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Government of India

Report of the Inter Ministerial Committee Restructuring of National Highways Authority of India





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Published by
The Secretariat for the Committee on Infrastructure
Planning Commission, Government of India
Yojana Bhawan, Parliament Street
New Delhi - 110 001

www.infrastructure.gov.in

March 2008

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Secretariat for Committee on Infrastructure

Preface

This Report is aimed at institutional strengthening of the National Highways Authority of India (NHAI) with a view to making it a multidisciplinary professional body with high quality expertise in financing and contract management.

The NHAI is responsible for the development, maintenance and management of National Highways entrusted to it and for matters connected or incidental thereto. It is mandated to implement the National Highways Development Programme spread over seven phases with investment of about Rs. 2, 20,000 crore (USD 55 billion) over a period of seven years. This magnitude of work required greater autonomy and delegation of powers to NHAI for approval of individual projects within the overall programme including the financing structure approved by the Government.

In the above context, the Committee on Infrastructure (COI) chaired by the Prime Minister directed that restructuring of NHAI should be undertaken and an Inter-Ministerial Committee (IMC) under the chairmanship of Secretary, Road Transport and Highways with Secretary, Department of Economic Affairs (DEA), Chairman, NHAI, Adviser to Deputy Chairman, Planning Commission, Shri D.P. Gupta, former Director General (RD) and Shri Deepak Das Gupta, former Chairman, NHAI as Members, to submit recommendations for restructuring of NHAI.

After extensive deliberations and consultations with experts, the Inter Ministerial Committee submitted its Report on restructuring of NHAI. The Report was also considered by the Board of NHAI. Some of the unresolved issues were referred to the Committee of Secretaries under the chairmanship of Cabinet Secretary and its recommendations were suitably incorporated in the Report. The Report was placed before the Empowered Sub-committee of the

Committee on Infrastructure which commended the same for approval of the Government.

In particular, the Report recommends the vision statement of NHAI as follows:

“ To meet the nation's need for the provision and maintenance of National Highways network to global standards and to meet user's expectations in the most time bound and cost effective manner, within the strategic policy framework set by the Government of India and thus promote economic well-being and quality of life of the people.”

The Report recommends retention of NHAI's business model of outsourcing major activities and makes specific recommendations with respect to the enhancement in the strength of the number of Directors in the Board and other senior level officials. It also clearly delineates the roles and responsibilities of each Member. The Report proposes the creation of separate cells for Project Appraisal, Planning, Quality Assurance, Standardisation and R & D, Contract Management, Legal and Arbitration and Road Safety. The Report also makes recommendations in important areas such as delegation of powers, documentation, capacity enhancement, training, etc. It also recognizes the principles of checks and balances by separating project implementation from the functions of Member (Finance) and Member (Technical). These measures would sufficiently enhance the institutional capacity of NHAI and enable it to establish world class road infrastructure.

The Report has since been approved by the Union Cabinet for adoption and implementation.

(Gajendra Haldea)

Abbreviations

Following abbreviations have been used in this report:

Abbreviations	Expansion
ADB	Asian Development Bank
ATMS	Advanced Traffic Management System
ATIS	Advanced Traveler Information System
BOQ	Bill of Quantities
BOT	Build Operate Transfer
CAD	Computer Aided Design
CAG	Comptroller & Auditor General of India
CGM	Chief General Manager
CoI	Committee on Infrastructure
CCEA	Cabinet Committee on Economic Affairs
CMD	Chairman & Managing Director
CMU	Corridor Management Unit
COS	Committee of Secretaries
CPIS	Computerised Project Information System
CPM	Critical Path Method
CRRRI	Central Roads Research Institute
DEA	Department of Economic Affairs
DGM	Deputy General Manager
DoRT&H	Department of Road Transport & Highways
DPR	Detailed Project Report
DRB	Dispute Resolution Board
EDMS	Electronic Document Management System
EPC	Engineering Procurement Construction
FIDIC	Federation Internationale des Ingenieurs Conseils
GIS	Geographic Information System
GM	General Manager
GoI	Government of India
GPS	Global Positioning System
GQ	Golden Quadrilateral
HO	Head Office
HR	Human Resources
IIM	Indian Institute of Management
IIT	Indian Institute of Technology
IMC	Inter Ministerial Committee
IPC	Interim Payment Certificate
IRC	Indian Roads Congress
JBIC	Japan Bank for International Cooperation
MD	Managing Director
MIS	Management Information System
MOST	Ministry of Surface Transport
NH	National Highways
NHAI	National Highways Authority of India
NHDP	National Highways Development Programme
NITHE	National Institute for Training of Highways Engineers
O&M	Operations & Maintenance
PERT	Performance Evaluation and Review Technique
PFMS	Project Finance Management System
PIS	Personnel Information System
PIU	Project Implementation Unit
PPP	Public Private Partnership
PQ	Pre Qualification
PSCs	Project Supervision Consultants
R&D	Research & Development
RFP	Request for Proposal
RIS	Road Information System
ROBs	Road over Bridges
SG	Steering Group
WAN	Wide Area Network

Executive Summary

1. The Committee on Infrastructure (COI) under the Chairmanship of Prime Minister had taken following decision in respect of the institutional strengthening of NHAI in its meeting held on January 13, 2005:

“In order to provide autonomy and delegate more powers to NHAI for approval of individual projects within the overall programme including the financing structure approved by CCEA, it is necessary to build institutional capacity of NHAI by making it a multidisciplinary professional body with high quality financing management and contract management expertise.”

