets." To realize this acceleration, the government shifted to a direct cash transfer mechanism to school accounts, abandoning the conventional tender system [3]. In accordance with this directive, educational institutions are required to carry out construction using a community based contracting (*Swakelola*) system so that the allocation of capital expenditure becomes more efficient and directly beneficial to the target regions. The implementation of the government assistance for the Junior High School Revitalization Program is based on the principle of Community Based Contracting [4]. Schools are mandated to form construction committees that actively empower the surrounding community as the primary workforce [5]. The involvement of local communities in infrastructure procurement has been proven not only to accelerate project completion but also to stimulate financing innovation and foster a high sense of belonging within the school ecosystem toward the constructed facilities [6].

Although the self management system offers potential for empowerment and efficiency, its greatest challenge lies in managerial and technical capacity. The schools, whose personnel are not professional construction experts, are required to manage significant assistance funds, which amounting to 2.7 billion in the context of this study, while complying with strict quality, time, and cost accountability standards. To mitigate these risks, the Ministry of Primary and Secondary Education (*Kemendikdasmen*) involves higher education institutions, one of which is Udayana University, to provide Facilitators tasked with assisting and ensuring technical accountability in the field [7]. An interesting phenomenon worthy of academic study was found in the implementation of the revitalization program at two educational institutions in Bangli Regency, Bali Province. Through intensive technical assistance, the implementation of self management in these schools successfully achieved an extraordinary level of budget optimization. Through the field volume management mechanism or Contract Change Order (CCO), the schools were able to achieve efficiency in the initial work volumes. Previous studies indicate that careful management of CCOs during the implementation stage can have a significant impact on cost performance efficiency without compromising building quality [8].

In Bangli Regency, this CCO optimization culminated in a work value saving. The funds resulting from this efficiency were then reallocated to realize new, urgent work items for the schools, without changing the total contract value of the Cooperative Agreement Letter (PKS). Based on this background, this study aims to analyze how the optimization of self managed contract implementation can be achieved through the management of work volume efficiency (CCO) in the School Revitalization Program in Bangli Regency.

2. THEORY AND METHODS

2.1 Theory

2.1.1 The Concept of Community Based Contracting in Public Infrastructure Procurement

In this study, Community Based Contracting is conceptualized as a global theoretical framework encompassing community-based participatory construction procurement schemes. In Indonesia, the legal and operational embodiment of this concept is represented through a self managed (*swakelola*) mechanism, where planning and implementation are carried out directly by community groups or beneficiary institutions. Therefore, the two terms are used interconnectedly in the context of implementing public infrastructure procurement policies at the school level. Community Based Contracting represents a paradigm shift from conventional tender models toward a more participatory and inclusive procurement approach. This concept focuses on the decentralization of authority, where the local community is not merely an object of development but an active subject managing the project's progress [9]. Theoretically, the implementation of Community Based Contracting in public infrastructure projects has been proven to reduce overhead costs and eliminate the third party profit margins, such as contractor or sub contractor, which typically consume 10 to 15 percent of the total budget plan [10].

Beyond cost efficiency, this approach is considered superior in stimulating the local economy through workforce absorption around the project site [11]. Transparency and accountability also tend to increase because supervision is carried out directly by the ecosystem of the facility users [12]. Furthermore, the active involvement of citizens fosters a strong sense of belonging to the development outcomes. Infrastructure development based on local resources and labor significantly improves the quality of post construction building maintenance and ensures the sustainability of facility functions in the future.

2.1.2 Contract Change Order (CCO) as an Instrument for Cost and Quality Management

In construction project management, a Contract Change Order (CCO) is often associated with the risk of cost overruns. However, in the context of budget optimization within the Community Based Contracting system, the CCO transforms into a crucial managerial instrument for field adaptation. A CCO is defined as a written agreement approved by the managing parties to alter the scope of work, which can involve either the addition or reduction of volume based on technical realities [13]. Field dynamics often demand adjustments to the initial design to respond to soil conditions, the availability of local materials, or the correction of estimation errors [14]. Within the Community Based Contracting administrative system, regulatory flexibility allows the implementation team or development committee to conduct periodic real recalculations (site opname). If an overestimation of volume is found in the initial Budget Plan, the CCO mechanism allows these efficiency funds not to be returned but rather reallocated to finance new, crucial work items without exceeding the main contract value. This process naturally requires strict technical validation to prevent administrative deviations. This is where the role of technical assistants or facilitators becomes highly determinant in verifying the fairness of the addition and reduction of work calculations, ensuring that project governance adheres to the principle of prudence [7].

