ANNEXURE – “A”

Hardware Infrastructure & Application Software Development Supports of NIC in Himachal Pradesh
HARDWARE INFRASTRUCTURE CREATION
By NIC in Himachal Pradesh

NIC started establishing its State as well as District Centers, by installing Computer Systems and providing Satellite-based Computer Communication Network (NICNET), way back in August’1988, with the signing of an MoU between the NIC and the H.P. State Govt. on 9th November’1987. The NIC Himachal Pradesh State Unit started functioning at the H.P. Secretariat, Shimla in January’1989. All the 12 District Centres, at the respective Deputy Commissioner’s Offices, started functioning by November’1989. Later, NIC also established its support centres, along with the manpower support, at the H.P. High Court in 1994, at the H.P. Vidhan Sabha (Assembly) in 1996, and at the H.P. Institute of Public Administration (HIPA) in 1996.

The Hardware Infrastructure support by NIC, which is either provided and maintained by the NIC, OR procured by the State Govt. through NIC/ NICSI and maintained by the concerned User Deptt., OR procured and maintained by the User Deptt., but in all cases coordinated by the NIC only for its utilization and software implementation, has been detailed as follows:

**Secretariat LAN**

The H.P. Secretariat is spread over three buildings viz. Armsdale, Ellerslie and Yojna Bhawan. The NIC H.P. State Unit is located at the 6th Floor of the Armsdale building. A **Thick Ethernet backbone cable** has been laid from the 6th Floor of the Armsdale building to the other end of the Ellerslie building, covering the whole Secretariat. All the rooms in these buildings have been provided with UPS power supply. State Govt. has provided 2 nos. 5KVA UPS in the Armsdale and 1 no. 5KVA UPS in the Yojna Bhawan, and 1 no. 5KVA UPS has been provided by NIC for Ellerslie. Total **5 Pentium Servers (90M Hz/150M Hz)** are installed in the Secretariat LAN, connected to Thick Ethernet backbone using a Repeater and AUI Drop cable. There are about **160 GIST Terminals, alongwith local DMPs**, distributed in the Secretariat LAN through **15 nos. Terminal Servers**. The Chief Minister Office and the Chief Secretary Office have been provided with Internet connectivity also in the same LAN.

One IP-Advantage (IPA) VSAT has been installed. The Secretariat LAN has been connected to the IPA through a Proxy Server, providing Internet and Email (POP) facilities in the LAN. The Domain Name Server (DNS)/ Mail Server namely “hp.nic.in” is installed for the purpose. 8 nos. of telephone lines are also terminating on the Mail Server for providing Email (POP) services on the Dialup lines. The GIST Terminals in the Secretariat LAN are also provided with UUCP mail services through the X.25 card installed on one of the Pentium Server under UNIX, using the “ren.nic.in” Mail server located at NIC Headquarters.

The Secretariat LAN and NICNET infrastructure diagram is given on the following page.

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*Please refer to the “Profile of Information Technology Services of NIC in the State of Himachal Pradesh” for greater detail on the Hardware Infrastructure and Application Software Development support.*
**District Centres LAN**

There are 12 Districts in Himachal Pradesh. The NIC District Centres, located at respective Deputy Commissioner’s Office, were provided with 386-based PC/AT, having Dumb and GIST Terminals, to start with. 11 District Centres (except Lahaul-Spiti) have now been upgraded by providing additionally one PENTIUM system under UNIX, with 6 nos. of GIST Terminals and Printers, and one P-III system under WindowsNT. These 11 Centres have also been provided with one P-II and two P-III Client systems also.

The 11 District Centres have been provided with IP-Advantage (IPA) VSAT for NICNET connectivity, by installing a 1.2m Dish antenna for the purpose, for Internet and Email services through the DNS (hp.nic.in). These 11 district centres are also provided with a telephone line each, for extending the NICNET connectivity further to outside users on Dial-up Line.

The State Government later decided to augment hardware at its own in order to strengthen the District Collectorate LANs. The objective of strengthening was to provide the various Sections in the D.C. Offices with the Terminals and Printers at their respective working places itself. Accordingly, a set of 16 nos. Terminals, 15 nos. Printers and 1 no. Terminal Server each has been provided to the 11 districts. These Terminals are connected to the PENTIUM system in the NIC Centre through the additional Terminal Server provided on Thin Ethernet. In two of the big districts viz. Kangra and Shimla, the State Government has provided a PENTIUM system also additionally. The State Government has also provided additional 3.75KVA UPS in each District.

