

SETTLEMENT OF DISPUTES REGARDING THE USE OF REAL WAGES IN THE PRICE ADJUSTMENT FORMULA THROUGH BANI

Bimas Tianggono¹⁾

¹⁾Master of Construction Law Students, University of Pekalongan
Email : thebim78@gmail.com

Abstract

Price Adjustment is a mechanism to protect the parties in a construction contract from unexpected price fluctuations, which must be designed from the beginning of the Project planning. This paper discusses the error in using the construction labor cost index using real labor wages. This error is even worse when in the price adjustment application, the basic price index ($n = 0$) is not adjusted to its base year when compared to the price in month n ($n > 12$). After more than 3 years of price adjustments, the employer just found out. This finding resulted in a different calculation from the contractor. The large difference in results (differences) made the parties not reach an agreement, so they agreed to ask for an opinion from BANI. Finally, BANI gave a binding opinion that the construction worker wage cost index element should use Nominal Wages instead of Real Wages, with considerations including: Real wages consider two factors, namely wages received actually with the inflation rate of goods prices (purchasing power), while Nominal Wages better describe the real costs incurred by contractors to pay Labor wages.

Keywords : *Price adjustment, BANI, Real Wages, Nominal Wages*

Abstrak

Penyesuaian Harga adalah mekanisme untuk melindungi pihak-pihak dalam kontrak konstruksi dari fluktuasi harga yang tidak terduga, yang harus dirancang sejak awal perencanaan Proyek. Makalah ini membahas kesalahan dalam penggunaan indeks biaya tenaga kerja konstruksi menggunakan upah riil. Kesalahan ini semakin parah ketika dalam penerapan penyesuaian harga, indeks harga dasar ($n = 0$) tidak disesuaikan dengan tahun dasarnya saat dibandingkan dengan harga pada bulan n ($n > 12$). Setelah lebih dari 3 tahun penyesuaian harga, pemberi kerja baru mengetahuinya. Temuan ini mengakibatkan perhitungan yang berbeda dari kontraktor. Besarnya perbedaan hasil (selisih) membuat para pihak tidak mencapai kesepakatan, sehingga mereka sepakat untuk meminta pendapat dari BANI. Akhirnya, BANI memberikan pendapat yang mengikat bahwa elemen indeks biaya upah pekerja konstruksi harus menggunakan Upah Nominal bukan Upah Riil, dengan pertimbangan: Upah Riil mempertimbangkan dua faktor, yaitu upah yang diterima sebenarnya dengan tingkat inflasi harga barang (daya beli), sedangkan Upah Nominal lebih menggambarkan biaya nyata yang dikeluarkan oleh kontraktor untuk membayar upah pekerja.

Kata kunci: *Penyesuaian harga, BANI, Upah Riil, Upah Nominal*

INTRODUCTION

In the last 10 years, various large construction projects have been so massive, such as the construction of toll roads, airports, ports and renewable energy power plants. In practice, implementing mega construction projects is not easy, and must be carried out by

experts who have expertise in the field. Comprehensive planning can be seen in the project planning documents which are divided into:

- Feasibility Study (FS) documents or initial documents on the initiative of a project
- Engineering documents consisting of Front End Engineering Design (FEED), Basic Engineering Design (BED),
- Final Investment Decision (FID)
- EPC (Engineering, Procurement, and Construction - Fidic Silver Book)

According to Law Number 2 of 2017 concerning Construction Services Article 1 Paragraph 8, the Construction Work Contract is the entire contract document that regulates the legal relationship between the Service User and the Service Provider in the implementation of Construction Services.

Construction Projects are complex, non-routine, one-time activities that are limited by time, budget, resources, and performance specifications designed to meet customer needs. Larson (2000),

In large-scale and multi-year construction projects, especially for State-Owned Enterprises (BUMN) the above-mentioned period must be prepared carefully and thoroughly so that the project carried out meets the principles of On Time, On Budget, On Specification, On Return and On Regulation. Schematically, these stages can be seen in the following diagram/image:

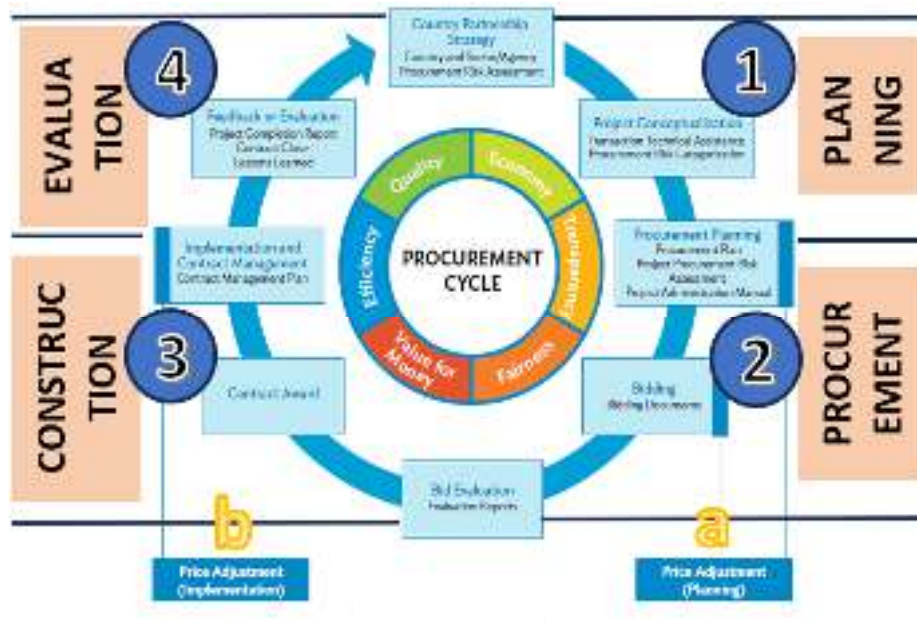


Figure 1. Stages Of Large-Scale And Multi-Year Construction Projects, Especially For State-Owned Enterprises (BUMN)

