

Sources of International Cost Data

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Summary

A good estimator can readily develop the estimate for a project in the home country, but such is not always the case for other nations. While cost engineers, quantity surveyors and project managers are generally very familiar with major sources of cost data in their own country, they are often unaware of useful sources of cost data and related information in other countries. This problem is exacerbated by lack of time to perform a proper search, publications in various languages, and lack of information about key factors that can impact the estimate for particular geographic locations.

Keywords: Cost data, international countries, estimate.

BRONNE VIR INTERNASIONALE KOSTE-DATA

Opsomming

'n Goeie kosteberamer ondervind min probleme om die koste van projekte in sy eie land te beraam, maar dit is nie die geval waar werk in die buiteland aangepak word nie. Terwyl koste-ingenieurs, bourekenaars en projekbestuurders meestal op die hoogte is met die vernaamste bronne van plaaslik koste-data, is hulle redelik in die duister oor nuttige data-bronne en inligting in die buiteland. Tydsdruk vererger die probleem, gevolglik kan 'n behoorlike soektog nie altyd geloods word nie. Publikasies in ander tale is soms onverstaanbaar en moeilik bekombaar en ver-der bestaan daar 'n algemene tekort aan inligting oor sleu-teldata wat 'n impak mag hê op beramings rakende besondere geografiese liggings van terreine van projekte.

Sleutelwoorde: Koste-data, buiteland, kosteberaming.

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Introduction

Industrial firms are increasingly multinational, and many companies now build and operate plants in several nations. Economic cooperation agreements between nations, such as the European Economic Community (EEC), the North American Free Trade Agreement (NAFTA), and the General Agreement on Tariffs and Trade (GATT) are encouraging further industrial globalization.

It is therefore becoming increasingly important for project control professionals to be familiar with techniques for estimating costs in other countries and to be able to compare costs in different nations. The questions that are always being asked are: "What will this plant cost in the U.S.?" "What about Australia, Germany, Norway, and Mexico?" and "Which location is the most attractive financially?"

A good estimator or cost engineer can readily develop the estimate for a plant in the home country, but such is not always the case for other nations. While cost engineers, quantity surveyors, and project managers are generally very familiar with major sources of cost data in their own country, they are often unaware of useful sources of cost data and related information in other countries. This problem is exacerbated by lack of time to perform a proper search, publications in various languages, and lack of information about key factors that can impact the estimate for particular geographic locations.

The following discussion is far from complete but should provide some insight into the availability of international cost data and location factors. Included are:

1. Descriptions of multicountry data sources for preliminary or conceptual cost studies,
2. Notation of major database sources of unit price/cost data for specific countries, and

3. Presentation of some example data to illustrate the kind of resources available for international project studies.

Limitations of published data

The information sources described in this paper are primarily periodical publications of various types. Published information must always be used with care. Every location factor or commonly available cost index has its own underlying method of construction, with its particular inherent components and weightings. It is vital for the estimator using such quick-estimate data to understand how it was created, and to recognize just what its limitations and applications are. Published data also is often inadequately explained and is frequently improperly dated. Date of publication is meaningless because the data may be months or years old and may require adjustment to current cost levels. Equipment cost data may or may not include ancillaries and/or transportation and installation costs, etc. Too often it seems that in the rush to complete the assignment, people will grasp any number they can find without fully understanding how it was derived, or what it represents.

With location factors, one must recognize that they generally reflect only the relative cost to replicate a facility exactly in another location. The factors do not consider cost effects which are introduced by unique site conditions such as climate, earthquake and geological considerations, etc. If the design is not identical in both locations, the cost differences are not generally accounted for if location factors alone are used.

Background sources

It is beyond the scope of this paper to discuss the many complex problems that must be recognized in preparing estimates for international projects. Nevertheless, due to

their importance, some mention of the available background literature is appropriate.

