

How to REACT? A proposed supplemental system for evaluating contractor eligibility in the era of a pandemic

Project Title: Rapidly evaluating risks associated with able contractors in the era of a pandemic: A multi-objective decision approach to preserve integrity of government infrastructure and construction tenders

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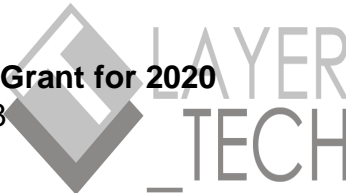
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Open Contracting: Procurement Analytics Research Grant for 2020

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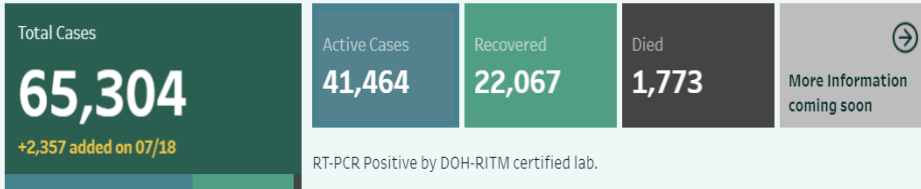
July 20, 2020, 1:00 PM – 2:00 PM





COVID-19 Situation in the Philippines [1]

Nationwide Cases Data



Filter Epidemiology data by Region: Region V: Bicol Regi... by Province / HUC / ICC: (All) As of July 18, 2020

Cases for Region V: Bicol Region



Daily Cases by Date of Onset of Illness

For 75.5% or 49,305 of cases where date of onset of illness is unreported, date of specimen collection was used as proxy.

- Cases
- Recoveries
- Deaths

We urge caution when interpreting data during the highlighted period below, which may be incomplete because of delays in reporting.



Note: There are still 2901 cases with unreported date of onset of illness and date of specimen collection.

Daily Cases by Date of Onset of Illness

For 78.1% or 249 of cases where date of onset of illness is unreported, date of specimen collection was used as proxy.

- Cases
- Recoveries
- Deaths

We urge caution when interpreting data during the highlighted period below, which may be incomplete because of delays in reporting.



Note: There are still 18 cases with unreported date of onset of illness and date of specimen collection.

<https://www.doh.gov.ph/covid19tracker>

Philippines COVID-19 Emergency Response Project [2]



Stakeholder Engagement Plan (SEP)

Government of the Philippines
Department of Health

Philippines COVID-19 Emergency Response
Project (P173877)

STAKEHOLDER ENGAGEMENT PLAN
(SEP)

2 April 2020



Component 1: Strengthening Emergency COVID-19 Health care Response (Total US\$ 82,500,000):

The aim of this component is to strengthen essential health care service delivery system to be able to respond to a surge in demand as a result of anticipating rise in the number of COVID-19 cases in the coming months.

Enhancing Isolation and Quarantine Facilities [2]

Component 1: Strengthening Emergency COVID-19 Health care Response (Total US\$ 82,500,000):



Sub-component 1.3. Enhancing isolation/quarantine facilities (US\$ 23,000,000): This sub-component will support the **establishment, construction, retrofitting/refurbishment of quarantine facilities** in major points of entry, **increase number of regular isolation rooms** in DOH and provincial hospitals as well as **establishment of negative pressure isolation rooms** in DOH and provincial hospitals. It will also support setting up of **first line decontamination facilities** in international airports and seaports (holding areas) as well as **establishing isolation tents** for triaging in health facilities.

DPWH eyes more buildings for Covid-19 isolation sites

By BusinessMirror March 30, 2020



This is the PGH ward retrofitted to function as one of three Covid-19 referral centers. CONTRIBUTED PHOTO

<https://businessmirror.com.ph/2020/03/30/dpwh-eyes-more-buildings-for-covid-19-isolation-sites/>



New Issuances of GPPB [3]-[6]



RESOLUTION NO. 03-2020

APPROVING THE ADOPTION OF EFFICIENT, EFFECTIVE AND EXPEDIENT PROCUREMENT PROCEDURES DURING A STATE OF PUBLIC HEALTH EMERGENCY



RESOLUTION NO. 05-2020

APPROVING THE ACCEPTANCE OF AN EXPIRED MAYOR'S PERMIT WITH OFFICIAL RECEIPT FOR THE RENEWAL APPLICATION AND UNNOTARIZED OMNIBUS SWORN STATEMENT AS BASIS FOR AWARD UNDER THE NEGOTIATED PROCUREMENT (EMERGENCY CASES) MODALITY



RESOLUTION NO. 06-2020

APPROVING THE RECOMMENDATION TO INCREASE THE ALLOWABLE AMOUNT OF ADVANCE PAYMENT AND ISSUANCE OF A CIRCULAR ON THE GUIDELINES FOR EMERGENCY PROCUREMENT UNDER REPUBLIC ACT NO. 11469 OR THE BAYANIHAN TO HEAL AS ONE ACT



RESOLUTION NO. 09-2020

APPROVING MEASURES FOR THE EFFICIENT CONDUCT OF PROCUREMENT ACTIVITIES DURING A STATE OF CALAMITY, OR IMPLEMENTATION OF COMMUNITY QUARANTINE OR SIMILAR RESTRICTIONS

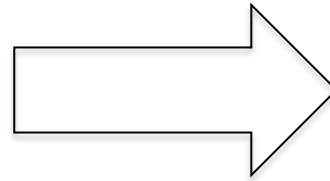


Challenges in the New GPPB Issuances [3]-[6]

