

Evaluation of Building Planning Results by Two Joint Venture Planning Consultants with Different Work Experiences

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Abstract: *The research intends to evaluate the planning design based on the initial mutual check (MC-0) of a large-scale building plan as a result of operational cooperation (KSO) between two planning consultants who differ in planning design experience; one consultant is from Java, and the other is from outside Java. The study's topic is building planning in the Kalimantan region; the design employs descriptive qualitative research based on data obtained from a documentary study of project weekly meeting report archives and data analysis using non-numerical methods such as SWOT Analysis. Research results: (1) The weakness of KSO with consultants from outside Java is the difference in experience and work ethic of Human Resources. (2) The obstacle to employing a large number of workers is the difficulty of supervising and coordinating work, which causes errors in the drawing and calculation of the BQ (bill of quantity) volume used in the job auction. (3) The results of the pile indicator analysis conclude that the depth of the precast pile foundation can be reduced. (4) In responding to the preliminary work, the contractor seeks to propose as much additional work as possible and ask for the smallest possible amount of less work. In comparison, the owner seeks to use the remaining funds from less work as additional work costs to increase the function and architectural appearance of the building.*

Keywords: Initial Mutual Check, MC-0, Joint Venture (KSO)

Abstrak Penelitian bermaksud melakukan evaluasi desain perencanaan berdasarkan Mutual check awal (MC-0) suatu perencanaan bangunan gedung skala besar hasil Kerja Sama Operasi (KSO) antara dua konsultan perencana yang berbeda dalam pengalaman disain perencanaan; satu konsultan berasal dari Jawa dan satu lainnya dari luar Jawa. Obyek penelitian berupa perencanaan bangunan gedung di daerah Kalimantan; rancangan menggunakan penelitian deskriptif kualitatif memakai data yang diperoleh dari studi dokumenter arsip laporan rapat mingguan proyek; analisis data dengan metode non-numerik menggunakan analisis SWOT. Hasil-hasil penelitian: (1) kelemahan KSO bersama konsultan dari luar Jawa adalah berbeda dalam pengalaman beserta etos kerja Sumber Daya Manusia. (2) Halangan mempekerjakan tenaga kerja dalam jumlah banyak adalah kesulitan pengawasan dan koordinasi kerja yang menyebabkan kesalahan gambar dan perhitungan volume BQ (bill of Quantity) yang dipakai lelang pekerjaan. (3) Hasil pile indicator analysis menyimpulkan kedalaman pondasi precast pile dapat dikurangi. (4) Dalam menyikapi pekerjaan kurang tersebut kontraktor berupaya mengusulkan pekerjaan tambah sebanyak mungkin dan minta pekerjaan kurang sekecil mungkin; sedangkan owner berupaya menggunakan sisa dana dari pekerjaan kurang sebagai biaya pekerjaan tambah untuk peningkatan fungsi dan penampilan arsitektur bangunan.

Kata Kunci: *Mutual Check Awal, MC-0, Kerja Sama Operasi (KSO)*

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Introduction

A planning consultant is a professional consulting service business requiring expertise from various fields. This business is a work that prioritizes the use of Brainware. Therefore, the calculation of price offers to users (clients) is based more on paying the experts' salaries and wages of the supporting staff involved; the calculation is based on personnel and non-personnel costs.

Personnel costs are provided for paying salaries/wages for experts and support staff involved, generally at least 60% of the total cost of offering a consultant. In contrast, non-personnel costs are provided for expenses that can be reimbursed outside the salaries/wages of experts, generally no more than 40% of the total bidding costs (Sopian, 2013). The services include planning, designing, and supervising individuals, government, and private agencies for physical building project activities. Planning consulting services produce detailed drawings of buildings or other physical forms in construction work.

The implementation of the planning work is carried out based on the employment contract agreement with the client, which includes, among other things, the list and schedule for the assignment of personnel involved in the planning work; framework of reference (TOR); price lists and resulting outputs; technical data other than KAK and other documents (such as quality plans, minutes of meetings preparing for the contract signing, and minutes of meetings preparing for contract implementation) (LKPP RI, 2021). If the planning consultant can

complete the work faster than the time in the contract, the planning costs will be reduced. The rationale is that if the work is completed in a shorter time, the salary/wages paid by the consultant are less than the volume stated in the contract. Civilly speaking, this is synonymous with inflating the volume of personnel salary/wage payments by consultants. On the other hand, if the planning consultant is late in completing the work, the risk is that he will be fined 1‰ per day of delay; the calculation is based on the remaining planning costs that have not been completed after deducting 10% VAT (Rawis, 2021).

