

Technical Proposal

Technical Report Writing

DEFINITION

- A proposal, in simple terms, is an offer by one party to provide a product or service to another party in exchange for money.
- It can be a sales presentation, seeking to persuade the reader to accept the written plan for accomplishing a task.
- Proposals are written to people within an organization, to an outside company, or to the government.
- In other words, proposals are written offers to solve a technical problem or to undertake a project of practical or theoretical nature.

PURPOSE

- As said earlier, proposals, in general, aim to solve a problem, alter a procedure, find answers to questions, offer advice and training, or conduct research on a topic of interest to both parties.
- But proposals have varied purposes having a wide or narrow scope.
- Given below are a few examples to illustrate the diverse purposes of proposals:

PURPOSE

- To construct parking slots, buildings, bridges, highways
- To sell property such as buildings, machines, airplanes
- To survey areas for possible water sources
- To plan and construct airport baggage conveyor systems
- To modernize the office procedures of a company
- To train international managers for work in foreign countries
- To conduct the basic research before developing an automobile factory in a foreign country
- To improve engineering performance within a company

Importance of Proposal

- Proposals, like reports, are valuable records of information in an organization.
- They act as an index of the company's growth or progress.
- Successful proposals give financial returns to the organization.
- They help promote various research activities which are vital for the individual, organization, or government.
- Proposals attempt to win contracts for the company undertaking the project.
- Proposal writing develops certain favorable and useful skills such as communicative, persuasive, and organizational skills.
- It also enhances the power of estimation, judgment, and discrimination in the writer.

Types

- The two basic types of proposals are *sales proposals* (also known as business proposals) *and research proposals*.
- Both these types may be either *solicited* or *unsolicited*.
- A **solicited proposal** is when the customer asks for a **proposal**. They may ask verbally or they may issue a written Request for **Proposals** (RFP).
 - An organization often knows in advance those individuals and corporations that are qualified to bid on a job or help solve a problem.
 - So requests may come via mail or, in the case of the government, via newspapers.
- An **unsolicited proposal** is when you send them a **proposal** they haven't even asked for because you think they should buy from you or take some action.
 - They are sent outside the company to potential clients or customers.

Characteristics

Proposals, whether sales proposals or research proposals, are a persuasive blend of information, organization, and reason.

Essentially, technical proposals should:

- demonstrate to appropriate decisions makers that their needs would be met with
- be more creative than other forms of professional writing
- permit informality and personal approach in style to some extent
- keep in view the customer's convenience, financial gain, and prestige
- look neat and attractive
- anticipate any possible reasons for rejection and provide suggestions for overcoming them
- follow meticulously the requirements of the solicitor
- use plain, direct, and unambiguous expressions

Characteristics

- Proposals differ from other technical writing in one important respect. Although most technical writing deals with things that exist—events that have taken place, projects that have been completed, operations of machinery—proposals are concerned for the most part with future projects. This major difference makes writing proposals particularly difficult.
- In providing the information called for, it will be necessary to explain what methods you propose to use, to show that you have or will obtain the personnel and facilities necessary to use these methods, and to offer enough information about costs to show that your estimates are realistic.

Characteristics

- A writer can improve the chance of securing conviction by making sure that its contents answer the following questions:
 - What do we propose to do?
 - How do we propose to do it?
 - What evidence can we propose to use that will actually get the desired results?
 - What evidence can we present to show that ours is the best way to get the desired results?
 - How can we demonstrate our ability to do what we propose to do?
 - What evidence must we present to show that the cost will be acceptable and, perhaps, that we can meet a satisfactory time schedule?

Elements of Structure

GENERAL FORMAT PROPOSAL

- I. Prefatory Parts

- Title page
- Letter of Transmittal
- Draft Contract
- Table of Contents
- List of Tables/Figures
- Executive Summary

- II. Body of Proposal

- Introduction
- Problem
- Need
- Background
- Objectives or Purpose
- Scope and Limitation Technical Procedures

- Methods and sources
- Plan of attack
- Managerial procedures
- Sequence of activities
- Equipment, facilities, products
- Personnel qualifications
- Cost estimate
- Conclusion

- III. Supplementary Parts

- References & Bibliography
- Appendices

Prefatory Parts

- **Title Page:** The title pages of a proposal are similar to reports.
 - Most organizations specify the information to be included in the title page, some even providing special forms that summarize basic administrative and fiscal data.
 - The title page should include at least the title, the name of the person or company to whom the proposal is submitted, the name of the person submitting the proposal, and the date.

Prefatory Parts

- **Letter of Transmittal:** This is a cover letter that accompanies or is bound along with the proposal. Proposals submitted to government organizations may contain the letter of transmittal immediately after the title page. This cover letter includes a brief introductory a middle, and a concluding paragraph. The topic and purpose are clearly mentioned in the introductory section of the letter. The middle section contains the proposal highlights and the concluding section motivates the recipient towards responding positively to your proposal.
- **Draft Contract:** A draft contract is the rough draft of the contract prepared by the proposer. When the proposal is accepted, the original or rough draft may change in terms of finance, duration of the project, etc. Hence, it will be finalized only when the proposal is accepted.
- **Table of contents:** Brief proposals do not require a table of contents. But if the proposal is long then a table of contents is essential.
- **List of Tables and Figures:** This list enables the reader to locate the graphic aids, if any, quickly.

Prefatory Parts

- **Executive Summary:** Even brief proposals should have an executive summary.
- Seeking to gain a quick review, some evaluators will initially read only this summary.
- Hence the executive summary should be a concise version of the detailed proposal.
- It should provide a brief background, telling your reader the need for taking up this project, and summarize the objectives, how they will be met, what procedures will be adopted, and also the outcome of your project. The summary generally ends with a re-emphasis of the proposal's strengths. The length of the summary is usually between 100 and 300 words depending on the complexity of the proposal.
- It should create a positive impact, so as to induce the reader to read more of the proposal.

Note:

The importance of an effectively written executive summary cannot be underestimated.

Many consultants believe that a project is accepted or rejected solely based on the impression created by the summary.

Body of the Proposal

- **Problem and Need:** The problem statement clearly specifies what it intends to investigate. It should elaborate the existing facilities/procedure and the short comings arising out of the same. It should explain why the problem exists and what benefits will come from the proposed research.
- **Background:** This includes information such as the following:
 - Previous work completed on identical or related projects
 - Literature reviews on the subject, particularly the proposer's evaluation of them
 - Statements showing how the proposal will build on the already completed projects and research

Body of the Proposal

- **Purpose:** The objective or purpose of the proposal should be stated clearly, for example:
 - To offer the supply of 40 aircraft engines to Aviation Supplier Corporation
- **Scope:** This part defines the boundaries of the project. For example, the proposal on a research study should clearly specify whether it will study one or more areas of a community, company, department, or a particular problem. The proposal will specify which topics will be outside its scope. The writer of the proposal has an ethical and legal obligation to clarify to the client the limits of his/her responsibility
- **Limitations:** This section describes the restrictions over which the proposer has no control, such as the non-availability of some classified information.