2. In pursuance of the above decision of the Committee on Infrastructure (COI), a comprehensive proposal was formulated by NHAI for appropriate restructuring/ strengthening of NHAI. In a review meeting held on April 11, 2005 the Deputy Chairman, Planning Commission suggested that a seminar may be convened where the proposal for restructuring may be discussed and deliberated upon by the stakeholders. A seminar was convened on May 16, 2005 which was attended by various stakeholders from the road sector, financial institutions, academic institutions, etc. The suggestions received from the stakeholders were noted and the proposal was suitably modified where required.

3. Subsequently, on the suggestion of the Planning Commission, an Inter-Ministerial Committee (IMC) was constituted on June 24, 2005 by the Department of Road Transport and Highways for finalizing the

proposal for restructuring with the following composition:

- (i) Secretary (Road Transport & Highways)
- Chairman
- (ii) Secretary (DEA) or his representative
- Member
- (iii) Chairman, NHAI
- Member
- (iv) Adviser to Deputy Chairman, Planning Commission
- Member
- (v) Shri D.P. Gupta, DG (RD) (Retd) as Technical Expert in Highway Sector
- Member
- (vi) Shri S. Sundar, Secretary to Government of India (Retd) as Management Expert conversant with highway sector
- Member
- (vii) Shri Deepak Das Gupta, Chairman, NHAI (Retd)
- Member

4. The proposal was discussed extensively in two meetings of the IMC. In the meantime the Planning Commission also got another report prepared on the restructuring of NHAI by engaging a consultant from Indian Institute of Management, Ahmedabad.

5. Both these proposals were then discussed in detail by IMC in its subsequent seven meetings. Based on the discussions in the meetings, IMC prepared its report which was then submitted to the Planning Commission in the first week of February 2006. The Planning

Commission, however, made certain observations and sought the comments of the DoRT&H.

6. This report and the issues raised by the Planning Commission were then discussed in the Empowered Sub-committee of COI in its meeting held on February 8, 2006 under the chairmanship of the Deputy Chairman, Planning Commission. It was decided in the meeting that views of the Finance Ministry may also be obtained on these issues. The Finance Secretary in his letter dated March 31, 2006 conveyed the views of the Finance Ministry and generally concurred with the proposal but suggested that the approval of NHAI's Board should first be taken before placing the proposal before the COI. Approval of NHAI's Board was then taken in its 59th meeting on May 25, 2006.

7. A meeting of Committee of Secretaries was held under the chairmanship of Cabinet Secretary on June 16, 2006 to discuss the issues raised by the Planning Commission. The meeting was attended by Secretary, DoRT&H, Finance Secretary & Secretary (Expenditure), Chairman, NHAI, Member (Administration), NHAI, Additional Secretary, Cabinet Secretariat, Advisor to Deputy Chairman, Planning Commission, Advisor (Transport), Planning Commission, Joint Secretary, Cabinet Secretariat and Director, Cabinet Secretariat. The issues were discussed in detail by the Committee of Secretaries.

8. The final report based on the recommendations of the IMC and decisions

taken in the meeting of the Committee of Secretaries held on 16.6.2006 was submitted for approval of the Government.

9. The Government has since approved the proposal of Department of Road Transport and Highways regarding restructuring of NHAI with the directions that powers and responsibilities for approving variations in contracts shall be exercised on the basis of guidelines to be framed by the Ministry of Finance.

RECOMMENDATIONS:

10. Based on the recommendations of the IMC and the decisions taken in the COS, the final recommendations made for approval of COI are as follows:

(i) The vision statement of NHAI to be:

“To meet the nation's need for the provision and maintenance of National Highways network to global standards and to meet user's expectations in the most time bound and cost effective manner, within the strategic policy framework set by the Government of India and thus promote economic well being and quality of life of the people.”

(ii) NHAI's business model of outsourcing major activities to be essentially retained. NHAI Board to evolve an appropriate procedure/system of sample test checks by Project Directors for ensuring the veracity of the bills prepared by the Supervision

Consultant for payments to the contractor and appropriateness of the authorisation given by the Supervision Consultant for variations.

(iii) Selection of the Chairman by a Search Committee headed by the Cabinet Secretary and comprising Secretary, DORT&H, Secretary, Planning commission, a CMD or MD of a financial institution and one of the directors of IIMs to be nominated by the Cabinet Secretary.

(iv) The tenure of the Chairman to be fixed for at least three years which can be extended upto five years.

(v) Age in case of the Chairman to be relaxed upto 62 years if required for three-year tenure.

(vi) Increase in the number of part-time Members by two (from 4 to 6), who would be from the non-Government sector, one from IITs/IIMs and the other from financial institutions.

(vii) NHAI to have six full time Members (against five at present) one each for finance, administration, public private partnership (PPP), two Members (Project) and one Member (Technical).

(viii) Member (Finance) to have adequate experience in finance and financial management, preferably knowledge of financial market and funding of infrastructure projects.

(ix) Member (PPP) to be responsible for formulating policy for PPP projects, financial modelling and appraisal of PPP projects and should have adequate experience in the field of planning, structuring and management of PPP projects of infrastructure sector, preferably in the highways.

(x) Member (Technical) to act as the repository of technical knowledge to be responsible for R&D, technical manuals, standards, and Specifications that guide design and safety. The Member (Technical) and the proposed Standardization and R&D Cell would supervise the technical sanctions and standards for all the stages of the preparation of DPRs and administration of contracts.