2.1.3 Optimizing School Facilities and Infrastructure through Value Engineering

The quality of educational facilities and infrastructure has a positive linear correlation with learning motivation, psychological comfort, and students academic achievement [15]. Optimization in the school revitalization program is not merely understood as solely achieving physical targets, but rather the integration of the Value Engineering concept. According to Maulana [16], Value Engineering in public facility projects is a systematic effort to identify the essential functions of a building and fulfill them at the most efficient cost without reducing quality, reliability, and the building's service life. Therefore, every rupiah saved from work volume efficiency must be reinvested in the form of additional work that directly amplifies the school's primary functions. Physical improvements centered on the real needs of end users will holistically boost the operational quality of education [17]. This is also in line with the mandate of the basic education revitalization implementation guidelines, which requires that every financial decision at the school committee level must culminate in the fulfillment of National Education Standards and the enhancement of long term school infrastructure resilience [4].

2.2 Methods

This study strictly adheres to academic research ethics. The identities of the two educational units are disguised as School A and School B to maintain institutional confidentiality. The use of administrative documents such as the Budget Plan (RAB) and Contract Change Order (CCO), as well as field observations, has obtained official permission from the school and facilitator. The accuracy of the secondary document data was cross-confirmed (data triangulation) through in-depth interviews with the head of the Educational Unit Development Committee (P2SP) and direct physical observation at the project site to ensure the validity of the findings. This research employs a qualitative method with a case study approach to evaluate and optimize the Budget Plan (RAB) within the Educational Unit Revitalization Program, focusing on an infrastructure rehabilitation project at a school in Bangli Regency that received the 2025 assistance. The case study approach was selected because it enables researchers to conduct a deep exploration of specific phenomena and technical processes in their entirety within a real planning context, particularly to address questions regarding comprehensive cost adjustment procedures [18].

Data collection was carried out through secondary document analysis techniques, encompassing shop drawings, initial volume calculations, unit price lists for materials and labor, as well as revised work documents detailing the Contract Change Order (CCO). Contract changes or CCOs are frequently encountered in construction projects due to the necessity of optimizing building functionality and adapting to actual field conditions, which directly impact volume and budget variances [19]. Following the information and document collection phase, the data was analyzed using the fundamental principles of Value Engineering. This is a systematic approach aimed at identifying and streamlining excessive or unnecessary costs without compromising the quality, performance, and technical specifications of the school infrastructure being built [20]. Through a comparative analysis stage between the initial contract value and the revised contract value, this methodology will practically produce a budget design scheme that is more efficient, transparent, and fully aligned with the technical revitalization guidelines from the Ministry of Primary and Secondary Education.

3. RESULTS AND DISCUSSION

3.1 The Implementation of Community Based Contracting

The success of Community Based Contracting implementation in educational infrastructure revitalization programs heavily depends on the managerial readiness of the school unit as the primary executor. Based on field observations, the preparation phase commenced with the participation of school representatives in Technical Guidance sessions organized by the Ministry of Basic and Secondary Education. These sessions were conducted twice before the physical implementation phase began. To ensure comprehensive understanding, the materials provided were differentiated according to the roles of each stakeholder. The Technical Team focused on building design and the optimization of technical engineering, while the School Education Development Committee (P2SP) focused on understanding self management system regulations. Through this training, P2SP was provided with governance guidelines which included the obligation to empower the local workforce, prioritize procurement of building materials from the local environment, and involve the teaching staff in quality supervision, logistical recording, and project administration. This solid technical understanding from the school side became the fundamental foundation in preventing administrative deviations during project execution, aligning with the accountability mandates in the revitalization program guidelines.

