

Asian Development Bank
RETA 6482 – 2009 PPP Updates
Short Guide on Price Collection for Construction
(Please refer to Chapter 9 of the ICP 2003-2006 Handbook for further details.)

I. Pricing Construction Products

1. The standard method for use in ICP is referred to as the *Basket of Construction Components* approach or BOCC.
2. The table below shows the 11 basic inputs to be used for the 2009 PPP updating.

Construction Inputs to be Priced for the 2009 PPP Update

Construction Component	BH 150211.1 Residential buildings	BH 150221.1 Non-residential building	BH 150231.1 Civil engineering works
Materials			
Aggregates for concrete	✓	✓	✓
Plywood	✓	✓	✓
Portland Cement	✓	✓	✓
Reinforcing Steel	✓	✓	✓
Sand used for concrete and cement mortar	✓	✓	✓
Structural Steel	✓	✓	✓
Equipment			
Backhoe	✓	✓	✓
Vibratory Plate Compactor		✓	✓
Sand Filter			✓
Labor			
Unskilled	✓	✓	✓
Skilled	✓	✓	✓

II. How many items should be priced?

Countries should price all the 11 basic inputs in

III. Definition of the prices for construction

1. For **materials**, purchaser prices are to be reported. Purchaser prices include non-deductible product taxes and the costs of delivering the materials to the construction site.
2. For **rent of equipment**, purchaser prices are to be reported. These include non-deductible product taxes and the costs of transporting the equipment to the construction site. If the owner of the equipment also supplies a specialized

Plywood 1220 x 2440 mm 15.5 mm thick	1	Sheet		
Plywood 1220 x 2440 mm 15.5 mm thick	50	Sheets		
Plywood 1220 x 2440 mm 15.5 mm thick	100	Sheets		

V. National prices

For **materials, hire of equipment** and **labor**, national prices should be weighted averages of prices in all the parts of the country where construction activity is significant. In small countries this may be a single location but in most countries, prices will have to be collected in a number of different locations.

VI. Number of price observations

- For **materials** and for **hire of equipment**, prices should be collected from at least **five outlets in each part of the country where construction activity is significant**.
- For **skilled** and **unskilled labor** the number of observations required depends on the data sources used and these are discussed below.
 - Some countries regularly compile statistics on the costs of various kinds of labor and may be able to supply the necessary data from existing records.
 - In some countries all or most workers in the construction industry belong to trade unions which enforce standard levels of employee compensation. Provided that a high percentage of employees in the industry are unionized, the standard trade union rates can be used.
 - In other countries it will be necessary to make a special investigation into compensation for both skilled and unskilled workers. In this case the sources could be specialist or general building contractors, public or private employment agencies, or advertisements in trade publications aimed at the construction industry.

VII. Timing of data collection

- The prices reported should be average prices for 2009 and in principle these should be the average of prices collected at regular intervals throughout the year. Price collection in mid-year is recommended.
- For this round of the ICP, countries are being asked to collect data in **2006** and use the data directly to compute PPPs **unless inflation is 5 percent or greater** in which case appropriate adjustments will be required.

VII. Weights ?????????? (Eileen, we don't need this, di ba?)

The BOCC approach uses three types of weights:

- W1—for aggregation of the three Basic Headings – Residential and Non-residential and Civil engineering works - to obtain GDP;
- W2—for aggregation of Systems to obtain Basic Headings;
- W3—for aggregation of composite component and/or basic inputs to obtain Systems.

W1 weights are Basic Heading weights and come from the national accounts.

Unweighted geometric averages are used to obtain price relatives for Systems from the composite components or basic inputs. In other words the **W3 weights** are set at unity. Note, however that weights are still implicitly being used because in constructing composite components different combinations of labor, materials and plant hire will be used in different countries depending on relative prices.¹

The procedure for calculating W2 Weights involves the following steps:

Step 1: Collect priced Bills of Quantity (BOQs) from past projects for the three Basic Headings.

- For the Residential buildings BOQs for single-family dwellings and apartment buildings and the like are required.
- For Non-residential buildings, BOQs for farm buildings, office buildings, industrial buildings, hospitals, schools and buildings for cultural and religious purposes should be collected.
- For the Civil engineering works, BOQs for roads, highways, airports, water and sewer systems, telecommunication structures, marine structures, power generation and transmission infrastructure are to be collected.

The larger the sample, obviously the more reliable the overall result will be. However, at a minimum one project of each type within each Basic Heading should be used, and preferably at least three. Note that the BOQs to be collected are for past project and there is no need to generate new data for this process.

Step 2: Every item in the priced BOQ needs to be classified as belonging to one of the systems. For someone with expertise in construction or engineering it is not difficult to map each line item in the BOQ to a particular system. It is not necessary to have an extremely detailed BOQ for this purpose. A summary or “roll-up” BOQ which lists only the principal divisions and a few major categories within each division is both sufficient and somewhat easier to work with. With a “roll-up” BOQ, the mapping of the line items to the appropriate systems can be accomplished in a few minutes.

Table 7 illustrates this step. Columns 1 through 5 are already available; Column 6 is completed in Step 2.

Step 3: After the classification of all the items in the BOQ is complete, the contributing cost of each system to the total project can be calculated using equation

¹ However, in the case of the three Systems for which only basic inputs are used there are neither implicit nor explicit weights.

$$W2_{S_i} = \frac{\sum_{\text{all } k} I_k}{T}$$

Where:

$W2_{S_i}$ = *W2 Weight* for the i^{th} System

I_k = line item cost for the k line items classified as belonging to system i ;

and T = total direct cost of the project, i.e. excluding taxes, profits, and overhead.

This process is repeated for all i Systems in each of the three Basic Headings.

VIII. Submission of price data to the Regional Office

Price data should be submitted to the ERDI, ADB using the Price Collection Tool Module 2.