Body of the Proposal

- **Procedures:** Here, a brief discussion on how the technical requirements of the reader will be met should be given. This discussion incorporates the following aspects:
- **Methods and Sources:** You need to tell the reader the methods and sources which you will be using to collect the required statistical data for your project. It may also include a discussion on the reliability of the sources from which you would be obtaining the required information or data for the various tasks to be accomplished in your project.
- **Plan of Attack:** Here you are required to present the methodology you would adopt to carry out the project. If you are submitting a proposal for setting up Solar Water Heating Systems in a university campus, you have to explain each step of your process, starting from procuring materials to installation of the systems. You can divide this section further into various small headings such as materials, system overview, installation details, etc. In general, this section presents the various solutions available for the problem and the one you have chosen, justifying the reasons for selecting the same.
- **Sequence of activities:** This section pertains to managing the job in question. By means of a Gantt chart or milestone chart, you can present to your client a clear picture of the phases of activities of the project and how long each phase will take. The intention here is not only to guide the reader but also to enable you to proceed systematically with your project. The charts will also show the reader that you have adequately planned and prepared for the various activities.

Body of the Proposal

- **Equipment, Facilities, Products:** You may explain the existing equipment, facilities, etc. at your end and also the additional facilities which you may need to carry out the project. You may elaborate upon your infrastructure by listing all the equipment, products, facilities, etc. you have. In addition, you may give a detailed list which mentions all those things which are necessary for your job.
- **Project team/Personnel:** Even some short proposals include a listing of the individuals who will work on the project, including project director/coordinator. In long proposals, such information is a must including a brief résumé of each individual (educational qualifications, professional achievements, experience in the area, publications in the relevant field, etc.).
 - The proposer also provides the manpower requirement which should include a detailed list of number of persons and also the type of expertise they should possess.

Body of the Proposal

- **Budget/Cost Estimate:** The budget or cost section is mandatory for all proposals. This provides a breakdown of all estimated costs for the project. It should include such items as materials and supplies, salaries, travel, duplicating, consumable items, etc. Some budget sections may be in tabular form or even a form of visual aid. It is customary to include a budget justification section, in paragraph form, stating the various items of expenses the project would incur and also the potential sources of funding for the project. The recipient will appreciate your acknowledging responsibility for potential cost overruns and funding shortfalls and your thorough preparation in presenting this estimate.
- **Conclusion :** This last section of the body of the proposal provides a final opportunity to you to re-emphasize and persuade the recipient that you have all the resources in terms of material, expertise, and enthusiasm to accomplish the project. No new ideas should be added here and this section should be very brief, maybe one paragraph.

Supplementary Parts

- **Appendices**, as in formal reports, are optional in proposals also. Visuals (maps or graphs) and some pertinent letters of support and endorsement can be added. But when in doubt it is better to leave out appendices.
- **References** give the list of sources which are used or quoted in the proposal. Mostly, these find a place in research proposals which require documentation.
- **Bibliography** are sources used for developing an understanding but are not quoted in the proposal.

Evaluation

- It might seem that in a chapter on writing proposals, a section on evaluation would be inappropriate, but generally writers produce better products if they understand how their work will be judged.
- By giving a scale of values to the following set of questions, the reader can make a point comparison between competing proposals.

Evaluation

1. Understanding of purposes, objectives, and tasks—30 points.
 - i. Does the bidder demonstrate clear understanding and acceptance of the requirements presented in the RFP (request for proposal)?
 - ii. Are the tasks outlined in the proposal clear and well defined?
 - iii. Are there important omissions in the specified tasks?On a scale of 30 points please assign a rating to this area.
2. Technical quality of methods proposed—30 points.
 - i. Are sufficient time and resources specified to accomplish the quality outlined in the proposal?
 - ii. Does the proposer emphasize quality as an important criterion when presenting methods?
 - iii. Will the quality of the proposed methods be monitored throughout the contract period?
 - iv. Is this monitoring sufficient to ensure quality?On a scale of 30 points please assign a rating to this area.
3. Quality of management plan and planning—10 points.
 - i. Has a management plan been designed to ensure receipt of materials at certain specified times?
 - ii. Does the proposal clearly identify working relationships within the contractor's staff and with this agency's staff?

Evaluation

- iii. Is sufficient technical management assigned to the task to ensure production and quality of output?
- iv. Will sufficient information be available to this agency to permit analysis of cost and effectiveness?

On a scale of 10 points please assign a rating to this area.

4. Qualification of staff—20 points.

- i. Have individuals to whom the task is assigned had prior experience in the required technical areas?
- ii. Have key personnel been assigned to the project for a substantial time?
- iii. Have project directors and those assigned management roles been in similar management positions before?
- iv. Is there sufficient depth in the staff to provide backup and overload capabilities?

On a scale of 20 points please assign a rating to this area.

5. Corporate capability and experience—10 points.

- i. Has the organization had previous experience in planning and managing efforts of this type?
- ii. Has the organization previously managed projects of this size and complexity?
- iii. Is the organization of sufficient size and stability to undertake the responsibility called for?
- iv. Is there any 'track record' of performance available, indicating consistent meeting of schedules with quality output within fiscal limits, or the inverse?

On a scale of 10 points please assign a rating to this area.

Evaluation

- Many proposals turn out to be unsuccessful because of the following reasons:
 - Questionable project design
 - Inadequate explanation of the research
 - Lack of experience of the investigator
- Other major reasons include vague experimental purpose and poorly prepared knowledge of the literature. The important point to note is that most of these reasons derive from the presentation of the material, that is, from how the proposals were written rather than from the nature of the research.
- In other words, if the investigators had prepared their proposals more carefully, they might have been successful, and in the world of research and grants as well as in business, a successful proposal often means the difference between working and looking for another job.
- Samples will give you a fair idea of how to write well-structured, persuasive proposals.

Sample Proposal 1

A PROJECT PROPOSAL ON
CONTROLLED CURING FOR QUALITY CONCRETE

Submitted by

Dr. Rajiv Gupta
Associate Professor, Civil Engineering

and

Mr. M.K. Bhatt
Assistant Lecturer, Civil Engineering

Submitted to

Secretary

Ministry of Transport and Rural development
Government of Rajasthan



Birla Institute of Technology & Science
BITS, Pilani (Raj.) 333 031

Draft Contract

Project Title: CONTROLLED CURING FOR QUALITY CONCRETE
Broad Subject: Civil Engineering
Sub Area: Concrete Technology
Duration: 2 yr.
Total Cost: Rs. 2,53,200
Principal Inv.: Dr. R.Gupta
Designation: Assoc. Professor
Department: Civil Engineering
Inst. Name: Birla Institute of Technology and Science, Pilani (Rajasthan)
Address: Group Leader, Civil Engg. Group, BITS, Pilani (Raj.) 333 031
email: rajiv@bits-pilani.ac.in
Date of Birth: 31.05.1963
Telephone: Off. 01596-45073*277 Res. 01596-42252/45030
Sex: M
Co-Investigator: Mr M.K. Bhatt
Designation: Asst. Lecturer
Department: Civil Engineering
Inst. Name: Birla Institute of Technology and Science, Pilani, (Rajasthan)
Address: Civil Engg Group, BITS, Pilani (Raj) 333 031
email: bhatt@bits-pilani.ac.in
Sex: M
Date of Birth: 23.04.1969
Telephone: Off. 01596-45073*254

Executive Summary

A large number of sealing compounds have been developed in recent years. The idea is to obtain continuous seal over the concrete surface by means of firm impervious film to prevent moisture in concrete from escaping by evaporation. These films have been produced or used at the interface of the ground and concrete to prevent the absorption of water by the ground from the concrete. Materials like bituminous compounds, polythene, waterproofing paper, and rubber compounds can be used. Bituminous compounds, being black in colour, absorb heat when applied to the top surface of the concrete, resulting in increase in temperature of the body of concrete, which is undesirable. For this reason, the experimental procedure uses polythene compounds like coloured plastics so as to reduce the above effect.