Related to reduced planning costs, if the consultant can complete his work faster, to avoid reducing planning costs, it is generally done by holding back the work that has been completed and handed over to the client at the due date written in the contract. This method does not have an impact on the execution of work; on the contrary, if the planning consultant is late in completing the work, the way to avoid the risk of fines is inevitable.

Sutarja et al. (2020) grouped the causes of delays in planning by consultants into several factors, namely the project owner factor; planning consultant factors; supervisory consultant factor; surrounding community and government factors, and natural factors. Several other studies have concluded that delays in planning from planning consultant factors are caused by: (1) inadequate qualifications of experts and technology used (Listianti & Sekarsari, 2017; Roza & Tela, 2018); (2) the suitability of the types

of personnel costs with project needs (Diputra, 2009), and (3) the lack of increased compensation satisfaction from the experts involved in it (Wadjdi et al., 2007).

The results of previous studies showed a tendency that the quality of the work produced by the planning consultant is related to the amount of compensation received by the resources involved in the planning. To find out the truth, ideally, the amount of compensation received by the resources involved must be known, then linked to the quality of the resulting planning design; but this method is impossible to do through a study because the topic is sensitive. Straightforward questions about a person's income are often uncomfortable for the person being asked; In addition, how much salary a person receives is not someone else's business (Wulandari, 2021).

Another way to evaluate the planning results of a planning consultant is to evaluate the accuracy of volume calculations based on the planning design drawings he made with the actual conditions in the field before the construction work began; within the scope of the project, this method is known as the initial mutual check (MC-0); the aim is to find out every comparison between the volume of work contracts calculated by the planning consultant based on the planning design drawings made by him and the technical studies or calculations according to field conditions carried out by the contractor.

Planning consultant is a work profession that relies on the mindset of human resources (HR). Such thoughts make company leaders face the same problem: the low quality of human resources. Several previous studies have concluded similar findings. Among them, Lubis (2010) found five factors that

strongly influenced the performance of planning consultant bureau experts. The order from the strongest is (1) adequate salary; (2) there is a bonus; (3) adequate work facilities; (4) good communication between staff; and (5) personal responsibility.

A similar opinion was conveyed by Dedi (2021), who concluded that the order of factors that influence the motivation for the performance of experts in planning consultants is (1) the salary factor and the quality of supervision of work results; (2) the work itself and work performance; (3) interpersonal relationship factors, and (4) recognition factors.

Angriawan (2015) conducted research on structural engineers and geotechnical engineers at a planning consulting firm in Jakarta; and concluded that the performance motivation of the engineers studied would increase if their safety needs and appreciation needs were fulfilled, while Trisnandar et al. (2020) examined HR management strategies which are an asset to planning consultants in the Surakarta region. Based on these studies, it can be said that the factors that undermine the performance of the planning consulting bureau are: (1) work discipline; (2) health condition; (3) quality of human resources; (4) Education, and internal HR motivation.

Compensation is one factor that influences the quality of human resources working in planning consulting bureaus in Indonesia. Compensation is all income in the form of money or goods, either directly or indirectly, received by employees as compensation or services provided to the company with the aim of (1) obtaining quality human resources and maintaining existing ones; (2) guaranteeing fairness; (3) appreciate the desired behavior; (4) controlling costs, and (5) complying with

state legal regulations (Dwianto et al., 2019).

Higher pay will make applicants more appealing if they are qualified, highly skilled, and capable. In this case, it is up to the employer to set high pay to attract qualified applicants. In addition, for existing human resources, high compensation is a driving force to work better.

The planning consultant is a party that plays a role and is responsible for the smooth process of the initial development because the main thing to do before carrying out the development is "planning." The duties of the planning consultant include (1) making adjustments to field conditions according to the wishes of the project owner; (2) making working drawings of the implementation; (3) making a Work Plan and building implementation requirements that are used as guidelines for the implementation of the work, and (4) make a Budget Plan (RAB) for project implementation (Tuelah et al., 2014).

The contractor is the service provider who carries out the project's construction. Before starting the physical work, joint field inspection activities will be carried out prior to the project owner's handover from the work site (LKPP RI, 2017). The aim is to recalculate the volume of work items and suitability between the plan drawings and field conditions that the planning consultant has worked on to obtain the actual volume following the conditions in the field (Library of Engineering, 2019). This activity is known as the initial inspection within the scope of a civil building project.