(xi) Creation of a Project Appraisal Cell to undertake comprehensive project appraisal and critically examine realistic capacity planning, optimal specification, estimates of toll revenue, cash flows, funding tie-up, and financial viability within the maximum grant permissible. The Cell to be headed by Financial Analyst (rank of CGM) and to comprise experts in the areas of finance, transport economics, transport planning, and legal aspects.

(xii) Creation of a Planning Cell with key responsibilities of planning for new projects and supporting the strategic functions of top management. The Cell to be headed by a GM level officer reporting to CGM (PQ). The CGM (PQ) will report directly to the Chairman.

(xiii) Creation of a Quality Assurance Cell with key responsibilities for promotion of quality assurance initiatives, quality checks through inspection of the ongoing works including quality audit through external professional agencies. The Cell would be headed by a GM level officer and report to CGM (PQ).

(xiv) Creation of a Standardization and R&D Cell for tracking new technical developments and international best practices in road and bridge construction, formulating standards and manuals, and for undertaking R&D activities. The Cell to be headed by a CGM level officer, to report to Member (Technical).

(xv) Creation of a Contract Management Cell for advising on all key contract agreement issues. In addition, the unit will advise NHA I in case any amendments to the contracts are to be made during the implementation of the projects. The Cell will be headed by a contract management specialist (rank of CGM) reporting to one of the Members (Project).

(xvi) Creation of a Legal and Arbitration Cell headed by a Chief General Manager with experience in concessions and contract law. Apart from building sufficient in-house capabilities, the Cell should be enabled to retain specialist legal counsel. The specific responsibilities should include legal vetting of the terms of reference of consultants, bid documents etc., legal advice on contract management and other issues, monitoring of dispute resolution process and outcomes and all legal and arbitration cases. The cell would

be located under Member (Administration).

(xvii) Creation of a Road Safety Cell to appraise safety, set operational policy and safety standards and monitor asset performance to be located under Member (Technical).

(xviii) A Committee under CGM would finally examine and accept the Detailed Project Report. A monthly report on the acceptance of various DPRs would be placed before the NHA I Board.

(xix) Powers and responsibilities for approving variations in contracts would be exercised on the basis of guidelines to be framed by the Ministry of Finance.

(xx) NHA I should prepare manuals and guidelines for various processes and proper administration of contracts.

(xxi) Empowering the Authority to create posts in NHA I upto the level of Chief General Manager.

(xxii) Creation of posts of CGM (Finance) (2 posts), CGM (PQ), CGM (SR&D), CGM (Administration and HR), CGM (IT), CGM (LA), CGM (Legal), CGM (Safety), Financial Analyst (CGM level), Contract Management Specialist (CGM level). CGMs for Project Implementation and Corridor Management as per the norms fixed by the NHA I Board.

(xxiii) To consider State level institutions including some State Governments as “partner

institutions” at the regional level for implementing some of the mandated works under NHAI's umbrella.

(xxiv) To identify and retain key persons and also recruit some personnel directly to build, over time, a core of permanent employees of NHAI.

(xxv) To revisit the comprehensive training plan prepared by NHAI for its employees in the light of shift of focus from EPC to PPP and also to expand the plan to include consultants and contractors.

(xxvi) Empowering the Authority to engage, where required, outside experts (with relaxation of age if needed) specifically the posts of for financial analyst, transport economist, contract management specialist and legal expert; on compensation to be determined by the Authority in line with the experience and availability of the appropriate personnel.

(xxvii) To revamp and strengthen organizations like the National Institute for Training of Highways Engineers (NITHE), Central Roads Research Institute (CRRI), Indian Roads Congress (IRC) to enhance overall capacity and capability in the highways sector.

(xxviii) To set-up a Knowledge Management System for capturing and using experiences in bid process; contract management; time, cost and quality performance of contractor; and performance of design consultants in terms of abnormal variations.

Report on Restructuring of NHAI

1. Context

1.1 The National Highways Authority of India was established as a statutory entity under the National Highways Authority of India (NHAI) Act, 1988, but was operationalised only in February 1995 with the appointment of a full time Chairman. The functioning of NHAI is thus governed by the NHAI Act and rules, and the regulations framed thereunder. NHAI has adopted a business model that relies on outsourcing of a number of activities including design, construction, supervision, operation and maintenance, rather than undertaking all such activities through its own employees. NHAI's initial mandate in 1996 was limited to only a few projects undertaken with the assistance of ADB and JBIC. Subsequently in 1998, the Government of India announced the National Highways Development Programme (NHDP) comprising mainly the Golden Quadrilateral linking the four metros and connectivity to major ports in the first phase and the North-South & East-West corridors in the second phase.

1.2 The Government of India (GoI) is now considering entrustment to NHAI of the responsibility of implementing a greatly expanded National Highways Development Programme over seven phases with investment of over Rs.2,20,000 crore for the next seven years. NHDP Phase III has already been approved for upgradation of 4000 Km to 4 laned highways and preparation of Detailed Project Reports (DPRs) for another 6000 Km and the remaining phases are in different stages of approval.

