

ENGINEERING CONSULTANCY SERVICES
PROFESSIONAL FEE STRUCTURE

THE ASSOCIATION OF CONSULTING ENGINEERS, SRI LANKA

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1. INTRODUCTION

A Consulting Engineer's fees are determined by the scope of services to be provided. The scope of services may be determined by the Client or by the Client in consultation with the Consulting Engineer or by the Project Manager in consultation with the Client where the Client has appointed a Project Manager to act on his behalf.

By Adopting a suitable fee scales provided here the Association considers that it will enable a Consulting Engineer to provide his client the benefit of a full competent and reliable standard of service.

Clients are advised to satisfy themselves that the quality and level of services they expect will be covered when they offer assignments based on charges which are appreciably lower than those described in this guidance document.

It is to be noted that the client's brief for the Project is of importance in the preparation of a fee bid. The more comprehensive and accurate the brief the more reliable will be the fee bid.

Therefore the terms of reference for any consultancy assignment should be carefully drawn up to avoid any ambiguities.

2. SCOPE OF SERVICES

The services provided by a Consulting Engineer may be classified under one or more of the following categories.

- (a) Pre-feasibility Studies
- (b) Feasibility Studies
- (c) Detail Engineering Design and Preparation of Tender Documents
- (d) Procurement
- (e) Construction Supervision and Contract Administration
- (f) Project Management
- (g) Technical Services
- (h) Dispute Review Services

(a) Pre-feasibility Studies

A pre-feasibility study is resorted to in order to determine the viability of a project prior to embarking on a detailed feasibility study with or without a number of possible alternatives.

The activities will generally include, but will not be limited to the following.

- i. Study of the Client's brief and conceptual proposals for the project.
- ii. Collect and review all available data and information relevant/useful to the study.
- iii. Carry out preliminary reconnaissance surveys and investigations appropriate in extent and detail where necessary to supplement available information.
- iv. Study alternative proposals where alternative proposals are possible and recommend the most viable option.

- v. Make a preliminary environmental impact assessment.
- vi. Carry out preliminary economic viability of the project.
- vii. Prepare a preliminary estimate of costs.
- viii. Report on the merits of proceeding to the next stage of detailed feasibility studies.

(b) Feasibility Studies

The activities will generally include but will not be limited to, the following;

- i. Study and Review the Terms of Reference for the project, discuss with the Client and submit comments if any on the Terms of Reference and make suggestions where necessary for clarification or for improvement of performance in carrying out the project for Client's concurrence.
- ii. Carry out preliminary surveys and preliminary site and soil investigations and other necessary investigations appropriate in extent, for the study.
- iii. Collect and study all necessary data relevant to the project.
- iv. Study statutory and local authority requirements and advise client to obtain approval where necessary.
- v. Co-ordinate the services provided by the other consultants.
- vi. Study possible alternative proposals including economic viability.
- vii. Prepare preliminary designs and drawings for the proposals including those for the alternatives where necessary.
- viii. Prepare cost estimates including those for alternative proposals where necessary.
- ix. Compare alternative proposals where these have been considered and make recommendations to the Client.
- x. Prepare environmental impact assessments and reports arising from statutory planning requirements.

(c) Detail Engineering Design and Preparation of Tender Documents

- i. Arrange detailed surveys, detailed site and soil investigations and other investigations necessary for the preparation of designs, drawings and specifications.
- ii. Prepare design reports, develop detailed design, tender drawings/working drawings.
- iii. Co-ordinate the design and documentation provided by other consultants.
- iv. Prepare complete Tender Documents comprised of Conditions of Contract, Bills of Quantities, Specifications and Drawings.
- v. Prepare programme of work for the project.
- vi. Prepare the engineer's estimate.

(d) Procurement

- i. Advise the client on methods of procurement.
- ii. Assist the Client on invitation of tenders, evaluating and reporting on tenders received and in negotiating a contract.
- iii. Prepare contract agreements for signing.

