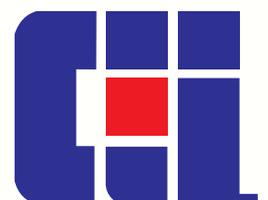


# **GUIDELINES FOR SELECTION OF CONSULTANTS AND PROFESSIONAL COMPENSATION STRUCTURE**

CONSULTING ENGINEERS ASSOCIATION OF INDIA



**GUIDELINES FOR  
SELECTION OF CONSULTANTS  
AND  
PROFESSIONAL COMPENSATION  
STRUCTURE**

**CONSULTING ENGINEERS ASSOCIATION OF INDIA**

**New Delhi**

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## INTRODUCTION

This document titled “***Guidelines for Selection of Consultants and Professional Compensation Structure***” has been prepared with a view to provide:

- (a) a basis for uniformity in the selection process of consulting engineers for various type of projects being executed in India; and
- (b) to recommend the compensation payable for consulting engineers services to be rendered for works in India. The compensation for works/ assignments outside India is not covered in this document.

The document takes a cue from the “*Client - Consultant Agreement*” that was prepared in the 1980s by the National Association of Consulting Engineers (NACE), a former organisation which merged along with the Association of Consulting Engineers (ACE) to form the Consulting Engineers Association of India (CEAI) in 1996. The earlier document had outlived its utility and a need was felt by its users to bring it at par with the current practices.

Accordingly CEAI formed a committee to revise the document. The document comprises of:

Part-A: *Guidelines for Selection of Consultants*

Part-B: *Guidelines for Professional Compensation Structure*

CEAI is thankful to the members of the committee who have painstakingly contributed to drafting of this document and trust that the Clients and the Consultants would find it to be useful.



## PREAMBLE

### CONSULTING ENGINEERS' ROLE AND HOW THEY ADD VALUE

Earlier all development works were executed through the Public Works Department of the Government, be it the Central or the State. However, with the advent of Private Consulting Engineers over half a century ago in the country, the government began utilising their services and today the Consulting Engineers (hereinafter referred to as “Consulting Engineers” or “Consultants” which would include individuals, association of persons and firms/ organisations) are the key for all development programmes. The role of Consultants progressed from that of designers and detailers, to also include monitoring the quality and progress of the works at the site of the project.

As the number, size and complexity of projects grew and international funding too was necessitated, a need was felt to induct foreign Consultants to gain from their knowledge and experience. With the increase of foreign participation in development projects coupled with the rapid increase in pace of development works in the Infrastructure sector, the roles of Consultants enhanced considerably. Consulting Engineers are now an essential part of all projects taken up to improve the assets of the country and their role is equally important as that of the Authority or Owner or the execution agency or any other participant in the project.

Consulting Engineers are generally assigned the following tasks:

- Assessing the Feasibility of a project after checking the techno-economical aspects along with safeguard and risk issues, and often required to carry out the surveys and field investigations necessary for the purpose.
- Prepare the Detailed Project Report, after the Feasibility of a project is established, which includes design, drawings, specifications, Bill Of Quantities and work plan; and where required designing of prototype by scaling up from laboratory bench scale tests, plant Operability Studies and Hazop Studies all ensuring compliance with statutory and codal requirements, etc.
- Recommend Laboratory Testing, which may include hydraulic model tests, wind tunnel tests, load test, etc., reviewing the report(s) and recommending what needs to be adopted for the project.



- Procurement Assistance services which inter alia would include preparing Tender Documents, Inviting Tenders, Evaluating the Tenders, recommending the award of the tender, preparing the draft Contract Documents, etc.
- Monitoring and Management of the project to ensure quality assurance and control, day to day supervision, where the Authority/ Owner have no capacity/ resource for the same.
- Proof Checking of work carried out by another Consultant or by the design office of the Authority/ Owner.
- Report on the systematic progress of the work and appropriate utilisation of funds released progressively, by Financial Agencies, where applicable.

In all the above roles, Consulting Engineers are required to add value in the particular field, beyond the existing capability of Authorities/ Owners and thereby ensure optimum utilisation of the resources of the country in a sustainable manner.

With the increasing role of the Consultants, it has become necessary to define the protocol for assessing fees and remuneration payable to a Consulting Engineer. The purpose of this document is to present the commonly used methods of deciding appropriateness of the compensation to be paid to the Consultant for the services and to create awareness on the subject, among the users of the Consultancy services.

The overriding concern in deciding the compensation for Consultancy services should be the maintenance of quality of the professional services provided, with due attention to the number of qualified and experienced resources and the time required so that they can address issues of suitability of planning and robustness of design together with optimisation and economy, sustainability, efficiency, integrity, management of risks, safety concern and public welfare.



# **PART-A: GUIDELINES FOR SELECTION OF CONSULTANTS**





## 1.0 SELECTION OF CONSULTANTS

The importance of proper selection of Consultants is paramount, more so for complex and large projects. The selection methods should be fair, transparent and value based. The aim should be to facilitate imparting an appropriate quality of professional service that is sustainable and economic. Increased awareness on the value addition by the Consultants, the impact of choice of Consultants on the overall quality of any project and crucial roles of Consultants, have led to the adoption of different methods of selection of Consultants.