For the proposed project, different light, impervious coloured polythene films will be used for the concrete curing in different, extreme, environmental conditions. The coloured polythene films will reflect/refract/absorb a particular fraction of light rays. This different light fraction will have different energy. The objective of the proposed project is to obtain the coloured films which are best suited in different existing conditions. The initial tests will be conducted for the number of permutations and combinations (like, red, green, blue, violet, and their combinations). From the initial observations, some combinations will be chosen for detailed experimental studies.

The outcome of the project is envisaged in terms of the reduction of quantity of water used in curing and re-use of polythene films/bags for the production of quality concrete.

Key words (Max-six): Quality, Concrete, Curing, Polythene films, Reuse.

Body of the Proposal

a. Origin of the proposal

Curing means creation of an environment which is favourable to the setting and hardening of the concrete. The desirable conditions are: a suitable temperature as it governs the rate of chemical reaction or action involving setting and hardening, a provision of sufficient moisture or the prevention of loss of moisture, and the avoidance of premature stressing or disturbance. Curing has pronounced effect upon the strength of concrete.

The methods of curing normally used nowadays are:

1. Water curing
 - a. Immersion
 - b. Ponding
 - c. Spraying
 - d. Wet covering
2. Membrane curing
3. Application of heat
 - a. Steam curing at ordinary pressure
 - b. Steam curing at high pressure

- c. Curing by infra-red radiation
 - d. Electrical curing
4. Chemical curing (calcium chloride)

In the normal curing methods like water curing, a large amount of water is required, and wastage of water is unavoidable. In Rajasthan, where the temperature varies to both extremes, and where there is scarcity of water in most places, we need a method of curing that can be used during both the extreme climatic seasons without using much of water and wasting much of heat energy. So we would like to find a medium other than water which can be used as a curing material and give the concrete the same properties like reducing shrinkage, accelerating strength gain, minimizing creep, and improving properties like abrasion resistance, impermeability, etc. We know that the quantity of water normally mixed for making concrete is more than sufficient to hydrate the cement, provided this water is not allowed to go out from the body of concrete. For this reason, concrete could be covered with a membrane which will effectively seal off the concrete. For a membrane we can provide polythene or coloured polythene as it does a good job for the above purpose and also it is reusable.

b. Statement of the Problem

Curing can be described as keeping the concrete moist and warm enough so that hydration of cement can continue. More elaborately, it can be described as the process of maintaining a satisfactory moisture content and a favourable temperature in concrete during the period immediately following placement, so that hydration of cement may continue until the desired properties are developed to a sufficient degree to meet the requirement of service.

In hot places or extreme climates as in Rajasthan, the quick surface drying of concrete results in the movement of moisture from the interior to the surface. This steep moisture gradient causes high internal stresses which are responsible for internal microcracks in the semi-plastic concrete.

Concrete, while hydrating, releases high heat of hydration. This heat is harmful from the point of view of volume stability. If the heat generated is removed by some means, the adverse effect due to the generation of heat can be reduced. This can also be done by membrane curing.

Sometimes, concrete is placed in some inaccessible, difficult, or far-off place. The curing of concrete placed over cannot be properly supervised. The curing is entirely left to workmen, who do not quite understand the importance of regular un-interrupted curing. In such cases, it is much safer to adopt membrane curing rather than to leave the responsibility of curing to workers.

Compounds used for membrane curing:

1. bituminous compounds

2. polythene or polyester film
3. waterproof paper
4. rubber compounds
5. wax
6. combination of wax and resin

We would like to specifically go into the polythene or polyester filming of the concrete surface by taking into account, heat, radiation, humidity, and all other atmospheric and natural factors that could affect curing of the specimen. Over the years, researchers have used white pigment or colourless paper (polythelene) as a curing medium but we would like to introduce coloured polythene/paper, such as red, green, and blue, as a curing compound.

c. Objectives

- Comparison of the strength of concrete adopting curing by normal methods.
- Reduction in quantity of water for curing
- Reuse of polythelene films/ bags
- Production of quality concrete in prevailing environmental conditions

d. Work-plan

Initially a literature survey will be carried out. Simultaneously the required material will be procured. Cubes, beams, and cylinders will be cast during the year at different climatic conditions. The different curing conditions will be imposed. After a specific period of time, destructive and non-destructive testing of cubes, beams, and cylinders will be conducted. Based on observations and analysis, results and conclusions will be drawn.

e. Methodology

We would like to cast concrete cubes and beams for all different grades of concrete (M_{20} , M_{25} , M_{30}) and for beams taking mild steel and tor steel and curing by all methods presently used today and also by the present method of study, after which we would like to test the beams and cubes for flexure and compression.

Tests on the specimen

1. Compression testing
2. Flexure testing
3. Non-destructive testing
4. Resonance method
5. Pulse Technique method

Curing procedures

1. Ponding
2. Water spraying
3. Wet hessian curing
4. Covering with colourless polythelene sheets
5. Covering with coloured polythelene sheets (red, blue, green, violet, red+violet, etc.)

f. Time schedule

A. Literature survey	60 days
B. Procurement of material	30 days
C. Casting of cubes (800 in no.)	365 days
D. Casting of beams (400 in no.)	365 days
E. Casting of cylinders (400 in no.)	365 days
F. Testing of cubes and beams	500 days
G. Observation, results, and analysis	60 days
H. Preparation of reports	90 days
Total duration	2 years

g. Suggested plan of action for utilization of research outcome

The outcome of the project is envisaged in terms of the reduction of quantity of water for curing purpose and reuse of polythene films/bags for the production of quality concrete. Seminars at national level will be conducted for practising professionals to impart the knowledge. The outcome of the project will also be brought out in printed form.

TOTAL BUDGET ESTIMATES: SUMMARY

(In Rupees)

Items	Budget		
	1st Yr.	2nd Yr.	Total
Recurring			
1. Salaries/Wages	54,000	54,000	1,08,000
2. Consumables*	40,000	25,000	65,000
3. Travel	15,000	25,000	40,000
4. Other costs	20,000	20,000	40,000
Total	1,29,000	1,24,000	2,53,000

* Please refer to Appendix C

BUDGET FOR SALARIES/WAGES

(in Rupees)

Designation (number of persons)	Monthly Emoluments	Budget		
		1st Yr.	2nd Yr.	Total
JRF (1) Full-time	2000/2100	24,000	24,000	48,000
(1)Semi-skilled, full-time	1500	18,000	18,000	36,000
(1)Unskilled, full-time	1000	12,000	12,000	24,000
Total	4,500	54,000	54,000	1,08,000

The wages will be revised as per the norms of Rajasthan Govt.