(e) Construction Supervision and Contract Administration

- i. Carry out the duties assigned to the Consulting Engineer in terms of the contract including;
 - ✕ Approve the contractor's work programme taking in to consideration the work programme of other contractors subject to revision if necessary.
 - ✕ Review the Contractor's work proposals and request for revision if necessary to ensure satisfactory execution and safety of work and personnel.
 - ✕ Co-ordinate work with other consultants.
 - ✕ Detailed day to day supervision through a Resident Engineer.
 - ✕ Ensure testing and quality control for conformity.
 - ✕ Review project cost and advise client of any changes.
 - ✕ Check measurements and certify interim payments.
 - ✕ Ensure the preparation and submission of "as-built" drawings & manuals.
 - ✕ Issue certificate of completion according to the contract on substantial completion of the works.
 - ✕ Inspect the Works during the defects liability period (maintenance period) and ensure that the contractor attends to all the defects.
 - ✕ Inspect at the end of the defects liability period and report to the Client.
 - ✕ Issue maintenance certificate when due, as final completion of contract.
 - ✕ Advise the Client on final payment of all amounts due to the contractor including the release of retention money and bonds.

- ii. In addition to above, the services under the Electrical and Mechanical works include the following;
 - ✕ Approval of Working drawings and the erection programme.
 - ✕ Supervision of installation, testing and commissioning of plant and equipment including acceptance of test certificates and reports.
 - ✕ Approval of maintenance manuals.

(f) Project Management

Scope of Project Management Services provided by a Consulting Engineer under different methods of project implementation such as;

- i. "Engineer" administered Contracts
- ii. Design and Build Contracts and,
- iii. Turnkey Project Contracts

are described in a separate document.

(g) Technical Services

These services relate to;

- i. Reports on the condition of an existing structure and assessment of the strength/suitability for a specific purpose.
- ii. Reports on damage to or collapse of a structure.
- iii. Reports on quality of works.
- iv. Testing and reporting on a structure or part of a structure.
- v. Reports on defects and their rectification.

(h) Dispute Review Services

A Consulting Engineer may as an individual provide his services as Adjudicator, Dispute Review Expert or a member of an Adjudication Board or a Dispute Review Board.

He may be appointed to any one of the above positions as relevant in terms of the provisions in the contract containing provisions for adjudication or dispute review, or by an appointing authority stipulated in the contract.

The services to be provided shall include:

- i. Visit to the site of the work with representatives of the parties, preparation and submission of reports on visits or give evidence in an arbitration.
- ii. Conducting discussions and hearings on disputes referred to him for his recommendation.
- iii. Formulating recommendations for settlement and submitting to the parties.

His services shall be confined to the activities provided under the relevant contract, which is in dispute and he will not tender advice or consultation on matters dealing with the conduct of the contract work.

3. BASIS FOR COMPUTATION OF CONSULTING ENGINEER'S FEES

The fee due to a Consulting Engineer should cover all his costs on completion of the scope of services envisaged in an assignment and a reasonable margin of profit. Such costs include -

- (a) Salary costs of technical staff
- (b) Social Charges
- (c) Overhead costs
- (d) Reimbursable costs

3.1 Salary Costs

These include the salaries and allowances, such as cost of living allowance and hardship allowance.

3.2 Social Charges

These include costs incurred by the Consulting Engineer in contributions to the Employees' Provident Fund, Employees' Trust Fund, Holiday and Sick pay, Bonus, Gratuity Benefits, Staff Welfare and Miscellaneous Benefits.

3.3 Overhead Costs

These are costs of administering the organization and include office rent, administration, technical supervision, travelling and subsistence, business promotion, printing and stationery, brochures and reproduction of documents, maintenance of equipment, salaries of supporting non-technical staff, communication (telephone, telex, postage and e-mail), bank charges and interest, entertainment, foreign travel, depreciation of equipment, audit and accountancy, insurance, water and electricity.

3.4 Reimbursable Costs

These are directly related to the particular assignment. They include cost of travelling and subsistence, testing charges, electronic data processing costs, communications, courier service charges, surveys, soil investigations, plant and equipment, reports and photographs directly incurred on the project.