A joint venture (JV) in Indonesian is translated as Operational Cooperation (KSO) [Koeswiyon, 2003] is a joint venture between two or more companies that legally forms a joint partnership to enter

into a transaction for mutual benefit. In this cooperation, each party contributes its assets and shares joint risks for a specific time limit according to the agreement determined by the parties involved in the partnership. If the JV goals have been achieved, each company will return to its original position (Marzuki & Lumeno, 2011); so the merger of the companies formed is only temporary and will be carried out until the project is completed (Sujoko, 2020)

Initial inspection or Mutual Check initial (MC-0) is an activity surveying the initial conditions of all work items in the field in detail during the work period. This initial condition survey was carried out by surveyors from 3 (three) related agencies, consisting of (1) related departments as project owners (owners); (2) the supervising consultant as the technical supervisor, and (3) the implementing contractor as the executor service provider (Rahman, 2012). The results of these calculations, whether there is excess or shortage of volume, will be outlined in a work report called the Initial Mutual Check report (MC-0) (Procurement, 2020).

The guidelines used in the implementation of the MC-0 are the results of field measurements following the Detail Engineering Design (DED) drawings made by the planning consultant [Government Goods/Services Procurement Policy Agency (b)]. If the DED drawing is done correctly, it will be able to reduce the possibility of a contract addendum; conversely, if it is drawn haphazardly, there will be a significant difference in the quantity of work that is likely to lead to requests for contract changes (Tuelah et al., 2014). So from the results of MC-0, it can be measured to what extent the planning consultant who made the planning design has worked professionally.

This study aims to evaluate the planning design through the results of MC-0, a significant planning work resulting from the KSO (Operational Cooperation) of two consultants with different planning design experiences.

Methods

The research object is a building project with a total area of 28,795 m²; located in one of the areas in Kalimantan. The design uses descriptive qualitative research. The design was chosen based on the consideration that the research carried out intended to seek feedback from the parties involved in project activities regarding the results of the MC-0 evaluation of a planning work by a planning consultant on the design of large-scale building planning.

Analysis of data using non-numeric methods using sentence descriptions because the data analyzed is in the form of documents resulting from weekly project meetings collected from archives of project weekly meeting reports owned by parties involved in project activities. After the data is collected, a SWOT analysis is carried out to determine strengths; Weaknesses; opportunities (Opportunities), and challenges (Threats) owned by the team that handles planning work.

From the results of the SWOT analysis, it can be seen the strategies taken by the planning consultant in completing the planning work. The measure of the consultant's success can be identified from changes in the design work of the planning consultant after a joint inspection is carried out relating to the suitability of the planning results of the planning consultant with the actual conditions in the field (MC-0). Proposers for changes to the intended job can come from requests: the project owner (PPK/owner); planning consultant; supervisory consultants, and contractors,

all of whose information can be found in the project's weekly meeting document archives.

Results and Discussion

The object of study is in the form of building planning work contracts in two different provinces in Kalimantan; one study object is in the form of plans for twelve buildings with each area described in Table 1, while one other object (not discussed in this study) in the form of building plans from the first to the fourth floors, the total area of which is close to 22,500 m².

Table 1. Planned building data

No	Building Construction	Wide Floor	Roof Construction
1	1st-floor building	100m ²	concrete
2	2nd-floor building	7559 m ²	steel frame
3	1st-floor building	2695 m ²	concrete
4	1st-floor building	2805 m ²	concrete
5	1st-floor building	1575 m ²	steel frame
6	1st-floor building	1351 m ²	steel frame
7	2nd-floor building	440 m ²	concrete
8	2nd-floor building	677 m ²	concrete
9	4th-floor building	3936 m ²	concrete
10	1st-floor building	1575 m ²	concrete
11	2nd-floor building	2538 m ²	concrete
12	2nd-floor building	2644 m ²	concrete
Total building area		28,795 m ²	

(Source: Documentary data processing, 2021)

The planning design was carried out by a joint venture of two planning consultants; one comes from the capital of a province on Java Island, and the other comes from a city in one of the provincial capitals outside Java. The value of the planning contract is more than 4.5 billion rupiahs. Supervision is carried out by a construction management consultant (CM) from Jakarta with a supervisory contract value of more than 9 billion.

A joint venture (JV) in Indonesian, translated as Operational Cooperation

(KSO) (Sujoko, 2020), is a capital joint venture between two or more companies that forms a joint partnership legally to carry out a transaction for mutual benefit. In this cooperation, each party contributes its assets and shares joint risks for a specific time limit according to the agreement determined by the parties involved in the partnership. If the JV goals have been achieved, each company will return to its original position (Marzuki & Lumeno, 2011), so the merger of the companies formed is only temporary. It will be carried out until the project is completed (Sujoko, 2020).