(Figure 1 is taken from the ADB Price Adjustment Guidance Note on Procurement - 2023 document with slight modifications for the purpose of writing this paper). The blue circular line with an arrowhead in the middle shows the flow of information starting from (1) Planning, (2) Procurement and (3) Construction and continuing with (4) Evaluation.

Viewed from the employer's side, during Construction there are 2 things that need to be considered by the employer. On the owner's side, the EPC activities above are generally divided into 3 fields/units that handle them, namely:

1. At the time of Planning/concept handled by the Planning Division/Division
2. At the time of procurement handled by the Procurement/General Division
3. And during Construction by the Implementation Division/Division

The process of delivering/transferring responsibility from a Plan to an Action (construction) requires a careful and prudent transition mechanism for every detail of information/data so that every detail of the plan can be realized perfectly according to the desired objectives.

As stated in the FIDIC Golden Principles, a construction contract is a contract based on a fair and balanced allocation of risk/results between the Employer and the Contractor and is widely recognized as a proper balance between the reasonable expectations of the contracting Parties.

One of the risks in a multi-year project is price adjustment or commonly called cost escalation. Cost escalation is an adjustment of the unit price of contract components including labor, construction materials, energy and equipment to the contract value at the time of the Bidding.

The Asian Development Bank (ADB) as a multilateral financial institution that provides loans to support social and economic development in Asia and the Pacific in loan contracts for long-term construction development provides specific instructions for adjusting long-term contract prices in the guidebook "PRICE ADJUSTMENT GUIDANCE NOTES ON PROCUREMENT", it is clearly stated that "Price Adjustment" is a mechanism to protect buyers and sellers from unexpected input price fluctuations that must be planned from the start starting from the procurement planning stage, preparation of price offers, to the contract implementation stage.

The formula used in general price adjustments is as follows:

PRICE ADJUSTMENT FORMULAE :

$$P_n = a + b \frac{L_n}{L_0} + c \frac{E_n}{E_0} + d \frac{M_n}{M_0} + \dots$$

"P_n" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Contract Data;

"a" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"b", "c", "d", "..." are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

"L_n", "E_n", "M_n", ... are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"L₀", "E₀", "M₀", ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The formula / formula used in the contract is the same or is a derivative of the Presidential Regulation of the Republic of Indonesia, (Number 54 of 2010 which was revised with number 70 of 2012).

As mention in Presidential Regulation of the Republic of Indonesia, (Number 54 of 2010 which was revised with number 70 of 2012), that price Adjustment :

1. Price adjustments are applied to Multi-Year Contracts, starting from the 13th month since the work was carried out
2. Unit Price Adjustments apply to all activities/payment items, except for profit components and overhead costs
3. New types of work with new unit prices due to contract addendums can be given price adjustments starting from the 13th month since the contract addendum.

It should be noted from the start that in applying Price Adjustments :

1. There is no single price adjustment formula that covers every situation. Different formulas apply to contracts of different sizes and for different components.
2. A contract may consist of one or more payment currencies. For contracts with price adjustment provisions, at least one price adjustment formula must be provided for each payment currency.

In accordance with the agreement of the parties (Contractor and Employer) as the basis for calculating price adjustments during the contract period, it consists of: 5 index elements consisting of Labor, Petroleum Product, Cement, Structural Steel, and Reinforcement Bar, with weights and basic values as in the following table:

Table 1.
5 index elements consisting of Labor, Petroleum Products, Cement, Structural Steel, and Reinforcing Iron

Index Code	Index Description	Source Of Index	Source Date	Base Value	Bidder Proposed Weighting
#	Non Adjustable		N/A	N/A	0,10
Lo	Labour	Real and Nominal Wage for Farm Worker, Construction Worker, Woman house hold and Household service in Indonesia (Rupiah) in Table 1 is stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik	(Nov, 2013)	51.360	0,27
Po	Petroleum Product	Range Dasar Keekonomian RRM Perjanjian Periode 3-14 Desember 2014	(Nov 2013)	11.125	0,05
Co	Cement	Wholesale price indices of construction material of Indonesia by group of commodities" item no.14 in Table 1.15 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik	(Nov 2013)	116	0,22
PSIo	Structural Steel	Wholesale price indices of construction material of Indonesia by group of commodities" item no.12 in Table 1.15 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik	(Nov 2013)	216	0,05
OTLo	Reinforcement Bar	Wholesale price indices of construction material of Indonesia by group of commodities" item no.12 in Table 1.15 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik	(Nov 2013)	117	0,26
	Total				1,00

Formulation Of The Problem

Such is the complexity of the problems that will arise during the construction process on a large project, this paper will only be about the occurrence of a miss communication (Communication Gab) on Price Adjustment during Procurement and during Implementation, in Figure 1 above given the letter mark (a) Price Adjustment Planning and (b) Price Adjustment Implementation.