- Authorize the Head of the Procuring Entity (HoPE) to delegate the Bids and Awards Committee (BAC), End-user unit, or any other appropriate procuring unit to **directly negotiate** with a legally, technically, and financially capable bidder for procurement undertaken through Negotiated Procurement (Emergency Cases) [3].
- Allow the HoPE to **delegate the awarding of contract under Negotiated Procurement (Emergency Cases)** to any official of the procuring entity except to the BAC Chairperson or members [3].
- Allow Procuring Entities (PE) to **accept expired** Business or Mayor's Permit with Official Receipt of renewal application and **unnotarized** Omnibus Sworn Statement subject to compliance therewith after award of contract [4] [6].
- Increase the **allowable amount of advance payment from 15% to 30%** of the contract amount of procurement projects which include establishment, construction, and operation of temporary medical facilities [5].
- Allow PEs to **accept an unnotarized Performance Securing Declaration (PSD)** in lieu of a performance security subject to submission of a notarized PSD before payment as prescribed [6].

Project Objective

**SUPPLEMENTARY
CONTRACTOR RISK
INDEXING SYSTEM**



Rapidly

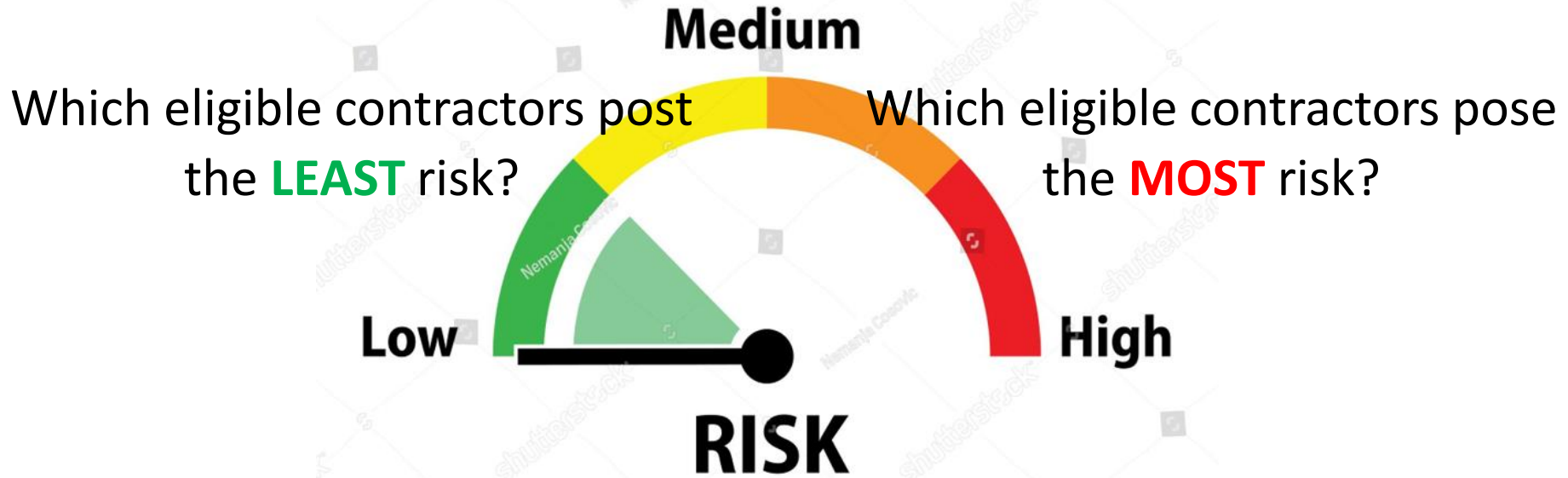
Evaluate and

Assess

Contractor

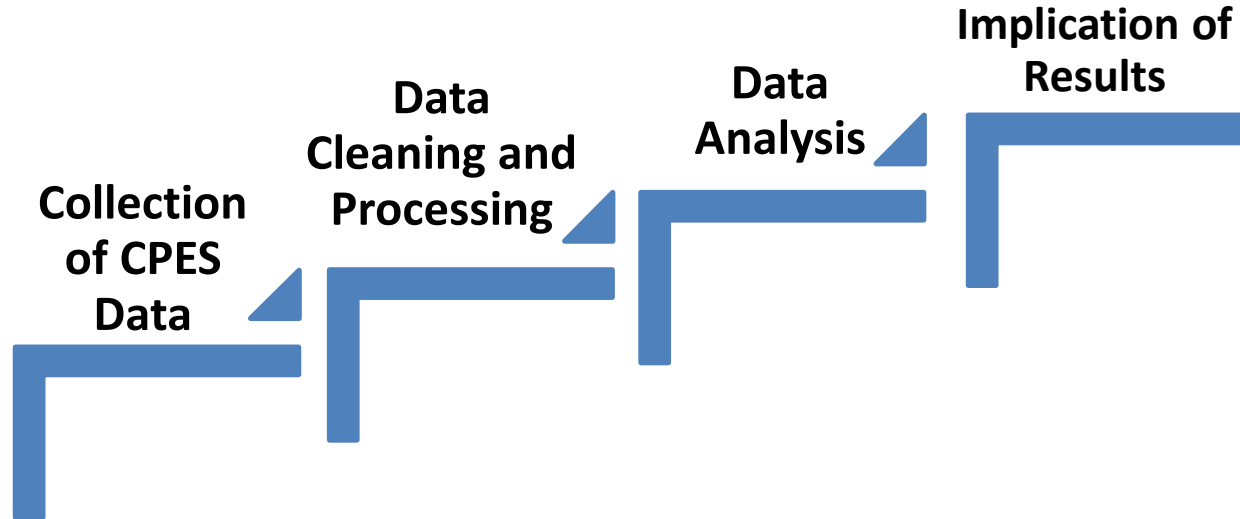
Traits

Questions to be Answered



<https://www.pinterest.co.uk/pin/509117932873868016/>

Conduct of the Research





Procurement Data Source



29th and 28th CPES Report from GPPB Website (GPPB, 2020)

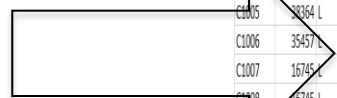
CONSTRUCTORS PERFORMANCE EVALUATION SYSTEM (CPES) REPORT

2019-12-04