In order for a proper estimate to be made of a particular international project, it is vital to understand the conditions existing in the country or countries where a project is to be located. In a 1978 paper presented at the Fifth International Cost Engineering Congress, Utrecht, Netherlands, C.G. Walker(1) outlined the major economic system parameters to be evaluated as follows:

Political

- stability
- attitude towards foreign investment
- type of bureaucracy

Finance

- banking system
- insurance regulations
- tax system
- duties

Legal System

- laws governing conduct of business and individual freedom

Social System

- business ethics
- education
- language and religion

Geography

- infrastructure and communication
- climate

Industry

- capacity
- diversity
- efficiency

Many other authors(2-10) have discussed site- or country-specific factors that can impact the cost, schedule, and/or price for an international project. These include: local material quality/availability, labor availability, equipment availability, labor productivity, import duties, import li-

censes, local taxes, language, length of workweek, holidays, inflation, fluctuating exchange rates, religious customs, buy-local laws, shipping cycles, weather/climatic impacts, workforce level of education, logistics, workforce housing, and many other relevant factors. Regional variations of these factors within a country must also be expected, and remoteness/distance from major cities or supply centers can often aggravate the above problems even further.

A. Patrascu(11-13) has proposed pre-estimate survey checklists to help identify background concerns for foreign construction projects. These checklists delineate a large number of factors which must be considered, including those described by Walker(1).

For offshore projects, an excellent detailed checklist(14) is available from the Association of Cost Engineers (ACE), Lea House, 5 Middlewich Road, Sandbach, Cheshire CW11 9XL, United Kingdom. Based on North Sea oil field construction experience, this publication provides a very detailed breakdown for offshore work.

Many other practical references (eg, 15-27) are useful in preparation for estimating international projects. However, background literature such as the publications mentioned here cannot replace pre-estimate site visits, proper contract development, and talking with others who have experience estimating work in the particular country or countries of interest. Review of appropriate literature, however, can help to ensure that all important factors for the project have been considered in developing the estimate.

To this point, this paper has described the extreme complexity involved in costing out-of-country projects. The references mentioned, while far from being a complete list, should nevertheless make the cost engineer aware of most of the potentially important considerations which are unique to international work.

International location factors

When little time is available or warranted to perform the type of background studies suggested above, and detailed design and engineering has not been completed, estimators must turn to published indexes, location factors, or other sources of relevant data for help.

A location factor is an instantaneous, overall, total cost factor for converting a base project cost from one geographic location to another. This factor recognizes differences in productivity and costs for labor, engineered equipment, bulk materials, commodities, freight, duty, taxes, indirects and project administration. The cost of land, scope/design differences for local regulations and codes and differences in operating philosophies are not included in the location factor.

With the current rush of industries attempting to globalize, use of location factors has become increasingly important. Location factors should be used to factor a base estimate for comparing costs at differing locations and not for the funding estimate for the selected location. After selection, a higher quality estimate should be developed for project funding.

Many countries do not have the capability to manufacture certain specialized equipment and routinely import this material. So the degree of local vs import and the relative cost differences need to be part of the location factor calculation. Many companies use U.S. costs and apply percentages for freight, import duties and customs and broker fees.

Two other issues that should be considered are:

- a. importing of certain items because of quality or scheduling problems; and

- b. importing and paying the associated costs (if local regulations so allow) of materials from another country because local manufacturing costs are high.

These items can greatly affect the material and equipment costs for an actual project. The location factor needs to reflect the above considerations and expected or known strategies with the factors being adjusted accordingly.

Local monetary rates, productivity differentials and benefits and burdens vary enormously in individual countries. Governmental employment regulations, rules for foreign workers, travel and support costs, and religious and cultural differences must be carefully evaluated. All can impact a location cost factor program. *Table 1* shows some details and location cost factors for a range of countries(78).

Table 2 contains a series of worldwide area productivity factors(78). As indicated, the basic elements are weather, culture and work ethic, trade skills, and numerous other factors. The factors are conceptual numbers and considerable judgement is required for their proper application.

In addition to the factors described above, *Table 3* provides a listing of international data sources. The references in *Table 3* are examples of multicountry data sources. For conceptual studies these may be useful, depending on what countries are of interest. Other references (eg, 6, 35, and 36) may also be of help. Various reports by banks, governments, trade associations, etc also exist if one is willing to search for them. An example is a report(37) that compares building costs in a number of countries to those in Malaysia. This special report was issued by a government task force and provides a handy reference for those comparing building costs in Pacific Rim countries.

Massa(3,4) has developed international cost location factors based upon a weighting of 33.05 percent for a labor

factor, 53.45 percent for an equipment and civil material factor, and 13.50 percent for an indirect and home office cost factor. He presents a detailed form for calculating these three factors and the composite factor for any given country referenced to U.S. Gulf Coast costs. Massa has also provided labor factors for many countries. His factors are presented in Table 4 along with a list of country location factors previously reported by Bridgewater(5, 38). The Bridgewater factors are for complete chemical plants and are referenced to both the United Kingdom and the United States. (Note: The Bridgewater factors were developed in the late 1970's and reflect currency exchange rates, taxes and duties prevailing at that time. They should not be used without adjustment for changes which have occurred since the factors were developed.)