Besides the above mentioned District Collectorate LAN, independent computer systems for the following district level offices have also been procured and installed through the NIC:

- District Treasury Offices (in 5 Districts) have been provided with a Pentium System under UNIX with 8 GIST Terminals, 4 Printers and a 2KVA UPS, funded by the State Govt.
- District Courts (in 10 Districts) have been provided with a Pentium System under LBFN with 2-4 GIST Terminals, 2-4 Printers and a 650VA UPS, by the NIC.
- District Education Offices (in 4 Districts) have been provided with a Pentium System under UNIX with 8 GIST Terminals, 4 Printers and a 2KVA UPS, funded by the State Govt.
- District Rural Development Agency (in 12 Districts) have been provided with a Pentium Server under WindowsNT with 5 Pentium Client Systems, 1 Printer and a 2KVA UPS, under a Centrally Sponsored Scheme of the State Govt.

**Local Area Network (LAN) at Other Locations**

The NIC has established similar LANs at the H.P. High Court and H.P. Vidhan Sabha also, by providing PENTIUM systems under UNIX/Windows environment, GIST Terminals and Printers, along with manpower support.
APPLICATION SOFTWARE DEVELOPMENT
By NIC in Himachal Pradesh

- **Customized Office Automation Software**
  - Personnel MIS
  - Payroll Processing Software
  - Drawing & Disbursing Officer’s MIS
  - Departmental Budget MIS
  - References Monitoring MIS
  - Central Diary System

- **Web-Enabled Interfaces**
  - WWW Interface of H.P. Government (Official Website): [http://himachal.nic.in](http://himachal.nic.in)
  - Temple - Shri Naina Devi ji (exclusive web-pages)
  - Government including Governor, Chief Minister, Council of Ministers, Administrative Secretaries with names, contact numbers, and Email, if any.
  - Districts (exclusive web-pages for each district)
  - H.P. Vidhan Sabha (Assembly).
  - Write to the Chief Minister of Himachal Pradesh for any complaint/ suggestion/ proposal.
  - Examination Results: H.P. Board, Universities, other Institutions: [http://hpresults.nic.in](http://hpresults.nic.in)
  - Himachal Pradesh University, Shimla: [http://hpuniv.nic.in](http://hpuniv.nic.in)
  - DEPARTMENTS
    - Tourism Department: [http://himachaltourism.nic.in](http://himachaltourism.nic.in)
    - Excise & Taxation Department: [http://hptax.nic.in](http://hptax.nic.in)
    - Law & Justice Department
    - Industries Department.
    - Rural Development & Panchayati Raj Department.
    - Labour & Employment
    - Foreign Employment & Manpower Export Bureau.
    - Police Department: [http://hppolice.nic.in](http://hppolice.nic.in)
    - Health Department
    - Information Technology Department
    - Revenue Department
    - Co-operation Department
    - Town & Country Planning Department
    - Finance Department
    - Irrigation & Public Health Department
    - Election Department
    - Forest Department
  - CORPORATIONS/BOARDS
    - Himachal Pradesh Tourism Development Corporation (HPTDC): [http://hptdc.nic.in](http://hptdc.nic.in)
    - HimUrja (H.P. Energy Development Agency).
    - H.P. State Pollution Control Board.
    - H.P. State Industrial Development Corporation: [http://hpsidc.nic.in](http://hpsidc.nic.in)
    - H.P. Horticulture Produce & Marketing Corp. (HPMC): [http://hpmc.nic.in](http://hpmc.nic.in)
    - H.P. Handicraft Corporation: [http://hpcraft.nic.in](http://hpcraft.nic.in)
    - H.P. State Council for Science, Technology & Environment
    - H.P. State Electricity Regulatory Commission
  - Profile of Information Technology Services by NIC in the State of Himachal Pradesh i.e. NIC Himachal Pradesh State Unit