1.3 NHAI's key activities in the immediate future will comprise:

- (i) Completion of 6702 Km of NHDP Phase II which includes the North-South and East-West corridor.
- (ii) Development of 10000 Km of other important highways under NHDP Phase III with private sector participation in a BOT format.
- (iii) Upgradation of 20000 Km of single to 2-lane highways with paved shoulder under NHDP Phase IV
- (iv) 6-laning of 6500 Km of 4-laned highways under NHDP Phase V
- (v) Construction of 1000 Km of expressways under NHDP Phase VI
- (vi) Construction of ring roads, by-passes, underpasses, flyovers, etc. and other projects under NHDP Phase VII

1.4 The new phases of NHDP will be implemented mainly through private sector participation, either as BOT (Toll) projects or BOT (Annuity) projects. This necessitates setting up of a vibrant Public Private Partnership (PPP) programme. For a PPP centered implementation strategy to be successful, processes, systems and attitudes in NHAI would need reorientation. This has implications for project size, project structuring, time bound pre-construction (land

acquisition, utilities shifting and environmental clearances) and disciplined fulfillment of partnership responsibilities.

1.5 NHAI's focus till now has been on implementation of projects. With increasing completion of NHDP-I and NHDP-II projects, structures, systems and processes would also need to be put in place for effective operation, tolling, maintenance, safety and facilities for users.

1.6 The Committee on Infrastructure (CoI) under the chairmanship of the Prime Minister had also observed, in the context of delegating more powers to the NHAI, that it was necessary to take measures for institutional strengthening of NHAI. Relevant extracts of the minutes of the Committee's meeting held on 13.1.2005 are given below:

“In order to provide autonomy and delegate more powers to NHAI for approval of individual projects within the overall programme including the financing structure approved by CCEA, it is necessary to build institutional capacity of NHAI by making it a multidisciplinary professional body with high quality financing management and contract management expertise.”

1.7 In brief, some of the major drivers for institutional strengthening that have arisen in the emerging context include the following:

(i) Shift from EPC based civil works contracts to mostly PPP projects.

(ii) Learnings from Phase-I experience covering diverse operational areas including: procurement, monitoring, project design and appraisal, project management, etc.

(iii) Greatly enhanced size of mandate (from 14000 km. to over 45,000 km.).

(iv) Feedback received and appropriately evaluated from stakeholder consultation, Inter-Ministerial Committee deliberations and the CAG report.

2. Institutional Strengthening Initiatives in Progress

2.1 The Authority appointed (May 2002) PriceWaterhouseCoopers-Inter Continental Technocrats Ltd. (PWC-ICT) (Joint Venture) as consultant to advise on institutional strengthening. M/s PWC-ICT prepared a number of detailed reports containing specific recommendations on organization development, human resource management, strengthening of processes and systems, information technology, etc. These have been debated internally within NHAI and a number of actions have already been initiated. The process of installing Wide Area Network (WAN) to provide connectivity of HO with all the PIUs and toll locations has been started. Installation of Advanced Traffic Management System (ATMS) in some of the completed sections is also in progress, tenders for which are being invited. The system of peer review of Detailed Project Reports and proof

checking of major structures has also been put in place to check the quality of the reports.

2.2 NHAI informed that a Steering Group (SG) under Shri S.C. Sharma, Ex-DG (RD) & AS was constituted in 2001 by the Ministry of Road Transport and Highways to work on the standardization of procedures, documents and manuals for implementation of NHDP. A Joint Committee comprising the members of the Steering Group and representatives of NHAI was also constituted by the Ministry to consider measures for implementation of the SG's recommendations. The Joint Committee's report was submitted to Government in December 2004. NHAI has taken action on many of the recommendations made by the SG in the report. A Committee was set up by NHAI under a Member (Tech.) including outside experts for standardization of documents. Most of the documents for procurement of contractors and consultants have been standardized on the basis of Committee's recommendations.

2.3 NHAI also informed that another international consulting firm, M/s Louis Berger was appointed in 2002 to study the system of Corridor Management. The consultant has prepared the standard bidding documents for engagement of O&M Contractors and Supervision Consultants.

3. Setting up of an Inter Ministerial Committee (IMC)

3.1 As per the decision of the Committee on Infrastructure, an Inter Ministerial

Committee was set-up in consultation with the Planning Commission to firm up the proposal of the institutional strengthening of NHAI.

The report prepared by the consultant was discussed in the meetings of IMC. Planning Commission also engaged another consultant from IIM, Ahmedabad to work on the restructuring of NHAI. The reports of the two consultants were deliberated upon by the IMC and this report is the result of discussions held and conclusions arrived at. On the report of IMC, the Planning Commission made certain observations for which a meeting of Committee of Secretaries was held under the chairmanship of the Cabinet Secretary on 16.6.2006.

4. Meeting of Committee of Secretaries

The Planning Commission made following observations on the report of IMC:

- (i) Lack of accountability of NHAI officials
- (ii) Absence of checks and balances
- (iii) Absence of a PPP unit
- (iv) Absence of a legal unit
- (v) Absence of regional set-up
- (vi) Report of C&AG

In order to address these issues, a meeting of the Committee of Secretaries (COS) under the chairmanship of Cabinet Secretary was held on 16.6.2006. The Committee deliberated on these issues and reached to the decisions for addressing the concerns raised by the Planning Commission. The final recommendations include the decisions taken by the IMC and

the decisions taken in the meeting of the COS.

5. Vision of NHAI

5.1 The consultant M/s PWC suggested the following vision statement:

“To meet the nation's need for the provision and maintenance of National Highways network to world standards and to meet users expectations within the strategic policy framework set by the Government of India and thus promote economic well being and quality of life of the people.”