- 1 JRF: The person will supervise all the laboratory tests.
- 1 Semi-skilled: The person will be fabricating cubes, cylinders, and beams and helping in testing.
- 1 Unskilled: The person will be helping in transporting materials and in fabricating cubes, cylinders, and beams.

BUDGET FOR CONSUMABLE MATERIALS/EQUIPMENT

(in Rupees)

Head	Budget		
	1st Yr.	2nd Yr.	Total
1. Material* Q			
B	40,000	25,000	65,000
Total	40,000	25,000	65,000

* Please refer to Appendix C

Q—Quantity/number B—Budget

BUDGET FOR TRAVEL

(in Rupees)

Item	Budget		
	1st Yr.	2nd Yr.	Total
1. Collection of literature	5,000	5,000	10,000
2. Attending conferences, seminars, symposium, workshop, etc.	10,000	20,000	30,000
Total	15,000	25,000	40,000

- The Institute has adequate library facilities. Most recent journals and books are also available. However, to update the knowledge/information, some recent literature is needed.
- For updating the knowledge, gathering the latest information, presenting papers to impart the knowledge, and sharing the views with other experts in the field, authors will attend various seminars and conferences.

BUDGET FOR OTHER COSTS

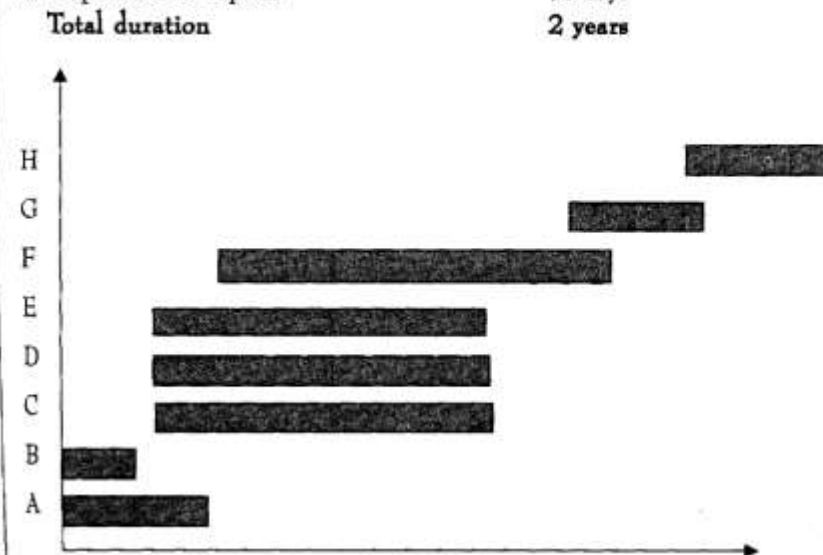
(in Rupees)

Item	Budget		
	1st Yr.	2nd Yr.	Total
a. Contingencies	10,000	10,000	20,000
b. Others (typing reports, papers, etc.)	10,000	10,000	20,000
Total	20,000	20,000	40,000

- In such work, inflation of material cost, labour cost, and other contingency have to be taken into account.
- Reports and other printed material are needed for others to refer to the work in future.

TIME SCHEDULE ACTIVITIES BAR DIAGRAM

A. Literature survey	60 days
B. Procurement of material	30 days
C. Casting of cubes (800 in no.)	365 days
D. Casting of beams (400 in no.)	365 days
E. Casting of cylinders (400 in nos.)	365 days
F. Testing of cubes and beams	500 days
G. Observation, results and analysis	60 days
H. Preparation of reports	90 days
Total duration	2 years



List of facilities that will be extended to the investigator(s) by the implementing institution for the project.

INFRASTRUCTURE FACILITIES (TICK THE APPROPRIATE BOX)

Item	Yes	No.	NR
a. Workshop facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Water & electricity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Standby power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Laboratory space & furniture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Air-conditioned room for equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Telecommunication	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Transportation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Administrative & secretariate support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Library facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Computational facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Animal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l. Any other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NR: Not Required

AVAILABLE EQUIPMENT AND ACCESSORIES TO BE UTILIZED FOR THE PROJECT

Availability	Sr. No.	Name of equipment and accessories	Model & make	Remarks
a. Available within investigation group	1	Testing equipment (compression, flexural, etc., non-destructive testing m/c, vibrators, moulds, mixer, etc.)	Aimil	
b. Available in the investigator's dept.	2	N.A.	-	-
c. Available elsewhere in the Institution or in the region	3	Library	-	-
	4	Workshop facilities	-	-
	5	Local conveyance	-	-
	6	Computing facilities	-	-

APPENDIX A

BIODATA OF INVESTIGATOR(S)

Principal Investigator

- (i) Name Rajiv Gupta
(ii) Date of Birth 31.05.1963
(iii) Institution Birla Institute of Technology and Science, Pilani
(iv) Whether belongs to SC/ST No
(v) Academic (MSc or BE onwards and professional career degree)

Sr. No	Degree	University/Institute	Year (passed)	Specialisation
1.	B.E. (Hons)	Birla Institute of Technology & Science, Pilani	1983	Civil Engineering
2.	M.E	Birla Institute of Technology & Science, Pilani	1989	Civil Engineering
3.	Ph.D.	Birla Institute of Technology & Science, Pilani	1995	Fluid-Structure Interaction

- (vi) Publications (Number only)—Books, research papers, reports, general articles, patents, others: around 30

The investigator has guided around 100 students at graduate and undergraduate level for different projects.

- (vii) List of Publications: Refer to Appendix B

Co-investigator

- (i) Name M.K. Bhatt
(ii) Date of Birth 23.04.1969
(iii) Institution Birla Institute of Technology and Science, Pilani
(iv) Whether belongs to SC/ST No
(v) Academic (MSc or BE onwards and professional career degree)

Sr. No.	Degree	University/Institute	Year (passed)	Specialisation
1.	B.Tech.	Pantnagar University, UP	1991	Civil Engineering
2.	M.E.	University of Roorkee, Roorkee	1996	Concrete Technology

(vi) Publication (Number only)—Books, research papers, reports, general articles patents, others:
one

The investigator has guided 2 students at graduate and undergraduate level for different projects.