- **Online Hotels and Transport Reservation System of HPTDC**
- **Citizen-Government Interface (LOKMUTRA)** (Implemented at Hamirpur on pilot basis)
- **Government INTRANET Interface** (Under Development)
• Department Specific Software (Departmental MIS)
  • DISNIC-TREASURY
  • Budget Processing System
  • Ways & Means MIS
  • Planning MIS
  • 20-Point Program MIS
  • Local Bodies Income/Expenditure Monitoring
  • TAX-Barrier (On-line)
  • DISNIC-TAXATION (Sales Tax)
  • TAX-MIS (At State Level)
  • Land Records MIS
  • Directory of Locational Codes
  • Agricultural Census Computerisation
  • Minor Irrigation Census Computerisation
  • 6th All India Educational Survey Computerization
  • Educational Institutions MIS
  • Educational Personnel MIS
  • Civil Registration MIS
  • IGM C-Bonds Monitoring System
  • Personnel MIS (Health)
  • National Permits Scheme MIS
  • State Domestic Products MIS
  • Directory of Gazetted Officers
  • Welfare Pensions Disbursement MIS
  • Disability Identity Cards Issuance System
  • Integrated Child Development Scheme MIS
  • DISNIC-CIVIL
  • District Industries Centres Computerisation
  • Tenders Processing System
  • Computerised Rural Information System Project (RuralSoft2000)
  • Roads MIS
  • Drinking Water Survey in Rural Areas
  • Co-Operative Statistics Computerisation
  • H.P. Veterinary Council MIS
  • Postal Life Insurance Computerisation
  • NSO Agents Identity Cards Issuance System
  • Court Cases Processing System (H.P. State Consumer Commission)
  • Court Cases Processing System (H.P. State Administrative Tribunal)
  • State-wide Castes Survey Computerisation (H.P. State Backward Classes Commission)
  • H.P. Government Secretariat Computerisation
  ✓ Chief Minister’s References Monitoring System
  ✓ Freedom Fighters MIS
  ✓ Personnel MIS (General/Civil Officers)
  ✓ Personal Accounts MIS
  ✓ Himachal Bhawan Reservation System
  ✓ Vehicle Expenditure Monitoring System
  ✓ House Allotment MIS
  ✓ LAN-based Central Diary/References MIS
  ✓ Arrears Monitoring System
  ✓ Telephone Billing Monitoring System
  ✓ State Government Telephone Directory
  ✓ Cabinet Decisions MIS
  ✓ Recruitment & Promotion Rules MIS
  ✓ Government Decisions MIS
  ✓ Court Cases Monitoring System (Generalized)
  ✓ Library MIS
  ✓ Financial Commissioner (Appeals) Court’s MIS
• District Collectorate Computerisation
  ✓ Schemes MIS
  ✓ Grievances Cell MIS
  ✓ Copying Agency MIS
  ✓ Cash Counter MIS
  ✓ References Monitoring MIS
  ✓ Revenue Recovery MIS
  ✓ Sadar-Kanungo Branch MIS
  ✓ Housing Loans (LI/MI) MIS
  ✓ Arms & Ammunition License MIS

• District Courts Computerisation

• H.P. High Court Computerisation
  ✓ List of Business Information System (LOBIS)
  ✓ Filing Counter MIS
  ✓ Disposals Information System
  ✓ Fixed-Deposits Monitoring System
  ✓ Courts Information System (High Court COURTNIC)
  ✓ Sub-Ordinate Courts Disposals Information System
  ✓ Library Information System
  ✓ Judgements Information System (High Court JUDIS)
  ✓ Personnel MIS (Judges)
  ✓ Personnel MIS (General)
  ✓ Payroll Processing System
  ✓ COURTNIC & JUDIS Services of NIC
  ✓ Indian Law Report (Himachal Series)

• H.P. Vidhan Sabha (Assembly) Computerisation
  ✓ Payroll Processing System (MLAs)
  ✓ MLAs’ Who-is-Who System
  ✓ Personnel MIS (Vidhan Sabha Staff)
  ✓ Assembly Business MIS
  ✓ Conference MIS
  ✓ Budget Monitoring System
  ✓ Discretionary Grants Monitoring System
  ✓ CTD Accounts MIS
  ✓ Telephone Bills Monitoring System
  ✓ Expenditure Bills Monitoring System
  ✓ Pensions Monitoring System (Ex-MLAs)
  ✓ Loans Monitoring System (MLAs/Ex-MLAs)
  ✓ Library Automation System

• NIC H.P. State Unit Computerisation
  • Daily Diary System
  • DDO Accounting System
  • Personnel Information System
  • Projects Monitoring System
  • Maintenance Information System
  • Stores Inventory System
  • Training MIS
  • Library MIS
ANNEXURE - “B”

Suggested Formats for preparing Approach Paper, Detailed Project Report, and Software Requirement Specifications
Suggested Format for preparing

Approach Paper about Functioning of the Department

1. Name of the Department.

2. Information about Department.
   - Summary of the Department Functions.
   - Department’s Organization Chart, giving locations and their details.
   - Main Activities (mutually independent Systems) in the Department.
   - Step-wise explanations of each Activity i.e. the nature of Information, its Flow mechanisms, its utilization at various levels, controls & monitoring mechanisms etc.

3. Department’s vision of Computerization.
   - Activities need to be computerised.
   - Objectives and priorities of computerisation.
   - Department’s vision of computerized working. (Here one should explain the Department’s organization and functioning when it is fully computerized. It should clearly identify which functions in the vision exist presently and which are new, to be implemented during the computerisation)
   - Interaction with other Departments and Citizen. (This should explain about the Data, which is shared i.e. received and/or supplied, with other Departments and with Citizen)
   - Role of the proposed systems in the Department’s vision.

4. Department already having computerized systems, if any.
   - Application Software details viz. Functionalities, Time duration since when it is in use, agency which developed it, approximate development cost, current limitations/ problems with the application, if any.
   - System Software currently in use, number of installations etc.
   - Hardware details viz. Servers, Clients, Dumb Terminals, GIST Terminals, Printers, UPS/ CVT etc., and also when these were purchased.
   - Networking Environment, components (HUB, switches, transceivers etc.) and topology (terminal based, client/ server, web-enabled, thin Ethernet, UTP etc.) currently in use.

