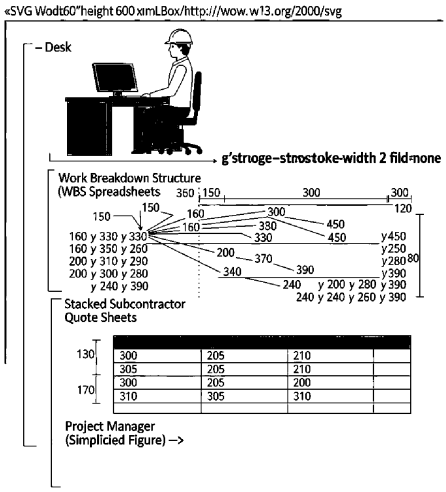
NICHE-SEARCH

WORKSHEET 4 OF 9

Parametric Estimate for a Novel Project Type

Use when this is the first time estimating a work type for which no internal historical data exists. The goal is to identify which assumptions carry the most risk before the bid is submitted.



Complementary worksheet for
Project Cost Estimation
by Ibrahim Anwar

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SECTION 1

What This Is For

When a project type is entirely new to the business, the estimator has no internal unit cost data to work from. The default move -- use a national standard cost table or a competitor's rough number -- produces an estimate whose accuracy depends entirely on how closely the reference conditions match the actual project. This worksheet structures the parametric estimating process for novel work: identify the cost drivers, find the best available external reference, apply documented correction factors for condition differences, and assign a confidence level per component so the riskiest assumptions are visible before the bid is submitted.

The worksheet also serves as the seed for an internal parametric database once the project is complete. The adjusted unit costs recorded here, compared against actual unit costs from the completed project, produce the first data point for a reference that will be more relevant than any national standard after five projects of the same type.

SECTION 2

Benefits

What you get when you actually run this worksheet on a real situation:

- Forces explicit documentation of every assumption behind a parametric estimate, making the estimate reviewable and auditable rather than opaque.
- Assigns confidence levels per component so the riskiest assumptions are surfaced before the bid, not discovered during execution.
- Applies condition correction factors with written reasoning, distinguishing a calibrated estimate from a number copied from a reference table.
- Seeds the internal parametric database: the completed worksheet, updated with actuals after the project, is the first data point for this work type.
- Produces the three highest-risk components by correction factor size, which determine the contingency category for the overall bid.

SECTION 3

Framework To Use

External Reference with Condition Correction

Start from the best available external reference. Apply documented corrections for every condition that differs. Assign confidence to each component. High correction + low confidence = investigate or widen contingency.

Confidence Level Determination

Factor	High Confidence	Medium Confidence	Low Confidence
Reference source	Your own completed project, same work type	National standard (AHSP) for this work type	Competitor quote or industry estimate only
Correction factor applied	Below 10% adjustment	10-25% adjustment	Above 25% or multiple factors stacked
Site conditions verified	Site visit completed, conditions measured	Drawings reviewed, site not visited	Drawings incomplete or conditions unknown
Material specifications	Identical to reference project	Minor specification differences	Significant specification differences
Labour market	Same workforce and rates as reference	Same region, different crew	Different region or limited data

SECTION 4

How To Use

Follow these steps in order. Each one builds on the previous.

1. List every major cost component of the project as a separate row. For a novel project type, start from the contract scope document and the technical specifications -- do not rely on a previous project's component list.
2. For each component, identify the best available external reference unit cost: the AHSP PUPR national standard for this work type, a published industry survey, a direct quote from a specialist subcontractor, or a cost from a project in a different industry with similar work characteristics.
3. Record the source and date of the reference in the Source column. A reference without a source date cannot be inflation-corrected and cannot be verified.
4. Apply condition correction factors for every difference between the reference conditions and the actual project. Document the reasoning in one sentence per factor.
5. Calculate the adjusted unit cost: Reference unit cost x (1 + sum of all correction factors). Multiply by quantity to get the component total.
6. Assign a confidence level -- High, Medium, or Low -- to each component using the criteria in the framework matrix. Low confidence means the component needs either a bottom-up estimate from first principles or a specialist quote before the bid is finalised.
7. After the project finishes: add an Actual Unit Cost column. Compare against Adjusted Unit Cost per row. This comparison is the first entry in the internal parametric database for this work type.