(vii) List of Publications: Refer to Appendix B

RESEARCH PROJECT(S) (INCLUDING DST PROJECTS)

WITH THE INVESTIGATORS (use separate sheet for each project): Nil

ANY OTHER RELEVANT MATTER NOT DISCUSSED ELSEWHERE: Nil

APPENDIX B

Sr. No.	Title of paper/book	Author(s)	Name & Vol. of Journal & year	Page No.
1.	Construction, Planning and Technology	Gupta, R.	CBS Publishers, 1994	
2.	Detrimental Effects of Admixtures	Gupta, R., & Murlikrishna, R	Civil Engineering & Construction Review May, 1997	
3.	Structural Evaluation of Concrete Masonry Composite Columns	Bhandari, N.M., Kumar, V., and Bhatt, M.K.	Proceedings of the workshop on recent advances in Masonry Construction, Institution of Engineers, Roorkee, 1998	181-198
4.	Construction Quality Management through Systems Approach	Gupta, R., & Debas	Third National Conference on Construction—Globalization Challenges for the INDIAN CONSTRUCTION INDUSTRY, 10-11 Feb. 2000 (Accepted)	
5.	A Laboratory Manual for Civil Engineering	Moondra, H.S., Gupta, R.	CBS Publishers, New Delhi, 1992	

6.	Building Materials Technology	P.N. Rao, Gupta, R.	DLPD notes	
7.	Human Settlement Studies & Habitat	Gupta, R.	DLPD notes	
8.	Direct shear and Ultrasonic testing of Pilani soil	Ravi Prakash, S. Ghoshal, Kamlesh Kumar, Gupta, R.	Indian Geotechnical Journal (Submitted and under review)	
9.	System Approach for Passive Solar Architecture Design	Gupta, R., Mukerjee, A.	Passive Solar Architecture. One day workshop at BITS, Pilani, 23.2.1999.	
10.	Extended Use of Linear Graph Theory for Pipe Network Analysis	Rajiv Gupta, T. Devi Prasad	Journal of Hydraulics Division, ASCE. (Accepted for publication)	
11.	Determination of Optimal Loss Rate Parameters and Unit Hydrograph	T.D. Prasad, Gupta, R., S.P. Agarwal	Published as technical note in Journal of Hydrologic Engineering Division, ASCE.	81-83
12.	Design of a Water Distribution Network with Rider of a Single Diameter Pipe in a Line	T. Devi Prasad, Gupta, R.	J. of Institution of Engineers, Calcutta, Vol. 80, Aug., 1999	12-15
13.	Extended Linear Graph Theory in Structural Engg.	Murlikrishna R., Gupta, R.	Journal of Institution of Engineers, Calcutta, 1994	
14.	Fuzzy Linear Programming Based Optimization of Water Distribution System	R.K. Singh, Gupta, R., Shiv Prasad	Was accepted for 18th Intl. conf. on S&T, Alena chemicals, Canada, 1995	
15.	Study of Hydrodynamic Coeffs for Rough Inclined Cylinder	Gupta, R.	ISTAM, Vishakapatnam, Dec. 1994	
16.	Introduction to System	I.J. Nagrath, Gupta, R.	DLPD & EDD notes (Text material for on-campus course)	

17.	Total Quality Control of Instruction Through Computer Aided Instruction	V.K. Deshpande & Gupta, R.	Total Quality Mgt in Tech. Edu., Varnanagar	
18.	End Effects on Hydrodynamic Coeffs for Rough and Inclined Cylinders	Ghoshal, S.	IRSC, Pune	
19.	Charateristics of North Eastern Rajasthan Soil	Ghoshal, S., Moondra, H.S., Gupta, R., S. Apurva	JNTU, Hyderabad	
20.	Measurement Techniques II	K.E. Raman et al.	EDD notes (Text material for on-campus course)	
21.	Applications of Micro-processor in Civil Engg.	Ghoshal, S., Gurunarayana, S., Gupta, R.	Conference at BITS, Pilani	
22.	Linear Theory	Gupta, R.	UGC sponsored Seminar at BITS, Pilani	
23.	Waste Water Treatment and Disposal	Gupta, R., & Singh, A.P.	National Seminar and Intensive Course on Environmental Pollution and its Control, March, 99, BITS, Pilani	301-357
24.	GIS and its Application	Gupta, R., & Gupta, C.P.	National Seminar and Intensive Course on Environmental Pollution and its Control, March, 99, BITS, Pilani	358-378
25.	Computing Aspects of GIS	Gupta, R., & Rohil, M.K.	EDD Notes (Text material for on-campus course)	

APPENDIX C

Parameters:

Concrete Mix—M20, M25, M30

Environmental Condition—extreme summer, extreme winter

Types of Curing—ponding, water spray, wet hessian, colourless polythelene sheets, covering with coloured polythelene sheets (red, blue, green, violet, red+violet, etc.)

Strength—1, 3, 7, 28, 60, 90, 180 days

Testing—Destructive & Non-destructive

Total Quantities of Materials required:

Sr. No.	Element	Dimensions (mm)	Total number	Quantity of concrete (m ³)
1	Cubes	150*150*150	800	2.7
2	Cylinders	f 150 *300	400	2.12
3	Beams	150*150*700	400	6.3

Total quantity of concrete = 11.12 m³

Taking 10% wastage, total quantity of concrete = 12.23 m³

Total quantity of steel = 0.02*6.3*7850 = 900 Kgs

Polythelene sheets (coloured) = {0.15*0.15*6*685} + {3.14*.15*.3*350}
+ {.6*.7*350} = 288.95 m²

Concrete cost = 2700*12.23 = Rs. 33021

Steel cost = 19* 900 = Rs. 17100

Polythene sheet = 10*288.95 = Rs. 2889.5

Transportation charges = Rs. 10,000

Total = Rs. 63,010

APPENDIX D

Names and addresses of experts/institutions who may be interested in the subject/outcome of the project

1. Central Building Research Institute, Roorkee
2. HUDCO, New Delhi
3. Structural Engineering Research Institute, Ghaziabad
4. Structural Engineering Research Institute, Chennai
5. BARC, Bombay

- 
- Exhibit shows a short project proposal submitted by students to a government organization:

Project Proposal

On

**DEVELOPING MULTIMEDIA STRATEGIES
FOR EFFECTIVE COMMUNICATION**

Submitted to

DEPARTMENT OF SCIENCE AND TECHNOLOGY
Rajasthan

By

T. Krantikiran 1997B4A3920
Bina Shetty 1998A2PS401

V. Ravindra 1998A6C6489
C. Sridhya 1998A2PS822

Under the guidance of

Dr. MEENAKSHI RAMAN
Languages Group



Birla Institute of Technology & Science
Pilani
August, 2001

Sample Proposal 2

STUDENT PROJECT PROGRAMME

1. Title of the project: Developing Multimedia Strategies for Effective Communication

2. Name of the students:

Name	ID No.
(i) T. Krantikiran	1997B4A3920
(ii) V. Ravindra	1998A6C6489
(iii) Bina Shetty	1998A2PS401
(iv) C. Srividya	1998A2PS822

3. Class/Year of the students: (i) 4th year.
(ii), (iii), (iv) 3rd year.

4. a. Name of the Project Guide Dr. Meenakshi Raman, Assistant Professor

b. Experience of the Guide: Teaching at various levels for the past 14 years; taken up projects in multimedia courseware development

c. Address of the Guide: Dr. Meenakshi Raman
Languages Group
Faculty Division I
BITS, Pilani-333031
Telephone:
Office: 45073-Extn. 307
Residence: 42238/44736

d. Broad Area/Field of the Guide: Communication.

a. Name of the institution: Birla Institute of Technology and Science

b. Address of the institution: BITS, Pilani
Rajasthan - 333031
Ph. 45073 - 307

a. Project Summary

This project aims at developing through multimedia certain strategies for effective communication, which is vital for the growth of an individual as well as the society. Effective communication strategies, developed through multimedia, can be easily grasped even by the lower strata of the society.

Moreover, these strategies may prove to be indispensable for education institutions and professional organizations of any kind.

This multimedia package would incorporate strategies for both verbal and non-verbal communication. The main focus would be on the significant aspects of oral communication such as body language, voice modulation and audience awareness, and the illustrative aspect of written communication namely, graphic aids.