Capability, knowledge, skills, past experience, managerial ability, adequacy of infrastructural facilities, in respect of the type of project, should determine the suitability of Consultants, as a team, or as individual experts, as the need be. The quality and suitability of the Consultants are the most essential factors for successful completion of a project with sustainable results. The cost of the consulting engineering service, which is normally a small percentage of the project cost, ought not to be the most significant criterion for selection of Consultants. A wrong or inappropriate selection of Consultant may result in grossly disproportionate loss to the project, many times more than the consulting engineering compensation. Correct selection of Consulting Engineers will add to the quality of the project and optimize its life cycle cost.

The main methods for selection of Consultants, in general, are:

- a. Quality Based Selection (QBS),
- b. Quality and Cost Based Selection (QCBS), and
- c. Least Cost Based Selection (LCBS).

Most countries in the developed world have embraced the first method, viz., QBS. It is also the only method recommended by the International Federation of Consulting Engineers (FIDIC). Ideally, it would be desirable to adopt this method in India too, especially for a project of significant complexity.

QCBS is also a well accepted selection method, particularly in India and many other developing countries. However, the weightage of cost in the selection process should figure out substantially less than that of quality and should not exceed 20% of the total for routine projects and 10% for highly technically complex projects.

The other methods of selection, such as, LCBS are for small, routine and simple type of projects or for “Consultancy Service Providers”, a term used where Consultants are shortlisted by the Owner by a separate pre-qualification process.

### 1.1 QUALITY BASED SELECTION (QBS)

In this method the selection of a Consultant is based solely on the technical capability of the Consultant and the track record of the firm in executing similar assignments.

Technical scores are calculated based on a variety of parameters such as experience in similar projects, quality of resources with proven credentials (usually based on qualification, innovative approach, number of projects worked on, number of years of experience, etc.) to be deployed, write up or



presentation on approach and methodology, average annual turnover, etc. with scoring being done for each factor separately and the final technical score being a summation of these scores.

The highest ranked Consultant is selected and compensation finalized thereafter.

## **1.2 QUALITY AND COST BASED SELECTION (QCBS)**

In this approach the scores based on the technical capabilities of the bidders are evaluated and intimated to all bidders. The scores are then combined with the scores of the financial bids of the Consultants. The Consultant that gets the maximum combined score is selected.

The technical scores are calculated in the same manner as in QBS method. Generally, the financial bids only of those bidders who obtain a minimum pre-specified technical score are opened in presence of the bidders.

The financial scores are calculated through a normalization process where the lowest bidder is given 100 and scores of all other bidders are normalized against this. For example – If A is the lowest bidder who has bid Rs. 2 crores for a project and B and C are the other two bidders with bids of Rs. 4 crores and Rs. 5 crores, the normalized score of A is taken as 100, B is taken as  $(100 \times 2/4 = 50)$  and C is taken as  $(100 \times 2/5 = 40)$ .

After calculating the technical and financial scores, they are multiplied by respective weightages to find the total score and the firm with the highest total score is awarded the contract. Usually the weightages for technical and financial scores are 80% and 20% respectively. In assignments where the Consultant's assignment results in high downstream value, a 90% - 10% evaluation criterion is adopted.

Negotiations of the compensation or even the scope of work in any way/ manner with any bidder are not expected unless it is specifically mentioned in the Request For Proposal (RFP).

## **1.3 LEAST COST BASED SELECTION (LCBS)**

This method falls under category of Consultancy Service Providers, and may be adopted only for repetitive work or works of routine nature for which quality is either not an overriding factor, or a quality benchmark has already been established or where the client has sufficient knowledge and comprehension of the project to check and ensure the suitability, safety and robustness of the designs, construction, erection/ installation, testing, commissioning, etc., but still wishes to outsource for any reason whatsoever.

Sometimes in this approach, the bidder among the technically qualified ones, (after shortlisting or specifying few minimum necessary parameters of experience and turnover), who offers the least cost is selected. However, this method is not recommended since the bidder may not have properly appreciated and evaluated the inputs and efforts required for successfully completing the project.



# **PART-B:**

## **GUIDELINES FOR PROFESSIONAL COMPENSATION STRUCTURE**



## 1.0 BASIS OF CALCULATION OF COMPENSATION

Consulting Engineers are necessarily a group of professionals working under one umbrella. The tasks are person based and majority of the expenses incurred by Consulting Engineers relate to cost incurred in getting work done by the professionals, their remuneration and the cost of providing them all the facilities for enabling them to execute their tasks, working in office or by visiting project sites, office of the Authority/ Owner, supervising works and the like. Expenses also cover specialist tasks carried out by appointing agencies that have necessary equipment and trained manpower for undertaking surveys, studies, investigations and tests that are required for incorporating the results into their deliverables.

It is also essential for all Consultants to consistently update their knowledge to be able to deliver accepted state of the art practices of sound engineering adopted around the world and in keeping with that objective to incur expenses which become a part of their R&D spending - which is a part of the overhead expenses that add to their chargeable compensation.

For transparency and better understanding of all concerned, the calculation parameters of Compensation are made readily available to the Authority/ Owner, for assignments that are not of routine nature but are developmental in nature or even exploratory.

