

Segunda Reunión Técnica del Programa de Comparación Internacional (PCI)

Construction and Civil Engineering

Global ICP Unit
Development Economics
The World Bank



ICP Classification

1000000	GROSS DOMESTIC PRODUCT	GDP
1500000	GROSS CAPITAL FORMATION	Main Aggregate
1501000	GROSS FIXED CAPITAL FORMATION	Category
1501100	MACHINERY AND EQUIPMENT	Group

1501200	CONSTRUCTION	Group
1501210	<u>Residential buildings</u>	<u>Class</u>
1501211	Residential buildings	Basic Heading
1501220	<u>Non-residential buildings</u>	<u>Class</u>
1501221	Non-residential buildings	Basic Heading
1501230	<u>Civil engineering works</u>	<u>Class</u>
1501231	Civil engineering works	Basic Heading
1501300	OTHER PRODUCTS	Group

- **3 BHs**
- **1 Survey**
- **Conducted once for a reference year**

Survey Approach: 55 items + metadata

38 GLOBAL MATERIAL ITEMS

- 33 “pure” material items; 5 “equipment-type” items
- Allocated under each BH based on “relevance”

5+5 GLOBAL EQUIPMENT HIRE ITEMS

- 5 items duplicated to exclude and include operator

7 GLOBAL LABOR ITEMS

- 1 un-skilled and 6 skilled labor items

OTHER DATA

- Resource mixes
- Mark-ups and professional fees (not used to date)

Input
Cost
Approach

...Aim is
output-
prices, but...

33 “Pure” Material Items: SPDs

Item Code	1501200102	1501200103	1501200108
Item Name	Sand, for concrete and mortar	Softwood, for carpentry	Petrol (gasoline)
Number of units	1	1	1
Unit of measurement	Cubic meter (m3)	Cubic meter (m3)	Liter (l)
Type	Sand for concrete and mortar	Softwood for carpentry	Petrol (gasoline)
Material	Aggregate washed sharp sand	Sawn softwood sections	
Quality	Fine	Pre-treated (national standard)	Standard grade
Size		50 mm x 100 mm	
For		Structural use	Motor vehicles
Packaging			
Exclude			

33 “Pure” Material Items: Data to Enter

DATA ENTRY	1501200102	1501200103	1501200108
	Sand, for concrete and mortar	Softwood, for carpentry	Petrol (gasoline)
<u>Price for</u>	1 Cubic meter (m3)	1 Cubic meter (m3)	1 Liter (l)
Price			
<u>Relavance (YES = 1, NO = 0)</u>			
Residential buildings			
Non-residential buildings			
Civil engineering works			
<u>Additional information</u>			
Comments			

No alternative UoMs!

Price: National annual average price for a reference year; mid-year prices for a typical construction locations acceptable

Note: Contractor prices, not consumer prices

Q?: 2017 or 2018 prices

Relevance (Annex)

Indicative list of the relevant material inputs for construction basic headings
materials for each basic heading

Item code	Material or product	Residential buildings	Non-residential buildings	Civil engineering works
1501200101	Aggregate, for concrete	X	X	X
1501200102	Sand, for concrete and mortar	X	X	X
1501200103	Softwood, for carpentry	X	X	X
1501200104	Softwood, for joinery	X	X	
1501200105	Exterior plywood	X	X	X
1501200106	Interior plywood	X	X	
1501200107	Chipboard sheet	X	X	
1501200108	Petrol (gasoline)	X	X	X
1501200109	Diesel fuel	X	X	X
1501200110	Oil paint	X	X	
1501200111	Emulsion paint	X	X	
1501200112	Ordinary Portland cement	X	X	X
1501200113	Ready mix concrete	X	X	X

5 “Equipment Type” Material Items

Item Code	1501200133
Item Name	Electric pump
Number of units	1
Unit of measurement	Piece
Type	Electric pump for pumping water
Flow rate	10 litres per second
Temperature range	5-80 C
Head pressure	150 Pa
Specify	Brand and model

	1502111133
DATA ENTRY	Electric pump
Price for	1 Piece
Price	
Relavance (YES = 1, NO = 0)	
Residential buildings	
Non-residential buildings	
Civil engineering works	
Additional information	
Brand	
Model	
Comments	