The package would not only be user-friendly but also be informative, thus enabling the users to develop better communication skills.

b. Technical details of the project

Since effective communication is indispensable for the progress of any society, the project will focus on developing strategies for the same. Though the Internet and other audio-visual aids like audio and video cassettes, etc. throw some light on techniques for developing language skills, they do not deal in detail with the various aspects of communication.

Even though there are many aspects of communication, the project would limit itself only to certain aspects of oral and written communication. The project would require the following:

SOFTWARE REQUIREMENTS

- Multimedia development kit
- Adobe Photoshop

HARDWARE REQUIREMENTS

- A personal computer with Pentium II processor
- Multimedia kit (speakers, sound card, floppy, CD-ROM drive)
- 32 MB RAM
- Internet connection (preferable for research and analysis of the existing products and to download latest software to compress audio and video files, e.g. MP3 format)
- Recent publications (literature) on multimedia

7. Introduction of the project

a & b. Definition and origin of the proposal

The development of any society largely depends on the interaction among its people. This interaction is essential for the ideas, facts, feelings, and courses of action to be transmitted and interchanged.

But without adequate communication skills, it would be difficult for the people to interact effectively.

In a country like ours where illiteracy is still prevalent among the lower strata of many societies, oral and visual communication can greatly help the flow of interaction in a society. To achieve effectiveness in communication, people need to follow certain strategies. There is no doubt that these strategies can be developed in various ways.

We feel that multimedia is the most effective of all and hence designing effective communication strategies through this medium would be of great help to the students, professionals, and laymen. For example, strategies for effectively using the various means of body language such as posture, gesture, eye contact, etc. would certainly prove to be of immense help for all these categories of people. They can use each of these means of non-verbal communication according to the situation in which they communicate. For instance, people working in an organization may have to deliver many short or long presentations or participate in meetings, etc. during their professional career; students may have to give several presentations such as seminars and talks, or participate in group discussions and interviews during their academic career; laymen need to communicate their ideas, decisions, etc. to others. Hence developing effective communication strategies is vital for the overall progress of any society.

c. Objective

This project aims at developing multimedia strategies for effective communication (both verbal and non-verbal). It would mainly focus on:

1. All aspects of body language, voice modulation, and audience awareness pertaining to non-verbal communication
2. Graphic aids, which are vital for both oral and written communication

d. Work plan

For effective scheduling of time among students and for convenience, the project will be split into two broad phases of four months each. In the first phase, the package development will focus on the written form of verbal communication, and certain aspects of non-verbal communication such as personal appearance and posture, gestures. The various patterns of communication within an organization will also be dealt with.

In the second phase, the oral aspect of verbal communication, facial expression, eye contact, and space distancing of non-verbal communication will be developed. Management of information within the organization, audio-visual aids on business correspondence, reports, group discussion, meetings, seminars, and conferences will also be dealt with.

e. Methodology

- Literature survey
- Collection of materials
- Scripting
- Developing strategies
- Designing strategies through multimedia

f. & g. Organization of work element and time schedule

Phase I	4 months (approximately)
Phase II	4 months (approximately)
	as per work plan

8. Details of facilities to be provided by the institution

- Library
- Computer hardware
- Software for the use of multimedia
- Recording
- Internet access

9. Budget Estimate:

I. Minor Equipment	
1. Consumables	Rs. 8,000.00
2. Report writing	Rs. 1,000.00
3. Contingency & other costs	Rs. 1,000.00
Total	Rs. 10,000.00

10. Utilization of the outcome of the project

The multimedia package developed in this project will be informative as well as user-friendly. It will not only create an awareness among the public about the various aspects of effective communication, but also enable them to modify and develop their communication strategies. This in turn will prove to be beneficial for the progress of the society at large.

Sample Proposal 3

Sample Proposal with Cover Letter

March 14, 2002

Mr Anuj Sharma
Chairman
Diesel Locomotive Works
Varanasi-221004

Re: Project proposal for setting up of a multi-modal gymnasium in DLW

Dear sir

The attached document, 'Proposal for Setting Up of a Multi-modal Gymnasium in DLW Institute', outlines our project for a modern gym. Reduced man-days and associated costs due to medical problems of the DLW staff and officers has been a long-standing issue. Our proposal aims to suggest a remedy for these problems. The project is also expected to satisfy the long-pending demand of DLW staff for setting up of a gymnasium with multifarious facilities.

This proposal provides you with an overview of the proposed plan, an outline of the work plan along with the cost estimate, and the suggested plan of action for utilization.

This proposal also explores the alternative facilities provided and the utility of each.

The authenticity of the proposal is supported by the fact that many leading organizations in the world including Intel, IBM, GE, TATA, and others have implemented this concept successfully. If you have any questions or concern about our proposal, please feel free to contact me over my mobile 9830038796 or by e-mail at anirudh@vsnl.com.

Yours truly

Anirudh Gautam

Anirudh Gautam
Dy Chief Personnel Officer
DLW

Enclosure: proposal for multi-modal gymnasium

PROJECT PROPOSAL

ON

SETTING UP OF A MULTI-MODAL GYMNASIUM IN DLW

SUBMITTED TO

CHAIRMAN
DLW

BY

ANIRUDH GAUTAM
DY CHIEF PERSONNEL OFFICER/G

DIESEL LOCOMOTIVE WORKS
VARANASI 221004 (UP)

March 2002

**STAFF WELFARE PROGRAM
Draft Contract**

Project Title	SETTING UP OF A MULTI-MODAL GYMNASIUM IN DLW INSTITUTE
Name & designation of proposer	Anirudh Gautam, Dy Chief Personnel Officer
Postal address of the proposer	DLW, Manuadli, Varanasi
Name of the institute in which the gymnasium is proposed to be set up	North DLW Institute
Time required for commencement of the project on receipt of approval	6 months
Duration of the project	6 months
Amount of money required	One-time Cost: Rs 9 million approximately Recurring Expenses: Rs 2.2 million Expected Annual Income: Rs 2.0 million

Executive Summary

This proposal is about setting up of a multi-modal gymnasium in DLW. Last year DLW Hospital registered about 150 heart ailment cases. This year, the figure has risen to 200. Similarly, there has been phenomenal increase in the high blood pressure, depression, and anxiety cases. In addition, other stress-related medical problems have shown a rising trend, notably that of the cardio-vascular systems, digestive, and the nervous systems. Total cost incurred by DLW due to lost man-days and also due to the cost of medical treatment was calculated to be Rs 57 lakh for last year alone. This year, the figure is expected to be at least double that of the previous year.

In order to arrest these alarming trends through preventive means, it is proposed to set up a multi-modal gymnasium at DLW for use by staff and officers, and their families. Contrary to popular belief, a multi-modal gymnasium offers varied health and fitness programmes, ranging from iron-pumping machines to Yoga therapy and Chinese acupuncture. This technical proposal enumerates the suggested outline of the proposed gymnasium,

conventional and non-conventional programmes proposed to be offered, and the consequent benefits due to the same. The proposal also brings out the estimated time schedules for completion and the cost likely to be incurred.