In addition to these sources, another excellent source of location factor information is the AACE International "Location Factor" Committee. This committee maintains a listing of industry contacts who are willing to share location factors and foreign cost estimating data. The contact list includes representatives of many multi-national firms. The committee may be contacted via AACE International at 209 Prairie Ave., Morgantown, WV 26505; Phone (800) 858-2678 in the US or (304) 296-8444 (other countries); Fax (304) 291-5728 or through the committee chairman, Mr. Bernie A. Pietlock, DuPont Engineering, Nemours 7440-6, 1007 Market Street, Wilmington, DE 19898, USA; Phone (302) 774-1191; Fax (302) 774-1347; E-mail: Bernard.A.Pietlock@USA.DuPont.Com.

Country Cost Indexes

Cost indexes are valuable proven tools for adjusting costs for changes over time and, in combination with appropriate location factors, can facilitate development of conceptual estimates. The AACE Cost Engineers' Notebook(39) describes 28 indexes and index sources for U.S. and Canadian costs and 27 indexes and index sources for many other

countries, including Australia, Brazil, England, France, Italy, Japan, Mexico, the Netherlands, New Zealand, and Germany. A description of each index or index source is given in Table 5.

Cost data sources

Various compilers and publishers maintain databases of costs which form the basis for their various cost publications. A few of these are listed in Table 6. Of these, the Dutch Association of Cost Engineers Pricebook(61) is particularly valuable as a source of information for European process plant costs. The book reports actual installed project costs as reported by nearly 200 Dutch companies. Although the book is published in Dutch, an English glossary of terms makes it very easy to use by those who do not read the Dutch language.

The R. S. Means Company(33) publishes numerous cost books for the US and Canada and distributes many for other countries in cooperation with other publishers. Notable are a Russian version of Means' well known *Building Construction Cost Data* and an English language newsletter *Construction Market Intelligence Russia* which are prepared in cooperation with Co-Invest (79), a Russian firm. Means also distributes *Costos*(80), a guide to Mexican building costs and *Square Meter Construction Costs in Mexico* (81) in cooperation with BIMSA; *Construction Investment Guide for Vietnam* in cooperation with Rawlinsons (82); and *Construction and Development in Vietnam* in cooperation with Davis Langdon and Seah, International (83).

Another major source of information is the *Project and Cost Management Forum* or "TCMForum" on CompuServe and its companion vendor forum, "TCMVen." Founded by AACE International, these forums have attracted over 20,000 cost and project professionals who regularly use them to share cost information and project experience.

Beyond these, an invaluable source of information and costs are the various cost engineering and project management societies throughout the world. Their members and employing firms are the most valuable network of international cost information that exists anywhere.

At the time of this writing, the member societies of the International Cost Engineering Council (ICEC) represented, either directly or through their branches and chapters, over 40 countries. These societies have individual members in well over 100 countries, thus being an extensive worldwide network of information sources. The International Project Management Association (IPMA) similarly has about 26 member societies representing many nations. A list of the members of ICEC and IPMA is given in Table 7. Many of these societies do not have permanent headquarters offices. A complete list of all ICEC or IPMA members with contact addresses including e-mail and Internet homepage links is available at all times on the ICEC Internet homepage, <<http://www.ICostE.org>>. Alternately, ICEC or IPMA may be contacted directly to obtain current address information for any of their member societies.

Summary

The best summary for this discussion is from John R. Barry's paper, "Ten Commandments of International Cost Engineering," presented at the 1993 Annual Meeting of AACE International(25):

The reliability of available data is usually suspect, so test, test, and retest it. Communication problems are difficult across cultures, and sometimes language differences can cause misunderstandings when soliciting data. The use of international factors is a session all on its own. A few basic principles for guidance include keeping in mind that a time or place factor means nothing without an exchange rate and date and that a base city must be identifiable, since variation can exist within your home country.

The paper concluded with Barry's "Ten Commandments for Worldwide Cost Engineering," which have appeared in several of his articles over the years. They are a fitting conclusion to this paper as well.