Advantages and Disadvantages of Large Classification Consultants

Based on the value of the planning/supervision contract, the consultants involved in the project under study fall into the category of essential qualifications. So that it can be identified that the strengths (strengths) of prominent consultants are: (1) having human resources from various competency areas of expertise with solid categories; (2) having substantial business capital; (3) being free to handle large jobs; (4) have a strong and qualified work team; (5) experienced in handling large projects throughout Indonesia.

Apart from having strengths, prominent classification consultants also have weaknesses (Weaknesses), such as (1) the company's high operational costs are borne; (2) large jobs that are done at the same time have a greater risk of delay in completion; (3) the person in charge of the field (PJB) has the potential to work beyond the standard capabilities of working people; (4) the quality control of work by PJB tends to be lower, and (5) there is often a shortage of drafters and estimators.

The opportunities that are owned include: (1) being able to take large-scale jobs

throughout Indonesia; (2) may enter into a KSO with a company classified as the same or at a lower level; (3) having more work experience handling large jobs.

The challenges (Threats) include intense competition in terms of (1) bid prices with other consultants of the same class; (2) use of work methods; (3) the use of HR professionalism to support the company's operations, and (4) the latest form of planning design results.

By looking at the power; weakness; opportunities, and challenges identified, a SWOT analysis of the planning consultant's strategy can be carried out in completing the planning work (see Table 2).

Table 2. Analysis of the Planning Consultant Strategy

Internal Strategy External Strategy	STRENGTH	WEAKNESS
OPPORTUNITY	Able and qualified to handle tendered planning work	To anticipate delays in design completion, conduct a KSO with a consultant domiciled closest to the project location
CHALLENGE	A professional designer is hired to help with the project's preliminary design so that prices can be compared and outcomes can be planned.	<ul style="list-style-type: none"> Anticipate a shortage of human resources, contract experts If there is a shortage of drafters/estimators, enter into a contract with the wholesale system To reduce operational costs, choose a KSO with a consultant who is domiciled close to the project location

Source: analysis results (2021)

The SWOT analysis results show that the consultant for the large classification in question has met the requirements to participate in the proposed planning tender and is technically and theoretically capable of handling the project design in question.

In order to avoid delays in completing the planning design, we can

carry out a KSO of a similar consultant to jointly handle the planned project work. Ideally, a KSO partner consultant is sought from the area closest to the project location; in this case, if the project is in Kalimantan, it is ideal to look for a KSO consultant partner from Kalimantan as well or from areas outside Java that are located close to Kalimantan.

Overcome design competition. It can be done by contracting a professional designer while working on the preliminary design of the project; Anticipating a shortage of workforce can be done by contracting experts for several months, and meeting the shortage of drafters/estimators can be done by calculating work using a drawing sheet system or a work contract system.

KSO Risk Analysis on Planning Work

Theoretically, KSO with other consultants is the best way. However, the advantages and disadvantages still need to be explored. The strengths of KSOs with consultants from outside Java are: (1) lower personnel costs compared to KSOs with consultants from Java; (2) KSOs with consultants who are domiciled closer to the project site can reduce the cost of traveling for site surveys or if at any time it is necessary to communicate directly with the owner.

The weaknesses include (1) despite having the same classification, consultants from outside Java generally have less work experience in handling planning designs than consultants from Java; (2) it is difficult to know each other's work ethic of human resources supporting operational planning consultants for each party involved in the KSO; (3) theoretically the educational background in Java is better/more advanced than outside Java; possible experience and work skills of existing HR, have professionalism under HR consultants from Java.

For consultants who have relatively more experience (Primary Consultants), the advantage of forming a KSO with consultants from outside Java with less work experience is the opportunity to get colleagues with relatively low compensation compared to KSOs with consultants with the same work experience or with more; whereas for consultants from outside Java who feel they have less work experience, a KSO with a consultant with much experience will be an additional reference for work experience handling large-scale projects. However, the challenges that will be faced include the work ethic of HR outside Java generally needs to respect time; Besides that, differences in the quality of education lead to different quality work results. For this reason, the principal consultant must frequently control KSO partner consultants' work.

From identifying strengths, weaknesses, opportunities, and challenges as has been done, a SWOT analysis is carried out again, as shown in Table 3.

Table 3. KSO risks with consultants outside Java with different work experience.