The discussion in this paper focuses on the difference of opinion on the results of the price adjustment calculation between the contractor and the employer at the time the project was running in year 5. The difference in results between the Contractor's proposal and the Employer's calculation results in a dispute between the parties, especially in the

initial contract determination on the use of the Real Wage of Construction Workers component.

To overcome this, the contractor proposed an alternative to use the Nominal Wage of Construction Workers instead of the Real Wage of Construction Workers element in the Price Adjustment formula, by making an addendum to the contract that had been carried out, but the Employer could not accept it because changes to the basic contract would not be that easy to do, especially since there had been a payment in the previous price adjustment calculation. The difference of opinion ended up with the parties agreeing to bring the matter to the Indonesian National Arbitration Board for an opinion.

Can BANI resolve the difference in Price Adjustment Planning contained in the contract with Price Adjustment Implementation during construction?

Objectives and Benefits of the Study

A construction contract in a legal sense is a law for parties who bind themselves to each other to provide achievements within a certain period and certain results.

This research is intended so that the parties bound in a multiyear construction contract where contract price adjustments apply can understand correctly and be full of caution in implementing the contract, and can find alternative solutions if there are differences in interpreting the existing contract.

Problem Scope

This paper will only be limited to analyzing the use of the Real Wage of Construction Workers element in the price adjustment formula, and comparing if the Nominal Wage of Construction Workers element is used, how much influence the use of these two elements has on the price adjustment formula. The study period is conducted in 2020.

Research Method

In this paper, a Quantitative method approach is used, namely by taking actual data in the field consisting of monthly work progress and payments, calculations of price adjustments made, and data on price adjustment elements taken from the monthly statistical bulletin published by BPS. To safeguard and protect the parties, the location of the project and the parties involved cannot be mentioned in this paper. (sources are confirmed and can be accounted for).

RESULTS AND DISCUSSION

Discussion

In each long-term contract (multyyears), the employer usually provides a range of allowable weights for each index component used, and the contractor provides a captive by entering the base index date as a calculation and the weight for each index component determined by the employer at the time of submitting the price quote.

The following table is a table of price adjustment formulas given by the employer to the contractor during the bidding process:

Table 2.
Price Adjustment Index Filling Format

Local Currency (LC)						
[In Table A, below, the Bidder shall (a) indicate its proposed base values of indices for the local currency elements of cost, and (b) derive its proposed weightings for local currency payment within the range]						
No	Index Code	Index Description	Source Of Index	Source Date	Base Value	BIDDER Proposed Weighting
1	2	3	4	5	6	7
2	a	<i>Non Adjustable</i>		N/A	N/A	0,10
3	Lo	Labour	"Real and Nominal Wage for Farm Worker, Construction Worker, Woman Helmtut and Household Servant in Indonesia (Rp/riahs)" in Table 1.8 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik			
4	Po	Petroleum Product	Harga Dasar Keekonomian BBM Pertamina Period 1-14 Desember 2014			
5	Co	Cement	"Wholesale price indices of construction material of Indonesia by group of commodities" item no.14 in Table 1.15 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik			
6	PSLo	Structural Steel	"Wholesale price indices of construction material of Indonesia by group of commodities" item no.20 in Table 1.15 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik			
7	OTLo	Reinforcement Bar	"Wholesale price indices of construction material of Indonesia by group of commodities" item no.17 in Table 1.15 stated in the monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik			
8			Total			1,00

In accordance with table 2 above, the contractor when bidding the price entered as table 3, below and has become a contract agreement of the parties.

Table 3.
Price Adjustment Index Filling Format (2)

Local Currency (LC)						
[In Table A, below, the Bidder shall (a) indicate its proposed base values of indices for the local currency elements of cost, and (b) derive its proposed weightings for local currency payment within the range]						
No	Index Code	Index Description	Source Of Index	Source Date	Base Value	Bidder Proposed Weighting
1	2	3	4	5	6	7
2	a	Non Adjustable		N/A	N/A	0,10
3	Lo	Labour	Real and Nominal Wage for Farm Worker, Construction Worker, Woman (Urban and Household Sector) in Indonesia (Rupiah)" in Table 2.6 stated in the monthly statistical bulletin "INDONESIA ECONOMIC" published by Badan Pusat Statistik	[Nov, 2013]	51.360	0,32
4	Pe	Petroleum Product	Harga Bahan Baku Bahan Bakar Minyak Pertamina Periode 1-14 Desember 2014	[Nov 2013]	11.125	0,05
5	Co	Cement	"Wholesale price indices of construction material of Indonesia by group of commodities" Item no. 14 in Table 1.15 stated in the monthly statistical bulletin "INDONESIA ECONOMIC" published by Badan Pusat Statistik	[Nov 2013]	110	0,23
6	I'SLo	Structural Steel	"Wholesale price indices of construction material of Indonesia by group of commodities" Item no. 20 in Table 1.15 stated in the monthly statistical bulletin "INDONESIA ECONOMIC" published by Badan Pusat Statistik	[Nov 2013]	116	0,15
7	OTLo	Reinforcement Bar	"Wholesale price indices of construction material of Indonesia by group of commodities" Item no. 17 in Table 1.15 stated in the monthly statistical bulletin "INDONESIA ECONOMIC" published by Badan Pusat Statistik	[Nov 2013]	117	0,20
8		Total				1,00

If seen in table 1a above, in the price adjustment formula element for construction workers (column 4, line 3) the caption states that Construction Workers wage data from the BPS monthly bulletin is used. For this option the contractor used the base month Nov 2013 (column 5, row 3), the Index number 51,360 (column 6, row 3), and a weight of 0.32 (column 7, row 3). The base value used is 51,360, this refers to the Real wage of construction workers.