John Barry's Ten Commandments for Worldwide Cost Engineering

1. Thou shalt not begin an international cost engineering assignment without preparing for the differences in culture and protocol.
2. Thou shalt not ignore investment objectives of the target country's government.
3. Thou shalt not look at building your own facilities as the only way to enter business in a country.
4. Thou shalt not use biased estimated scope that does not reflect technical, cultural, legal, and climate differences.
5. Thou shalt not ignore what equipment must be imported and the impact on cost and schedule.
6. Thou shalt not accept as gospel cost data for other countries without thoroughly checking for understanding and testing for reasonableness.
7. Thou shalt not ignore productivity, weather, religious practices, and construction methods when calculating labor cost.
8. Thou shalt not ignore the additional risks associated with cost and schedule on international projects.
9. Thou shalt not forget that AACE and ICEC members are valuable resources who are capable and willing to help.
10. Thou shalt not ignore the previous nine commandments.

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TABLE 1

CONCEPTUAL ESTIMATING LOCATION COST FACTORS									
	Basis	Imported Material (Average)					Labor		
Country	Exchange rate / \$	Duty, %	Freight %	VAT, %	Im-ported Material Index	Local Mate-rial In-dex	\$/ hour	Produc-tivity Fac-tor	Loca-tion Cost Factor
Australia	1.42 A\$	0 to 7	15	20	1.35+	1.3	24.80	1.6	1.4
Brazil	1.10 Real	14	10	18	1.42	1.2	4.00	1.8	1.1
Canada	1.40 C\$	0	5	7 to 19.84	1.07+	1.0	20.15	1.2	1.0
China	8.32 Renm	8+	10	17	1.35+	0.7	3.00	3.0	1.0
France	5.8 Fr	0	5	18.6	1.236	1.2	19.83	1.2	1.15
Germany	1.72 DM	0	5	0	1.05	1.15	36.57	1.1	1.2
India	36.4 Rupee	65 max	20	0	1.85-	1.1	2.01	3.0	1.0
Japan	122.5 Yen	3.4	10	3	1.13	1.4	27.30	1.0	1.35
Mexico	8.2 New Peso	7	5	10	1.22	1.25	3.38	1.7	1.0
Poland	3.4 Zloty	14	10	22	1.46	0.8	10.33	1.7	0.95
Saudi Ara-bia	3.75 Riyal	0 to 12	15	0	1.15+	1.2	5.00	1.6	1.0
South Af-rica	4.8 Rand	5	15	10	1.30	1.1	17.82	1.3	1.1
United Arab Emirates	3.67 Dirham	1*	10	0	1.11	1.0	4.03	1.6	0.95
United Kingdom	0.60 Pound	0	10	17.5	1.275	1.3	42.58	1.2	1.4

CONCEPTUAL ESTIMATING LOCATION COST FACTORS									
	Basis	Imported Material (Average)					Labor		
Country	Exchange rate / \$	Duty, %	Freight %	VAT, %	Im-ported Material Index	Local Material Index	\$/ hour	Productiv-ity Factor	Loca-tion Cost Factor
Notes:									
1. Duties for Australia and Saudi Arabia = 0 for imported materials which are not available domestically.									
2. Australian sales taxes of 20 percent apply to local material.									
3. Canadian VAT varies from 7 percent to 19.84 percent depending upon the province or territory.									
4. China duties are shown for the special enterprise zones. Duties are higher elsewhere in China.									
5. India may grant concessional duties for major projects. Duties as low as 20% have been granted for recent power projects. Although there is no VAT in India, a national sales tax of 4% plus state sales taxes of 4 to 15% apply to local material.									
6. United Arab Emirates duty is 4 percent minus a subsequent rebate of 3 percent for a net of 1 percent.									

TABLE 2

INTERNATIONAL LABOR PRODUCTIVITY FACTORS		
Basis: Southeast United States (Non Union) = 1.0.		
United States Locations	Non Union	Union
Southeast (Carolinas, Florida, etc.)	1.0	—
Alabama/Georgia	—	1.3
Alaska	—	1.9
Arizona/California	1.1	1.2
Colorado/Utah/Wyoming	—	1.5
Hawaii	—	1.5
Illinois	—	1.6
Northeast	—	1.6
Northwest	—	1.6
Texas	1.1	1.2
Other Countries	Average	Remote Areas
Australia	1.6	—
Belgium	1.3	—
Brazil	1.8	—

