

Introduction to Value for Money Cost Indicators

Tags: Investment, Infrastructure, VfM, How-to, Cost indicators

Maximising the Value for Money of donor investments is vital to ensuring the outcomes and impact promised by programmes, and therefore critical to delivering inclusive growth and poverty reduction in developing countries. In 2016 ICED co-developed a series of 'How-To' guides setting out succinct, easy-to-follow advice on how to deliver Value for Money with a focus on infrastructure programming. This article summarises how donors can use cost indicators at each stage of the infrastructure investment lifecycle to improve VFM, and empower programme donors to work with implementing partners to collect the necessary data to do so. For more information please consult the ICED ['How to' guide: Using cost indicators in FCAS for better VfM in infrastructure](#).

Input, Output and Outcome Indicators

Different indicators can be used to measure programme inputs, outputs and outcomes. Computing and analysing these indicators at each stage in the project lifecycle is vital to ensure programme managers have visibility of the relative economy, efficiency, or effectiveness of an investment.

#	Name of cost indicator	Description	How it shows the VFM of an infrastructure investment
Input unit costs			
1	Input unit costs (of materials and resources)	The cost of a base unit of input. This includes unit costs of materials such as bags of cement, lengths of pipe, solar panels, and of other resources including staff time and equipment costs.	Input costs affect the <i>economy</i> of an investment. Even a small price difference for the same item can result in substantial cost differences when procured in large numbers.
Output unit costs			
2	Cost per unit of infrastructure a. Construction / upfront cost per unit of infrastructure b. Operation and maintenance (O&M) cost per unit of infrastructure	<p>a. Where infrastructure has a single dominant parameter of measurement, such as the length of a road or depth of a borehole, the cost per unit of infrastructure constructed or produced. (E.g. construction cost per solar mini grid).</p> <p>b. Assessment of post construction operation and maintenance costs, per unit of infrastructure. This can be calculated as total O&M costs over the lifetime of the asset or on an average annual basis. (E.g. Annual O&M cost for each solar mini grid installed).</p>	<p>This indicator is a measure of the <i>efficiency</i> of an investment – how well inputs are converted into outputs. Influencing factors include:</p> <ul style="list-style-type: none"> - Procurement method and process: effective competition, market conditions - Management: supervision and control of costs, quality and productivity during implementation - Transparency and accountability of project owner and implementation process <p>In an efficient process the variations to the price arising at successive stages of the infrastructure investment lifecycle should be low. If they are not, they can result in substantial changes to the completion cost and thus to the original expectations of VFM.</p>
3	Cost per unit of output produced	This can be used where there are specific continuous outputs that can be measured, such as with water supply or electricity, the cost per unit provided. (E.g. total cost per kWh of electricity produced, operating cost per kWh of electricity supplied).	This indicator can help to measure the <i>efficiency</i> and the <i>effectiveness</i> of an investment. Influencing factors similar to above. Enables comparisons to be made between effectiveness of similar interventions.
4	Cost per beneficiary	The cost of the infrastructure investment per person or per household that will benefit from the intervention. (E.g. cost per incremental household with access to electricity).	This indicator can help to measure the <i>efficiency</i> and the <i>effectiveness</i> of an investment. Enables comparisons to be made between effectiveness of similar and different interventions.
Outcome unit costs			
5	Cost per unit of outcome	The cost of the infrastructure for a specified unit of outcome relating to the infrastructure service and its various impacts. This requires a monetised numerator to describe costs, but a non-monetised common denominator for the outcome (e.g. the cost of the investment per job created, the cost per tonne of carbon averted).	This indicator is a measure of the <i>cost effectiveness</i> of an investment. Enables comparisons to be made between effectiveness of different interventions in achieving the same outcome

Table 1: Types of cost indicators for VFM in infrastructure

Selecting Cost Indicators

For any infrastructure investment, there are many possible cost indicators that could be selected for analysis and comparison of VFM. In seeking to optimise VFM it is necessary to consider the relative importance and usefulness of different indicators. Principles for selecting the right cost indicators are:

- Indicators should be **closely linked to the design (and monitoring) of the programme**. The choice of output and outcome indicators should flow naturally from a carefully constructed theory of change.
- **Quality is better than quantity**. Limit the number of indicators selected for monitoring and analysis. We recommend that per infrastructure project constructed a maximum of five output/outcome cost indicators should be selected, tightly defined and highly specific (this does not include input unit costs).
- **Input unit costs should be selected using a risk based approach**: Focus should be:
 - First, on the sensitive pay items or categories (largest cost components) that affect the total cost
 - Second, on items where benchmark values are available elsewhere in the industry or local economy
 - Third, on the items where quantities or qualities are difficult to measure or prone to being increased
- **Don't choose indicators solely on the availability of data**: Especially in FCAS contexts, don't expect all of the information you require to be available. Consider what proxies can be used, who may have useful information, or what assumptions can be made. Reliability of the evidence available should always be assessed and recorded.

Using cost indicators to improve Vfm

At each stage of the infrastructure investment lifecycle, it is possible to use cost indicators to improve investment VFM by comparing results between project options, with other investments, or with industry benchmarks. The cost data used in calculation of an indicator will progressively improve as programmes move through the infrastructure investment lifecycle, more data becomes available, and estimated costs turn into actuals. Monitoring variations in cost indicator calculations along the project lifecycle, and evaluating the causes of variations is also important for a good understanding of the VFM of the investment.

1. Project identification and options development	2. Project preparation to financial close	3. Procure and build	4. Service delivery and maintenance
Key activities			
<ul style="list-style-type: none"> Identify beneficiaries and expected project benefits Identify and assess project options Prepare high level cost estimates 	<ul style="list-style-type: none"> Develop scope and detailed design, detailed cost estimate against technical specifications Undertake detailed economic analysis 	<ul style="list-style-type: none"> Procure contract for further design and build of infrastructure Build and commission asset 	<ul style="list-style-type: none"> Operate the asset Maintain the asset
Changes in cost estimate			
High level cost estimate** <ul style="list-style-type: none"> Often based on available unit cost benchmark data. Preferably adjusted for physical, demand, and market conditions 	Detailed cost estimate Based on input unit costs from the market matched to design quantities and specifications.	Contract cost Relationship of contract cost to detailed estimate depends on procurement and market factors, and perceived risk factors (financial, security, climate, corruption).	Actual completion cost: Relationship of completion cost to contract cost depends on effectiveness of project management and controls, robustness of design and contract, and incidence of unexpected events.
Guidance for using cost indicators to assess and improve VFM			
<ol style="list-style-type: none"> Identify and specify relevant cost indicators to compute and analyse VFM for the intervention across the project lifecycle Compute indicator based on high level budget data Identify benchmarks that are readily available, adjust for intervention specific and local factors, document any missing data Inform implementing partners of data that needs to be collected and analysed throughout the project lifecycle Carry out sensitivity analysis to determine whether different design options could increase VFM 	<ol style="list-style-type: none"> Update indicator with data from detailed cost estimate Monitor variances in indicator across phases of the project lifecycle and determine causes of variation. If significant variances cannot be explained, consider alternative options available for proceeding with the project As more detailed designs are prepared, determine whether any design refinements could impact on indicator and VFM If any significant changes to indicator are identified, determine whether further design changes are needed to maintain VFM Document all information collected for future use 	<ol style="list-style-type: none"> Update indicator based on contract costs and other information Monitor variances in indicator across phases of the project lifecycle and determine causes of variation. If significant variances cannot be explained, consider alternative options available for proceeding with the project Document all information collected for future use 	<ol style="list-style-type: none"> Update indicator based on actual cost and other data – include operations and maintenance costs Monitor variances in indicator across phases of the project lifecycle and determine causes of variation. Determine whether changes in costs or design parameters impacted indicator and hence VFM Document actual data on costs and results and the reasons for any changes from initial calculations, for the benefit of future interventions

Figure 1: Summary of guidance for using cost indicators to improve VFM across the infrastructure investment lifecycle