The next crucial step in manifesting the Community Based Contracting concept was the recruitment and involvement of the local community. In the initial phase, the school, together with the School Committee and the Head of P2SP, conducted massive socialization to residents in the surrounding environment. The primary objective of this approach was to recruit local labor to execute the project. During the negotiation process, the committee encountered dynamics regarding the payment system. The school, required to follow self management regulations, stipulated a Daily Wage System, while most local workers were more accustomed to and interested in a lump sum or wholesale payment system. Despite initial resistance, the committee successfully persuaded the workers by providing transparent explanations regarding the binding government assistance regulations within the Cooperation Agreement (PKS) between the school and the ministry. The willingness of the residents to eventually accept the daily system was significantly influenced by sociological aspects, as most local workers had children attending the school. This emotional bond fostered a high sense of belonging and goodwill from the community to contribute collectively to the success of their children's learning facilities.

Although the primary principle of self management emphasizes daily work patterns and committee independence, this system still provides measured flexibility for certain technical specifications. In practice, several specialized work items were executed using a labor-only lump sum system because the required level of precision and expertise could not be accommodated through a standard daily payment system. For example, the installation of light steel roof trusses was assigned to specialist technicians under a lump sum system, secured through a derivative contract agreement between the school and the contractor. This step constitutes a legitimate and accountable form of quality risk mitigation in construction management. In addition to human resource management, P2SP also demonstrated operational independence in material supply chain management. The committee proactively conducted price and quality surveys at several suppliers or hardware stores within the regency area. The selection of suppliers was based on parameters of standard specification compliance, price economy, certainty of goods availability, and ease of delivery services. This procurement strategy directly optimized the local economic turnover, which serves as one of the primary indicators of success for the Community Based Contracting system in educational facility revitalization programs.

3.2 Analysis of Work Volume Efficiency

Entering the initial stage of construction, the School Education Development Committee (P2SP) along with the accompanying Facilitators conducted a joint inspection or re-measurement (opname) in the field. This step is an essential quality control instrument in project administration to ensure alignment between the initial Budget Plan (RAB) and the reality of technical conditions on the land and existing buildings. This study analyzes two sample educational units in Bangli Regency with different work scopes. School A had an initial budget of IDR 2,700,372,000 focusing on the construction of new classrooms and toilets, as well as the rehabilitation of classrooms, administrative rooms, and toilets. Meanwhile, School B managed a budget of IDR 2,638,694,000 with a scope including the construction of administrative rooms, laboratories, health units, and toilets, along with the rehabilitation of existing classrooms, laboratories, and toilets. Through a thorough design review process in both scopes, the team identified disparities between planning estimates and real needs, which allowed for a Contract Change Order (CCO) to rationalize the budget.

During field implementation, the rationalization of work volumes proved capable of generating significant efficiency. As a representation, School B recorded a CCO adjustment value reaching IDR 327,818,105 or approximately 12.42% of the total initial budget. This CCO magnitude was largely contributed by potential savings in structural components and architectural works. Existing conditions in the field were identified as more efficient than initial estimates, allowing the committee to reduce the volume of main concrete columns and their reinforcement components, where the requirement for reinforcement steel was successfully economized by more than 440 kg. The most dominant cost efficiency originated from the reduction in volume of concrete block masonry walls covering 90.35 square meters, which automatically reduced the need for derivative works such as plastering and smoothing on both sides of the wall, each covering 180.7 square meters. Furthermore, rationalization was also applied to interior finishing items, including adjustments to the volume of floor and wall ceramic installation and timber ceiling moldings, which cumulatively saved a very significant portion of the budget.

However at School A, these adjustment dynamics resulted in a CCO maneuver value of IDR 513,117,270 or touching 19% of the total initial budget. The reallocation of these funds was focused on optimizing more crucial sectors for the long term reliability of the building. Most of the funds were allocated to strengthen the substructure through the addition of stone masonry foundation volume by 10.65 cubic meters and dry stone foundation. Additionally, funds were absorbed to perfect the roof structure through the addition of light steel rafters and purlins over a length of 161.85 meters. The optimization steps did not stop at the new building structure; the remaining efficiency budget was also utilized for maintenance work, such as repainting the interior and exterior walls of the old buildings. Through this proportional relocation strategy, the function of the educational facilities became not only sturdier and safer, but visually the entire school complex appeared much more integrated and possessed maximum added value. In accordance with Value Engineering principles within the Community Based Contracting system, the funds resulting from these efficiencies were not withdrawn or returned, but were strategically relocated as Additional Work.