 CPES Report 29th Release July 01 2016 to June 30 2019.pdf
 2019-03-06
 CPES Report 28th Release January 1, 2016 to December 31, 2018.pdf
 2018-06-30



CPES Reports On-going and Completed Projects from July 1, 2016 to June 30, 2019

Cleaning



Pre-Processing

Contractor	LICENSE	N.L.F	PCAB	ARC	TYPE	PROJECT	PROJECT DATE OF ENO.	VIS.A	IMPL.A	FUNDING	AMOUNT	DUR.	C.D.	DATE	STA	DATE	CON	SLIPPAGE	STATUS	WMS	MTL	TIME	
C1001	34735	L	B	SB	GE	Repair/Re-Bibincaha	5/30/2017	1st & Final	Sorsogon	LF	2,841	90	42686	43011	0	C			0	0.4	0.133	0.3	
C1002	34735	L	D	SB	GE	Construct San	6/24/2016	1st	Masbate	3 LF	4,653	115	42432	6/25/16	0	O			0	0.382	0.24	0.15	
C1003	34735	L	B	SB	GE	Construct Monreal	8/19/2017	1st	Masbate	3 LF	3,881	150	42471	42770	0	O			0	0.488	0.133	0.3	
C1004	35408	L	B	SB	GE	Construct Brgy.	3/24/2016	1st	Camarine	LF	0,949	30	3/23/15	4/22/15	0	C			0	0.396	0.2	0.3	
C1005	38364	L	B	SB	GB	Construct Brgy.	8/25/2016	1st & Final	Camarine	LF	1,937	90	3/17/15	6/14/15	0.02	C			0	0.497	0.133	0.3	
C1006	35457	L	B	SB	GE	Rehabilita	Guinobatan	42897	1st & Final	DPWH	LF	9,328	105	42954	10/20/17	0	C			0	0.5	0.134	0.3
C1007	16745	L	B	MA	GE	Concretin	Diel	8/16/2017	1st	Camarine	LF	1,41	40	5/25/2017	42801	0.02	O			0	0.496	0.133	0.3
C1008	16745	L	D	SB	GE	Construct Brgy.		42588	1st & Final	Camarine	LF	1,844	45	42554	4/20/16	0	C			0	0.475	0.149	0.3
C1009	16745	L	B	MA	GE	Concretin	Minalaba	43255	1st/Final	Camarine	LF	4,723	90	9/29/2017	1/26/2017	0	C			0	0.49	0.146	0.3
C1010	19541	L	B	MA	GE	Cluster 6 - Malinao		42953	1st	Albay	1st LF	92,711	190	42889	43048	0.02	O			0	0.387	0.232	0.15
3Rb Const	19541	L	B	MA	GE	Widening	Malipit	42554	1st	Albay	1st LF	43,1972	147	3/25/15	8/18/15	0	C			0	0.448	0.196	0.3

Period Covered:

January 1, 2016 – June 30, 2019

Area of Focus: Region V

NAME OF CONSTRUCTOR	LICENSE NO.	L.F	CATEGORY			PROJECT	PROJECT LOCATION	DATE OF EVALUATION	NO. of VEST	MPL AGENCY	CONTRACT			STATUS	WMS	MTL	TIME	FAC	ENR	CPES VEST RATING	FINAL RATING	QUALITATIVE DESCRIPTION			
			PCAB	ARC	TYPE						AMOUNT	DUR	EST												
Grady Trading And Construction	2754	L	A	MA	GEI	Bala Bantayan 1	Bigk. Misib.	6/8/18	Final	NAIA	LF	130,318	302	33015	83917	-0.87	C	0.48	0.20	0.12	-	-	78.86	82.75%	Satisfactory
"R.R. Melonzo Construction & Supply"	10861	L	A	MA	GEI	Conc. Mixing/Loading/Rehab. of 2nd Flr (San Juan - New Corde San Jose Carcer Paraiso Rd)	Davao Del Norte	8/12/2013	2nd	NI	LF	48,794	205	012013	981913	0.00	C	0.245	0.30	0.100	0.000	0.000	88.00	-	
"R.R. Melonzo Construction & Supply"	10861	L	A	MA	GEI	Conc. Mixing/Loading/Rehab. of 2nd Flr (San Juan - New Corde San Jose Carcer Paraiso Rd)	Davao Del Norte	3/18/2013	1st	NI	LF	45,794	179	012013	972913	0.00	C	0.328	0.231	0.150	0.040	0.020	84.00	-	
"R.R. Melonzo Construction & Supply"	10861	L	A	MA	GEI	Widening of Bumpo-Ovato Coastal Rd. Km. 102+423 to Km. 102+461 (Agusan del Sur)	Agusan del Sur	3/18/2013	1st	NI	LF	17,780	125	012013	952913	0.00	C	0.395	0.240	0.150	0.020	0.040	87.00	-	
"R.R. Melonzo Construction & Supply"	10861	L	A	MA	GEI	Const. of Flood Control Structure (River Park & Grand Riprap) Agusan River, Brgy. Tambunan	Davao del Norte	1/17/2012	1st	NI	LF	27,838	240	080912	942413	0.00	C	0.332	0.240	0.150	0.020	0.040	84.00	-	
"R.R. Melonzo Construction & Supply"	10861	L	A	MA	GEI	Reclaiming and Construction of Dike in Kaping River, Mactan Section (Lath Side)	Philman (2nd Div), Compostela Valley Province	3/20/18	1st/Final	Compostela Valley	LF	44,295	189	3/18/17	9/18/17	A	C	0.475	0.133	0.13	-	-	88.00	90.8%	Very Satisfactory
(Central) Ceiba Global International Construction And Development Corp.	5588	L	AAA			Procurement of Fully Developed Lots and Complete Housing Units	Bayan Park, Brgy. Tugay, Marikina, Rizal	6/12/18	Final	NAIA	LF	299,000	302	371215	19112017	-0.89	D	0.389	0.200	0.244	-	-	84.29	84.15%	Satisfactory



Procurement Data Processing Method [7]-[9]

Identification of Contractor Traits

Average Contract Duration (C1): corresponds to the average of the reported contract duration in calendar days for awarded construction and infrastructure tenders.

Average Contract Amount (C2): pertains to the average awarded amount for construction and infrastructure tenders.

Average Negative Slippage (C3): corresponds to the time a project is late compared to the approved baseline schedule in the implementation of the awarded construction and infrastructure tenders.

Lack in Average CPES Rating for On-going Projects (C4): pertains to the difference between the maximum CPES rating achievable (i.e. "Outstanding" qualitative description) and the average CPES rating of a contractor for on-going construction and infrastructure projects.

Lack in Average CPES Rating for Completed Projects (C5): pertains to the difference between the maximum CPES rating achievable (i.e. "Outstanding" qualitative description) and the average CPES rating of a contractor for on-going construction and infrastructure projects.

Number of On-going Projects (C6): corresponds to the number of on-going projects reported for each contractor.

Number of Completed Projects (C7): corresponds to the number of completed projects reported for each contractor.

Approximate Net Financial Contracting Capacity (NFCC) (C8): an approximate contractor financial capacity based on the awarded contract with the highest reported contract amount.

Total Number of Projects (C9): corresponds to the sum of on-going projects and completed projects reported for each contractor.

Formulation of REACT Risk Index

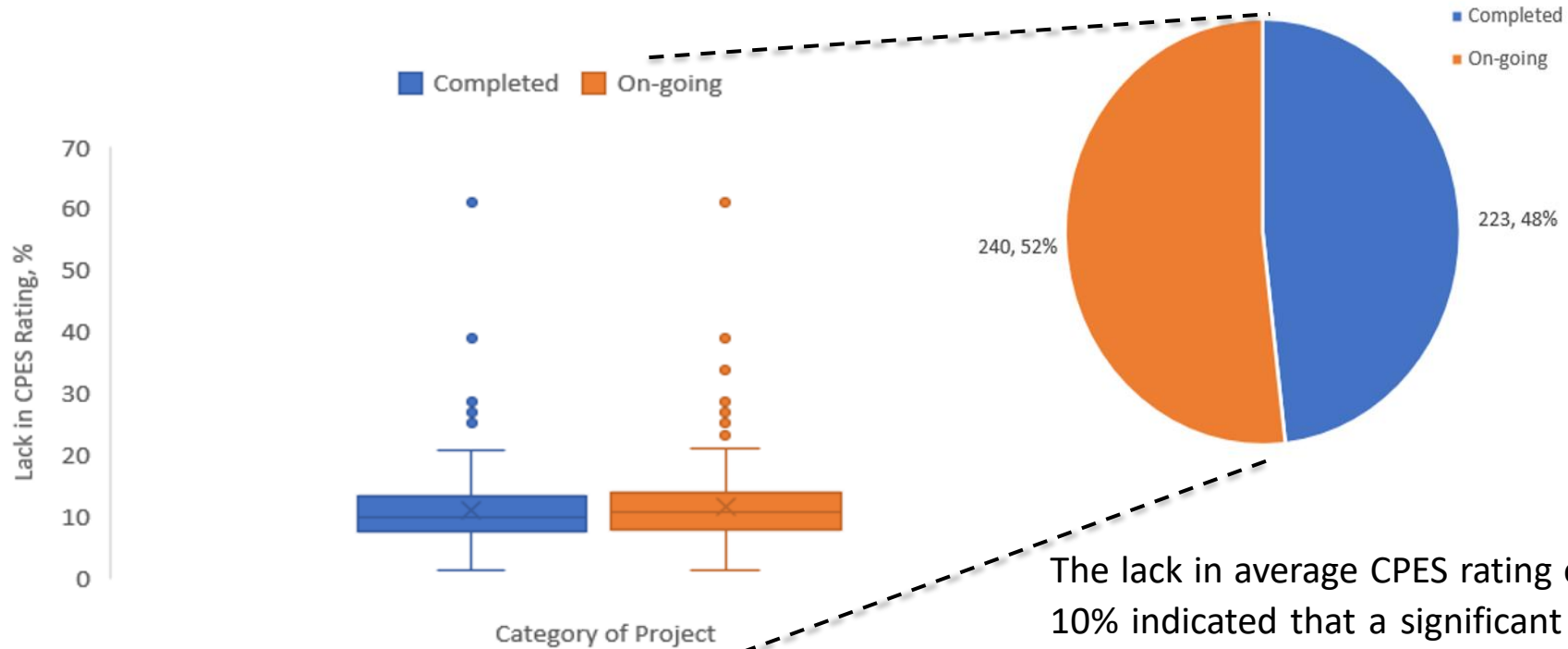
$$E_j = -\frac{1}{\ln n} \sum_{i=1}^n \tilde{r}_{ij} \cdot \ln \tilde{r}_{ij}, \quad (j = 1, 2, \dots, m; 0 \leq E_j \leq 1)$$