Internal Strategy External Strategy	STRENGTH	WEAKNESS
OPPORTUNITY	KSO consultants who are close to the project location can reduce project bid costs	The work ethic and human resource skills of KSO partners from outside Java have yet to be discovered.
CHALLENGE	Print low-cost personnel with good quality	<ul style="list-style-type: none"> In general, the nature of human resources outside Java does not value time Lead consultants need to check the work of KSO colleagues frequently

Source: analysis results (2021)

Table 3 shows that in project planning work outside Java, the KSO and the consultant whose domicile is closest to the project can reduce personnel and non-personnel operational costs in bidding contracts. Weaknesses Human resources from outside Java generally do not value time, so the principal consultant (consultants with more experience) needs to frequently check the work results of the HR of KSO partners. The challenge for the principal consultant, KSO, and consultants from outside Java with less work experience, is to become a training ground to produce skilled workers at low cost but of good quality.

Analysis of KSO Planning Work Results

Based on the inspection of the planning contract documents, it turned out that the planning consultant needed to be on time to complete his work. At the contract deadline, the work only reached 88.65%, so the consultant was subject to a fine of 1‰ per day of delay, calculated from the remaining unfinished work costs, reduced by 10% Income Tax.

From the results of MC-0, it was found that many calculations of the volume of BQ used in the bidding were, in fact, different from field conditions. In addition, MC-0 also concluded that based on the results of the indicator pile analysis carried out during the construction work, it turned out that the foundation depth planned by the consultant could be reduced, so it was proposed to reduce the foundation work items.

Consultant work delays

A strong allegation that the cause of the delay in planning is due to the comparison of the number of drafters and estimators who handle the work, which is different from the work that must be completed. The statement is based on the amount of work that the consultant is responsible for; the contract covers the planning of 12 high-rise and non-story buildings with an area of more than 28,700 square meters,

then in other provinces planning for buildings with an area of close to 22,500 square meters.

A job of that size requires a lot of drafters and estimators. If the company has as many workers as needed to complete the planning work, the nominal personnel costs that must be borne by the company every month are enormous; on the other hand, an order for planning work of this magnitude only sometimes occurs every year. When compared to hiring workers from outside, there is a risk that personnel costs will be more expensive, but that is temporary. As long as the number of workers owned by the company is insufficient, outside workers are still needed, but when the company's workforce can complete the intended work, outside workers will be stopped.

In this way, the completion of work is much faster. If it is deemed insufficient at any time, the workforce can be added until it is estimated that it is sufficient to complete the planning work on time. Compensation for labor is generally calculated using a drawing sheet (for drafters) and per work package (for estimators).

The drawback of the method of recruiting contract workers, as described earlier, is that the hiring company cannot know with certainty the quality and work results of each individual employed, even though the low qualifications of the workforce and the technology used are the cause of the delay in the work of the consultant planning design (Listianti & Sekarsari, 2017; Roza & Tela, 2018); It seems that this is what the planning consultant is facing so that it becomes the cause of delays in the completion of the planning work.

The difference in the volume of the Bill of Quantity (BQ) with the conditions in the field

The difficulty of employing many workers is that it is impossible to carry out work in the same place due to space constraints. As a result, each person can work in a different place, which will complicate supervision and coordination; if there are changes related to detailed drawings or plans at any time, it is difficult to convey them quickly to the interested drafter.

Then the next difficulty is the possibility of different drawing systems from one drafter to another; if an image is related to an image on another sheet done by a different person, one image user and another may interpret the meaning of the image in a different sense. If images are used as the basis for calculating the volume of BQ, one person with another has the opportunity to produce different calculations.

The BQ function is the estimated value of the budget the planning consultant makes to realize the planned building (Paikun, 2021). Changes in BQ mean that it will change the amount of the budget to realize the building being built. This weakness is the most significant cause of the difference in calculations between the volume of BQ used in the auction and the calculation of volume based on construction drawings made by contractors based on field conditions.

According to Atout (2016), contracts based on incomplete information require extensive job changes during construction work.

In reality, this is true; from the results of MC-0, 708 work items are proposed to be changed; 579 change request items (81.78%) came from different BQ volumes from the actual conditions in the field. Other changes included seven work items (0.99%) because the images did not match

field conditions. Changes in the results of the PPK/technical team evaluation were 64 work items (9.04%) related to improving building functions and 58 work items (8.19%) related to building architectural improvements.