Although both schools demonstrated success in budget rationalization, there was a significant disparity in the percentage of CCO adjustments, namely 19% in School A and 12.42% in School B. Comparative analysis shows that this difference is greatly influenced by the accuracy of the initial estimates during the planning stage. In School A, the initial estimate of the existing structure turned out to have a safety margin that was too loose (conservative), so that during the design review (joint opname), the volume of material that could be saved was much more massive compared to School B, whose initial estimate was closer to the actual conditions. In addition, the dynamics and thoroughness of the school's technical team when accompanying the field inspection process also dictated the final volume that could be streamlined.

3.3 Budget Redistribution Analysis in Contract Change Order (CCO)

Value Engineering (VE) implementation in this school building revitalization project is administratively executed through the Contract Change Order (CCO) instrument. The CCO recapitulation is presented in Table 1 and Table 2 below.

Table 1. Recapitulation of Additional and Deducted Work for School A

Work Description		Deducted Work	Added Work
Construction of New Classroom	Preparatory Work	Rp 0.00	Rp 251,360.00
	Earthwork	Rp 970,200.00	Rp 0.00
	Foundation Work	Rp 0.00	Rp 11,604,768.00
	Concrete Work	Rp 19,399,858.65	Rp 48,449,447.59
	Masonry / Wall Work	Rp 3,473,742.40	Rp 0.00
	Doors & Windows Work	Rp 4,956,557.60	Rp 4,813,680.00
	Ceiling Work	Rp 421,660.45	Rp 0.00
	Floor & Ceramic Finishes	Rp 771,059.52	Rp 19,878,641.14
	Painting & Wall Finishes	Rp 7,604,597.00	Rp 9,412,990.60
	Hardware & Fittings Work	Rp 1,588,800.00	Rp 2,381,600.00
	Architectural Work	Rp 0.00	Rp 7,250,725.20
Construction of Toilet	Preparatory Work	Rp 879,760.00	Rp 0.00
	Earthwork	Rp 316,381.50	Rp 91,125.00
	Foundation Work	Rp 0.00	Rp 3,640,437.30
	Concrete Work	Rp 1,813,684.02	Rp 1,470,739.97
	Masonry / Wall Work	Rp 15,441,002.57	Rp 3,252,000.00
	Doors & Windows Work	Rp 9,082,809.00	Rp 0.00
	Truss & Roofing Work	Rp 552,755.02	Rp 1,730,215.88
	Ceiling Work	Rp 620,065.42	Rp 186,287.40
	Floor & Ceramic Finishes	Rp 1,844,352.04	Rp 8,527,523.58
	Painting & Wall Finishes	Rp 7,143,797.73	Rp 0.00
	Electrical Installation Work	Rp 771,610.00	Rp 0.00
	Hardware & Fittings Work	Rp 988,400.00	Rp 0.00
	Sanitary & Bathroom Accessories Work	Rp 8,250,920.00	Rp 12,065,600.00
Rehabilitation of Administration Room	Doors & Windows Work	Rp 19,969,304.00	Rp 12,914,600.00
	Truss & Roofing Work	Rp 12,201,530.00	Rp 2,444,732.24
	Ceiling Work	Rp 1,686,690.00	Rp 16,494,478.82
	Floor & Ceramic Finishes	Rp 3,010,571.82	Rp 5,400,963.12
	Painting & Wall Finishes	Rp 3,692,299.02	Rp 5,881,983.30
	Electrical Installation Work	Rp 33,915,300.00	Rp 0.00
	Hardware & Fittings Work	Rp 8,922,600.00	Rp 2,655,600.00
	Sanitary & Bathroom Accessories Work	Rp 273,760.00	Rp 11,628,640.00
Rehabilitation of Classrooms	Concrete Work	Rp 16,220,380.35	Rp 8,762,662.55
	Masonry / Wall Work	Rp 2,766,920.00	Rp 0.00
	Doors & Windows Work	Rp 30,414,696.50	Rp 6,655,047.00
	Truss & Roofing Work	Rp 111,455,340.36	Rp 149,311,838.17
	Ceiling Work	Rp 34,151,934.40	Rp 16,100,157.98
	Floor & Ceramic Finishes	Rp 24,115,253.13	Rp 6,254,443.14
	Painting & Wall Finishes	Rp 36,436,908.04	Rp 84,815,833.62
	Electrical Installation Work	Rp 6,707,400.00	Rp 16,328,220.00
	Hardware & Fittings Work	Rp 36,770,300.00	Rp 9,567,000.00
Rehabilitation of Toilet	Concrete Work	Rp 961,564.19	Rp 524,174.40
	Doors & Windows Work	Rp 0.00	Rp 12,184,043.40
	Truss & Roofing Work	Rp 7,635,161.00	Rp 0.00
	Ceiling Work	Rp 0.00	Rp 2,019,256.24