INTERNATIONAL LABOR PRODUCTIVITY FACTORS		
Basis: Southeast United States (Non Union) = 1.0.		
Canada	1.2	—
China	2.2	—
Eastern Europe	2.0	—
Finland	1.7	—
France	1.3	—
Germany	1.1	—
Great Britain	1.5	—
Hong Kong	1.5	—
India	2.5	—
Indonesia	1.9	—
Ireland	1.65	—
Israel	1.8	—
Italy	1.4	—
Japan	1.1	—
Kuwait	2.1	—
Malaysia	1.9	—
Mexico	1.5	1.8
Netherlands	1.35	—
New Zealand	1.5	—
Norway	1.75	—
Pakistan	2.2	—
Philippines	2.5	—
Poland	1.9	—
Russia	2.0	—
Saudi Arabia	1.6	—
Singapore	1.6	—
South Africa	1.4	1.9
South Korea	1.3	—
Spain	1.7	—
Sri Lanka	2.5	—
Sweden	1.35	—

INTERNATIONAL LABOR PRODUCTIVITY FACTORS		
Basis: Southeast United States (Non Union) = 1.0.		
Switzerland	1.5	—
Taiwan	1.3	—
United Arab Emirates	1.7	—
Venezuela	1.65	1.8
Productivity factors are heavily influenced by weather (rain, cold/heat, etc.), culture and work ethic, religion, inherent trade skills, available resources and infrastructure, and site conditions. The above factors are averages only and must be adjusted as appropriate for specific conditions and location.		
Adapted from J.A. Bent, <i>Effective Project Management Through Applied Cost and Schedule Control</i> , K.K. Humphreys, ed., Marcel Dekker, Inc., New York, 1996.		

TABLE 3

INTERNATIONAL DATA SOURCES: MULTIPLE COUNTRY
<i>Foreign Labor Trends</i> (15) – periodic reports of labor trends and costs for specific countries—includes key labor indicators
<i>Hanscomb/Means International Construction Cost Intelligence Report</i> (16) – newsletter – provides comparative building construction cost information for many countries.
<i>U.N. Monthly Bulletin of Statistics</i> (29) – includes a variety of production
<i>Engineering News-Record</i> (30) – weekly magazine – primarily U.S. and Canada
<i>Costos de Construccion Pesada y Edificacion</i> (Heavy Construction and Building Costs) (31) – cost estimating database on building
<i>Spon's Architects' and Builders' Price Book</i> (32) – contains a European section for tendering and costs of labor and materials in 13 countries. Spon's European Construction Costs Handbook provides coverage of 28 countries in Europe plus the United States and Japan. Spon's Asia Pacific Construction Costs Handbook provides similar coverage of 15 countries in Asia plus the United States and the United Kingdom. Spon's Middle East Construction Price Book is a two volume set which provides detailed unit cost information for 6 Middle East countries. The two handbooks and the Middle East books are also distributed by the R.S. Means Co. (33) in North America.
<i>R.S. Means Co.</i> (33) – various cost books published annually for building and industrial construction in the U.S. and Canada.
<i>Richardson Engineering Services</i> (34) – unit cost database published for U.S. and Canada building and general construction; special estimating set for process plant construction; International Construction Factors Location Cost Manual for 16 countries worldwide.
<i>International Construction Costs and Reference Data Yearbook</i> (28) – provides detailed information on construction costs

TABLE 4

SAMPLE LOCATION FACTORS*			
	Massa's Labor Productivity Factors (3,4)	Bridgewater's Factors for Chemical Plants (38)	
Location	US= 1.0	UK= 1.0	US=1.0
Algeria	1.82	—	—
Australia	1.20 (0.96-1.45)	1.4	1.3
Argentina	2.00 (1.30-2.60)	—	—
Austria	1.60 (1.57-2.10)	1.1	1.0
Belgium	1.14 (1.14-1.50)	1.1	1.0
Canada, East	1.14 (1.08-1.17)	—	—
Canada, West	1.07 (1.02-1.11)	—	—
Canada	—	1.25	1.15
Central Africa	—	2.0	2.0
Central America	—	1.1	1.0
Chile	2.70 (2.00-2.90)	—	—
China (imported element)	—	1.2	1.1
China (indigenous element)	—	0.6	0.55
Colombia	3.05	—	—
Denmark	1.28 (1.25-1.30)	1.1	1.0
Egypt	2.05	—	—
Finland	1.28 (1.24-1.28)	1.3	1.2
France	1.52 (0.80-1.54)	1.05	0.95
Germany (West)	1.20 (1.00-1.33)	1.1	1.0
Ghana	3.50	—	—
Greece	1.49	1.0	0.9
India	4.00 (2.50-10.0)	—	—
India (imported element)	—	2.0	1.8