4. FEES FOR PROFESSIONAL SERVICES

4.1 Professional fees for Consulting Engineering Services are calculated according to one of the following methods or a combination thereof.

- Scale 1 : Lump-sum fee
- Scale 2 : Percentage of Cost of the Project
- Scale 3 : Time Based fee

4.2 Scale 1 : Lump sum fee

This is suitable for scope of work of Categories (a),(b),(c),(d), (f), (g) and (h) listed in Section 2.

4.2.1 This method of payment may be used when the nature of the services to be provided is clear-cut and distinctly identifiable and is unlikely to change significantly.

4.2.2 The lump-sum fees of the Consulting Engineer shall include the following:

- (i) Salary costs, social charges and overhead charges.
- (ii) Cost of travel and out-of-pocket expenses of the personnel of the Consulting Engineer, in connection with the job.
- (iii) Cost of drawings, specifications, reports and manuals up to a certain number of copies, as agreed with the Client.
- (iv) Profit.

4.2.3 Any other cost shall be paid extra as agreed with the Client.

4.2.4 The validity period of the lump-sum fee and the rate of escalation shall be specified.

4.3 Scale 2 : Payment as a Percentage of Cost of the Project

In general this scale is suitable for scope of services included in Categories (c) and (d).

Percentage fee for service under categories (c) and (d) will be obtained from the shaded area given in Figure 1. Fees shall be calculated by multiplying the applicable project cost by the percentage fee.

Note :

When a project consists of more than one of the following groups of work :

- (a) Civil Engineering*
- (b) Electrical & Mechanical Engineering (that is, both services & plant)*
- (c) Buildings*

the total fee for the project shall be determined from Figure 1 but calculated as if each of the groups is a separate work; that is, fees shall be calculated for each of the groups of works by applying their percentage fees to individual costs and then summing the individual fee components to arrive at the total fee for the project.

Percentage fee shall be negotiated between the Client and the Consulting Engineer in case the project cost is less than Rs. 5 Million.

The 'Applicable Project Cost' shall be deemed to include all costs incurred/ to be incurred by the Client for execution of the project, except the following:

- (i) Payments to the Consulting Engineer
- (ii) Interest on capital during construction and the cost of raising money required for carrying out the construction of the project, and margin money for working capital
- (iii) Cost of land

Repetitive works -

For works which are repetitive in character or for separate but identical buildings to one design for one Client, the following formula may be used :

$$T_n = T_1 \frac{(n+5)}{(6n)}$$

where T_1 = fee for first item of the same design
 T_n = fee for nth item of the same design and
 n = number of items of same design

4.4 **Scale 3 : Time Based fee**

This is suitable for scope of work in all categories particularly in large projects.
This method of payment is also useful when;

- a) The extent and duration of the service to be provided by the Consulting Engineer are difficult to foresee at the time of appointment
or
- b) The scope of services is likely to change substantially
or
- c) The time likely to be devoted by the Consulting Engineer bears little relation to the value of the project

Under this scale, the Client shall pay the Consulting Engineer the sum of the following

- a) Basic Salary
- b) Cost of social benefits
- c) Cost of overheads
- d) Fees of the Consulting Engineer
- e) Cost of Reimbursables

4.4.1 **Basic Salary**

This is the Basic Salary cost of the technical personnel of the Consulting Engineer on the particular job of the Client.

4.4.2 **Cost of Social Benefits**

The items of cost covered under this head shall include;

1. Bonus

2. Employees Provident Fund
3. Employees Trust Fund
4. Holiday and Sick Pay
5. Gratuity Benefits
6. Staff Welfare
7. Miscellaneous Benefits

In addition house rent, conveyance, education etc. where paid, will be included.
Social benefits may vary from 60% to 100% of the basic salary.

4.4.3 **Cost of Overheads**

The items of cost covered under this head shall include;

1. Rental of Office
2. Administration
3. Technical Supervision
4. Travelling and Subsistence
5. Business Promotion
6. Printing and Stationery, Brochures and Reproduction of Documents
7. Maintenance of Plant and Equipment
8. Costs of non-technical supporting staff
9. Communication - Telefax, Telephone and Postage
10. Foreign Travel
11. Electricity and water
12. Bank Charges and Interest
13. Entertainment
14. Depreciation of Plant and equipment
15. Miscellaneous
16. Audit and Accountancy
17. Insurance

Overheads vary from 150% to 200% of the basic salary.