5.2 IMC was of the opinion that the vision of NHAI should be recast to reflect the changing context of highways development. The role of the Government would be to set the policy framework that provides for the requirements of socio-economic development and quality of life of the people. Within this broad policy framework, NHAI should act as a professional, commercially-oriented organization. Operationally this would imply that NHAI should focus on cost-effective and timely delivery, within the policy framework set by the government.

5.3 IMC recommended the following vision statement for NHAI:

“To meet the nation's need for the provision and maintenance of National Highways network to global standards and to meet user's expectations in the most time

bound and cost effective manner, within the strategic policy framework set by the Government of India and thus promote economic well being and quality of life of the people.”

5.4 Towards these objectives the NHAI should plan to:

- (i) Discharge the responsibility of development, improvement, maintenance and management of the National Highways network entrusted to it by the Government of India in an efficient and environmentally sensitive manner
- (ii) Seek viable options for procurement and involvement of the private sector in the development, operations and maintenance of roads
- (iii) Improve road safety
- (iv) Encourage research and develop effective liaison with institutions involved in research and development
- (v) Become a multi-disciplinary professional body with high quality financing management and contract management expertise
- (vi) Provide en-route facilities, congenial environment including landscaping and tree plantation to ensure safe and pleasant driving

6. The Business Model

IMC recognized that NHAI primarily operates as an entity that manages and co-ordinates the tasks carried out by a number of outsourced service providers. Rather than carrying out all activities using in-house resources, NHAI has adopted a business model that rests on outsourcing of specific tasks related to design, construction and supervision of works (i.e. the project implementation management function) and the subsequent management of corridors (i.e. operation and maintenance function). IMC was of the view that for managing such a large programme within the prescribed time-frame there is no alternative to the model of outsourcing. NHAI should, therefore, continue with the outsourcing model which also has the following significant advantages:

- (i) It will keep the NHAI relatively lean
- (ii) It harnesses private sector efficiencies, resources and expertise
- (iii) It provides flexibility in formulation and execution of works
- (iv) It enables speedy execution of works

NHAI nevertheless remains accountable to the NH users and the Government of India for the quality of service/output provided by contracted service providers, hence, NHAI should have in-house capacity for efficient procurement and monitoring of contract outputs and services. In this context, IMC noted that payments to contractors were

currently undertaken entirely on the advice of Supervision Consultant. In order to enhance the accountability of NHAI, IMC was of the view that there should be a system of sample test checks for ensuring the veracity of the bills and the appropriateness of the authorisation given by the Supervision Consultant for variations. IMC recommended that NHAI Board should consider the issues and evolve an appropriate procedure/system for this purpose.

7. Existing Systems and Processes

The existing systems and processes for implementation are outlined below:

7.1 Project preparation

The feasibility study and Detailed Project Reports including drawings are prepared through consultants. The consultant is also responsible for preparation of the Bill of Quantities for finalizing the bid documents. The consultant carries out detailed surveys and investigations and records the data on traffic volume, axle loads, etc. for designing the pavement suitably.

The selection of consultants is done through a robust system of competitive bidding. The technical proposals of the consultants are evaluated on the basis of various criteria like turnover, experience, key personnel.

NHAI has formulated standard RFP documents for engaging design consultants. To

ensure the quality and timely delivery of the DPRs, the document provides for 10% performance guarantee, 5% retention money, penalty upto 5% for delays, and 5% in case of large variations. It also provides disincentives for replacement of key personnel beyond 25%. Peer Review of all the DPRs is now being done by independent experts, and the designs for all the major structures are now being proof-checked by independent consultants. In addition, the Project Implementation Units are set up prior to the start of the DPR preparation in order to have their involvement right from the beginning of the project. This is to have effective control on the works of the DPR consultant and ensuring the quality of the DPR. Extensive local consultation with district officials and public representatives are also held on the design features of the project. Steps have also been taken to ensure continuance of DPR consultants for some time during the construction to ensure better coordination with the Supervision Consultants.

Feasibility study is also done to assess whether a project can be undertaken under the PPP format. For such projects, financial consultants are appointed to structure the project on a BOT basis and prepare the detailed bid documents.

7.2 Selection of contractor

All the documents for award of civil works contracts such as PQ document, bid document, contract agreement have been standardized and legally vetted for uniform adoption in all

NHAI projects. The pre-qualified construction firms are notified to buy the bidding documents and submit their bids. Bids so received are opened in their presence. The bids are then evaluated by a duly constituted committee, headed by an officer not below the rank of CGM, and the lowest responsive bidder awarded the work.

7.3 Project implementation

The work of construction supervision is done through Supervision Consultants. The selection of consultants is done through a process of competitive bidding using the standardized RFP documents and well established procedures. The Supervision Consultants get the works executed on behalf of NHAI and they carry out the following activities:

- (i) Pre-construction Activities: Review of records, designs, specifications, contract documents and contract drawings, conducting surveys, assisting NHAI in pre-construction activities, preparing the Construction Supervision Manual and Quality Assurance Plan, conducting preconstruction safety audit.
- (ii) Construction Supervision: Issuing order to hand over site and commence works to contractor, approving materials and sources of material, approving the construction methodology, supervising construction works and quality control measures.