$$\tilde{r}_{ij} = \frac{r_{ij}}{\sum_{i=1}^n r_{ij}}$$

$$d_j = 1 - E_j.$$

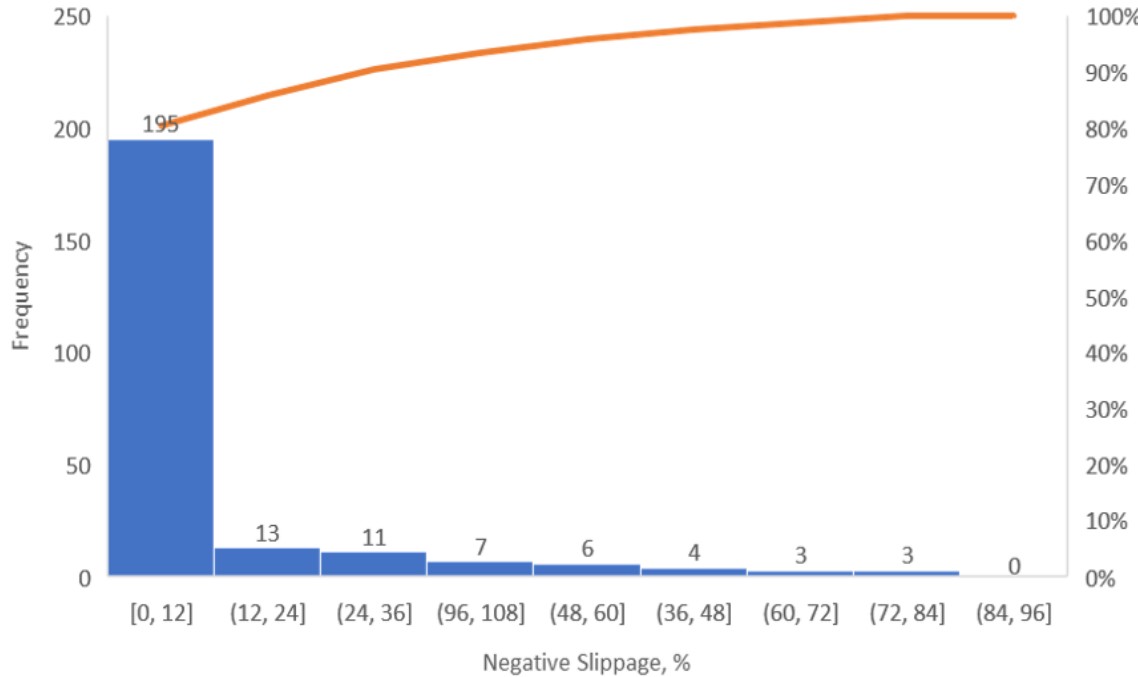
$$W_j = \frac{d_j}{\sum_{j=1}^m d_j}$$

Describing the Collected CPES Data



The lack in average CPES rating of about 10% indicated that a significant number of contractors garnered a descriptive CPES rating of “**Very Satisfactory**”.