1. Index cost elements with high weight

Overall in table 1 above of the 5 index components used in the formula, there are 3 index components with large weights that have a big influence on the formula, namely

- Real wages of construction workers (weight 0.32)

With a weight of 0.32, the following table shows the upward/downward trend of real wages of construction workers from 2013 to 2020.

Table 4.
Compilation Daily Real Wage for Construction Worker 2013-2020

Monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik												
DAYLY REAL WAGE FOR CONSTRUCTION WORKER												
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
BASE YEAR (2007=100)												
2013	52.168	52.479	52.213	52.357	52.537	52.077	50.649	50.579	51.059	51.120	51.360	51.113
BASE YEAR 2012=100												
2014	88.140	88.091	88.206	88.242	88.436	88.328	87.896	87.665	87.601	87.305	86.348	85.279
2015	86.114	86.861	87.233	87.253	87.019	86.786	86.216	86.000	86.158	86.418	86.447	85.861
2016	85.702	85.879	85.843	86.202	86.146	85.997	85.636	85.810	85.768	86.134	85.844	85.654
2017	85.211	85.235	85.297	85.254	85.170	84.736	84.674	84.939	84.867	84.894	84.778	84.332
2018	84.501	84.716	84.776	84.791	84.745	84.425	84.318	84.442	84.744	84.618	84.877	84.543
2019	85.113	85.302	85.237	84.969	84.530	84.207	84.174	84.190	84.372	84.358	84.272	84.125
BASE YEAR 2018=100												
2020	85.764	85.663	85.624	85.567	85.519	85.415	85.565	85.674	86.355	86.514	86.311	85.931

When the contract was agreed by the parties, the index as shown in table 4 above, namely in 2013 in November, the real wage of construction workers was 51,360 with the calculation of the base year (2007=100), but in Dec 2013 the base year changed to (2012=100), and in January 2020 using the base year 2018=100.

As a comparison for construction labor wages in table 3 below shows the nominal wages of construction workers from 2013 - 2020.

Table 5.
Compilation Daily Real Wage for Construction Worker 2013-2020 (2)

Monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik												
DAYLY NOMINAL WAGE FOR CONSTRUCTION WORKER												
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
BASE YEAR (2012=100)												
2013	71.408	72.574	72.462	72.588	72.816	72.823	73.253	73.972	74.414	74.569	75.006	75.055
2014	75.629	75.772	75.861	75.887	76.328	76.555	76.756	76.854	76.991	77.011	77.096	77.682
2015	78.484	79.083	79.657	79.970	80.087	80.237	80.293	80.342	80.494	80.744	80.946	81.002
2016	81.221	81.367	81.481	81.554	81.677	82.028	82.143	82.348	82.480	83.057	83.082	83.190
2017	83.432	83.697	83.724	83.740	83.958	83.975	84.076	84.362	84.378	84.421	84.458	84.454
2018	85.306	85.632	85.880	85.988	86.104	86.191	86.276	86.397	86.548	86.717	87.298	87.555
2019	88.442	88.628	88.857	88.864	88.864	88.708	88.959	89.085	89.072	89.072	89.081	89.179
BASE YEAR 2018=100												
2020	89.478	89.621	89.666	89.673	89.684	89.737	89.800	89.872	90.753	90.771	90.807	90.810

- **Reinforcement Bar with a weight of 0.26**

In contrast to the rising wages of construction workers, this is not the case with the Reinforcement Bar element / product, the data in Nov 2013 was 116.77, while at the end of 2020 it was 114.73 (a decrease of 2.04) as can be seen in the following table

Table 6.
Reinforcement Index Compilation 2013-2021

Monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik													
REINFORCEMENT BAR													
YEAR	BASE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	2010=100	116,32	116,59	116,61	116,53	114,31	113,99	114,35	114,22	116,41	116,73	116,77	117,01
2018	2010=100	129,01	130,33	131,09	132,00	132,01	132,15	133,34	134,79	138,27	142,22	145,02	145,22
2019	2010=100	144,38	143,47	142,57	141,59	141,16	141,00	140,74	140,12	139,62	139,16	138,37	137,78
2020	2018=100	97,22	96,67	96,14	96,49	96,38	96,21	95,57	96,78	97,73	98,98	98,97	99,86
2021	2018=100	103,88	105,86	105,71	106,11	107,24	109,69	110,49	111,35	112,50	113,22	114,39	114,73

- **Cement dengan bobot 0.22**

The following table is a table of data taken from BPS for cement products, where if only seen on the base date of Nov 2013 at 110.44, then in Dec 2020 at 106.09 or a decrease of 4.35.