For standard tasks, where repetitive usage has resulted in acceptable norms getting developed, compensations are often calculated based on percentage of cost of the project and sometimes on Lump Sum basis.

The basic aim of all the methods of determining compensation is to ensure that the Consultant should cover all the costs of completing the scope of services envisaged in an assignment plus provide a mark-up. The basic cost factors of an assignment generally include:

- Salary costs of technical staff
- Social Costs
- Overhead expenses
- Out of pocket expenses

These are more elaborately explained later.

The total cost, as calculated, is marked up by appropriate margin of surplus for making the operation sustainable in the long run.

## 2.0 RANGE/ CLASSIFICATION OF PROFESSIONAL SERVICES

### 2.1 SECTORS

Professional Services for Consultants inter alia cover the following areas of work:

- i) Buildings e.g. Residential, Commercial, Multi-Use, Healthcare, Hospitality, Retail, etc.
- ii) Urban & Rural Development/ Renewal including Smart Cities
- iii) Water Resources & Irrigation
- iv) Water, Waste water and Solid Waste Management
- v) Environmental Study and Engineering including application of Green technology



- vi) Roads & Highways
- vii) Bridges
- viii) Shipping
- ix) Ports & Harbours, Inland Water Transport
- x) Marine & Offshore
- xi) Automobile & auto-components
- xii) Airports & Aeronautical
- xiii) Space exploration
- xiv) Railways / Metro Rail
- xv) Process industries including Oil & Gas, Petroleum & Petrochemicals, other Chemicals, Specialty Chemicals, Fertilisers, Pulp & Paper, Pharmaceuticals, Food, Textiles, Cement, etc.
- xvi) Pipelines for Oil, Gas and Chemicals
- xvii) Industrial/ Manufacturing plants
- xviii) Mining and Minerals
- xix) Metallurgy (Ferrous & non Ferrous)
- xx) Power Plants – Thermal, Hydro, Renewable & Nuclear
- xxi) Nuclear other than Power Plants
- xxii) Power Transmission & Distribution
- xxiii) Communication – Telecom, Information Technology, etc.
- xxiv) Defence Equipment & Systems
- xxv) Tourism
- xxvi) Special Projects – projects which do not fall in any of the above sectors and inter alia include Developmental, Exploratory, Experimental and One of a Kind Project.

## **2.2 CATEGORIES**

The services provided are generally covered under the following categories:

### **Category 1 - Initial Project Studies**

- i) Project Identification Study
- ii) Market Surveys and Project Inception
- iii) Site Selection Study
- iv) Pre-feasibility Study
- v) Technical Due Diligence
- vi) Rate Structure and Tariff Studies
- vii) Environment Impact Assessment and Management Plan
- viii) Safeguard & Risk Issues including Rehabilitation and Resettlement, Land Acquisition, Safety, Security Assessment & Mitigation



## **Category 2 - Pre-Design Services/ Feasibility Report**

- i) Investigations and Explorations
- ii) Traffic Survey and Analysis
- iii) Topographic/ Hydrographic Surveys, Geotechnical & Geological Investigations, Hydrological Investigations
- iv) Feasibility Report covering basic design, alignment fixing, layout, estimation of costs, etc.
- v) Project Implementation Schedule
- vi) Financial Analysis

## **Category 3 - DPR for Infrastructure and Other Projects**

- i) Surveys and Investigations
- ii) Finalization of layout plans, alignments, levels, cross-sections, etc.
- iii) Collection of Cadastral Maps and related data
- iv) Preparation of Land Acquisition Plans
- v) Design and Drawings for all aspects of the project
- vi) Constructability, Operability and Maintainability Reviews
- vii) Preparation of Technical Specifications
- viii) Preparation of BOQ and Estimate of Costs
- ix) Preparation of Tender Documents
- x) Preparation of documents for Environmental, Forest Clearance, etc.
- xi) Preparation of Rehabilitation and Resettlement Plan
- xii) Obtaining approval for deliverables by Interaction with Clients/ nominated Checking Authority

## **Category 4 - Basic Design Engineering**

- i) Process Design and Process Flow Diagram
- ii) Materials and Energy Balances
- iii) Process Data Sheets
- iv) Process and Instrumentation Diagrams (P&IDs)
- v) Technical Specifications

## **Category 5 - Detailed Design Engineering**

- i) Preparation of Design Basis Report (DBR)
- ii) Preparation of Design and Good for Construction (GFC) drawings and other documents as may be necessary, obtaining approval for same from Authority and Owner, all of which are to include Constructability, Operability And Maintainability Reviews and necessary modifications that may result from them
- iii) Preparation of Technical Specifications
- iv) Preparation of Tender Documents, Bill of Quantities (BOQ) and Cost Estimates



- v) Reviewing or Proof Checking of Vendor's/ Contractor's drawings
- vi) Review of "AS BUILT" drawings prepared by Vendors/ Contractors

### **Category 6 - Project Management**

- i) Project Planning
- ii) Prepare Health, Safety and Environment (HSE) & Quality Assurance (QA) Plans
- iii) Scheduling of activities involved, defining objectives, responsibilities and project milestones
- iv) Coordination with Authority/ Owner and Vendors/ Contractors
- v) Project Review and Periodic Progress Reporting including Cost and Time Control