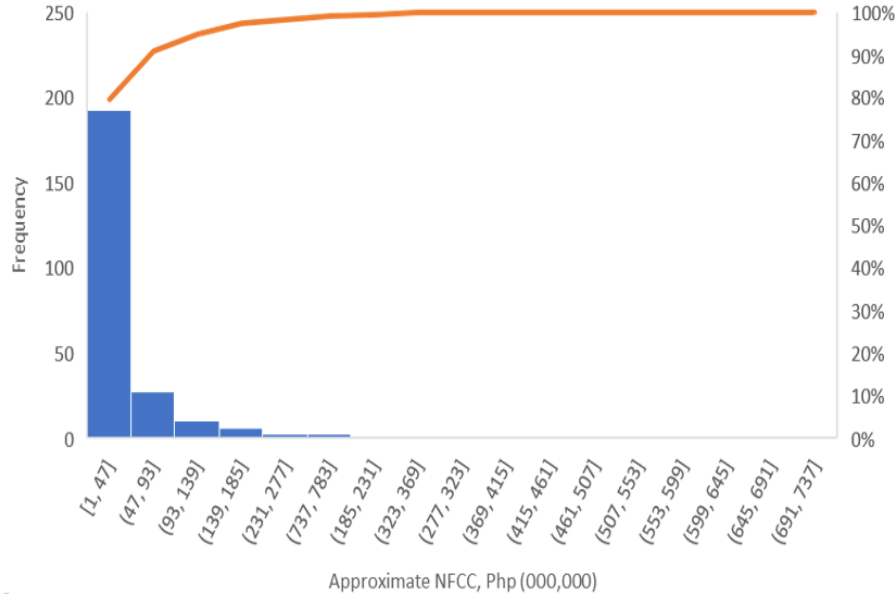
Describing the Collected CPES Data



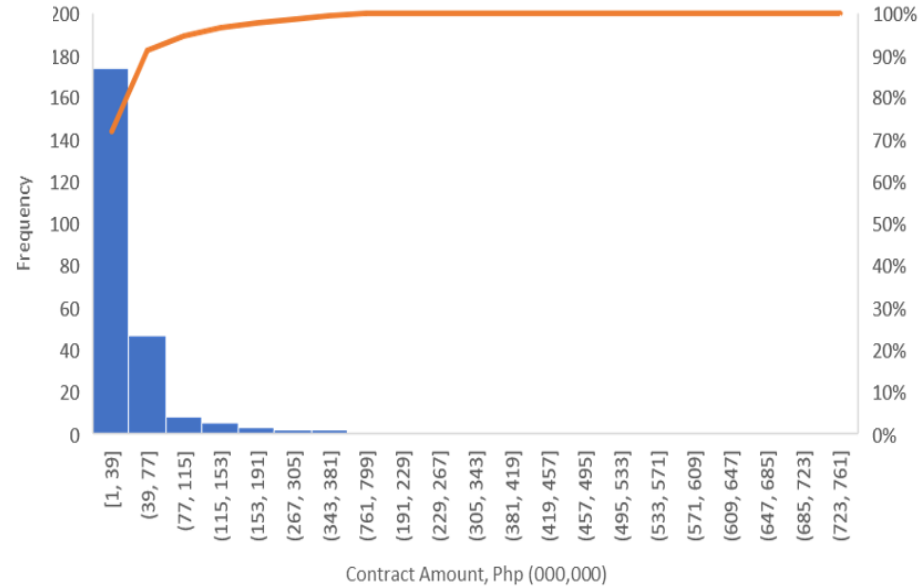
About 198 contractors were **well within** the negative slippage threshold limit of 15%.



Describing the Collected CPES Data



About 193 contractors have an **approximate NFCC ranging from PHP 1-47 million.**



About 174 contractors have **engaged in contracts amounting to PHP1-39 million.**



Crucial Contractor Traits

Table 1. Calculated Influence of Contractor Traits

Contractor Trait	Contractor Trait Code	Calculated Weight	Rank
Average Contract Duration	C1	0.0375	5 th
Average Contract Amount	C2	0.1876	3 rd
Average Negative Slippage	C3	0.4430	1 st
Lack in Average CPES Rating (Completed)	C4	0.0317	6 th
Lack in Average CPES Rating (On-going)	C5	0.0312	7 th
Approximate NFCC	C8	0.1932	2 nd
Total Number of Projects	C9	0.0758	4 th

“**Average Negative Slippage**” (1st), “**Approximate NFCC**” (2nd), and “**Average Contract Amount**” (3rd) are the contractor traits that primarily determine the risk involved in awarding contracts to eligible contractors. These results are congruent to GPPB resolutions 05-2019 [10] and 20-2013 [11].



REACT Risk Index (RRI) Developed

**Average Contract Amount
(million PHP) (3rd)**

Average Lack in CPES
Rating (Completed)

**Approximate NFCC
(million PHP) (2nd)**

$$RRI = 0.0375X_1 + 0.1876X_2 + 0.4430X_3 + 0.0317X_4 + 0.0312X_5 + 0.1932X_6 + 0.0758X_7$$

Average Contract Duration
(Calendar Days)

**Average Negative
Slippage (1st)**

Average Lack in CPES
Rating (On-going)