Less work on the depth of the precast pile foundation

When carrying out construction work, the project under study also analyzed the pile indicators to control the depth of the precast cast pile planned by the consultant and whether it has achieved the desired soil strength. Analysis pile indicator can be interpreted as a translation of the results of a careful study of something that indicates the pile's ability (Tomlinson & Woodward, 2020). in this case, the capability referred to is the loading test of the strength of the pile to withstand torsion (turn) and pressure forces (Tomlinson & Woodward, 2020). In carrying out the loading test, the pile selected as the sample must first be installed in the ground and then left for a minimum of 24 hours to 14 days (the length of time depends on the type of soil and the purpose of the test being carried out) then only then can a loading test be carried out (Tomlinson & Woodward, 2020).

In project implementation, the foundation is the earliest work to be done, while new projects can be carried out if the owner and contractor have signed a work implementation contract. From the test results, it is concluded that it is necessary to make changes to the foundation. In that case, these changes are made when the work contract has been signed so that generally, the nominal price of the additional/less work that must be done can be known from the start of the project, considering that the foundation is the earliest work done. If there is additional

work, the owner needs to engineer to look for these additional costs by adjusting the architecture/function of the building that has been planned. Conversely, if there is less work, the owner gets "additional costs" from the reduced volume of work planned.

Concerning the provisions on the number of samples for foundation testing, SNI has stipulated requirements that must be followed; the provisions include: (1) for buildings from the 4th floor to the 7th floor, one point is required for each 400 m² area; (2) for non-residential buildings less than four floors, a minimum of 1 point is taken for every 600 m² area, and (3) for buildings less than four floors with a footprint of more than 25000m² a minimum of one point is required for each 2500 m² area (Sipilpedia, 2018).

SNI 8460 also states that the need for foundation testing is to check the suitability of soil conditions with the results of soil investigations at the design stage and the properties of materials and construction work following the anticipations taken based on the results of investigations during construction design work [SNI 8460. 2017 h: 36]. The results of the inspection are then matched with the results of the inspection of the design investigations that have been prepared previously; Design changes based on inspection findings during construction work can be made if necessary.

Table 4. Number of Indicator Pile analysis sample points during construction work

No	Building Construction	Total area (m ²)	Estimation Area/ floor (m ²)	Number of Samples (dots)	
				During Construction Work	According to SNI requirements
1	1st-floor steel roof construction	1,575	1,575	1	1
2	1st-floor	1,351	1,351	1	1

	steel roof construction				
3	Floor 1 concrete roof construction	100	100	2	1
4	Floor 1 concrete roof construction	2,695	2,695	1	1
5	Floor 1 concrete roof construction	2,805	2,805	2	1
6	Floor 1 concrete roof construction	1,575	1,575	1	1
7	2nd-floor steel roof construction	7,559	3780	3	6
8	2nd-floor concrete roof construction	440	220	3	1
9	2nd-floor concrete roof construction	677	339	2	1
10	2nd-floor concrete roof construction	2538	1269	2	2
11	2nd-floor concrete roof construction	2644	1322	1	2
12	4th-floor steel roof construction	3936	787	1	2

Source: analysis results (2021)

Table 4 is data on the number of sampling points carried out during construction work. The data is a calculation based on estimates obtained from the division of the total floor area by the number of floors of the building).

Seeing the comparison of the number of sample points during the construction work with the comparison of the number of samples according to the requirements of SNI 8460, it is concluded that the sampling of soil during the construction work has been carried out under the SNI requirements.

Based on the inspection results of the project's weekly report documents, it is known that from the results of the soil investigation during construction, it appears that there has been a reduction in the volume of the precast pile foundation work; it is suspected that the problem stems from the experts handling the lack of understanding of local soil conditions considering that he is from outside Kalimantan Island.

If seen from a large number of samples in Table 4, it can be seen that the collection was carried out when the construction work had covered the entire building, which means that the samples were taken when the foundation work was in progress so that some of the precast foundations had gone into the ground. The problem is that checking the depth of the precast pile that has entered the ground cannot be done manually, so the volume is prone to manipulation.

In dealing with preliminary work, the method used by the contractor is "to propose as little work as possible, but ask for additional work as much as possible." Dealing with short work at a depth of the precast pile foundation, the way that is commonly done in the field is to inflate the actual volume that has been worked on so that the remaining volume of work whose depth will be reduced is smaller than the actual conditions in the field. That way, the foundation depth report that has been done according to the depth before being changed will be greater than the natural conditions in the field, but the fact that the volume of work done by contractors is smaller than what is reported in the calculation of less work. This difference in volume depth is an advantage for the contractor.