   (Signature)
   Name & Designation of Officer-in-charge, Computerisation

General Instructions

1. The information provided in the paper should be self-explanatory. If all the required information is not presented in the paper, DoIT may be unable to evaluate the paper on the ground of insufficient information, and will not be able to advise further.

2. The generic applications e.g. Personnel Information System, Payroll Processing System, DDO’s Accounting System, References/Files Movement Monitoring System should not be included in the above list.
Suggested Format for preparing
Detailed Project Proposal

- Name of the Department:
- Title of the Project:
- Proposal prepared by:
- Proposal validity period, if any:
- TSP’s Name and Contact information:

(Signature)
Name & Designation of
Officer-in-charge, Computerisation

General Instructions

1. This document describes the suggested format in which proposals must be prepared by the individual Departments and submitted to the Department of Information Technology (DoIT), H.P. Secretariat, for review/approval.

2. The Departments and TSPs are advised to include all possible systems and sub-systems in an integrated manner with a view to achieve standardization and avoid redundancy, while preparing the Detailed Project Proposal.

3. The information provided in the proposal should be self-explanatory and it must be supported by required reports, charts etc. If all the required information is not presented in the proposal, DoIT may be unable to evaluate the proposal on the ground of insufficient information.

4. The Department, which is planning to computerize the operations, and the Turnkey Solution Provider (TSP) chosen by the department, are requested to provide full operational and technical information in the proposal.

5. Individual department must forward the proposal to DoIT sufficiently in advance, so that DoIT and/or its technical experts can review it properly.
1. Executive Summary of the project

- Scope of work
- Functionality of the proposed application(s)
- Hardware and software platform
- Brief Network design
- Man-month estimates for carrying out DSS & SRS
- Cost estimates for entire project

2. Analysis of Proposed System

- Requirements Analysis. (This is aimed at describing the existing business process and pinpointing the need for any additions or alterations of the process to improve its effectiveness).
- Modified Business Process. (Explain whether the computerized procedures will be different from the existing procedures. If so, what are the advantages of the new procedure? How have these procedures been finalized/proposed to be modified? Also explain what criteria have been applied to determine the acceptability of the new procedures. If the proposed computerization does not change existing procedures significantly, then department’s vision of computerization should be expanded further to achieve so. Otherwise the department shall give explanation for computerizing existing procedures and describe other benefits achieved through such computerization).
- Feasibility Analysis. (The feasibility of the proposed system from various point of view e.g. technical, economical, social etc.)
- Methodology and deliverables of the proposed system. (Consolidated view).

3. Scope of Work / Project deliverables

Describe in brief, the activities, the scope of work and project deliverables (The following activities are for example purpose).

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Activity</th>
<th>Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial Study</td>
<td>Study of the existing procedure in the Department, by interacting with departmental officials and key users.</td>
</tr>
<tr>
<td>2</td>
<td>Detailed System Study (DSS) and Software Requirement Specification (SRS)</td>
<td>This is aimed at describing the existing business process and pinpointing the need for any additions or alterations in the process to improve its effectiveness. Preparation of the Software Requirement Specification (SRS) accordingly.</td>
</tr>
<tr>
<td>3</td>
<td>Software Design (including the Website Design, if any)</td>
<td>Creation of the System/ Software Design Documents (SDDs) for the proposed system. This will provide logical and the physical design of the proposed system/ Interfaces.</td>
</tr>
<tr>
<td>4</td>
<td>Software Development</td>
<td>Software/ Website Development by TSP</td>
</tr>
<tr>
<td>5</td>
<td>Software Units Testing/ Feedback/ Fine Tuning</td>
<td>Test Plans to be prepared for testing of individual program units. User feedback to perform gaps analysis and carry out fine-tuning of features.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>6</td>
<td>Site Preparation for Hardware and System software Installation</td>
<td>According to the procedures, in a time-bound manner.</td>
</tr>
<tr>
<td>7</td>
<td>Hardware installation and Establishment of network</td>
<td>Installation of Hardware and Network in phased manner, covering proposed locations within a specified time frame, in parallel with other activities.</td>
</tr>
<tr>
<td>8</td>
<td>Software Installation and Testing</td>
<td>Completion of software development, installation at selected sites and testing of complete software according to Test Plans.</td>
</tr>
<tr>
<td>9</td>
<td>Implementation</td>
<td>Preparation of Master data files, one-time transactions backlog/bulk data entry, if any, and sample application data.</td>
</tr>
<tr>
<td>11</td>
<td>Deployment at various locations</td>
<td>Software Deployment at various sites of the Department.</td>
</tr>
<tr>
<td>12</td>
<td>Parallel runs</td>
<td>To work concurrently with existing system (if any). If only manual system, then the Department has to run both manual and computerized system for the specified number of months before switching over completely.</td>
</tr>
<tr>
<td>13</td>
<td>Training to Departmental Users</td>
<td>Training to staff of the department and computer personnel of the department, to be conducted in parallel with above activity.</td>
</tr>
<tr>
<td>14</td>
<td>Warranty and maintenance of the software</td>
<td>Must cover all the bug-fixing and minor modifications in the application software during the project and warranty period prescribed.</td>
</tr>
</tbody>
</table>

4. Data Management for the project

- One-Time Bulk Data Entry. (This section should explain what are the Master data, backlog of Transaction data and other related data entry requirements, before the proposed computerized system is actually started using, and their feeding mechanisms).
- Data Security. (This section should explain what are the critical data, and how their authenticity and confidentiality will be ensured).
- Data Archival and Back-up methodology. (This section should explain how important data will be archived and backed up. Also mention plans for disaster management and data recovery mechanisms).