Table 7.
Cement Index Compilation 2013-2021

Monthly statistical bulletin "INDIKATOR EKONOMI" published by Badan Pusat Statistik													
CEMENT													
YEAR	BASE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	2010=100											110,44	110,84
2018	2010=100	111,69	111,85	111,75	111,66	111,64	111,74	111,79	112,94	113,23	113,86	114,13	114,27
2019	2010=100	114,32	114,43	114,33	114,40	114,35	114,25	114,33	114,53	114,97	115,33	115,56	115,58
2020	2018=100	105,23	105,11	105,06	105,24	105,78	105,75	103,77	104,16	106,08	106,15	103,09	106,12

2. Price Adjustment Calculation

The formula for calculating price adjustments can be seen in figure 2 below :

$$P_{PT} = 0,1 + 0,32 \frac{L_{PT}}{51.360} + 0,05 \frac{P_{PT}}{11.125} + 0,22 \frac{C_{PT}}{110,00} + 0,05 \frac{PSL_{PT}}{138,78} + 0,26 \frac{OTL_{PT}}{117,00}$$

Base Date	Flood Coefficient	Labour	Petroleum product	Cement	Structural Steel	Reinforcement Bar	Total Weighting
	a	Lo	Po	Co	PSLo	OTLo	Pna
Price Index 2013 Nov		51.360	11.125	110.00	138,78	117,00	
Contract Weighting	0,1	0,32	0,05	0,22	0,05	0,26	1

Figure 2. Price Adjustent Formulae

a. Proposal kontraktor

Price adjustment calculations for the 2020 period are submitted by the contractor using the Price Adjustment Formula as shown in Figure 2 by substituting the value of the components in each month of the index used, and the results can be seen in table 8 below:

Table 8
Contractor Price Adjustment Proposal

No	Index Date	Monthly Payment (IDR)	Labour	Petroleum product	Cement	Structural Steel	Reinforcement Bar	New Weighting	Price Adjustment (IDR)
		Mp	Ln	Ptn	CLn	PSLn	OTLn	Pn1	Pa=Mp*(Pn-1)
1	Jan 2020	4.584.733.717	85.754	11.400,00	117,8	170,72	125,13	1,26037	1.193.705.037
2	May 2020	11.641.213.605	85.519	7.250,00	110,47	173,65	127,22	1,24753	2.852.579.857
3	Jun 2020	13.671.021.299	85.415	8.500,00	108,16	175,63	127	1,23212	3.196.191.911
4	Aug 2020	6.126.584.230	85.674	9.650,00	110,9	177,39	130,65	1,26821	1.649.326.341
5	Oct 2020	2.850.985.921	86.514	9.300,00	121,01	181,02	140,55	1,30040	850.432.589
6	Dec 2020	14.345.158.661	85.931	9.800,00	120,98	183,52	144,8	1,30930	4.436.920.211
	TOTAL	53.229.677.434							14.468.815.905

During the 2020 period, total payments against work progress amounted to IDR 53,229,677,434.43, and proposed price adjustments totaled IDR 14,468,815,905.91.

b. Employer Calculation and Evaluation

Employer calculations for the period Jan 2020 - Dec 2020, produce figures as shown in table 9 below:

Table 9
Employer Price Adjustment Calculation

No	Index Date	Monthly Payment	Labour	Petroleum product	Cement	Structural Steel	Reinforcement Bar	New Weighting	Price Adjustment (IDR)
		Mp	Ln	Pn	CLn	PSLn	OTLn	Pn	Pa=Mp*(Pn-1)
1	Jan 2020	4.584.733.717	85.754	11.400,00	106,23	162,1	97,22	1,09545	212.937.740
2	May 2020	11.641.213.605	85.519	7.250,00	106,78	162,52	98,30	1,025771	300.064.298
3	Jun 2020	13.671.021.299	85.415	8.500,00	106,79	162,42	98,21	1,030456	415.352.238
4	Aug 2020	6.126.584.230	85.674	9.650,00	106,16	164,17	98,78	1,040184	246.191.208
5	Oct 2020	2.850.985.921	86.514	9.300,00	106,15	165,31	98,98	1,045052	140.450.273
6	Dec 2020	14.345.158.661	85.931	9.800,00	106,12	165,88	99,96	1,062343	750.871.537
	TOTAL	53.229.677.434							2.066.817.292

The result of the employer's calculation is for the 2020 period, for a total work progress payment bill of IDR 53,229,677,434.43, and a total price adjustment of IDR IDR 2.066.817.292.

The results of the two tables (table 7 and table 8) show a very large difference despite using the same index elements and the same formula, where the contractor's proposal for price adjustment amounted to IDR 14,468,815,906, and the Employer only approved IDR 2,066,817,292.

3. Analysis of the Causes of Differences in Price Adjustment Calculations

Since 2016 until the end of 2019, the parties have experienced several cost adjustment processes, without experiencing any obstacles, only in 2020 there was a difference in results between the contractor's proposal and the employer's calculation results. Penyebab utama perbedaan ini terletak pada:

- Selection of cost elements for adjusting the price of construction labor wages (Laborers) using Real Wages (Real Wages are nominal Wages divided by the Household Consumption Index, so the index is very dependent on the rise and fall of Household Consumption figures)
- At the time of selecting the base date, namely November 2013, it still used the Real Wage calculation using the base number 2007 = 100, and starting December 2013 using the base year 2012 = 100, and in January 2020 there was a change in the base year to 2018 = 100 (see table 2)
- Errors in equalizing the base year when calculating price adjustments for all elements of the price adjustment formula, which contributed to a large difference.

a. Base Year Equalization in Price Adjustment Calculation

In the Real Wages of Construction Workers in Table 2, if we only look at the numbers, the progress of the increase from 51,360 in Nov 2013 - to 85,931 in Dec 2020 (an increase of $85,931 - 51,360 = 34,571$), is considered reasonable as happened in the progress of the increase in Nominal Wages of Construction Workers from 75,006 in Nov 2013 - to 90,818 in Dec 2020 (an increase of $90,818 - 75,006 = 15,810$).