5+5 Equipment Hire Items: SPDs

Item Code	1501200201	1501200211
Item Name	Wheeled loader and excavator, with operator	Wheeled loader and excavator, without operator
Number of units	1	1
Unit of measurement	Hour	Hour
Type	Rental of loader and excavator, four wheel drive	Rental of loader and excavator
With operator	Yes	No
Brand (indicative)	JCB	JCB
Model (indicative)	3CX Super Sitemaster	3CX Super Sitemaster
Engine power (indicative)	70 kW (94 hp)	70 kW (94 hp)
Travel speed (indicative)	30 km/h	30 km/h
Operating width (indicative)	2 m	2 m
Operating weight (indicative)	8000 kg	8000 kg
Operating capacity (indicative)	4000 kg (loader); 700 kg (backhoe)	4000 kg (loader); 700 kg (backhoe)
Dig depth (indicative)	4 meters	4 meters
Price excludes	Operating fuel	Operating fuel
Specify	Equipment brand and model	Equipment brand and model

5+5 Equipment Hire Items: Data Entry

DATA ENTRY	1501200201	1501200211
	Wheeled loader and excavator, with operator	Wheeled loader and excavator, without operator
<u>Price for</u>	1 Hour	1 Hour
Price		
<u>Additional information</u>		
Brand		
Model		
Comments		

Potential daily or weekly rates need to be converted to hourly rates

7 Labor Items: SPDs

International Standard Classification of Occupations (ISCO)

Item Code	1501200301	1501200302
Item Name	General labourers. unskilled	Bricklayer. skilled
ISCO code	9313	7112
ISCO name	Building construction labourers	Bricklayers and related workers
Number of units	1	1
Unit of measurement	Hour	Hour
Skill level	Unskilled	Skilled
Salary type	Gross	Gross
Training	No training required	Training in a technical college or similar institution or on the job training
General definition	Performs routine tasks in connection with building construction and demolition work	Lays bricks, pre-cut stones and other types of building blocks in mortar to construct and repair walls, partitions, arches and other structures
Example tasks (a)	(a) cleaning used building bricks and doing other simple work on demolition sites	(a) laying stone, brick and similar building blocks to construct or repair walls, partitions, fireplaces and other structures such as smokestacks, furnaces, converters, kilns and ovens, piers and abutments
Example tasks (b)	(b) mixing pouring and spreading materials such as concrete, plaster and mortar	(b) laying footpaths, kerbs and pavements
Example tasks (c)	(c) digging and filling holes and trenches using hand held tools	(c) laying bricks or other masonry to build patios, garden walls and other decorative installations

7 Labor Items: Data Entry

DATA ENTRY	1501200301	1501200302
	General labourers, unskilled	Bricklayer, skilled
<u>Price for</u>	1 Hour	1 Hour
Price		
<u>Additional information</u>		
Average number of hours worked per day		
Average net-to-gross rate		
Comments		

Potential daily or weekly rates need to be converted to hourly rates

Average rate for net-salaries to gross-salaries

Resource Mixes (Sheet “Support”)

A. The mix of construction resources

What proportion of overall construction project value is taken by the main inputs to construction work (materials and products, labor and equipment) in the following types of projects?

	Residential buildings	Non-residential buildings	Civil engineering works
Construction materials and products			
Construction equipment			
Construction site labour			
Total project value	0%	0%	0%

BH-level:
National account weights available

Sub-headings: NA weights not available

Needs to add-up to 100%

Used as weights for each “sub-heading”

Contractors' mark-ups (Sheet "Support")

B. Contractors' mark-ups

What percentages should typically be added to contractors' input costs to arrive at contractors' bid prices or construction purchaser prices? Please indicate approximate percentage values.

	Residential buildings	Non-residential buildings	Civil engineering works
General site costs and temporary works			
Head office overheads			
Profit			
Other contractors costs 1 (please specify)			
Other contractors costs 2 (please specify)			
Other contractors costs 3 (please specify)			
Other contractors costs 4 (please specify)			
Other contractors costs 5 (please specify)			
Other contractors costs 6 (please specify)			
Total mark-up	0%	0%	0%

Professional fees (Sheet “Support”)

C. Professional fees

What percentage additions should be allowed for both pre and post-contract services on different types of work? **Professional fees will typically comprise pre- and post-contract services, including architectural and engineering design, technical supervision, project management and other specialist services, but national rules and practices must be taken into account.** Please enter the total amount as a percentage of the contractor's cost (which will include the contractor's mark-up described above). The intention is to arrive at the end-user or purchaser price for construction work.

	Residential buildings	Non-residential buildings	Civil engineering works
Overall percentage addition for professional services			

THANK YOU

► Questions or comments?