5. Application modules which are excluded from new development

To avoid redundancy and repetition of development work, certain application modules, which are generic to all the departments of the government (such as Personnel Information System, Pay-roll, DDOs Accounting System, References/Files Monitoring System etc.) need not be developed by individual departments. These modules shall be made available from DoIT, which will be incorporated in the overall system developed by the TSP for a particular department.
6. Project Schedule and development efforts estimates

The Department and TSP is required to give project implementation schedule in the following suggested format: (The names of the activities and the total number of activities are for example purpose only).

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of activity</th>
<th>Duration in calendar months</th>
<th>No of Persons(*) involved</th>
<th>Man-month Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detailed System Study (DSS) and System Requirement Specification (SRS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Software Designing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Software Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unit Testing/ Feedback/ Fine Tuning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Installation and Testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Deployment at various locations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Implementation and Parallel runs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Sub Total A (Item 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Sub Total B (Items 3 to 9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A+B</td>
<td>Grand Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*) Note: During each of the activity mentioned above in the schedule, man-month estimates should be given for category-wise manpower requirements. These categories of software personnel are described in the guidelines issued under the TSP scheme.

Above schedule must be accompanied by PERT/CPM charts, giving approximate start and end dates for each of the activity described in project schedule/scope of work.

7. Department’s Manpower requirement

In the proposed computerized environment, the department has to maintain and operate the system with or without TSP being actively involved in the project. For running the system as well as proper interaction with TSP, the department needs to formulate staff structure for computer operations, if not available at present. This requirement of staff will have to be met from the existing sanctioned staff-strength of the Department. In no case additional staff will be sanctioned by the Govt. for the Computerisation. The Department will have to train the existing staff/identify change-agents from amongst the available manpower. Department may propose conversion of certain existing posts for this purpose which Govt. will consider. The details about suggested staff-requirement should be given in the table below:

<table>
<thead>
<tr>
<th>Staff</th>
<th>Job Responsibilities / Work Profile</th>
<th>Number of Persons required</th>
<th>Equivalent Post(s) proposed to be surrendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Analyst/Programmer</td>
<td>Management and Administration of Network, Advising and Assisting end-users, maintenance, installation and configuration of Software/Developed Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>General Data Entry, Scanning Documents, Word Processing, Upkeep of Computer Equipment, Cleanliness etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Proposed hardware Requirement

1. The specifications must be generic and vendor independent, in such a way that models from a number of different vendors can meet the requirements without any deviation. The individual Department and its TSP are advised not to mention any specific brand in the hardware requirement. In exceptional cases, if any specific brand/model is mentioned, then it must be justified by giving strong reasons for choosing it.

2. If any existing hardware is to be used in the proposed system, information about such hardware (deskwise/branchwise) must be included.

3. Central UPS: DoIT proposes that a centralized UPS should be opted in place of individual UPS or CVT for each desk, where there are a number of PCs and peripherals located within a office/building. For Load-Estimation purpose, DoIT advises to use the following table giving wattage rating (W) for certain common hardware. TSPs are advised to check these ratings with the documentation provided along with the hardware they intend to propose.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Equipment</th>
<th>Wattage</th>
<th>Future expansion buffer 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Line Matrix printer, Laser Printer</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Workgroup Server</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Colour PC, Heavy Duty DMP</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dot Matrix printer</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Scanner (A4), Switch, Hub, Inkjet Printer</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

A. Hardware Items Specifications:

- Application Server Specifications
- Client PC / Terminals specifications
- Back-up device specification (preferably on server)
- Peripherals (printers, scanners, modem etc.) specifications
- Any other hardware equipment required

B. Desk-wise Requirement Analysis:

<table>
<thead>
<tr>
<th>Desk (Designation)</th>
<th>Hardware Item-wise Number required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Item-1</td>
</tr>
<tr>
<td>Office Location 1</td>
<td></td>
</tr>
<tr>
<td>Desk1</td>
<td></td>
</tr>
<tr>
<td>Desk2</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
</tr>
<tr>
<td>Subtotal for Location 1</td>
<td></td>
</tr>
<tr>
<td>Office Location 2</td>
<td></td>
</tr>
<tr>
<td>Desk1</td>
<td></td>
</tr>
<tr>
<td>Desk2</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
</tr>
<tr>
<td>Subtotal for Location 2</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
</tr>
</tbody>
</table>