	Floor & Ceramic Finishes	Rp 0.00	Rp 5,267,707.82
	Painting & Wall Finishes	Rp 3,002,233.62	Rp 0.00
	Hardware & Fittings Work	Rp 1,969,200.00	Rp 1,011,600.00
	Sanitary & Bathroom Accessories Work	Rp 28,569,300.26	Rp 1,886,938.68

Table 2. Recapitulation of Additional and Deducted Work for School B

Work Description		Deducted Work	Added Work
Construction of Administration Room	Preparatory Work	Rp 0.00	Rp 0.00
	Concrete Work	Rp 8,232,762.48	Rp 19,149,518.01
	Masonry / Wall Work	Rp 31,156,294.00	Rp 0.00
	Doors & Windows Work	Rp 2,899,260.00	Rp 12,455,786.00
	Truss & Roofing Work	Rp 45,188,870.17	Rp 0.00
	Ceiling Work	Rp 3,775,146.00	Rp 1,247,005.00
	Floor & Ceramic Finishes	Rp 21,036,808.80	Rp 9,932,557.29
	Painting & Wall Finishes	Rp 288,255.75	Rp 21,877,474.12
	Electrical Installation Work	Rp 5,077,270.00	Rp 6,633,470.00
	Hardware & Fittings Work	Rp 324,500.00	Rp 1,310,850.00
	Architectural Work	Rp 2,246,720.00	Rp 0.00
Construction of Computer Laboratory	Preparatory Work	Rp 0.00	Rp 559,680.00
	Concrete Work	Rp 0.00	Rp 43,009,087.43
	Masonry / Wall Work	Rp 0.00	Rp 12,342,381.55
	Doors & Windows Work	Rp 0.00	Rp 8,025,734.00
	Truss & Roofing Work	Rp 1,163,340.33	Rp 9,376,961.40
	Ceiling Work	Rp 1,140,454.00	Rp 3,081,730.60
	Floor & Ceramic Finishes	Rp 10,007,412.80	Rp 19,929,912.07
	Painting & Wall Finishes	Rp 0.00	Rp 25,262,585.98
	Electrical Installation Work	Rp 2,200,800.00	Rp 2,094,780.00
	Hardware & Fittings Work	Rp 0.00	Rp 235,500.00
	Architectural Work	Rp 0.00	Rp 160,480.00
	Concrete Staircase Work	Rp 2,009,168.00	Rp 0.00
Construction of Student Health Clinic	Preparatory Work	Rp 0.00	Rp 0.00
	Earthwork	Rp 6,225.38	Rp 231,687.50
	Foundation Work	Rp 0.00	Rp 4,508,520.75
	Concrete Work	Rp 769,612.21	Rp 2,965,062.49
	Masonry / Wall Work	Rp 0.00	Rp 9,613,287.00
	Doors & Windows Work	Rp 0.00	Rp 6,550,143.60
	Truss & Roofing Work	Rp 2,691,547.25	Rp 1,072,874.10
	Ceiling Work	Rp 0.00	Rp 547,037.30
	Floor & Ceramic Finishes	Rp 0.00	Rp 2,609,490.35
	Painting & Wall Finishes	Rp 84,979.20	Rp 470,690.16
	Sanitary & Bathroom Accessories Work	Rp 2,866,760.00	Rp 0.00
Construction of Toilet	Preparatory Work	Rp 0.00	Rp 0.00
	Earthwork	Rp 171,245.88	Rp 0.00
	Foundation Work	Rp 0.00	Rp 2,172,427.28
	Concrete Work	Rp 17,224,375.67	Rp 5,210,727.04
	Masonry / Wall Work	Rp 2,686,693.10	Rp 152,064.00
	Doors & Windows Work	Rp 411,936.00	Rp 0.00
	Ceiling Work	Rp 954,030.40	Rp 191,012.00
	Floor & Ceramic Finishes	Rp 10,555,307.60	Rp 400,319.90
	Painting & Wall Finishes	Rp 259,210.40	Rp 1,561,107.44
	Electrical Installation Work	Rp 250,940.00	Rp 1,396,520.00
Rehabilitation of Classrooms	Concrete Work	Rp 3,159,956.96	Rp 3,070,080.70
	Masonry / Wall Work	Rp 0.00	Rp 25,716,116.23
	Foundation Work	Rp 0.00	Rp 3,370,815.00
	Doors & Windows Work	Rp 9,543,028.00	Rp 9,679,303.60
	Truss & Roofing Work	Rp 17,279,368.68	Rp 564,300.00