SAMPLE LOCATION FACTORS*			
	Massa's Labor Productivity Factors (3,4)	Bridgewater's Factors for Chemical Plants (38)	
India (indigenous element)	—	0.7	0.65
Iran	4.00	—	—
Iraq	3.50	—	—
Ireland	—	0.9	0.8
Italy	1.48 (1.10-1.48)	1.0	0.9
Japan	1.54 (1.00-2.00)	1.0	0.9
Malaysia	—	0.9	0.8
Mexico	1.56 (1.54-3.15)	—	—
Middle East	—	1.2	1.1
Netherlands	1.25 (1.25-1.60)	1.1	1.0
Newfoundland	—	1.3	1.2
New Zealand	—	1.4	1.3
Nicaragua	2.67	—	—
Nigeria	2.22	—	—
North Africa (imported element)	—	1.2	1.1
North Africa (indigenous element)	—	0.8	0.75
Norway	1.23	1.2	1.1
Philippines	2.86	—	—
Portugal	1.66	0.8	0.75
Puerto Rico	1.54	—	—
Singapore	4.00	—	—
South Africa	1.58	1.25	1.15
South America (N)	—	1.5	1.35
South America (S)	—	2.5	2.25
Spain	1.74	—	—
Spain (imported element)	—	1.3	1.2

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SAMPLE LOCATION FACTORS*			
	Massa's Labor Productivity Factors (3,4)	Bridgewater's Factors for Chemical Plants (38)	
Spain (indigenous element)	—	0.8	0.75
Sri Lanka (Ceylon)	3.50	—	—
Sweden	1.18 (1.10-1.20)	1.2	1.1
Switzerland	—	1.2	1.1
Taiwan	1.52 (1.52-7.20)	—	—
Thailand	2.82	—	—
Turkey	2.32	1.1	1.0
United Kingdom	1.53 (0.70-2.46)	1.0	0.9
United States	1.00	1.1	1.0
Venezuela	2.00	—	—
<p>* Note: Increase chemical plant factor by 10% for each 1000 miles or part of 1000 miles that the new plant location is distant from a major manufacturing or import center or both. When materials or labor, or both, are obtained from more than a single source, pro-rate the appropriate factors. Factors do not consider investment incentives.</p> <p>Note also that the Bridgewater factors reflect currency exchange rates prevailing in the late 1970's. Appropriate adjustments must therefore be made prior to using these factors today.</p>			

TABLE 5

COUNTRY INDEXES	
Country/Index	Comments
Australia	
Building Cost Index	Construction labor and material costs (40)
Construction Cost Index	Weekly earnings; building and nonbuilding materials (41)

COUNTRY INDEXES	
Country/Index	Comments
Australia Builder	Price information on raw materials (42)
Cordells Building Cost Book	Price information for non-residential building (43)
Monthly Summary of Statistics	Manufacturing articles: materials, building/non-building materials, metallic materials, wage rates; indexes (44)
Brazil	
Revista de Precos	Cost/price indexes for residential and non-residential construction; Portuguese (45)
Boletim de Custos	Cost/price indexes for residential and non-residential construction; Portuguese (46)
A Construcao	Residential and non-residential construction and project costs; Portuguese (47)
Conjuntura	Indexes for industrial machinery and equipment; residential and non-residential construction material; Portuguese (48)
NTC—Associação Nacional dos Transportadores de Cargas	Transportation rates for industrial materials; Portuguese (49)
Canada	
Statistics Canada	Variety of cost/price indexes for construction costs and capital expenditures; English and French (50)
England	
A.Cost.E. Indices of Erected Plant Costs	Indexes of erected cost of typical process plants (51)
Price Index Numbers for Current Cost Accounting	Indexes for non-residential construction, machinery, equipment (52)
France	
Index Coefficients	General index for building and machinery replacement costs (53)
Italy	
Indicatori Mensili	Government statistics and indexes; Italian (54)
Index	Costs and indexes for various industries; Italian (55)
Prezzi Informativi Delle Opere Edili in Milano	Indexes for residential and non-residential construction, consumer prices, raw materials, and wage rates; Italian (56)