C. Network Environment

Site Information:

- Layout of the Office indicating the location of cabins etc. as it exists today
- Proposed Layout of the Office (if any), indicating the location of cabins and other office furniture.
Network Information:
- Proposed Network Technology (Modems, Ethernet, Fast Ethernet etc.)
- Proposed Network Topology (for Internet working between various offices of the Department)
- Required Network Components, with their general specifications (such as Switches, Hubs, Jack Panels, Information Outlets, UTP Cables etc.)
- Any other components required

D. Conditioned power requirement
- Central UPS specifications (Load estimation, backup time required, etc.)
- Individual UPS’s specification (preferably 0.5 KVA), only for isolated desks / remote areas with individual PCs

E. Consumables
Estimate about the consumable requirement such as
- Computer stationary
- Back-up media, cartridges, ribbons etc

9. Proposed Operating System platform and System Software
Although detailed system study will provide exact information about proposed application platform later during the execution of the project, here one should describe the components, which are likely to be required, with brief rationale behind choosing the components. Following is the suggested list of components.
- Server Operating system (Windows NT, UNIXWARE etc.)
- DBMS (Dbase, FoxPro etc.)
- RDBMS platform (MS SQL, Oracle, Sybase etc.)
- Application development platform (Visual Basic, Power Builder, Developer2000, Visual C++ etc.)
- Application run-time platform (Windows 95/NT etc.)
- Any other (specialized) software required, along with the details such as developer/vendor of the software, approximate cost etc.

10. Training requirement and schedule
- Application software training to Users (Free of cost to concerned staff)
- Training to EDP level staff (System Manager, Operators etc.)
- Training duration, batch-size, venue of the training
- Training charges, if any

11. Roles and Responsibilities
For successful implementation of the project, both the department and its TSP should chalk out project execution strategy and role-playing methodology during the term of the project.
- Responsibilities of TSP (including Documentation etc.)
- Responsibilities of Department
12. Project Cost Estimates

The project cost is calculated according to the following two categories:

- **Actual (fixed) Cost of carrying out DSS and preparing SRS**: For Subtotal-A of Para-6 above
- **Cost Estimates for entire project**: This is an estimated cost, taking into account the entire software cost (for Estimates Subtotal-B of Para-6) and for procurement of hardware, networking etc.

A. Application Software Cost Estimates

(The following table will be similar to the table in Para-6, but with category-wise charges for various software personnel categories)

<table>
<thead>
<tr>
<th>Sr</th>
<th>Name of activity</th>
<th>Catg.-A</th>
<th>Catg.-B</th>
<th>Catg.-C</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>C</td>
<td>M</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>DSS and SRS</td>
<td>ST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Software Designing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Software Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unit Testing/ Feedback/ Fine Tuning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Installation and Testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Deployment at various locations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Implementation and Parallel runs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (for items 2 and onwards)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GT</td>
</tr>
</tbody>
</table>

M = M an-month efforts estimates, from Para-6
C = Unit M an-month charges payable as per prescribed fee-structure for TSP

B. Total Project Cost Estimates

(Items specified below in each category are for example purpose only. Department will give exact requirement for each Item in all category)

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Item</th>
<th>Required Quantity</th>
<th>Estimated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detailed System Study and SRS</td>
<td>Total ST above</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Application Software (remaining cost)</td>
<td>Total GT above</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hardware/ Systems Software</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Servers, Desktop PCs etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Printers, Scanners etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modem etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Networking</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switches, Hubs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cabling, I/O, conduit etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>UPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capacity X, Y, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Consumables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total**

Any other charges, which TSP foresees during the execution of the project must be estimated and mentioned in above estimates.

C. The proposed source of funding for the project.
The basic issues that the SRS shall address are Functionality, Performance, External interfaces, Attributes, and Design constraints of the proposed Software. An SRS should be Correct, Unambiguous, Complete, Consistent, Verifiable, Modifiable and Traceable.

- An SRS is correct if, and only if, every requirement stated therein is one that the software shall meet.
- An SRS is unambiguous if, and only if, every requirement stated therein has only one interpretation.
- An SRS is complete if, and only if, it includes all significant requirements, Definition of the responses of the software to all realizable classes of input data in all realizable classes of situations, Full labels and references to all figures, tables and diagrams.
- An SRS is consistent if, and only if, no subset of individual requirements described in it conflict, and there is no disagreement with some higher level document, such as, System Requirement Specification.
- An SRS is verifiable if, and only if, every requirement stated therein is verifiable.
- An SRS is modifiable if, and only if, its structure and style are such that any changes to the requirements can be made easily, completely, and consistently while retaining the structure and style.
- An SRS is traceable if the origin of each of its requirements is clear and if it facilitates the referencing of each requirement in future development.

The recommended contents of an SRS are as follows:

1. **INTRODUCTION**

1.1 Purpose
This should delineate the purpose of the SRS and specify the intended audience

1.2 Scope
This identifies the software product(s) to be produced by name and explain what the software product(s) will do. Describe the application of the software being specified, including relevant benefits, objectives, and goal.