### **Category 7 - Procurement Assistance**

- i) Identification/ Prequalification of vendors
- ii) Forwarding Enquiries along with Technical Specifications and Commercial and Conditions
- iii) Analysis of Bids received, recommending the most suitable Vendor/ Contractor
- iv) Preparation of Contract Documents
- v) Vendor development
- vi) Inspection of Plant and Equipment and where required their respective System
- vii) Quality Assurance (QA) Plan Implementation
- viii) Witnessing of Tests at Manufacturer's Works
- ix) Compilation of Operations and Maintenance Manuals

### **Category 8 - Construction Supervision/ Monitoring and Management**

- i) General Review of Drawings and Documents
- ii) Planning, Coordination and Supervision/ Monitoring of Construction Work at site
- iii) Approval of Construction Materials
- iv) Attending Testing of materials and equipments
- v) Quality Control (QA/QC)
- vi) Liaison work between the Client and the Contractor
- vii) Preparation of Periodical Progress Reports
- viii) Updating Construction Schedules
- ix) Preparation of Exception Reports
- x) Examining and certifying Bills of the Contractor for payment
- xi) Compliance for Health, Safety & Environment (HSE) policies
- xii) Taking over of Project and Issuance of Completion Certificate
- xiii) Overseeing work during Defects Liability Period

### **Category 9 - Monitoring of Testing, Commissioning and Initial Operations**

- i) Pre-commissioning Check of Plant and Equipment and Systems including preparation of Preliminary Acceptance Tests (PAT) reports



- ii) Start-up and Commissioning of Plant and Equipment and Systems including Final Acceptance Test (FAT) Reports
- iii) Initial Operation and establishing Performance Guarantees for the Plant and Equipment and Systems.

### **Category 10 - Operations and Management of Plant/ Facility**

Deploy experts and/ or operating personnel for the operation of the plant/ facility for a year or more as outsourcing services.

### **Category 11 - Trouble Shooting & Technical Services**

Trouble-shooting - providing technical services to locate problem areas and may also include establishing systems and operation procedures for an existing plant/ facility as well as overall project monitoring services.

### **Category 12 - Owners' Engineer / Authority Engineer / Independent Engineer**

- i) Review and monitor the engineering design and construction activities at site.  
For Public Private Participation (PPP) or Public Private People Participation (PPPP) projects, an Independent Engineer jointly appointed by the Concessionaire and Owner to review and monitor the engineering design and construction activities at site.
- ii) Quality & Safety Audit Services  
For Projects where the Owner desires to appoint a Consultant for Quality Audit Services, Quality Control Services and Safety Audit Services.

## **3.0 COMPENSATION STRUCTURE**

The professional compensations of Consultants are fixed by various methods depending on the type of services provided. The accepted methods are:

- a) Percentage Cost of Project
- b) Cost plus Basis
- c) Unit Rate
- d) Lump-sum

In order to provide consistent quality service to the Owner, the Consultant is to be compensated for the expenses that would be incurred by the Consultant to carry out the assignment. Besides the remuneration of the technical personnel, the Consultant has to cater for the Social Charges for the staff, the Overheads of running business, specific expenses related to the assignment, etc. In addition, the Consultant should generate adequate surplus on the total outlay for an assignment.

There should be appropriate provision for periodic escalation of all components of the compensation where the assignment extends beyond one year to compensate for inflation effect.

It is extremely important that the scope of Consultancy Services is properly defined by the Client/ Owner, so that the Consultant can prepare proper technical and financial proposals for the assignment.

The responsibility of each party together with a fair allocation of risks should also be unambiguously defined.



## 4.0 COST DEFINITION

Professional Compensations to be paid to the Consultants consists of Salary Cost of the professional staff, Social Charges incurred on the staff, the Overheads towards the operation of the firm, the expenses towards the operation of the consulting assignment and a quantum for Profits.

- a) Salary Cost: This includes the salary and allowances paid to the Professional staff on monthly basis and consist of the following:
  - i) Basic Salary
  - ii) House Rent Allowance
  - iii) Other allowances like City Compensatory Allowance, Dearness Allowance, Conveyance Allowance and Other Allowances
- b) Social Charges: This refers to additional costs which the firm incurs because of statutory requirements, work agreement or established practice and includes the following:
  - i) Company Contribution to Provident Fund
  - ii) Statutory Bonus
  - iii) Gratuity/ Superannuation
  - iv) Group Medical Insurance/ Medical entitlement
  - v) Leave Travel Allowance
  - vi) Cost of Leaves
  - vii) Other perquisites of similar nature
- c) Overhead Expenses:

This includes the firm's cost of running business and includes the following:

  - i) Rent, Taxes, Electricity & Water Charges for the premises
  - ii) Salaries of non-professional supporting staff and company management staff
  - iii) Insurance premium, general as well as project specific
  - iv) Communication Costs
  - v) Printing, Stationary, Photocopying, Scanning, etc.
  - vi) Manpower Training and Continuing Education Costs
  - vii) Depreciation of plant, equipment & fixtures
  - viii) Repair & Maintenance Costs
  - ix) Business Promotion Costs
  - x) Other Miscellaneous expenses
- d) Taxes and Duties:

All applicable taxes and duties are to be added to the cost.
- e) Out-of-Pocket:

In addition, there may be expenses directly related to a particular assignment. These are termed as Out-of-Pocket expenses and include the following:

  - i) Project Office Rental
  - ii) Project Office Running expenses
  - iii) Project Office Vehicle Hiring & Running expenses



- iv) Board & Lodging of staff posted at Project
- v) Travel Expenses
- vi) Printing, Stationary, Photocopying, etc.
- vii) Test Charges - Laboratory tests, Model tests, etc.
- viii) Field Survey & Investigation expenses
- ix) Data Processing charges
- x) Other expenses of similar nature, e.g. Software/ Hardware procured exclusively for the candidate project.