The outcome of this project is envisaged in terms of reduction in lost man-days and associated costs due to medical problems of DLW staff and officers. Also, the project is expected to fulfill a long-pending demand of DLW staff for setting up of a multifarious gymnasium in DLW.

Technical details of the project

A conventional gymnasium conjures images of weight benches, trestles, parallel bars, balance beams, tread mills, and weight machines. This was true about gymnasiums about 20 years ago. The modern gymnasium offers a wide range of fitness regimens, ranging from the conventional ones to alternative therapies based on traditional health-care systems. Gold's Gym, a world leader in health and fitness facilities, offers a wide variety of programmes, including injury prevention and care, nutrition and supplementation, weight loss and gain, and anti-aging and senior health, amongst others. The traditional 'dhyar' yoga, acupuncture, 'pranayam', reiki, and other programmes are all offered under one roof.

The current proposal for setting up a multi-modal gymnasium in DLW visualizes provision of a wide variety of health and fitness programmes as mentioned above. It is proposed to set up modern cardio-vascular fitness machines such as treadmills, stair-climbers, elliptical gliders, upright and recumbent bicycles, and rowing machines. Concurrently, setting up of an ambient Yoga Centre with the help of local expertise is also proposed. Upgradation of the existing badminton, squash, tennis, and swimming facilities are also planned.

Background

In the year 1962, when DLW was set up with American collaboration, the stadium, the golf course, the indoor badminton courts, the squash courts, the tennis courts, and the basketball courts were constructed with the aim of making the fitness facilities available to the DLW employees. It can be said with some pride that DLW employees and their children have excelled in a number of sports and some of them have even found place in the national teams. Availability of adequate and wide variety of sporting facilities has been primarily responsible for a healthy atmosphere in DLW as the number of lost man-days due to sickness have been low compared to other production units of Indian Railways and also IR as a whole.

The recent years have, however, seen a rise in the working pressures as DLW has strived to complete with the global market. There have been demands on DLW system to bring out new designs of locomotives in less cycle times and at reduced costs. The competition from Chinese and other Asian suppliers have had a telling influence on DLW's operating ratios. Amidst the rumours of possible privatization and a reducing budget from the Railway Board, DLW has not only been able to survive but has made a place for itself in the Mid-east, South East and African markets. Exports to countries like Bangladesh, Tanzania, Jordan, Sri Lanka, Vietnam, and Malaysia have been successfully executed.

Uncertainty and diversity of production has had a detrimental effect on the mental and physical health of its employees. The number of cases of cardio-vascular diseases has almost doubled in the last three years. The number of lost man-days due to sickness has also significantly increased in the past few years. There has also been a general increase in grievance levels of the employees with regard to their future, especially when they compare themselves with other government departments, which are still insulated from the market economies. The Staff Welfare Committee during its last meeting with Chairman, DLW, had recommended certain steps to alleviate the troubles of employees. Setting up of a multifarious gymnasium figured as one of the recommendations. On this basis the Chairman had asked the Personnel Department to put up a proposal for setting up of a multifarious gymnasium in DLW.

Statement of the problem

Figure 1 shows a year-wise break-up of sickness cases registered by DLW hospital.

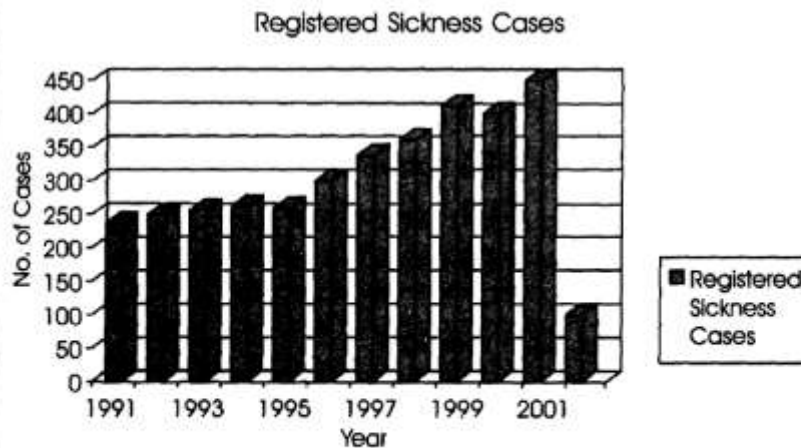


Figure 1: Year-wise break-up of registered sick cases in DLW hospital

As can be seen, there has been a gradual increase in the number of registered cases over the past ten years. Year 2000 shows a slight reversal in the number of cases, mainly because of a large number of retirements during that year. The above figure only refers to the in-patients department cases. If the out-patients reporting is also added, then the problem assumes larger proportions. The trend, however, remains the same.

Given in Figure 2 is the break-up of the cases in 1991. The corresponding position in year 2001 is given in Figure 3.

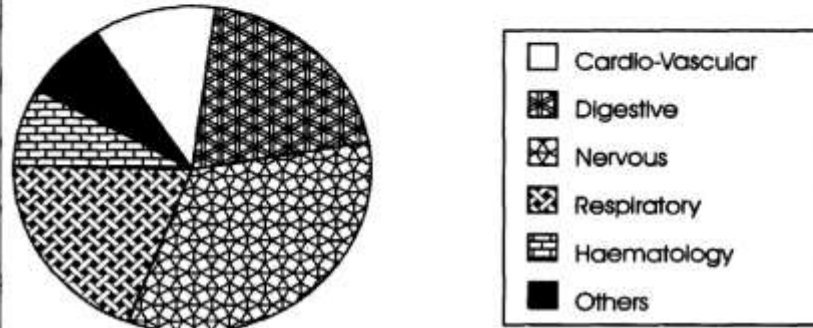


Figure 2: Break-up of registered cases in Year 1991

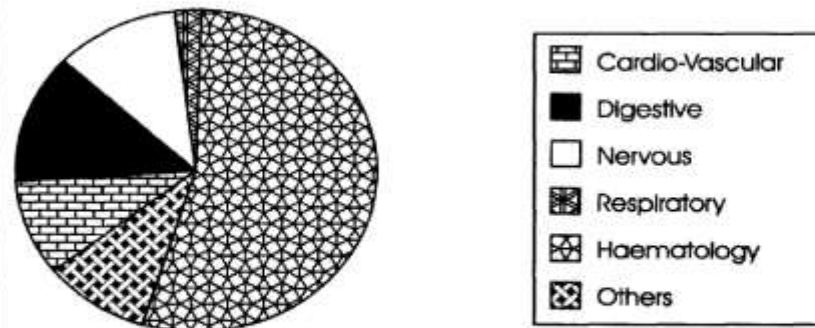


Figure 3: Break-up of registered cases in the Year 2001.

Figure 4 shows the man-days lost in the last year due to medical problems and the associated total costs. This is compared with the projections for the year 2002.