1.3 Definitions, acronyms, and abbreviations
This should provide the definitions of all terms, acronyms, and abbreviation required to interpret properly the SRS.

1.4 References
This should provide a complete list of all documents referenced elsewhere in the SRS, and specify the source from which the references can be obtained.

1.5 Overview
This should describe what the rest of the SRS contains and how it is organized.
2. **OVERALL DESCRIPTION**

2.1 **Existing System**
This should describe the System operating presently, the limitations and problems being faced in the existing System, and the advantages proposed to be derived out of the new System.

2.2 **Product Perspective**
This subsection relates the requirements of the Integrated System to the functionality of the Individual Software modules, and identifies Interfaces. Block diagram showing the major components of the Integrated system, interconnections and external interfaces are provided. This subsection also describe how the System operates inside various constraints e.g. System Interfaces, User Interfaces, Hardware Interfaces, Software Interfaces, Communication Interfaces, Memory Constraints, Operations, Site Adaptation requirements etc.

2.3 **Product Functions**
This provides a summary of major functions that the Product will perform. Textual or graphical methods can be used to show the different functions and their relationships.

2.4 **User Characteristics**
This describes general characteristics of the intended Users of the Product.

2.5 **Constraints**
This should provide a general description of any other items that will limit the developer’s options. These include Hardware limitations, Interfaces to other applications, Parallel operations, criticality of the application etc.

2.6 **Assumptions and Dependencies**
This should list each of the factors that affect the requirements stated in the SRS.

2.7 **Apportioning of Requirements**
This identifies requirements that may be delayed.

3. **SPECIFIC REQUIREMENTS (Each Software Module)**

3.1 **Functional Requirements**
Functional Requirements define the fundamental actions that are taking place in the Software in accepting & processing the Inputs, and processing & generating the Outputs. These include:

- Validity checks on the Inputs.
- Exact sequence of operations.
- Responses to abnormal situations, including Overflow, Communication facilities, Error handling and recovery.
- Effect of parameters.
- Relationship of Outputs to Inputs, including Input/Output sequences, Formulas for input to output conversion.
An appropriate template may be chosen for presenting the functional requirements.

3.2 Logical Database Requirements
This specifies the logical requirements for any information that is to be placed into a Database. This may include: Types of information used by various functions, Frequency of use, Accessing capabilities, Data entities and their relationships, Integrity constraints, Data retention requirements.

3.3 User Interfaces
This specifies the Input Screens, Output Reports and Menus.

3.4 Hardware Interfaces
This should specify the logical characteristics of each interface between the software product and the hardware components of the system.

3.5 Software Interfaces
This should specify the use of other required software products e.g. DBMS, OS etc., and interfaces with other application systems.

3.6 Communication Interfaces
This should specify the various interfaces to communications such as local network protocols etc.

3.7 Performance Requirements
This subsection should specify both the static and the dynamic numerical requirements placed on the software or on human interaction with the software as a whole. Static numerical requirements may include: the number of terminals to be supported, the number of simultaneous users to be supported, amount and type of information to be handled etc. Dynamic numerical requirements may include: the number of transactions and tasks and the amount of data to be processed within certain time periods for both normal and peak workload conditions etc.

3.8 Design Constraints
This should specify design constraints that can be imposed by other standards or regulations e.g. Report format, Data naming, Accounting procedures, Audit tracing etc. or some hardware limitations etc.

3.9 Software System Attributes
There are a number of attributes of software that can serve as requirements. It is important that required attributes be specified so that their achievement can be objectively verified e.g. reliability, availability, security, maintainability, portability etc.

3.10 Supporting Information
The supporting information makes the SRS easier to use. It includes Table of contents, Index, Appendices etc.
ANNEXURE – “C”

Proposed
State Wide Area Network of
Himachal Pradesh Government
Introduction

Need of the day is to effectively address demand for high quality Information Technology (IT) services at the lowest possible cost. The objective is to have seamless integration of information and communication, therefore, a network needs to be worked out which is cost effective, easy to maintain and reliable. The proposed State Govt. INTRANET is planned for the following IT services:

- E-mail Services, Internet Access.
- Video Conferencing (On demand).
- Feeding the Web-enabled Citizen-Govt. Interface.
- Data Transfer from Blocks/ Tehsils to Districts to State Headquarters for monitoring and decision making purposes.