- (iii) Contract Management: Assisting Project Director in administration and management of the project, providing interpretation of contract documents and technical specifications, reviewing and approving contractor's work programme, issuing working drawings and preparing variation orders, carrying out measurements of works, prepare interim and final payment certificates, evaluating contractor's claims, checking and reviewing contractor's request for extension of time and making recommendations; issuing completion certificate, and preparing maintenance manual.
- (iv) Quality audit of the projects is also conducted independently by external agencies. NHAI has engaged organizations like M/s Engineers India Ltd. and CRRI as external quality auditors. The audits are conducted during the implementation of projects. So far quality audits have been conducted in 79 projects. The endeavour is to carry out quality audit for all the projects in future. These quality audit reports are submitted to NHAI headquarters and the recommendations of these reports are then forwarded to the Project Directors for taking action. All the rectifications made in the field by the PIUs as per the recommendations through the Supervision Consultants are checked by these external agencies and the compliance report is sent to headquarters. The observations of the external auditors, in case of common defects are also circulated to all the PIUs for rectification in their projects and taking precautions for the future.

7.4 Checks on the Supervision Consultants

- (i) Penalty clauses are included by NHAI in the standard document. Penalties have been made stiffer.
- (ii) Replacement of key personnel beyond prescribed limits entails reduction in remuneration and even termination and debarment for future works.
- (iii) The NHAI Project Director has the authority to give directions to the Supervision Consultants in matters related to contract management which includes application of correctives for slow progress of work and poor quality in execution.

7.5 Preconstruction activities

One of the critical issues in implementation of the projects is expediting the pre-construction activities, such as land acquisition, utility shifting and tree cutting, in order to make available working fronts to the contractors as per the contract. All these activities are coordinated on a day-to-day basis by the Project Implementation Units which are headed by technical officers of the rank of General Manager/Dy. General Manager. The

cooperation of the State authorities is critical in preconstruction activities. At the behest of NHAI, therefore, nodal officers of the rank of Secretary and above have been appointed by the State Governments to regularly review and facilitate the progress of the pre-construction activities by resolving issues holding up the progress. To further strengthen the system, a Committee of Secretaries, headed by the Cabinet Secretary has also been constituted to resolve inter-ministerial issues and issues with the State Governments holding up the progress of works.

7.6 Role of Project Director

The Project Director plays a crucial role in the preconstruction activities and the preparation and implementation of projects. His functions and duties include:

- (i) To be associated in the preparation of Detailed Project Reports.
- (ii) Preconstruction activities such as land acquisition, shifting of utilities, obtaining environment clearance and permission for tree cutting, securing approval of the railways for construction of ROBs.
- (iii) Interacting with the State Governments and other Departments of the Central Government for resolving any issues holding up the progress of work.
- (iv) Attending meetings called by the State Nodal Officers for review of progress of works and removal of bottlenecks, if any.

(v) Holding regular progress review meetings with the contractor and consultant.

(vi) Overseeing the progress of works and issuing directions to the Supervision Consultant for taking appropriate measures for progress of work and proper quality.

(vii) Making monthly payments to the contractor on the basis of certification of Supervision Consultants and in this context to ensure that:

(a) Measurement Book is maintained by the Supervision Consultants in the standard format and in accordance with the guidelines prescribed/ as per the contract conditions.

(b) The mandatory percentage checking required to be conducted/ certified by the various key personnel of the Supervision Consultants, including the Team Leader, as per the contract conditions have been duly recorded in the Measurement Book.

(c) The check test of the repeat test measurements, if requested for by the Project Director/ technical officer, have been conducted in their presence by the Engineer to verify the measurements recorded in the Measurement Books.

(d) The abstract Measurement Book is neatly and correctly drawn by the Supervision Consultants and have been signed by the Team Leader.

(e) The items, quantities and rates, etc., in respect of the executed items/ quantities

and as claimed under any IPC are as per the contract.

(viii) To examine proposals for variation and extension of time formulated by the Supervision Consultant and forward the same to headquarters with his recommendations.

(ix) To represent NHAI before the Dispute Resolution Board/Arbitrator.

7.7 BOT projects

Concessions for BOT projects are being awarded either on the basis of capital grant required or annuity payments to be paid after completion of project construction. In BOT projects, the contractor and the Supervision Consultant/Engineer are appointed by the concessionaire. NHAI, in consultation with the concessionaire, appoints an Independent Consultant who ensures that the requirements of the Concession Agreement in terms of construction and maintenance are adhered to by the concessionaire, his contractor and Supervision Consultant.

7.8 Operation and maintenance

The maintenance of completed sections of the National Highways is being carried out by NHAI through short term improvement and road maintenance contracts and long term performance based maintenance contracts. The scope of work includes road maintenance, road property management, incident management, traffic management and road safety. The contract also may or may not include tolling.

8. Past Initiatives

When NHDP Phase-I was entrusted to NHAI, its immediate task was to award contracts. A target was set for award of contracts by March 2002, without which it would not have been possible to deliver the project. NHAI also responded to the directions of the Government by putting in place an efficient system of implementation, to enable its lean organizational set-up to implement the projects within the given time-frame. It outsourced the main implementation activities such as preparation of DPR and construction supervision. It built in-house capabilities in selection of professional agencies, project monitoring, project financing and contract administration.

NHAI informed that based on the experience gained in implementation of NHDP Phase-I, several initiatives have been taken by NHAI for streamlining its processes, systems, and procedures. All the contract documents including the RFP, the bid documents including the PQ documents for selection of consultants/contractors have been standardised after vetting by legal experts. NHAI has also adopted a standard Quality Assurance Plan which stipulates the minimum requirement for projects. Besides, professional external agencies conduct independent quality audit of projects under implementation.

However, in the context of the greatly enhanced size of NHAI's mandate and the shift from EPC to PPP as the primary mode for project delivery, NHAI may require further

strengthening in certain areas. Based on feedback received from stakeholder consultation, Inter-Ministerial Committee deliberations, Meeting of Committee of Secretaries (COS) and also the CAG report, IMC recommended the following measures for the institutional strengthening of NHAI.