Total Number of
Projects



Classification of Contractors using RRI

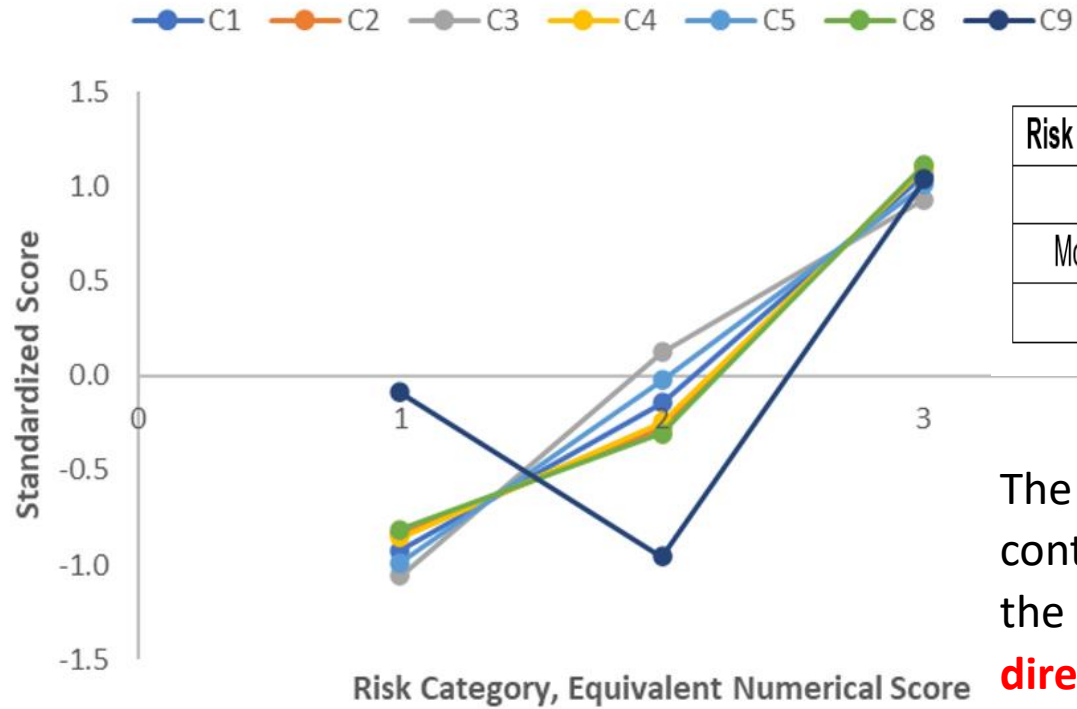


Table 2. Final Qualitative Descriptions of Calculated Risk Indexes

Risk Category	Equivalent Numerical Score	Lower Limit	Upper Limit
Low	1	0.0	59.3
Moderate	2	59.3	78.3
High	3	78.3	78.3 or greater

The standardized scores for each contractor trait collated in accordance to the collected 28th and 29th CPES Data are **directly proportional** to the Risk Category (except for C9 – total number of projects).



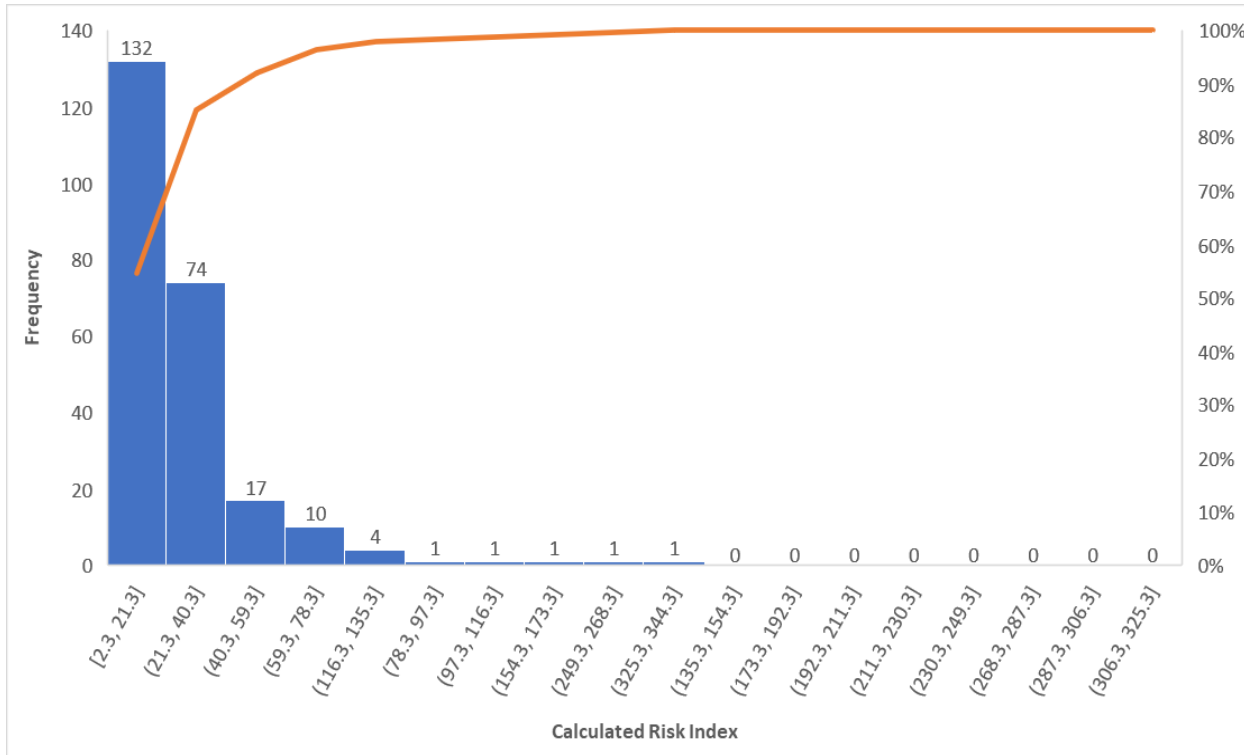
Implications of RRI Classified Contractors

Table 3. Average Values and Ranges of Low, Moderate, and High-Risk Contractors

Contractor Trait Name	Contractor Trait Code	Average		
		Low	Moderate	High
Average Contract Duration (CD)	C1	166.0	345.1	621.6
Average Contract Amount (3rd) (million PHP)	C2	23.6	107.0	312.4
Average Negative Slippage (1st) (%)	C3	7.5	24.9	36.8
Lack in Average CPES Rating (Completed)	C4	10.9	12.1	14.6
Lack in Average CPES Rating (On-going)	C5	11.5	13.1	14.7
Approximate NFCC (2nd) (million PHP)	C8	27.9	115.8	362.4
Total Number of Projects	C9	1.9	1.3	2.8