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COUNTRY INDEXES	
Country/Index	Comments
Japan	
Construction Price Indexes by Year, Price Indexes of General Machinery and Equipment	Non-Life Insurance Institute publication for use by industrial insurers in Japan; English (57)
MRC Monthly Standard Building Cost Indexes and Unit Price Data Bulletin	Cost indexes of many components of construction and certain building types; Japanese (58)
Mexico	
Cifras de la Construccion	General construction index; Spanish (59)
Indice Nacional de Precios al Consumidor	Consumer price index; Spanish (60)
The Netherlands	
Die Werkgroep Begrotings Problemen in de Chemische Industrie (WEBCI)	Unit prices for chemical plant construction in the Netherlands; Dutch (61)
New Zealand	
Ministry of Works and Development Construction Cost Index	Weighted construction cost index (62)
Monthly Abstract of Statistics	Variety of labor force indexes by industry; residential construction, wage rates, other (63)
Germany	
Fachserie 17: Preise	Indexes for general machinery and building construction: German (64)
United States	

COUNTRY INDEXES	
Country/Index	Comments
General Purpose Indexes: Engineering News-Record, 20-city construction cost Engineering News-Record, 20-city building cost U.S. Dept. of Commerce, composite (65) BuRec, general building Construction Industry Institute, construction price (66) Factory Mutual, industrial building Handy Whitman, building construction (67) Lee Saylor, Inc., material/labor R.S. Means construction cost (33)	
Selling Price Indexes, Building: Fru-Con Corp., industrial Lee Saylor, Inc., subcontractor Turner, general building (68) Smith, Hinchman & Grylls, general (69)	
Valuation Indexes: Boeckh, 20-city commercial/manufacturing (70) Marshall & Swift, industrial equipment (71-72),	
Special Purpose: Nelson-Farrar refinery cost inflation index Chemical Engineering, plant cost (72) Federal Highway Construction Bid Price (73) Handy Whitman, public utility construction BuLabor Statistics Consumer Price Index (74) BuLabor Statistics Producers Price Index (65) AED Average Rental Rates for Construction Equipment (75)	

COUNTRY INDEXES	
Country/Index	Comments
<p>Note: Many of the above listed indexes for the United States are published regularly in the Engineering News-Record "Quarterly Cost Roundup" issues. (30)</p>	

TABLE 6

COUNTRY DATABASES FOR PROJECT COSTS	
Country	Source
Australia	Building Economist (76), quarterly Cordells Building Cost Book (43) Rawlinsons (82), various books
Brazil	A Construcao (7) Conjuntura (48), monthly Empresa de Obras Públicas-RJ (84), various publications
Canada	R.S. Means (33), various books Richardson Engineering (34), data books
China	Shenzhen Construction Quotation Price Management Department (77)
Mexico	Costos de Construccion Pesada y Edificacion (31) COSTOS Edicion Nacional (80) Costos Por Metro Cuadrado de Construccion (81)
Netherlands	DACE Price Booklet (Prijsboekje) (61)
Russia	Co-Invest (79), various publications R.S. Means (33), various publications
United Kingdom	E & FN Spon (32), various books
United States	R.S. Means (33), various books Richardson Engineering (34), data books
Vietnam	Vietnam Construction Investment Guide, Rawlinsons (82) Construction and Development in Vietnam, Davis Langdon & Seah (83) R.S. Means (33), various publications

TABLE 7

MEMBER SOCIETIES OF THE INTERNATIONAL COST ENGINEERING COUNCIL (ICEC) AND THE INTERNATIONAL PROJECT MANAGEMENT ASSOCIATION (IPMA)			
Society	Country	ICEC Member	IPMA Member
AACE-CANADA, The Canadian Association of Cost Engineers	Canada	Yes	No
AACE International (AACE-I) (chapters in Canada, Saudi Arabia, Japan, Australia, South Africa, Puerto Rico, Egypt and Norway)	United States	Yes	Corporate Member
Associação Portuguesa de Gestão de Projectos	Portugal	No	Yes
Asociación Española de Ingeniería de Proyectos (AEIPRO)	Spain	No	Yes
Association of Cost Engineers (ACostE) (chapters in Hong Kong and Siberia)	United Kingdom	Yes	No
Association Française de Management de Projet (AFITEP) (chapters in Belgium and Switzerland)	France	Yes	Yes
Association of Professional Project Managers	Ireland	No	Yes
Association of Project Managers (APM)	United Kingdom	No	Yes
Association of South African Quantity Surveyors (ASAQS)	South Africa	Former Member	No
Associazione Nazionale di Implantistica Industriale (ANIMP)	Italy	No	Yes
Associazione Italiana di Ingegneria Economica (AICE)	Italy	Yes	No
Australian Institute of Quantity Surveyors (AIQS)	Australia	Yes	No
Building Surveyors Institute (BSI)	Japan	Yes	No