4.4.4 **Fees**

The fixed percentage of fees of the Consulting Engineer varies from 15% to 20% of the sum of Basic Salary + Social Benefits + Overheads.

4.4.5 **Cost of Reimbursables**

These include out of pocket expenses such as

1. Postage and communications
2. Printing and binding reports
3. Photographs
4. Protective wear

5. Travelling and subsistence
6. Electronic data processing expenses
7. Surveys
8. Site Investigations

4.4.6 **Man-month Rates**

The man-month rate includes (1) basic salary (2) Social benefits expressed as a percentage of basic salary (3) overhead cost expressed as a percentage of basic salary and (4) fees expressed as a percentage of (1) + (2) + (3)

A Range of indicative Man-month rates is given below.

<u>Designation</u>	<u>Minimum years of experience</u>	<u>Man-month Rate (Rs) (M₀)</u>
Partner/Director	25	325,000 - 430,000
Chief Engineer/ Manager	20	290,000 - 325,000
Asst. Chief Engineer	15	240,000 - 290,000
Senior Engineer	10	180,000 - 230,000
Designs Engineer	5	125,000 - 180,000
Asst. Engineer	2	100,000 - 145,000
Technical Officer	15	90,000 - 125,000
Technical Officer	2	55,000 - 90,000
Senior Draftsman	10	90,000 - 125,000
Draftsman	5	70,000 - 90,000
Junior Draftsman	2	45,000 - 65,000

Note : The above indicative man-month rates shall be valid up to 01.01.2003 and thereafter it will be adjusted at the beginning of every year according to the following escalation formula :

$$M_n = M_0 \times \frac{S_n}{S_0}$$

Where

M_n = Revised Rate n years after 01.01.2003

M_0 = Initial Rate on 01.01.2003

S_0 = Colombo Consumer Price Index published by the Central Bank of Sri Lanka, on 01.01.2003

S_n = Colombo Consumer Price Index published by the Central Bank of Sri Lanka, n years after 01.01.2003.

4.4.7 Man-hour Rates

When the time spent by technical personnel is of short duration, generally fractions of a day at a stretch, the time is reckoned in man-hours. The hourly rate is calculated as equal to (Monthly rate M_n divided by 20x8) x 2, 20 being the average number of working days for a

month, 8 being the number of working hours per day and 2 a multiplier for short duration of service.

This method is recommended for categories (g) and (h) in section 2 for such assignments as;

1. Consultations
2. Advisory services
3. Reports establishing data and requirements for design
4. Part time services of short duration
5. Time spent at meetings on behalf of the client
6. Inspection of materials and equipment
7. Site visits for inspection
8. Inspections during maintenance period

4.4.8 If the Consulting Engineer is required to assign personnel on long-term basis for construction supervision services, fees shall be calculated on man-month basis given below:

<u>Designation</u>	<u>Minimum years of Experience</u>	<u>Man-month Rate (Rs) (M₀)</u>
Resident Engineer/ Project Manager or equivalent	20	290,000 - 325,000
Asst. Resident Engineer (Civil/Mechanical/Electrical) or equivalent	15	240,000 - 290,000
Construction Engineer (Civil/Mechanical/Electrical) or equivalent	5	125,000 - 180,000
Technical Officer (Civil/Mechanical/Electrical) or equivalent	10	90,000 - 125,000
Technical Officer (Civil/Mechanical/Electrical or equivalent)	2	65,000 - 100,000
Project Engineer (at Head Office)	25	290,000 - 325,000

Note : The above man-month rates shall be valid up to 01.01.2003 and thereafter subject to escalation every year according to the following escalation formula :

$$M_n = M_0 \times \frac{S_n}{S_0}$$

Where

$$M_n = \text{Revised Rate } n \text{ years after } 01.01.2003$$

$$M_0 = \text{Initial Rate on } 01.01.2003$$

S_0 = Colombo Consumer Price Index published by the Central Bank of Sri Lanka, on 01.01.2003

S = Colombo Consumer Price Index published by the Central Bank of Sri Lanka, n years after 01.01.2003

- 4.4.9 For the period of services rendered less than a full month, payments shall be made pro-rata basis considering a month as 26 days.