Classified Contractors in Region V



Out of 242 contractors evaluated:

Low Risk = 201 (83.06%)

Moderate Risk = 16 (10.33%)

High Risk = 16 (6.61%)



Conclusions

- A government procuring entity is suggested to **maintain a database of contractors** who were previously awarded with construction and infrastructure contracts and adopt the format of the published CPES reports [12].
- To fast track the processing of Negotiated Procurement (Emergency Cases) and ensure takers of such bids, it is also suggested to limit **ABCs of posted construction and infrastructure tenders to PHP47 million** since historical data show that majority of locally available contractors were reported have experience in both horizontal and vertical projects equivalent to this amount.
- It is also recommended that **scrutiny in accordance to GPPB guidelines be further exercised to those contractors that will be classified under “Moderate” and “High” risk categories** since such contractors were historically found to incur negative slippages beyond the maximum allowable limit of 15%.
- Finally, it is suggested that a **supplemental assessment system similar to the develop RRI system be adopted** by a government procuring entity.



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TEAM PH**



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**DR. AMELIA
DOROSAN**



**DR. LUIS
AMANO**



**DR. AMELIA
GONZALES**

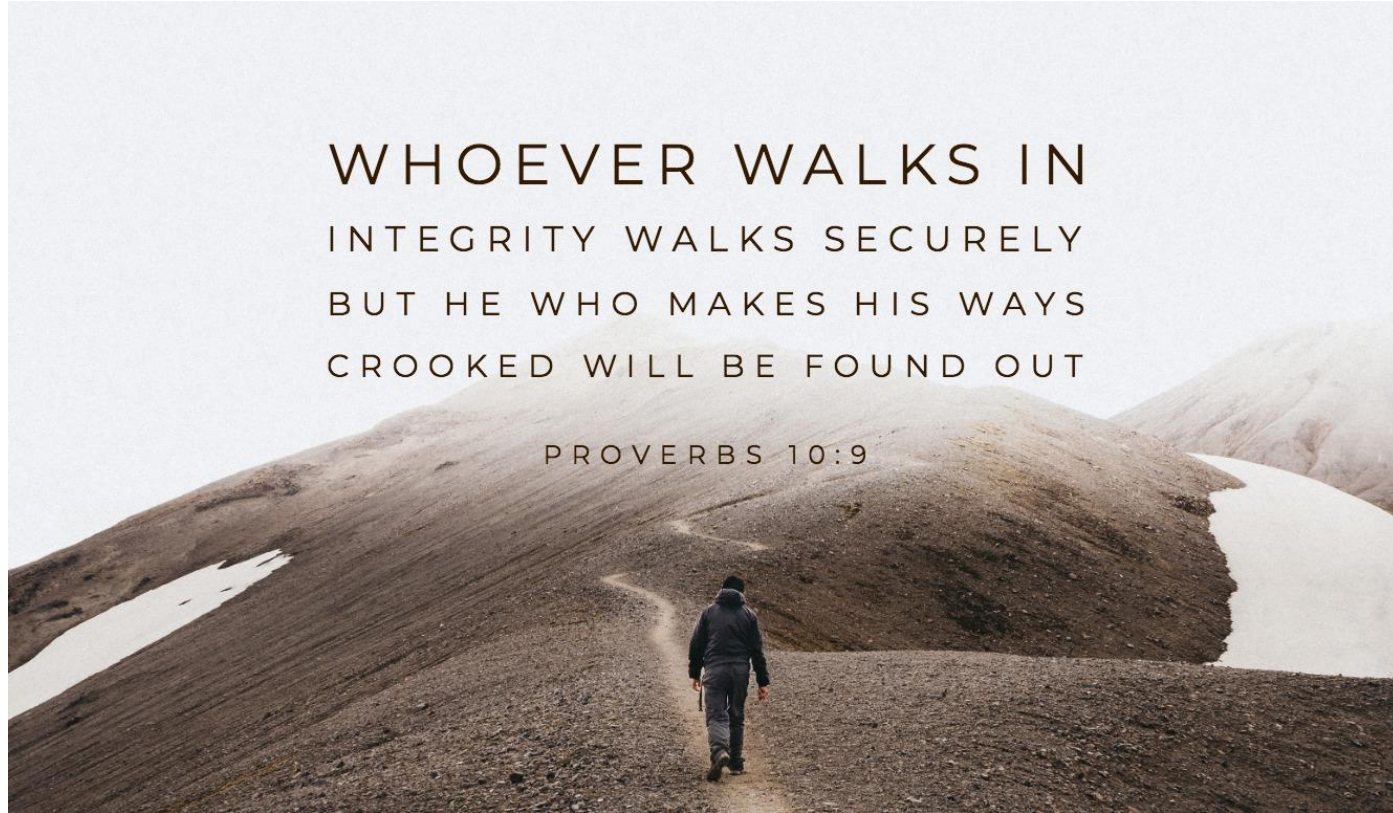


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Thank you for listening!



<https://worldchallenge.org/verse/proverbs-109>



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- [4] <https://www.gppb.gov.ph/issuances/Resolutions/GPPB%20Resolution%20No.%2005-2020.pdf>
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