SECTION 5

Example Use

A contractor with a track record in light civil works receives an invitation to bid on a solar panel installation project -- a work type they have not done before. No internal data exists. The bid is due in 10 days.

The contractor identifies six major cost components: solar panel supply and freight, mounting structure fabrication and installation, DC cabling and combiner boxes, inverter installation and commissioning, earthing system, and AC connection to building main board.

Solar panel supply and freight: distributor quote for the panel specification. $0.38 per Wp, 50 kWp system = $19,000. Condition correction: +3% for freight to project site (rural location, 180 km from distributor). Adjusted: $19,570. Confidence: High -- firm quote from distributor, specification confirmed.

Mounting structure: no direct quote yet. Reference from a solar industry report: $0.12 per Wp for ground-mount steel structure. Correction factors: +15% for higher local steel prices versus national average; +8% for fabrication complexity (sloped roof, not ground mount as in reference). Total correction: +23%. Adjusted: 50,000 Wp x $0.12 x 1.23 = $7,380. Confidence: Low -- reference conditions differ significantly, no direct quote obtained.

The Low-confidence mounting structure component is the second-largest cost item with two stacked correction factors totalling 23%. The contractor requests a direct quote from a steel fabricator before finalising the bid. The quote comes back at $8,100 -- 10% above the parametric estimate. Confidence upgrades to High. The bid is revised accordingly.

Total direct cost: $42,800. Three components with the largest correction factors: mounting structure, DC cabling, earthing. Contingency: Category B (12%), $5,136. BAC: $47,936. Overhead at 11%: $4,708. Profit markup 15%: $7,869. Bid price: $60,513.

SECTION 6

The Worksheet

Tear this out, copy it onto a fresh sheet, or fill it in directly.

Parametric Estimate for a Novel Project Type

Use when this is the first time estimating a work type for which no internal historical data exists. The goal is to identify which assumptions carry the most risk before the bid is submitted.

WORK TYPE / COMPONENT	EXTERNAL REFERENCE UNIT COST ($)	SOURCE AND DATE	CONDITION CORRECTION FACTOR (%)	ADJUSTED UNIT COST ($)	QUANTITY	COMPONENT TOTAL ($)	CONFIDENCE LEVEL (HIGH / MEDIUM / LOW)

SECTION 6 (CONTINUED)

Reflection Prompts

After filling in the worksheet on the previous page, work through these.

1. For every row marked Low confidence: this component cannot be estimated parametrically from external data without meaningful risk. Either conduct a bottom-up estimate from first principles, or obtain a direct specialist quote. If neither is possible before the bid deadline, assign a wider contingency specifically for that component and document the reason.

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2. List the three components with the largest condition correction factors. For each: write one sentence explaining the basis -- site accessibility difference, labour rate difference, material specification difference, inflation correction from source date to bid date. An adjustment without a written basis is not a correction; it is a guess applied to someone else's number.

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3. After the project finishes: return to this sheet and add a column: Actual Unit Cost (from invoices). Compare against Adjusted Unit Cost per row. The difference, with a one-sentence cause, is the first entry in your internal parametric database for this work type.

SECTION 7

Tips and Traps

TIPS

- The condition correction factors are where real calibration happens. A single flat adjustment of +20% applied to all components equally is not a correction -- it is a contingency embedded in the unit costs, which makes the contingency line in the bid summary meaningless.
- When applying an inflation correction from the source date to the bid date, use the BPS construction material price index or a published commodity index for the relevant materials, not a round-number guess. A 12-month-old reference in Indonesia's construction sector is typically 5-8% below current market. Cite the index used.
- File the completed worksheet with the project bid documents, not in a general reference folder. When this work type comes up again, the estimator finds the worksheet in the project file for this job, sees the adjusted vs. actual comparison, and starts the next estimate from data.
- Low-confidence components signal where to spend remaining time before the bid deadline. Prioritise getting quotes or site information for Low-confidence rows, not refining Medium-confidence calculations.

TRAPS

- Using a reference from a project of a fundamentally different scale without adjusting for economies of scale. A 500 kWp solar project's unit costs are not directly applicable to a 50 kWp project.
- Stacking correction factors without a ceiling check. If total correction factors applied to one component exceed 30%, the parametric approach may no longer be valid for that component. A bottom-up estimate is more defensible at that level.
- Omitting the source date from the Source column. An undated reference cannot be inflation-corrected and cannot be verified. If the source document has no clear date, note 'date unknown -- cannot inflation-correct' and downgrade the confidence to Low.
- Treating the adjusted unit cost as precise because it was calculated from a formula. The precision is false. The Confidence column exists to keep that uncertainty visible.