Generally the Social Charges & Overhead Expenses are expressed as a percentage of basic remuneration of the technical personnel and if necessary are established by analysing the audited accounts statement of the Consultant.

In order to provide proper service to the Owner, it is recommended that the Consultant should make an assessment of the resources (manpower as well as other direct expenses) required to execute the work by assessing the scope of total services to be rendered. The Consultant should arrive at the cost of consultancy services based on same, irrespective of the method of fixing the professional fees. It is absolutely important that the Owner and the Consultant generally agree on the resource requirement and its cost to the Consultant for carrying out a particular assignment.

#### **4.1 DIFFERENT METHODS OF FIXING PROFESSIONAL COMPENSATION**

Professional compensations for Consultancy Services are calculated according to any of the following four methods.

- a) Percentage of Project Cost
- b) Cost plus Basis
- c) Unit Rate
- d) Lump-sum

##### **4.1.1 Percentage of Project Cost Method**

This method is suitable for scope of services of Categories 3, 4 & 5. This method of payment is suitable for New Projects when the magnitude of services is estimated to have a direct relation to the magnitude of project cost.

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

- a) Establishment Charge of the Owner.
- b) Interest on Capital during construction, Financial Cost for the project & Margin Money for Working Capital
- c) Cost of Land
- d) Compensation to Consultants

The 'Applicable Project Cost' should be periodically updated by the Consultant and approved by the Owner for adjustment of compensation on a regular basis. The final calculation of compensation



should be on the basis of 'Applicable Project Cost' current on the date of Commissioning of the project as mutually agreed.

Broad range of percentage compensation for all the services under Category 5 is represented by the area bounded by the two curves shown in Figure-1, which is given at the end. The compensations can be estimated by multiplying the applicable project cost with the percentage compensation. The actual percentage compensation will depend on the magnitude and complexity of the project and the confidence of the client in the overall capabilities of the Consultant/ organisation based on past experience.

The percentage compensation shown in Figure 1 excludes Know-How and Royalty charges, taxes, etc.

Specific costs, as stated under 'Out-of-Pocket' expenses should be payable in addition to above compensations.

#### 4.1.2 Cost plus Basis

This is suitable generally for scope of work in Categories 1, 2, 7, 9, and 11.

This method of payment is used when

- a) the extent and duration of the services to be provided by the Consultant is difficult to foresee at the time of appointment  
Or
- b) the scope of services is not fully definable and is likely to change during the course of project execution  
Or
- c) the time likely to be devoted by the Consultant bears little relation to the value of the project.

Under this scale, the Client should pay the Consultant the sum of the following:

- a) Cost of Time
- b) Cost of Social Charges
- c) Cost of Overheads
- d) Mark-up of the Consultants
- e) Other Costs. Various specific costs, inter alia enumerated in Cl. 4.0 (e)

The five factors mentioned above are elaborated hereafter.

- a) Cost of Time

This is the cost of actual hours spent by the technical personnel of the Consultant on the particular job of the Client.

$$\text{Cost of Time of a Person} = (\text{Actual hours Spent on the project}) \times \text{Hourly Rate}$$

$$\text{Total Cost of Time for a Project} = \text{Sum of the Cost of Time of all Technical Personnel deployed on the Project}$$



Hourly rate for each person should be calculated by dividing the Annual Salary (Basic salary + Allowances, as defined in Cl. 4.0 (a) of each professional person by the number of average working hours in a year. The average number of effective working hours (per annum) is normally considered as 2000.

b) Cost of Social Charges

This should be calculated as a percentage of the cost of time. The items of cost covered under this head should be as defined in Cl. 4.0 (b).

Social charges may vary from 40- 60% of cost of time.

c) Cost of Overheads

This should be calculated as a percentage of the cost of time. The items of cost covered under this head should be as defined in Cl. 4.0 (c).

The above percentage may vary from 100% to 200% of cost of time.

d) Mark-up of Consultant

The fees for each category of personnel should be calculated by the Consultant as a fixed percentage on the sum of costs in (a) to (c) above, i.e. Cost of time, cost of social charges and cost of overheads.

The fixed percentage of fees for the Consultant generally varies from 15% to 25%.

e) Other Costs

Various specific costs, as enumerated in Cl. 4.0 (e), will be payable, in addition to the above fees, wherever applicable.

For competitive bidding, the basis for working hours, occupancy factor, social charges, overheads, etc. should be specified in the RFP for giving the bidders a level playing field

For projects that require long duration, the validity period of lump-sum fees and the rate of escalation for extension beyond Project Completion Schedule should be established before commencement of assignment.