9. Key Priorities in Institutional Strengthening

IMC considered the following to be key areas to be considered in institutional strengthening of NHAI:

- (i) *Strengthening of the NHAI Board.*
- (ii) Strengthening of the *organization structure* and making it a multidisciplinary body by adding more and new skills and resources to take on a significantly larger mandate.
- (iii) Strengthening of the *human resources management* aspects of the organization in particular, training in select areas, introduction of good HR practices, retention of higher proportion of core staff, etc.
- (iv) Strengthening of *systems and processes* to address the changing environment of NHAI's operations

10. Strengthening of NHAI Board

IMC was informed that the word “Board” is not referred to in the NHAI Act, 1988 and it is

the Authority that is said to consist of the Chairman and the Members. However, for all practical purposes and in line with NHAI's role/positioning, the Chairman and Members together function as the equivalent of a Board of Directors in a company. Thus, the reference to Board has been used here is to be understood as the Chairman and Members functioning together.

10.1 Expansion of the Board

IMC reviewed the existing composition of the Board which includes five full time Members; namely Member (Administration), Member (Finance) and three Members (Technical) and four part-time Members; namely Secretary, Department of Road Transport and Highways; Secretary, Planning Commission; Secretary, Department of Expenditure; and Director General (Road Development), Department of Road Transport and Highways. The number of full time and part-time Members have been fixed under the NHAI Act.

Keeping in view the vastly increased mandate for NHAI and also the greatly enhanced participation envisaged for the private sector, IMC examined the proposal of NHAI to expand the strength of full time Members from five to seven and part time Members from four to seven to allow induction of professionals of repute in the fields of financial management, transportation planning and other relevant areas. It was stated that induction of outside professionals will enhance the capacity of the Authority to take strategic decisions, widen its perspective,

bring in best management practices, and assist in achieving the goal of higher private participation. IMC was of the view that two professionals, one from the IITs or IIMs and the other from financial institutions may be inducted in the NHAI Board.

One of the issues discussed in COS was that NHAI should adopt a practice to undertake independent technical scrutiny followed by technical sanction. It was stated that in NHAI, same officials commission the DPR, invite bids, award contract and make payments and, therefore, it was suggested that a separate Member (Technical), should be made responsible for technical sanctions, technical standardization, quality control, R&D, etc. Member (Technical) should not administer contracts. Ministry and NHAI were of the view that diverting Member (Technical) from administration of projects may not give him insight he receives by performing the dual role of technical supervisor as well as contract administrator. After detailed deliberation the Cabinet Secretary decided that the proposed Standardization and R&D Cell headed by the Member (Technical) should supervise the technical sanctions and standards for all the stages of the preparation of DPRs and administration of contracts so as to address the concerns raised before the COS on independent processes for checks and balances. For administration of contracts, the Board may have one more Member.

In view of this, increase in the number of full time Members from five to six is recommended.

10.2 Chairman, NHAI

Currently, Chairman, NHAI is nominated by Government of India, from among serving civil servants. IMC discussed the process of selection of the Chairman, NHAI and his tenure. IMC was of the view that the selection of candidates for the post of Chairman, NHAI should be done by a Search Committee chaired by the Cabinet Secretary and comprising the Secretary, Department of Road Transport and Highways, Secretary, Planning Commission and one of the Directors of the IIMs and one MD/CMD of a financial institution to be nominated by the Cabinet Secretary. The Chairman should also be given a minimum tenure of three years extendable by another two years. The age limit may also be relaxed upto 62 years in case it is necessary to provide the minimum tenure of three years.

10.3 Full time Members

IMC noted the existing allocation of responsibilities among the five full time Members. Member (Administration) looks after all the administration and personnel functions, corridor management, land acquisition, IT, monitoring and implementation of projects on the Delhi-Mumbai-Chennai arms of the GQ. Member (Finance) is in-charge of all the financial and audit functions; besides, he also oversees the implementation of port connectivity and some other projects. The three Technical Members have been assigned the responsibility of implementation of the project under NHDP Phase I, II, and III.

A suggestion was made, in light of the shift to the PPP as the primary mode for project delivery and also the increasing importance of technology, quality and safety issues, that the allocation of responsibilities among the full time Members should be as follows:

Member (Admn.):

Administration & Personnel, Land Acquisition, IT, Corridor Management, Monitoring.

Member (Finance):

Finance, Resources, Accounting and Auditing.

Member (PPP):

All PPP Policy Issues, Appraisal, and Implementation of all PPP Projects.

Member (EPC):

Implementation of assigned EPC contracts

Member (Technical Services):

Quality, Safety, Standards and Specification, Technical Advice.

After due deliberations in the IMC and the COS, the following representation and responsibilities of full time Members of NHAI Board was agreed:

10.3.1 Member (Finance):

Member (Finance) should be responsible for:

- (i) Financial management and control including review of toll revenues
- (ii) Strategic finance including market

borrowings, securitization, external aid

(iii) Accounting

The incumbent to have adequate experience in finance and financial management, preferably with knowledge of financial markets, funding of infrastructure projects and financial analysis.

IMC recommended that Member (Finance) should not handle implementation of any project.