SECTION 8

Appendixes

Appendix A -- Common External Reference Sources for Indonesia

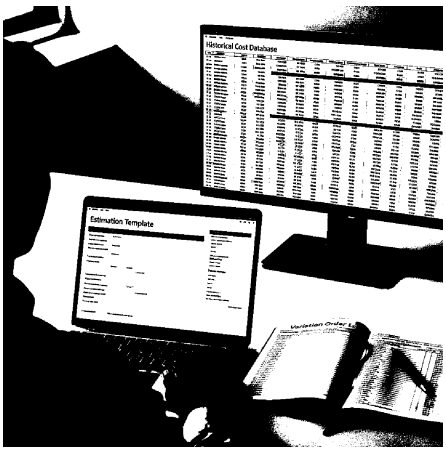
Work type	Reference source	Update frequency
General construction	AHSP PUPR (Permen PUPR No. 8/2023)	Annual
Material prices	BPS Wholesale Price Index Construction	Quarterly
Large-scale projects	Turner and Townend Global Cost Survey	Annual
Electrical work	PLN approved installer rates (regional)	Annual
Specialist subcontract	Direct quote from licensed installer	Per-project

Inflation correction:
  Indonesia construction material price index rose avg 5-8% per year
  2021-2023 (BPS, Statistik Konstruksi 2023).
  For a reference 12 months old: add 6% as starting correction.
  For 24 months old: compound at (1.06)^2 = approx 12.4%.
  Adjust based on the commodity mix in the component.

Appendix B -- Condition Correction Factor Reference

Factor	Typical adjustment range	Notes
Site accessibility	+/-5 to 20%	Access road width, distance from material source, staging area availability
Regional labour rate	+/-10 to 25%	Relative to Jakarta/Jabodetabek as reference zone
Material specification	+/-5 to 15%	Higher-spec material (grade, certification, import origin)
Mobilisation distance	+/-3 to 12%	Per 100 km beyond reference project's mobilisation distance
Scale difference	+/-5 to 15%	Smaller project: higher unit cost
Inflation (time-based)	Per BPS index	Do not guess. Cite the index.

Maximum total correction before switching to bottom-up: 30%



WHERE THIS WORKSHEET COMES FROM

Project Cost Estimation

Calculate the Cost Before Signing, Not After the Work Has Started

by Ibrahim Anwar

This worksheet is one of nine in the *Project Cost Estimation* companion worksheet pack. The full pack is grouped into three categories: high-volume worksheets you can run weekly, niche-search worksheets for rare but high-value situations, and specific-case worksheets that walk you through a single concrete scenario.

Every framework, decision filter, and figure used in these worksheets is drawn from the chapters of the source book. The book sets the diagnosis, the worksheets give you the form to act on it.

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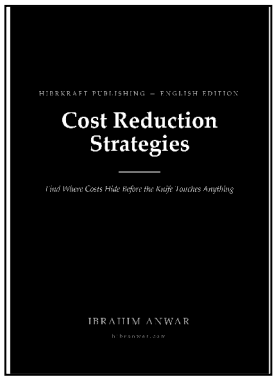

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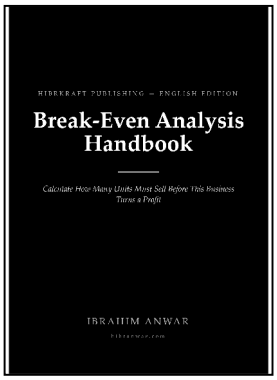

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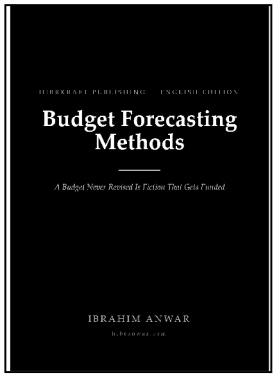

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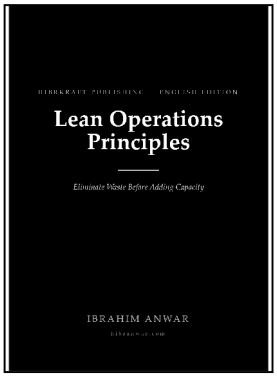

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