	Ceiling Work	Rp 28,912,455.85	Rp 7,172,876.00
	Floor & Ceramic Finishes	Rp 1,174,949.48	Rp 12,871,995.50
	Painting & Wall Finishes	Rp 51,039,481.55	Rp 3,630,064.77
	Electrical Installation Work	Rp 5,826,970.00	Rp 3,692,370.00
	Hardware & Fittings Work	Rp 3,067,000.00	Rp 616,000.00
Rehabilitation of Science Laboratory	Preparatory Work	Rp 559,680.00	Rp 0.00
	Doors & Windows Work	Rp 42,480.00	Rp 0.00
	Truss & Roofing Work	Rp 7,746,643.79	Rp 6,440,371.40
	Ceiling Work	Rp 14,672,972.35	Rp 389,575.00
	Painting & Wall Finishes	Rp 6,776,954.38	Rp 4,989,948.30
	Staircase Work	Rp 0.00	Rp 3,124,843.92
Rehabilitation of Toilet	Ceiling Work	Rp 34,150.00	Rp 0.00
	Painting & Wall Finishes	Rp 0.00	Rp 36,560.00

Based on the data in Table 1 and Table 2, a significant shift in work weight is evident between the initial Budget Plan (RAB) and the final realization. This mechanism operates on a zero sum budget scheme, where the accumulated value of additional work is directly proportional to the value of deducted work. This ensures that the total project cost remains controlled and does not exceed the designated budget ceiling, while achieving a much higher level of building utility. Technically, the primary source of efficiency (deducted work) was dominated by volume adjustments in specific architectural and structural elements. The largest volume reduction was realized in wall work including concrete block masonry, plastering, and acian (smoothing), as well as in reinforcement and concrete column work. This volume reduction decision was based on field technical justifications confirming the feasibility of the existing structure, thereby preventing redundant dismantling and reassembly work. The savings value from eliminating these work items that provided no additional function successfully secured substantial fiscal space.

In accordance with the value engineering concept, the fiscal space created from this efficiency was not returned but fully reallocated to finance additional work. Analysis of this fund shift indicates a transformation of allocation from basic civil work toward improving operational functional aspects. Optimization funds were absorbed into several sub work items, with the largest budget redistribution showing a difference between additional and deducted work reaching 20 million rupiah as illustrated in Figure 1 and Figure 2 below.

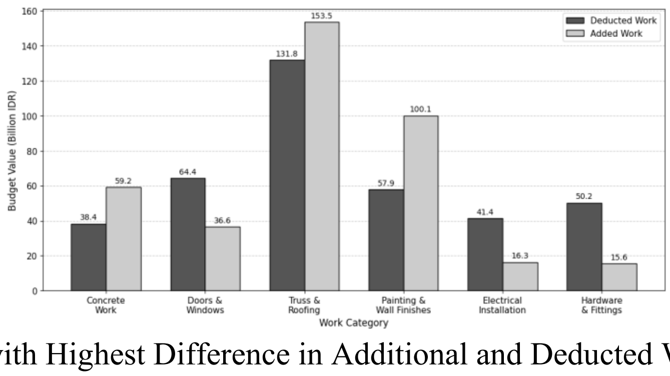

Figure 1. Work with Highest Difference in Additional and Deducted Work at School A

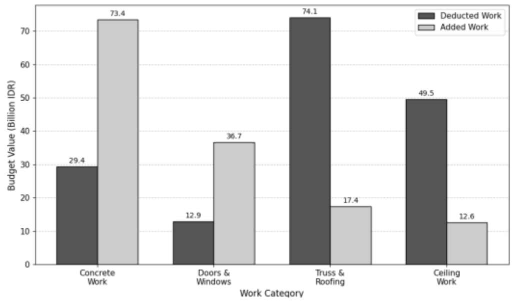

Figure 2. Work with Highest Difference in Additional and Deducted Work at School B