It even seems that the increase in Real wages is greater than the increase in nominal wages. However, this is not the case after the base year of the calculation is equalized. In using the Price Adjustment formula, each index element in the formula must first be equalized to the base year before it can be compared for increases or decreases.

Equalization of Base Year Real Wages of Construction Workers

The Base Date used at the time of the contract was Nov 2013, and in Dec 2013 the Central Statistics Agency published the Economic Index Bulletin and stated that starting in Dec 2013 the base year used would be 2012=100.

See Table 10 REAL AND NOMINAL WAGE FOR FARMWORKER, CONSTRUCTION WORKER, WOMEN'S HAIRCUT AND HOUSEHOLD SERVANT IN INDONESIA (RUPIAHS) in the following December 2013 edition of the BPS monthly bulletin:

Table 10
Real And Nominal Wage For Farmworker, Construction Worker, Women's Haircut
And Household Servant In Indonesia (Rupiahs)

Tahun dan bulan Year and Month	Buruh tani / Farmworker (Perbulan / Monthly)		Buruh bangunan / Construction worker (Perbulan / Monthly)		Tata rias wanita / Women's haircut (Per kepala / Per head)		Pelayan rumah tangga / Household servant (Bulanan / Monthly)	
	2012 = 100	2013	2012 = 100	2013	2012 = 100	2013	2012 = 100	2013
	2012	2013	2012	2013	2012	2013	2012	2013
2011 Desember	39.909	28.701	49.107	44.434	19.149	11.223	204.407	227.811
2012 Januari	39.727	28.690	49.746	44.479	19.160	11.139	206.134	226.136
Februari	39.801	28.902	49.638	44.423	19.170	11.137	207.038	227.196
Maret	40.302	29.407	49.627	44.411	19.181	11.144	208.148	227.196
April	40.901	29.919	49.709	44.419	19.219	11.146	209.073	227.090
Mai	41.156	29.968	49.769	44.434	19.263	11.147	209.530	227.040
Juni	41.271	29.449	49.371	44.104	19.267	11.130	209.130	227.490
Juli	41.669	29.276	49.800	44.084	19.318	11.214	209.949	226.136
Agustus	41.404	28.704	49.323	44.140	19.368	11.202	209.939	226.340
September	41.918	28.907	49.420	44.091	19.389	11.191	209.149	226.804
Oktober	41.913	28.944	49.440	44.040	19.413	11.180	209.580	227.000
November	41.791	28.204	49.279	44.141	19.411	11.182	207.644	227.136
Desember	41.827	28.191	49.228	44.144	19.379	11.182	207.209	226.877
2012 Januari	41.888	27.687	49.148	44.148	19.230	11.200	204.280	226.910
Februari	41.919	27.688	49.111	44.170	19.288	11.205	204.470	226.916
Maret	41.929	27.748	49.101	44.211	19.271	11.200	204.520	226.888
April	41.478	27.871	49.048	44.153	19.104	11.212	207.194	226.884
Mai	41.918	27.918	49.046	44.152	19.268	11.203	207.490	226.881
Juni	41.888	27.768	49.023	44.217	19.281	11.198	207.480	227.149
Juli	41.808	27.888	49.119	44.046	19.198	11.199	204.190	224.537
Agustus	41.841	28.407	49.172	44.110	19.408	11.187	205.780	223.349
September	41.913	27.911	49.144	44.156	19.481	11.201	205.166	224.916
Oktober	41.920	27.923	49.088	44.130	19.479	11.187	204.946	224.107
November	41.463	27.085	49.008	44.200	19.723	11.180	209.194	225.148
Desember	41.509	27.648	49.016	44.144	19.749	11.185	208.480	224.488

In December 2013, the real wage column for Construction Workers contained the figure 51,113, with the note that in that month the base year 2012=100 began to be used, then see the monthly bulletin published by BPS, January 2014 edition below:

Table 11
Real And Nominal Wage For Farmworker, Construction Worker, Women's Haircut
And Household Servant In Indonesia (Rupiahs) (2)

Tahun dan Bulan (Year and Month)	Indeks / Indeks (Index / Index)		Indeks / Indeks (Index / Index)		Indeks / Indeks (Index / Index)		Indeks / Indeks (Index / Index)	
	Real (2007 = 100)		Real (2012 = 100)		Real (2018 = 100)		Nominal (Rp)	
	2007=100	2012=100	2007=100	2012=100	2018=100	2018=100	2018=100	2018=100
2012 Januari	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Februari	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Maret	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
April	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Mai	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Juni	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Juli	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Agustus	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
September	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Oktober	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
November	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Desember	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
2013 Januari	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Februari	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Maret	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
April	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Mai	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Juni	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Juli	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Agustus	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
September	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Oktober	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
November	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Desember (1)	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Desember (2)	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
2014 Januari	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000

Source: BPS, 2014. *Indeks Harga Konsumen, Desember 2013 = 100*.
 Note: (1) Desember 2013 menggunakan tahun dasar 2007 = 100.
 (2) Desember 2013 menggunakan tahun dasar 2012 = 100.

Pay attention to the Real Wages of Construction Workers column in December (1) and December (2) (blue box), in that row there are 2 figures for the Real Wages index of Construction Workers in December 2013, namely 51.113 for the base year 2007 = 100, and 68.140 for the base year 2012 = 100. Likewise, to equate the base year 2012 = 100 to the base year 2018 = 100.