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MEMBER SOCIETIES OF THE INTERNATIONAL COST ENGINEERING COUNCIL (ICEC) AND THE INTERNATIONAL PROJECT MANAGEMENT ASSOCIATION (IPMA)			
Society	Country	ICEC Member	IPMA Member
Chinese Association for Project Managers	China	No	Yes
Cost Engineering Association 11 countries in of Southern Africa (CEASA)	Southern Africa	Yes	No
CSNK INTERNET	Czech Republic	No	Yes
Egyptian Society of Engineers, Management Engineering Society (MES)	Egypt	No	Yes
Foreningen for Dansk Projektledelse (FDP)	Denmark	Yes	Yes
Gépipari Tudományos Egyesület / Műszaki Költségtervező Klub (GTE/MKK)	Hungary	Yes	No
Gesellschaft für Projektmanagement (GPM)	Germany	No	Yes
Hellenic Project Management Association	Greece	No	Yes
Hong Kong Institute of Surveyors	Hong Kong	Yes	No
Institute of Project Managers of Sri Lanka	Sri Lanka	Pending	No
Instituto Brasileiro de Engenharia de Custos (IBEC)	Brazil	Yes	No
Instituto de Costos de Construccion del Colegio de Ingenieros de Venezuela	Venezuela	Pending	No
Institution of Surveyors of Malaysia	Malaysia	Pending	No
Iranian Association for Project Managers	Iran	No	Yes
Korean Institute of Project Management and Technology (PROMAT)	South Korea	Yes	No
Macedonian Association of Project Management	Macedonia	No	Yes
Magyar Fövallalkozók Szövetsége	Hungary	No	Yes

MEMBER SOCIETIES OF THE INTERNATIONAL COST ENGINEERING COUNCIL (ICEC) AND THE INTERNATIONAL PROJECT MANAGEMENT ASSOCIATION (IPMA)			
Society	Country	ICEC Member	IPMA Member
Nederlandse Stichting Voor Kostentechniek (DACE)	Netherlands	Yes	No
New Zealand Institute of Quantity Surveyors (NZIQS)	New Zealand	Yes	No
Norsk Forening for Prosjektledelse (NFP)	Norway	Yes	Yes
Project Management Associates	India	No	Yes
Project Management Association of Slovenia	Slovenia	No	Yes
Projektitoimintayhdistys (PMAF)	Finland	Yes	Yes
Projektmanagement Austria-Institut	Austria	No	Yes
Russian Association of Cost Engineers	Russia	Pending	No
Russian Project Management Association (SOVNET)	Russia	No	Yes
Singapore Institute of Surveyors and Valuers	Singapore	Pending	No
Sociedad Mexicana de Ingeniería Económica, Financiera y de Costos (SMIEFC)	Mexico	Yes	No
Svenskt ProjektForum (SPMS)	Sweden	Yes	Yes
Swiss Society for Project Management (SPM)	Switzerland	No	Yes
Ukranian Project Management Association (UKRNET)	Ukraine	No	Yes
Verkefnastjórnunarfélag Íslands (VSFI)	Iceland	Yes	Yes
Yugoslav Project Management Association (YUPMA)	Yugoslavia	No	Yes

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MEMBER SOCIETIES OF THE INTERNATIONAL COST ENGINEERING COUNCIL (ICEC) AND THE INTERNATIONAL PROJECT MANAGEMENT ASSOCIATION (IPMA)			
Society	Country	ICEC Member	IPMA Member
ICEC Secretariat address: 1168 Hidden Lake Drive Granite Falls, NC 28630, USA Phone: 1-704-728-5287 Fax: 1-704-728-0048 E-mail: icec@ICostE.org Internet: http://www.ICostE.org			IPMA Secretariat address: c/o Chris Seabury PO Box 30, Monmouth NP5 4YZ, UK Phone: 44-1594-531-007 Fax: 44-1594-531-008 E-mail: ipma@btinternet.com Internet: http://www.ipma.ch