It can be observed that outside of structural work such as concrete work, roof trusses, and roofing, budget redistribution predominantly occurred in door and window work, ceiling work, wall work, and painting. This is because schools allocated their remaining funds to perform repairs on buildings and rooms within the school area that were not previously covered by the revitalization grant. Additionally, in the facility sector, the budget was diverted to upgrade managerial room furniture to more modern and ergonomic standards. This step directly improves the post construction operational readiness of the facility (readiness for use).

Comprehensively, this budget redistribution percentage proves the successful application of Value Engineering; the committee successfully eliminated costs that did not contribute to the strength or essential function of the building and reallocated them to create maximum added value for the educational unit infrastructure. Furthermore, the flexibility of the school in allocating funds for repairs and development using the provided grants provides a different level of satisfaction compared to schools built through tender systems with contractors as third parties.

3.4 Analysis of Socio Economic Impact, Managerial Aspects and Challenges

The self managed approach in implementing educational infrastructure revitalization has proven to have multifaceted impacts on the school ecosystem and the surrounding environment. Based on field observations, the positive impacts generated include budget autonomy, public participation, and local economic empowerment. From a managerial perspective, this scheme provides high flexibility through the Contract Change Order (CCO) mechanism, allowing schools to optimize the remaining budget from efficiency results for other physical needs. This success is supported by a project organizational structure that actively involves educators. The school principal implements a structured division of tasks, teachers with administrative skills are assigned to manage logistics and financial receipts, while teachers who understand technical matters perform work progress supervision. This commitment even crosses academic calendar boundaries, where schools implement a picket system for teachers during school holidays to ensure construction remains under strict supervision.

The participatory dimension is the primary qualitative advantage in this scheme. This is reflected in the participatory design efforts where the school conducts surveys of teachers and students to determine the color scheme for classroom painting. The involvement of end users (students) in aesthetic decision making has been proven to increase the sense of belonging and the level of satisfaction with the construction results. Additionally, public transparency is realized by gathering the surrounding community during the pre construction phase. This socialization aims to invite the community to be directly involved as local labor, so the project does not only belong to the school but also becomes a source of livelihood for local residents.

Local economic impact is further strengthened through material procurement policies. Schools proactively conduct price and availability surveys at hardware stores within the closest radius. This step indirectly stimulates economic turnover at the micro level and shortens the supply chain of construction material distribution. However, alongside these various positive impacts, self managed implementation also leaves several significant challenges. The primary challenge lies in the dual role of teachers which triggers workload overload. Intensive involvement in project supervision, administrative recording, and daily coordination often clashes with their primary duties in teaching and learning activities. This difficulty risks making pedagogical preparation less optimal.

Furthermore, administrative constraints related to legal and taxation aspects represent separate obstacles. School parties, who are fundamentally not professional construction practitioners, often experience difficulties in interpreting complex construction tax regulations. This requires the school implementation team to consult repeatedly with the tax office to ensure financial reporting remains accountable and in accordance with applicable legal provisions. These challenges show that although self management provides broad positive impacts, a more intensive technical and administrative assistance system is required so that the functional burden on teachers remains proportionally maintained.

4. CONCLUSIONS

The study concludes that Community Based Contracting (CBC) is a strategic mechanism for optimizing school revitalization budgets, using Value Engineering and Contract Change Orders (CCO) to eliminate structural redundancies and reallocate funds within a zero-sum budget framework. Socially, the program enhanced local participation, fostered ownership, and stimulated local economic circulation, though it risks overloading educators and presents administrative hurdles regarding tax regulations. Practically, this study recommends that the Ministry of Primary and Secondary Education mandate joint inventories in all self-managed programs to save 12% to 19% of budgets, while advising the School Committee (P2SP) to develop simplified CCO templates and tax checklists, and university facilitators to provide specialized tax training for school treasurers. Although limited by its scope of two case studies in Bangli Regency, future research should conduct multi-site comparative and longitudinal studies measuring building quality and post-construction maintenance in self-managed versus conventionally tendered schools.

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