Table 12 below is a comparison of the results of the data equation for the base years 2007 = 100, 2012 = 100 and 2018 = 100 for Real Wages of Construction Workers, from 2013 – 2020

Table 11
Comparison Daily Real Wage for Construction Worker 2013-2020

Processed from the BPS monthly economic index bulletin												
DAILY REAL WAGE FOR CONSTRUCTION WORKER												
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
BASE YEAR (2007=100)												
2013	52.168	52.479	52.215	52.337	52.337	52.077	50.649	50.579	51.059	51.120	51.360	51.113
2014	50.960	50.924	51.010	51.037	51.132	51.101	50.778	50.605	50.557	50.336	49.620	48.821
2015	49.465	50.054	50.287	50.297	50.172	49.948	49.572	49.360	49.478	49.673	49.694	49.256
2016	49.137	49.269	49.243	49.511	49.489	49.378	49.038	49.218	49.156	49.650	49.203	49.101
2017	48.770	48.788	48.534	48.802	48.735	48.425	48.388	48.566	48.513	48.533	48.488	48.113
2018	48.239	48.400	48.445	48.456	48.421	48.182	48.102	48.193	48.411	48.326	48.520	48.270
2019	48.697	48.838	48.785	48.589	48.261	48.019	47.994	48.006	48.142	48.132	48.068	47.958
2020	47.934	47.877	47.855	47.824	47.797	47.739	47.822	47.883	48.376	48.553	48.289	48.027
BASE YEAR 2012=100												
2013	69.758	70.171	69.815	70.007	70.248	69.813	67.724	67.630	68.272	68.203	68.674	68.344
2014	68.140	68.091	68.256	68.242	68.436	68.328	67.896	67.695	67.601	67.305	66.368	65.279
2015	66.134	66.861	67.235	67.231	67.019	66.785	66.216	66.030	66.158	66.433	66.447	65.861
2016	65.702	65.879	65.843	66.202	66.146	65.997	65.636	65.810	65.708	66.124	65.844	65.654
2017	65.211	65.325	65.297	65.254	65.170	64.735	64.674	64.939	64.867	64.894	64.770	64.323
2018	64.501	64.716	64.776	64.791	64.745	64.425	64.118	64.442	64.744	64.828	64.877	64.343
2019	65.113	65.102	65.237	64.963	64.530	64.207	64.174	64.190	64.372	64.358	64.272	64.125
BASE YEAR 2018=100												
2013	93.340	93.897	93.421	93.678	94.000	93.177	90.622	90.497	91.356	91.465	91.894	91.433
2016	87.917	88.134	88.106	88.586	88.511	88.312	87.829	88.061	88.006	88.495	88.107	87.833
2017	87.260	87.292	87.175	87.318	87.205	86.542	86.856	86.900	86.836	86.681	86.684	86.386
2018	86.310	86.526	86.678	86.626	86.617	86.085	86.085	86.231	86.815	86.667	86.613	86.386
2019	87.129	87.382	87.295	86.936	86.345	85.917	85.873	85.894	86.118	86.119	86.004	85.827
2020	85.764	85.663	85.624	85.567	85.519	85.415	85.565	85.674	86.555	86.514	86.311	85.931

The use of table 12 above is as follows:

If you want to use the base year 2007=100, then Lo (the basic figure for worker wages used is Nov 2013 of 51,360, and if you want to compare it with Ln (the figure in the nth month) for example January 2020, then the figure 47,934 is used, not 85,764, and so on.

b. Test the Effect of Real Wages of Construction Workers on Price Adjustment Formula

To test the influence of whether it is true that the Real Wage element of Construction Workers in the price adjustment formula has a large influence, a test is carried out by using the calculation in the contractor's proposal, by only changing the base year of the Construction Workers' Wage to the base year 2007 = 100, while the other elements are left as in the contractor's proposal.

The results of the comparison / influence can be seen in the following table 12.

Table 12
Impact of Real Wages of Construction Workers on The Price Adjustment Formulae

No	Index Date	Monthly Payment (DR)	Labour		Petroleum product	Cement	Structural Steel	Reinforcement Bar	New Weighting		Price Adjustment (DR) Passby (Pr-T)	
		Mo	La	La_Test	PTs	Con	SSs	RBs	Pr Proposal	Pr_Test	PA Proposal	Worker PA Test
1	Jan 2020	4.584.733.717	85.764	47.954	11.400,00	117,6	170,72	125,13	1,26037	1,02466	1.135.725.037	113.069.540
2	May 2020	11.541.213.605	85.519	47.797	7.250,00	118,47	173,65	127,22	1,24763	1,01260	2.882.679.857	146.649.220
3	Jun 2020	13.671.321.299	85.415	47.759	8.580,00	118,46	173,63	127	1,25212	1,01736	3.446.751.541	237.563.323
4	Aug 2020	6.125.564.230	85.674	47.883	9.680,00	118,9	177,39	130,65	1,26929	1,02375	1.649.325.381	206.792.139
5	Oct 2020	2.860.945.921	86.514	48.353	9.300,00	121,31	181,82	140,55	1,30040	1,05263	859.432.889	179.192.640
6	Dec 2020	14.345.158.661	85.951	48.027	9.800,00	120,98	183,52	144,8	1,30930	1,07314	4.436.920.241	1.049.139.414
TOTAL		53.229.677.434									14.468.615.906	1.932.406.477
The Impact of Changes in the Base Year on Real Wages of Construction Workers on PA											-12.536.409.429	

From Table 12 above, it can be seen that changes to the Real Wages of Construction workers have a very large influence, namely contributing - 12,536,409,429 to the proposal submitted by the contractor.