Such variation is could be linked to the variations of appropriate indices as are maintained by the statutory authorities.

#### 4.1.3 Unit Rate Method

This method is generally suitable for Service Providers, under scope of work of Categories 3, 6, 8, 9, 10, 11 & 12. This method of payment is adopted where

a) All work is carried out by qualified and/ or experienced personnel.

b) Client pays for Consultants Office, Office running expense, sub-professional staff, office staff, computer, photocopy and communication facilities, transportation, etc – i.e. all out-of-pocket expenses or provides some of them free of cost. The out-of-pocket expenses may be either reimbursed at-actuals or paid as fixed cost.

The compensation payable should be calculated on the basis of man-hours spent by the personnel on the project in a particular month. The total fees should be calculated by multiplying the man-hours by hourly rate. The range of man-hour rates that are used under this method, are given below:

**Table: 1**

<b>Designation (Indicative only)</b>	<b>Qualification and Range of Experience</b>	<b>Man-hour Rate* Range (Rs)</b>
Director/ Head of Department or equivalent	Degree Holder with 20 years and more experience	1980 - 3300
Chief / Senior Engineer, Manager	Degree Holder with 12 to 20 years experience	1540 – 1980
Engineer, Architect, Deputy Manager	Degree Holder with 3 to 12 years experience	1100 - 1540
Assistant Engineer/ Architect Senior Designer or equivalent	Degree Holder with 3 years and less experience Diploma Holder or Designer with 10 years and more experience	770 – 1100
Designer or equivalent Senior Draftsman	Diploma holder with 2 years experience or Draftsman with more than 10 years experience	550 – 770
Draftsman	Qualified Draftsman with up to 10 years of experience	440 - 660

\* Above rates are valid for FY 2016 – 2017 for Projects in India

The Per diem rate, if required to be specified, is to be equivalent to hourly rate multiplied by 8, which are the normal working hours per day.

- c) The client specifies the estimated man-months of different category of staff and other services and the Consultant is asked to quote the rates (man-day or monthly) against each category. The man-day/ monthly rate includes Social Costs, Overhead & Consultants mark-up besides the salary cost of the proposed professional personnel.

If the Consultant is required to assign personnel on long-term basis for construction supervision and management services, fees should be calculated on man-month basis as given below:

**Table: 2**

<b>Designation (Indicative only)</b>	<b>Qualification and Range of Experience</b>	<b>Man-month Rate* Range (Rs)</b>
Resident Engineer/ Project Manager	Degree Holder with more than 15 years experience	2,50,000-3,30,000
Senior Engineer (Construction/ Commissioning)	Degree Holder with 8 to 15 years experience	1,80,000-2,50,000
Engineer (Construction/ Commissioning)	Degree Holder with 2 to 8 years experience	1,32,000-1,80,000
Construction Supervisor/ Senior Surveyor	Diploma Holder with more than 10 years experience	99,000-1,32,000
Assistant Construction Supervisor/ Surveyor	Diploma Holder with 5 to 10 years experience	82,500-1,10,000

\* The above rates are valid for Financial Year 2016-17 for Projects in India

The rates in Tables 1 and 2 need to be upgraded each year as per the escalation formula outlined in Cl. 5.0.



- d) Compensations payable are calculated on the basis of actual man-hours / man-months spent by the personnel on the project during a particular month. The total compensations are calculated by multiplying the man-hours/ man-months by the quoted rates. No deductions are made for the weekly off days or public holidays in case of payment on man-month basis.

For the period of services rendered which are less than a full month, the payments should be made on pro-rata basis considering working days in a month.

For competitive bidding, the basis for reimbursables, working hours/ days, social charges, overheads, escalation, leave, etc. should be specified in the RFP for giving the bidders a level playing field

#### 4.1.4 Lump-sum Method

This method is suitable for scope of services of Categories 1, 2, 3, 4, 5, 7 & 10.

This method of payment can be adopted when the scope of services is clear-cut, distinctly identifiable and unlikely to change during the course of the assignment.

The lump-sum compensations payable to the Consultant should include all services excepting those specifically agreed to be reimbursed by the client e.g. cost of travel and man-hour beyond specified number of visits or any such other expenses.

The validity period of lump-sum compensations and the rate of escalation for extension beyond Project Completion Schedule should be established before commencement of assignment.

The Categories of Service and the Methods of Compensation are summarized in Table 3 below.

**Table-3: Category of Services and Compensation Methods**

Category	Service	Percentage of Project Cost	Cost plus Basis	Unit Rate	Lump-sum
1	Initial Project Studies		*		*
2	Pre Design Services / Feasibility Report		*		*
3	DPR for Infrastructure and Other Projects	*		*	*
4	Basic Design Engineering	*			*
5	Detailed Design Engineering	*			*
6	Project Management			*	
7	Procurement Assistance		*		*
8	Construction Supervision/ Monitoring and Management			*	
9	Monitoring of Testing, Commissioning and Initial Operations		*	*	
10	Operations and Management of Plant/ Facility			*	*
11	Trouble Shooting & Technical Services		*	*	
12	Owners' Engineer / Authority Engineer / Independent Engineer			*	



## 5.0 ESCALATION FORMULA

India is a country with a relatively high rate of inflation. It has been found to be impractical for Consultants to factor in the component of inflation in quotations for compensations involving absolute figures, for long term projects. If the inflation is not adequately covered in the quoted rates, it generally affects the quality of work in the latter stages of project/ deliverables due to erosion of viability.