For the owner, less work is "budgetary leftovers" that can be used to increase the

comfort and function of the building. Figure 1 shows the nominal price of the change of works proposed by the four parties involved in the project activity. From Figure 1, the most considerable nominal addition/less work generally comes from the owner and contractor. In addressing the lack of work, the contractor proposes a minimum work reduction but asks for as much additional work as possible. Whereas for the owner, increasing the comfort and function of the building is generally carried out in the form of adding room comfort (such as increasing air conditioning/air conditioning and the like) as well as improving the architectural appearance of the building.

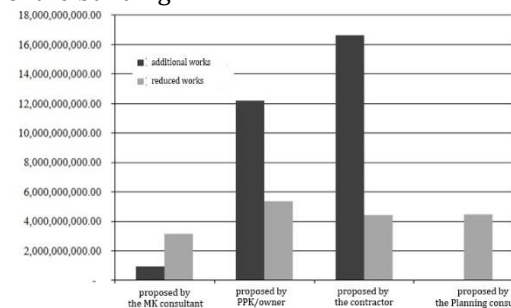


Figure 1. Comparison of the nominal price of additional/less work proposed by each party involved in the project. (source: data analysis, 2021)

There is a tendency that the way the owner or contractor utilizes the budget resulting from the work being insufficient will ultimately increase the budget for project implementation costs (although the amount is relatively small); In the project under study, there was also an additional cost even though the amount was less than 1% of the cost according to the project implementation contract.

Conclusion

The weakness of conducting a KSO with consultants from outside Java is human resources' experience and work ethic, which consultants generally own in Java. At the contract's limit, work only reached 88.65%; the delay is suspected to be due to the qualifications and the number of workers not being proportional to the amount of work being handled. Limitations of employing many workers who cannot be carried out in the same

place make it difficult to supervise and coordinate work. There is a risk that there will be lots of drawing errors which will lead to errors in calculating the volume of BQ used during the auction. From the pile indicator analysis during the execution of the work, it is concluded that the depth of the precast pile foundation can be reduced. In addressing the lack of work, the contractor tends to ask for as much additional work as possible but proposes that work is minimal. At the same time, for the owner, it is used to ask for additional work whose purpose is to increase the function and architectural appearance of the building.

Author(s) Statement

authors with this declare that this research is free from conflicts of interest with any party, has never been published anywhere, and has complied with the rules of publication ethics.

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Reference

- Anggriawan, EN (2015). Factors That Increase Work Motivation and Their Effect on the Effectiveness of Overtime Work in Planning Consulting Companies in Jakarta [Bachelor theses, Atma Jaya University, Yogyakarta]. <http://e-journal.uajy.ac.id/7052/>
- Atout, MM (2016). Delays Caused by Project Consultants and Designers in Construction Projects. *International Journal of Structural and Civil Engineering Research*. <https://doi.org/10.18178/ijscer.5.2.102-107>
- Dedi, I. (2021). Analysis of the Factors Influencing the Motivation of Construction Consultants Experts in Construction Projects in the City of Padang Panjang [Diploma thesis, Bung Hatta University]. <http://repo.bunghatta.ac.id/3405/>
- Diputra, IGA (2009). Planning consultant performance appraisal system in handling building planning projects. *Scientific Journal of Civil Engineering*, 13(2), 149–1690.
- Dwianto, AS, Purnamasari, P., & Tukini, T. (2019). The Effect of Compensation on Employee Performance at PT. JAEIL INDONESIA. *Jessa (Journal of Economics and Sharia Economics)*, 2(2), Article 2. <https://doi.org/10.36778/jesya.v2i2.74>
- Listianti, A., & Sekarsari, J. (2017). Risk Identification of Road and Bridge Planning Consultants (Case Study: North Morowali). 15–22.
- LKPP RI. (2017). Teaching Material UK 19—Deploying a Goods/Services Procurement Contract Management Plan [Repository]. Kepo PBJ - Knowledge Repository of Procurement of Goods and Services. <https://kepo-pbj.lkpp.go.id/p/detail/61baf0d539270d7fa962e65>
- LKPP RI. (2021). Government Goods/Services Procurement Policy Agency Performance Report 2020 [Annual Report]. Goods/Services Procurement Policy Institute of the Government of Indonesia. http://www.lkpp.go.id/v3/files/attachments/5_WPTdevtomGyhbDjmcuJlVWvKrFfoFcGE.pdf
- Lubis, K. (2010). Analysis of Expert Motivation Factors in Construction Consulting Companies [Research Report]. Medan Area University. https://repositori.uma.ac.id/bitstream/123456789/13084/1/Laporan%20Penelitian_Kamaluddin%20Lubis_Analisa%20Factor-Faktor%20Motivasi%20Tenaga%20Ahli%20Pada%20Perusahaan%20Konsultan%20Konstruksi.pdf
- Marzuki, PF, & Lumeno, SS (2011). Perception of Risk on Labor