No deduction shall be made in calculating a month for weekly off day and public holidays observed by the Client.

5 GENERAL

- 5.1 In any “Scale of Fees”, the following are considered reimbursable over and above the fees quoted, unless expressly agreed:

- (i) The costs of available documents needed in connection with the Agreement, such as maps, aerial photographs, records. Such documents shall be the property of the Client.
- (ii) All costs of site surveys
- (iii) The cost of specialized professional advice, soil investigations and laboratory services as may be obtained by Agreement with the Client
- (iv) The cost of special instruments and equipment as mentioned in the Agreement or afterwards agreed upon by the Client
- (v) Travelling, transport, board and lodging and such other expenses of the Consulting Engineer and his staff at prevalent rates.
- (vi) Cost of advertising on behalf of the Client for tenders.

5.2 Travelling Time

Time spent on travelling under Scale 3 shall be half the time counted from the time technical personnel of the Consulting Engineer leave the office till their return to the office, it being understood that a day shall consist of maximum 8 working hours.

- 5.3 For construction supervision and Contract Administration, initial operation and commissioning services away from the place of normal work of the personnel of the Consulting Engineer, the Client shall provide free of cost the following to the personnel of the Consulting Engineer assigned to project site :

- (i) Furnished accommodation equipped with drinking water and electricity, gas and telephone.
- (ii) Medical facilities and other civic facilities as available to Client’s personnel.
- (iii) Furnished office accommodation including telephone and office equipment including computer facilities.
- (iv) Transport including driver
- (v) Secretarial facilities.

Note : In case the Consulting Engineer is required to provide for items (iv) and (v) above, mutually agreed charges shall be payable by the Client to the Consulting Engineer in addition to the fees include in Scales.

6. TERMS OF PAYMENT

- 6.1 For Categories (a) and (b) of scope of services, fees shall be paid in the following manner:

Market Survey/Feasibility Study/Project Report

- 25% - 50% - On issue of Letter of Intent by the Client
- 25% - 50% - Interim payment as mutually agreed
- 25% - On submission of Final Report

6.2 Under Category (c) of Section 2, payment shall be made as mutually agreed.

The fees under Scales 1 and 2 shall be paid in the following manner:

- (a) 10% of the fees shall be paid upon issue of Letter of Intent by the Client towards initial expenses. For Scale 2, applicable project cost shall be indicative at this stage for interim payments.
- (b) 80% of the fees shall be paid in equal monthly installments over a period which depends on the duration of engineering works of the project by the Consulting Engineer, commensurate with the engineering progress.
- (c) 10% of the fees shall be paid on successful completion of work by the Consulting Engineer.
- (d) Reimbursable costs shall be paid on monthly basis.

6.3 The fees under Scale 3 shall be paid in the following manner:

- (a) An ad hoc lump sum amount shall be paid upon issue of Letter of Intent by the Client. This ad hoc amount shall be adjusted suitably from the monthly bills of the Consulting Engineer.
- (b) For design engineering, inspection and expediting service, monthly invoices shall be drawn by the Consultant based on man-hours spent by the technical personnel, up to 90% of the fees. Balance 10% of the fees shall be paid on successful commissioning of the project or after completion of work by the Consulting Engineer.
- (c) For supervision of construction, commissioning and initial operation, monthly invoices shall be drawn by the Consulting Engineer based on man-months or part thereof, spent by the technical personnel.
- (d) Reimbursable costs shall be paid on monthly basis.

6.4 Payments shall be made within 30 calendar days of the presentation of invoices and the Consulting Engineer shall be entitled to recover interest on sums not paid within 30 calendar days of the due date. The rate of interest shall be 2% over the weighted average lending rates of Commercial Banks for overdraft.