4. Proposed Resolution of Disputes / Differences

The difference in results between the Contractor's proposal and the Employer's calculation results caused a dispute between the parties, especially on the Real Wages of Construction Workers element.

To overcome this, the contractor proposed an alternative to use the Nominal Wages of Construction Workers as a substitute for the Real Wages of Construction Workers element in the Price Adjustment formula, by making an addendum to the contract that had been made, but the Employer could not accept it because changes to the basic contract would not be that easy to do, especially since payments had occurred in the price adjustment calculation before the 2020 period. The difference of opinion finally the parties agreed to bring this problem to the Indonesian National Arbitration Board to ask for an opinion.

Difference Settlement Results

1. Use Of Nominal Wage for Construction Workers

In accordance with the contractor's proposal to use the Nominal Wages of Construction Workers as a substitute for the Real Wages of Construction Workers. Table 13 below is a simulation of the results of the Nominal Wages substitution.

Table 13
Result of Nominal Wage Change Against Price Adjustment Formula

No	Index Date	Monthly Payment (IDR)	Labour	Labour	Petroleum product	Cement	Structural Steel	Reinforcement Bar	New Weighting		Price Adjustment (IDR) $P_n/M_n \times (P_n-1)$	
		Mo	Ln	Ln Norm	PTn	Con	SSn	RBn	Pn Proposal	Pa Norm	PA Proposal	PA Norm
1	Jan-2020	4.584.733.717	85.754	89.478	11.400.00	115.57	170.28	135.52	1,26168	1,12697	1.593.705.037	591.738.346
2	May-2020	11.641.213.605	85.519	89.684	7.259.00	116.18	170.55	135.45	1,26026	1,11005	2.882.579.857	1.281.129.566
3	Jun-2020	13.671.021.295	85.415	89.737	8.500.00	116.19	170.34	135.21	1,26460	1,11527	3.440.751.541	1.575.013.063
4	Aug-2020	6.126.564.230	85.674	89.872	9.600.00	116.6	171.34	136.01	1,27434	1,12397	1.648.326.341	759.505.393
5	Oct-2020	2.860.985.921	86.514	90.771	9.300.00	116.58	171.85	136.11	1,26505	1,13328	859.432.889	381.324.353
6	Dec-2020	14.345.158.681	85.991	90.816	9.800.00	116.55	174.78	140.35	1,26740	1,13945	4.436.920.241	2.000.498.409
TOTAL		53.229.677.434									14.468.815.906	6.590.009.099
The Impact of Changes in the Base Year on Real Wages of Construction Workers on PA												-7.838.806.807

From Table 11 above, it can be seen that the replacement of Nominal Wages of Construction Workers with Real Wages of Construction Workers, gives a value of 6,590,009,099, which is indeed smaller than the contractor's proposal, but larger than the results of the Engineer's evaluation if using Real Wages of Construction Workers data, which is 2,066,817,292 (see table 8).

2. Dispute Resolution Through BANI

The parties finally agreed to submit an application to BANI, regarding the above matter, and in the end BANI issued a binding opinion that the Nominal Wages of Construction Workers were more appropriate to be applied as a Labor Index to calculate Price Adjustments, by recalculating all Price Adjustments that had been made. BANI's opinion is based on, among others:

- a. That Wages mean money spent directly to pay for labor;
- b. If referring to the definition of Real Wages from the Central Bureau of Statistics, Real Wages are a calculation of the purchasing power of the wage earner which is linked to the Consumer Price Index (CPI). This means that the value does not reflect money paid as payment for services or labor that has been actually spent by the contractor.
- c. That the purpose of the price adjustment provisions is to protect both parties when there are changes in work costs, whether a decrease or increase, so that neither party is disadvantaged.

CONCLUSION

Based on the description in Chapter II, above, it can be concluded that:

1. If we pay attention to the process of forming the Price Adjustment Formula during the tender offer, the Contractor chooses to use the Real Wages of Construction Workers element, with the largest weight, assuming that this project uses large human labor costs. This means that the contractor's choice to use Real Wages of Construction Workers is a conscious choice without pressure
2. During the calculation process of adjustment costs starting from the 13th month to the 31st month's bill, it went smoothly without any obstacles, but when entering the 32nd month there was a difference in the results of the price adjustment calculation, this was because the parties did not properly master the principles of Price Adjustment, so they were less careful and prudent in carrying out the price adjustment process.
3. The parties agree to resolve the settlement of differences in calculation results using BANI which is a good faith of the Parties to maintain the continuity of the Project with a win-win principle
4. BANI's decision to accept the replacement element (Cost Factor) in the Price Adjustment formula from Real Construction Worker Wages to Nominal Construction Worker Wages is a contradiction considering that in every contract using FIDIC it is stated in General Provisions 13.8 Adjustment of Change Costs that "The weighting (coefficient) for each cost factor listed in the data adjustment table can only be adjusted if the weighting (coefficient) becomes unreasonable, unbalanced or cannot be applied, as a result of Variation. In this Decision BANI does not change the Weighting (coefficient) but instead changes the Element (Cost factor) in the Price Adjustment formula.

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