There are several categories of projects and compensation structures which fall in this spectrum.

For projects having Rupee payments, the cost of inflation needs to be accounted for, especially in the case of projects continuing for more than one year.

Increase in such compensation should be effective only for the remaining portion of work and the corresponding amount for billing as per normal contract conditions.

Though there are several methods to work out this component, the most logical one, keeping in mind the interest of all stakeholders, is as follows:

Multiplication factor (1+M) for increase in balance compensation {to be established at end of each (1\*) year period from date of contract commencement} where M is as calculated from the equation given below:

$$M = \frac{CP_2 + \{(CP_2 - CP_1) \times (F^{\#})\}}{CP_1}$$

Where

CP<sub>1</sub>: Consumer Price Index as on date of start of the one year period under consideration;

CP<sub>2</sub>: Consumer Price Index as on date of completion of the one year period under consideration;

F<sup>#</sup>: 1.5, a Factor Internationally prevalent for continuity, loyalty, human and professional development of personnel;

\*: Time period as applicable.

## 6. REIMBURSABLE EXPENSES

### 6.1 TYPES OF EXPENSES

The following are considered reimbursable over and above the fees quoted, unless expressly agreed otherwise.

- a) The costs of all documents needed in connection with the Agreement, such as maps, aerial photographs, test reports, records (including translation and reproduction costs, if any), and such documents would be the property of the Owner.
- b) All costs of surveys and investigations unless included in scope.
- c) The costs of specialized third party professional advice and laboratory tests/ investigations including model tests as may be obtained/ got done by Agreement with the Client.
- d) The cost of special instruments, specialized computer software and hardwares, which may be required for the specific project, fully or partly as mentioned in the Agreement, or afterwards agreed upon by the Owner.
- e) Cost of advertising on behalf of the Owner for tenders.



- f) Cost of Professional Indemnity Insurance, Public Liability Insurance or any other specific insurance required by the Owner to be taken out for the project, which a Consultant in normal case does not insure or is more than what the Consultant is already covered for.
- g) Service tax or any other tax or duties levied by the Government or any other statutory agencies from time to time, during the period of execution of the project.

## **6.2 TRAVELING TIME (FOR INCLUSION IN THE WORKING HOURS TO BE PAID FOR)**

Time spent on traveling should be counted from the time professional personnel of the Consultant leave the office/ place of residence till their arrival at destination and vice versa.

In case of Inspection work, cost of additional time spent in the office on study of documents prior to the visit and time required for preparation of the inspection report, after the inspection visit, should be included in total time spent on the inspection visit.

## **6.3 FACILITIES TO BE PROVIDED BY THE CLIENT**

For Construction Supervision and Monitoring and Management, Initial Operation and Commissioning Services away from the place of normal work of the personnel of the Consultant, the Owner should provide free of cost the following to the personnel of the Consultant assigned to the project site, unless specifically included in the scope of work and the fees.

- i) Furnished residential accommodation of appropriate standard, equipped with potable water, electrical fittings, air-conditioning, heating, communication network connection, etc.
- ii) Medical facilities and other civic facilities.
- iii) Furnished Air-conditioned office premises with utilities & facilities including telephone, servers, computers, printers, plotters, scanners, copiers and other office equipment.
- iv) Transport including driver.
- v) Secretarial facilities.
- vi) Safety devices/ harnesses, uniforms, Safety Shoes, Health Advisory Cards/ Sheets, etc.

Note: In case the Consultant is required to provide for above items, mutually agreed charges should be payable by the Owner to the Consultant in addition to the compensation included in the different methods indicated above.

## **7. VARIATION OF SCOPE OF SERVICES**

The scope as well as the fair and reasonable duration of services to be provided by the Consultant should be documented in sufficient detail at the time of inviting tender/ bid. Any service beyond the scope of work and/or beyond the specified time should be considered as additional work and should be treated as variation in scope of services.

The Consultant should be paid for the additional services in accordance with the mode of compensations or alternatively, as may be mutually agreed between the Consultant and the Owner.



The variation of scope should include:

- a) Additional Surveys or investigation or laboratory tests or model studies work required to be carried out as input for proper planning, design and implementation of the project
- b) Additional reports, designs or drawings
- c) Alteration of designs or drawings due to reasons not attributable to the Consultant
- d) Extension of time of services due to delay on part of the Owner, Vendor or Contractor or approvals/ clearances from any Authority etc. (i.e. delay on part of any agency other than the Consultant).

## **8. TERMS OF PAYMENT**

The terms of payment to the Consultant should be framed to stay in tandem with the expenses incurred or to be incurred by the Consultant. Hence, Mobilisation Advance/ Charges should be paid at the commencement of the assignment and thereafter monthly payments commensurate with the cost of manpower and other costs incurred by the Consultant should be made. In case the payments are linked with milestone events like approval of design or payment to the contractor, the financial load should be built-in while finalizing the amount of the compensations payable in the respective stage of work. However, if the project or a milestone is delayed beyond one month for no fault of the Consultant, then the payment to the Consultant should be delinked from the said terms and conditions and all payments made to the Consultant post haste without any let or demur.