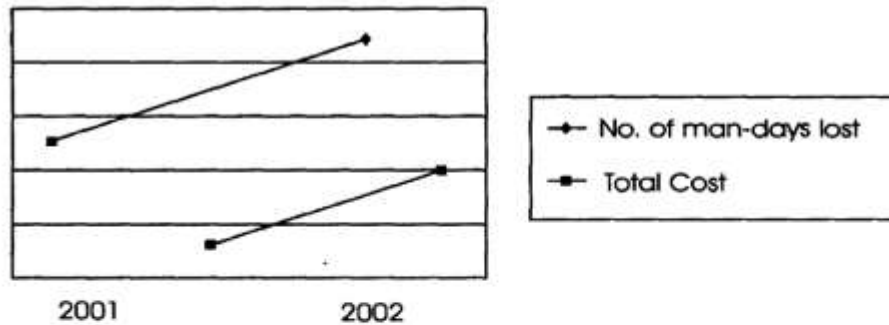


Figure 4: Man-days lost and total cost incurred due to medical problems

As can be seen, the associated total costs on account of sickness is projected to double in the current year. The actual expenditure due to lost man-days and due to medical treatment is expected to touch Rs 120 million in the current year. The share of cardiovascular diseases has increased significantly. More significantly, this has had an adverse effect on the morale of the employees.

Objectives

The main objective of setting up the gymnasium is to ensure fitness for the employees through sports, exercises, healthy food habits, relaxed life style, and meditation. A multi-modal gymnasium will act as a counselling centre for employees with tailor-made fitness programmes.

It is also proposed to maintain a health database of the employees in association with the DLW central hospital. The bottom line is to have more satisfied and healthy employees with consequent reduction in lost man-days and medical expenditure.

Work plan

Phases

For scheduling purposes it is proposed to split up the project into three phases. In the first phase, it is envisaged to set up the cardio-fitness centre. The second phase is aimed at establishing the Cybex circuit weight training area. In the final phase, the meditation hall and upgradation of the tennis courts and the swimming pool are planned.

Co-ordinator

As a first step selection of a full time co-ordinator shall needs to be done. The minimum qualifications and the work experience of the Gymnasium Co-ordinator have to be

determined and the emoluments which can be offered have to be decided. The coordinator shall be responsible for looking after the management of assets worth Rs 10 million and shall also be responsible for effective management of the gymnasium. Therefore, selection criteria are required to be approved by the Chairman.

Location

It is proposed to locate the cardio-centre and the weight centre of the gymnasium in the North Institute of DLW. The Yoga and meditation centre are intended to be put up at Officers Club. The location of the courts and the swimming pool remains the same but the skirting area around these is planned to be concreted and tiled.

Area

The cardio-centre and the weight centre shall require an area of about 20,000 square feet. The area has already been surveyed and the vacant stretch in front of the basketball court in the North Institute premises can be used for construction of the building. For the Yoga centre, the space near the Officers Club is proposed for building the main hall and the annexe. The area in front of the swimming pool is planned to be utilized for construction of wash rooms.

Types of Equipment

The cardio-centre is envisaged with the following equipment:

- a. Tread Mills
- b. Stair Climbers
- c. Elliptical gliders
- d. Upright & recumbent bicycles
- e. Rowing machines

The weight centre is proposed to be equipped with the following equipment:

- a. Weight benches
- b. Wall bars
- c. Parallel bars
- d. Incline boards
- e. Balance beams
- f. Trestles
- g. Weight machine centre

For Yoga centre no specific equipment is required, but the hall has to be designed with proper ventilation. Also, it is planned to have a tie-up with the Art of Living Foundation for meditation courses.

Manpower

It is estimated that a skeletal staff of about five shall be required for proper administration. For this purpose no additional staff is planned to be recruited, rather volunteers from the existing class 'C' and 'D' categories shall be screened.

Charges

For DLW staff and officers, the charges shall be deducted from the salary at a flat rate of Rs 500/- per month. For external members the fee shall be Rs 2000/- per month.

Timings

On Saturday and Sunday the gymnasium is proposed to remain open from 7:30 hrs to 17:30 hrs. On working days the timings need to be decided in consultation with the staff council and the officers' association. However a timing of 6:30 to 8:30 in the morning and 16:00 to 19:00 in the evening appears to be convenient.

Methodology

For civil construction works, it is first proposed to draw up the detailed layouts in association with DLW's civil engineering wing. The specifications of the buildings also need to be firmed up. Thereafter potential supplier assessment of reputed civil contractors will be done after floating limited tenders. Electrical works shall be clubbed with the civil works.

For purchase of the equipment, it is intended to buy these on single tender basis from Gold's Gym who are the leading manufacturers of gymnasium equipment.

Organization of work elements and time schedule

Given below in Table 1 is the list of activities and the expected durations for each. The detailed GANTT chart shall be worked out after the approval of the proposal. The expected completion time after paralleling of activities has been worked out to be about 6 months from the date of commencement of work.

Table 1: List of activities and expected durations

ACTIVITY	DURATION
Getting approval for the technical proposal	10 days
Discussion with staff council & officers' association	5 days
Nomination of core group	3 days

ACTIVITY	DURATION
Briefing of the core group	5 days
Budget approval	15 days
Forming of specification for civil work	10 days
Forming of specification for equipment	10 days
Freezing criteria for co-ordinator selection	5 days
Civil contractor survey	15 days
Discussions with Gold's Gym regarding equipment	10 days
Calling of volunteers from staff	10 days
Tender for civil works	30 days
Single tender for equipment	25 days
Selection of co-ordinator	30 days
Selection of other staff	25 days
Completion of civil works	90 days
Installation of equipment	90 days
Tie-ups for Yoga centre	30 days

Suggested plan of action for utilization

There is a requirement to increase fitness and health awareness amongst DLW's employees. DLW's Internal cable TV shall be used to promote the gymnasium. Schools and colleges shall be given sets of fliers for distribution. It is proposed to organize weight-lifting and body building competitions for children as well as for adults to attract interest of DLW's employees.

In association with the DLW hospital, dedicational and physical therapies shall be worked out for some volunteers. This shall give an impetus to popularizing the concept of fitness. It is expected that the full capacity of the gymnasium will be on the lines similar to that of the DLW golf course.

It is proposed to have separate timings for family members. This shall ensure active participation by ladies and children. This experiment has already been successfully tried out with the swimming pool.

It is expected that a few success stories in terms of improved fitness levels among the staff shall impart momentum to the whole concept of gymnasium.

Budget Estimate

Given below in Table 2 is an estimate of cost likely to be incurred in setting up the gym facilities. The recurring costs shall be additional to this estimate and have been worked out separately. Also indicated are the expected earnings/support annually.

Table 2: Expected expenditure and earnings for the gymnasium

S no.	Category of Expenditure	Cost in Rs million
	One time cost	9.0
1	Civil Construction	2.5
2	Electrical Works	0.5
3	Equipment	3.0
4	Selection process	0.5
5	Core team expenses	0.5
6	Travel expenses	0.5
7	Misc expenses	1.5
	Recurring Expenses/Year	2.2
1	Salaries and wages	0.5
2	Maintenance	0.7
3	Contingencies	1.0
	Expected Income/Year	2.0
1	DLW members	0.5
2	Non-DLW members	1.5

It is anticipated that with the setting-up of systematic fitness facilities such as a gymnasium, the overall health levels of the employees and their families shall improve. This is supported by the fact that many leading organizations in the world including Intel, IBM, GE, TATA, and others have successfully tried and implemented this concept.

The Chairman is therefore requested to accord approval to the setting up of a multifarious gymnasium at DLW.