NIC after catering to the nascent requirements of the State Govts., has now included a range of different VSAT networks based on different technologies. C-band network based VSATs, provided by NIC to all the District Centres to start with, have now been phased out, and the KU-band network based VSATs (IPA/ FTDMA/ SCPC) are being provided to each district to improve the network services as part of MOU between NIC and the State Govt. Accordingly, the following Network configuration is proposed for the State Govt. INTRANET:

- The State headquarter (H.P. Secretariat) is proposed to be provided with a SCPC VSAT, which can be tuned to support data transfer in the range of 64-384Kbps.
- The Districts are proposed to be provided with SCPC VSATs of 64Kbps dedicated bandwidth. These VSATs will provide data transfer on 64Kbps and will switch over up to 384Kbps when video conferencing is required (on demand). Point-to-Point video conferencing is proposed for districts.
- Remote Access Servers (ROUTERS), are proposed to be provided at all the locations for extending network connectivity to the offices located outside the H.P. Secretariat and District Collectorates e.g. Block/ Tehsil Headquarters on Leased/ Dial-up Line.
- It is also proposed to provide backup connectivity over existing IP-Advantage VSATs in the Districts and State Headquarters, for ensuring uninterrupted Email and Data transfer services.
Proposed Network at State Headquarters

The State Headquarters Network Setup (SHNS) is proposed over SCPC (2.2m antenna) VSAT. This Centre will be the Hub of the entire Himachal Pradesh State Government Network, and will be located at the NIC H.P. State Unit in the H.P. Secretariat, Shimla. The Secretariat LAN will also be integrated with this network.

One PSTN and one ISDN dial-up ROUTERs (like CISCO2611 and CISCO4500 series) are proposed in the LAN for remote office connectivity. Remote offices in Shimla will be categorized into three different types: low, medium and high. This categorization will be done depending upon their load, importance and priority. These remote offices will be connected by PSTN dial-up, Leased Line (with PSTN dial-up as backup) and ISDN dial-up on demand (with PSTN dial-up as backup). Medium and high-end remote offices will have their own local LAN with Hub/Switch with Windows98 as Proxy connecting the WAN.

STPI is also going to set-up Wireless Local Loop/Radio Frequency link at Shimla for connecting various offices. In case of its availability in the near future, this WLL/RF Link of STPI will also be integrated with State Wide Area Network with the help of STPI.

The schematic diagram for the SHNS will be as follows:

Proposed Secretariat LAN

Without upsetting the existing Network setup at the Secretariat, new Servers will be introduced in the new LAN. Existing Network will also be integrated into this new LAN. After the stabilization of the new setup, old Servers will be removed. Thick Ethernet based Network will be replaced by Optical Fiber Cable (OFC) based network as Backbone. 100Mbps Switched Network connecting the two buildings of the Secretariat viz. Armsgdale and Ellerslie will be distributed within the buildings by structured UTP cabling. AUI drop cable will be replaced by UTP cable from Switch-to-Hub. The existing LTS will be connected to one of the HUB ports using BNC-UTP micro transceivers. UTP HUBs and Jack Panels will be installed at each Floor of the two buildings, connecting the Client Computer Systems and Terminal Servers, by laying the structured UTP Cable. UTP Cables will be laid for 20 UTP HUBs, connecting 400 Client Nodes and 20 Terminal Servers. Users will arrange for the Client Computer Systems and Printers requirements at their own.
The schematic diagram for the Secretariat LAN will be as follows:

**Video-Conferencing Services**

NIC will provide a dedicated bandwidth of 128Kbps to conduct video conferencing among districts over SCPC VSAT. The same VSAT is also used for data transfer at 32 Kbps in normal routine. The video conferencing service will be available on demand among three users in continuous presence mode. The same conference facility can also be availed between inter-State.

Two nos. of Mobile SCPC VSATs are also proposed for enabling the Chief Minister of Himachal Pradesh to do Video Conferencing with any remote location in the State.
**Proposed Network at District Headquarters**

The District Headquarters Network Setup (DHNS) is proposed over SCPC VSAT 32/384 Kbps (Or alternatively on IPA/OFc by DoT/ISDN as feasible on a case to case basis). This Centre will be located at the respective NIC District Centre. The District Collectorate LAN will also be integrated with this network. The schematic diagram for the DHNS will be as follows:

**Proposed District Collectorate LAN**

UTP HUBs and Jack Panels will be installed at different locations in the Collectorate premises, connecting the Client Computer Systems and Terminal Servers, by laying the structured UTP Cable. UTP Cables will be laid for 2/3 UTP HUBs, connecting 15/20 Client Nodes and 2/3 Terminal Servers. Users will arrange for the Client Computer Systems and Printers requirements at their own. The schematic diagram for the Collectorate LAN will be as follows:

Actual LAN configuration will be worked out separately for each District, making provision for direct connectivity to LANs of other offices also, located in the Collectorate premises e.g. District Treasury Office, District Courts, District Rural Development Agency etc., wherever feasible.

The 12 Districts will be divided into three categories based on the administrative setup and user segment, as follows:

- **Category-A** (3 nos.): Shimla, Mandi, and Kangra.
- **Category-B** (7 nos.): Bilaspur, Chamba, Hamirpur, Kullu, Sirmour, Solan, and Una.
- **Category-C** (2 nos.): Kinnaur and Lahaul-Spiti.