The Liability/ Penalty on a consultant should be linked only to the compensation payable to the Consultant and in no case should exceed the Contract Price for the man-power services provided by the Consultant. Thus it should not include any purchases such as computer hardware and software or consumables or rent for premises/ vehicles, etc. or any other costs incurred by the Consultant for executing the assignment.

The terms of payment should be mutually agreed ahead of signing the contract to ensure smooth operation and service by the Consultant.

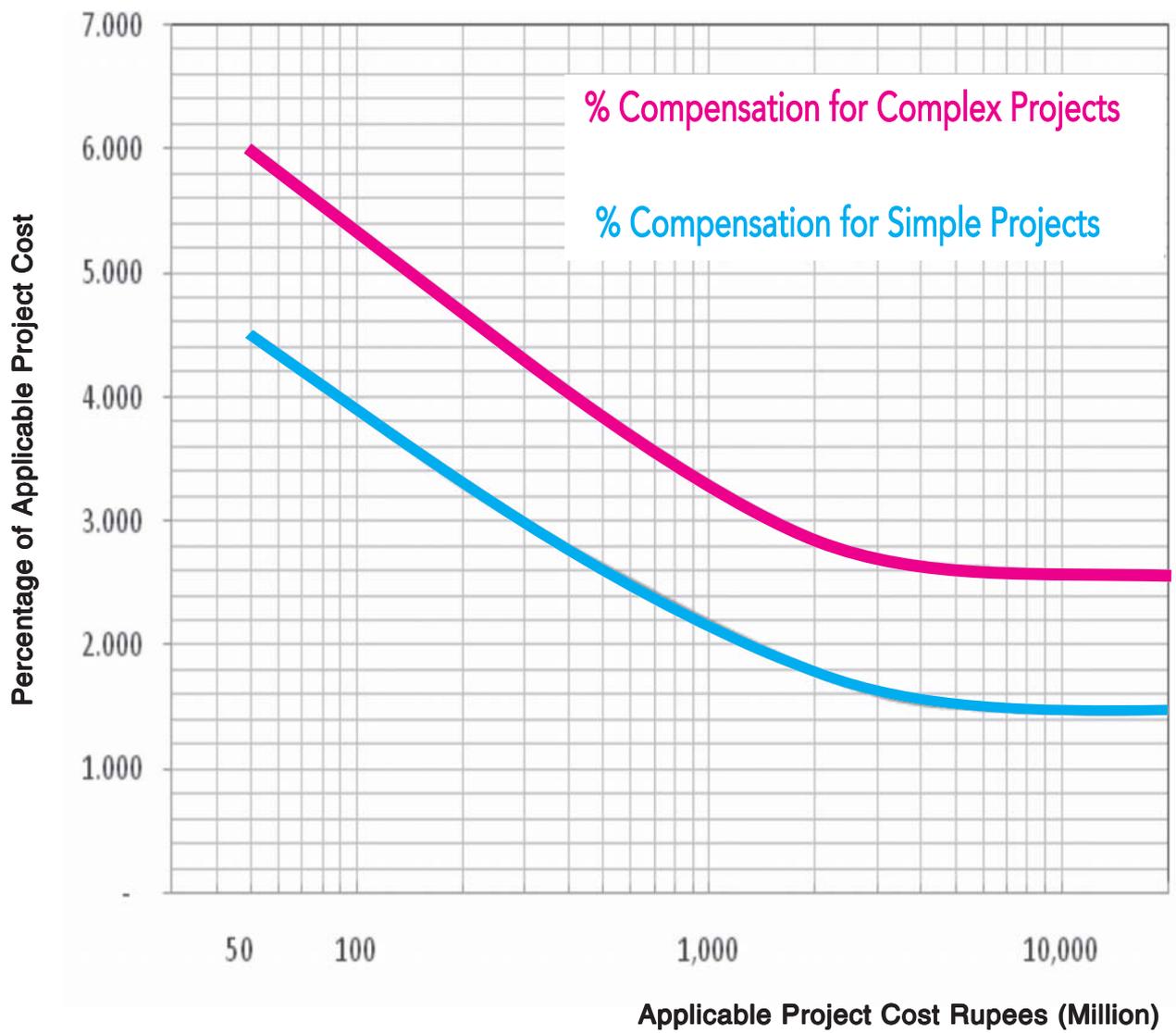
## **9. EXCLUSIONS**

In today's market scenario, a large number of new service categories have emerged. The basis of compensations and their coverage are quite different from the normal project related services rendered to the client as their advisors / extended arm of in-house team. The new range of services may involve more direct execution responsibilities and liabilities and therefore would call for a totally different basis for arriving at appropriate level of compensation. It is important that the underlying principle, of compensation for the expenses and the risks, being borne by the Consultant, for sustainable delivery of effective professional consulting services, be maintained.



**Figure-1**

**Recommended Compensation for Detailed Engineering Services (Category-5)**



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