- Provision and Management in International Joint Ventures in Infrastructure Projects. *Journal of Civil Engineering*, 18(1), 11. <https://doi.org/10.5614/jts.2011.18.1.2>
- Paikun, P. (2021). Project Planning and Control. Independent Scholar.
- Procurement, T. (2020). Initial Mutual Check Calculation (MC-0). Procurement (Eprocurement). <https://www.pengadaan.web.id/2020/06/penghitungan-mutual-check-awal-mc-0.html>
- Engineering Library. (2019, November 2). The roles and responsibilities of planning consultants. PerpusTeknik.Com. <https://perpusteknik.com/peran-dan-responsible-konsultan-peplan/>
- Rahman, MSBA (2012). MohammadSofiuddinAbdulMFKA 2012.pdf [Master theses, Universiti Teknologi Malaysia]. <http://eprints.utm.my/id/eprint/28769/5/MohammadSofiuddinAbdulMFKA2012.pdf>
- Rawis, JA (2021). Contracts for procurement of government goods and services according to Presidential Decree number 16 of 2018. *Lex Privatum*, 9(1), Article 1. <https://ejournal.unsrat.ac.id/v3/index.php/lexprivatum/article/view/32045>
- Roza, F., & Tela, N. (2018). Dominant Factors Influencing Project Cost Calculations in the Planning Process. *Engineering Journal*, 8(2), Article 2. <https://doi.org/10.37037/jrftsp.v8i2.28>
- sipilpedia. (2018). SNI Geotechnical 8640:2017—Civilpedia. <https://cipilpedia.com/>. <https://cipilpedia.com/sni-geoteknik/>
- Sopian, A. (2013). Evaluation of bids in the process of selecting government goods/services providers. Palembang Financial Training Center; Academia. Edu. https://www.academia.edu/download/39310835/310_EVALUASI_TERHADAP_PENAWARAN_DALAM_PROSES_LELANG.pdf
- Sujoko, A. (2020). Theory and Practice of Contracting with Joint Operation Providers (KSO) in Government Procurement of Goods/Services. *Administrative Law and Governance Journal*, 3(1), 35–53. <https://doi.org/10.14710/alj.v3i1.35-53>
- Sutarja, IN, Jaya, NM, & Sukoyo, AP (2020). Analysis of Factors Causing Delay in Completion of Hotel Projects in Badung Regency and Denpasar City. *Spectrant Journal*, 8(2), 160–168.
- Tomlinson, M., & Woodward, J. (2020). Pile Design and Construction Practice (5th ed). Taylor & Francis Group.
- Trisnandar, RM, Sugiyarto, S., & Purwanto, EP (2020). Strategic Management Planning Consultant in the Sector of Human Resources in Facing the Asean Economic Community (Case Study of Middle-Class Consultants in Surakarta and Surrounding Areas). *Civil Engineering Matrix*, 8(1), Article 1. <https://doi.org/10.20961/mateksi.v8i1.41526>
- Tuelah, JDP, Tjakra, J., & Walangitan, DRO (2014). The role of a construction management consultant during the implementation phase of a development project (case study: The Lagoon Taman sari). *Tekno*, 12(61), Article 61. <https://ejournal.unsrat.ac.id/v3/index.php/tekno/article/view/6811>
- Wadjdi, F., Adihardjo, RB, & Utomo, C. (2007). Analysis of the Influence of Compensation Satisfaction, Affective Commitment, Calculative Commitment and Normative Commitment on Performance (Study of Consultants in Planning and Supervision of Roads and Bridges in East Java). *Proceedings*

of the National Seminar on
Technology Management V.
Wulandari, T. (2021). 5 Questions High EQ
People Would Never Ask. detikedu.
<https://www.detik.com/edu/detikpedia/d-5828513/5-question-yang-tak-bakal-ditanyakan-orang-ber-eq-high>

Author(s) contributions

Kusnul Prianto contributed to the preparation of the research design, literature review, data collection, data visualization, data analysis, and article preparation.

Muhamad Ratodi contributed to the drafting of the manuscript, editing, and reviewing the draft of the article.