10.3.2 Member (Administration):

Member (Administration) should be responsible for:

- (i) Human resources
- (ii) Land acquisition
- (iii) Environmental clearances
- (iv) Legal services
- (v) Public relations/ corporate communications
- (vi) Corridor management including operation, maintenance, tolling, prevention and control of ribbon development
- (vii) Information and communication technology interface
- (viii) Monitoring of projects

The incumbent to have experience in land acquisition, administration, HR management, and dealing with State Governments.

10.3.3 Member (PPP):

IMC recommended that Member (PPP) would be responsible for:

- (i) Policy for PPP projects
- (ii) Financial modelling of PPP projects
- (iii) Appraisal of PPP projects.
- (iv) Implementation of contracts under assigned project phases.

A suggestion was made that all PPP projects should be handled by Member (PPP) alone. However, IMC felt that given the fact that all the future phases of NHDP would be implemented on PPP basis and also the vastly increased scope of work, this would not be practically feasible. While, therefore, the Member (PPP) would be the focus of policy and legal issues in PPP and he would also deal with as many PPP projects as possible, it would also be necessary for the Member (Tech.) and Member (Projects) to share the responsibility of implementation of some phases of NHDP which would include PPP projects.

It was also discussed in the COS that PPP requires a different set of skills, predominantly financial and legal in nature, therefore, this post should be filled by persons with broader

and specialized experience. On this issues the Cabinet Secretary directed that the Finance Secretary and Secretary, Deptt. of Road Transport and Highways together may decide the qualifications for the Member (PPP) of the NHAI Board. Accordingly, Secretary, Deptt. of Road Transport and Highways and Finance Secretary decided that the incumbent should have an adequate experience in the field of planning, structuring and management of PPP projects of infrastructure sector, preferably in the highways.

10.3.4 Member (Project) [2 numbers]:

Member (Project) should be responsible for implementation of both PPP and EPC contracts of assigned phases of NHDP. He should be a technically qualified person with considerable experience in the highways sector.

10.3.5 Member (Technical):

Member (Tech.) shall act as the repository of technical knowledge and be responsible for R&D, new developments in technology, technical manuals, standards, and specifications that guide design, safety, etc. Chairman, NHAI may assign projects or phases of NHDP to Member (Tech.) depending upon the workload of Member (PPP) and Member (Projects). The Member (Tech.) should be a technically qualified person with considerable experience in the Highway sector.

A suggestion was made that Member (Tech.) should focus on technical issues alone and not be involved in implementation of projects. However, for reasons explained earlier IMC was of the view that this would not be feasible.

The top line of the existing and recommended organization structures and key responsibility areas are given in Annexure-1 and 2, respectively.

10.4 Position of additional Members

A suggestion was also made for creating a position of Additional Member to share the work load of a Member if overburdened. The Additional Members would have a rank similar to that of the Members, but not to be part of the Board. IMC was of the view that such an arrangement would lead to undesirable disparity within the rank of Members and may also lead to administrative problems.

11. Strengthening the Organization Structure

11.1 Underlying principles

The key approaches and underlying considerations for the new organization structure are:

- (i) A structure designed to improve decision making efficiency in a transparent manner ensuring responsiveness to

changes taking place in the environment.

- (ii) A lean organization structure continuing the tradition of significant outsourcing and leveraging the skills and resources available from the private sector
- (iii) An organization with high dependency on technology and a proper system of ensuring accountability.
- (iv) Achieving an organizational design to retain best practices and institutional memory through improved retention of experience and staff within the organization
- (v) Inculcating multidisciplinary skills within the organization for better project appraisal and monitoring.

11.2 New skill areas

IMC was of the view that in light of NHAI's enhanced mandate, the increasing demands from corridor management and the shift in project implementation from a predominantly EPC works to a predominantly BOT mode, there is a need to induct some new skill into NHAI and also strengthen some areas. IMC proposed the creation of the following new cells:

- (i) Project Appraisal Cell
- (ii) Planning Cell
- (iii) Quality Assurance Cell

(iv) Standardization and R&D Cell

(v) Contract Management Cell

(vi) Legal and Arbitration Cell

(vii) Safety Cell

11.2.1 Project Appraisal Cell

A separate **Project Appraisal Cell** headed by a Financial Analyst (of the rank of CGM) and comprising a multidisciplinary team specializing in the areas of finance, statistical assessment and transport economics with the capability to undertake comprehensive project appraisal of PPP projects is proposed to be created. While the basic financial appraisal would continue to be done by external financial consultants the Project Appraisal Cell would critically examine the appraisals done, particularly with regard to estimates of toll revenue cash flows, estimation of costs and financial viability. The skill areas that are to be enhanced directly and through retained consultants are multi-disciplinary and include in-depth capability in viability assessment, understanding of different BOT project formats and related financial modelling. This is particularly critical as NHAI will henceforth be executing works primarily in the PPP mode.

The Cell will be headed by the Financial Analyst (rank of CGM) and located under Member (PPP).

11.2.2 Planning and Quality Assurance Cells: Strengthening planning capabilities

IMC felt that there should be a Group that supports the strategic functions of top management. This Group will act as the corporate nerve centre for planning and quality assurance. It will take initiatives that require top level championing and cut across functional divisions. IMC recommended creation of a **Planning Cell and Quality Assurance Cell** with the following responsibilities:

Planning Cell

Planning of new projects and schemes

Quality Assurance Cell

- (a) Inspection of quality aspects of ongoing works including quality audit through external professional agencies
- (b) Promoting key quality assurance initiatives

Each Cell will be headed by a GM level officer reporting to CGM(PQ) who will directly report to the Chairman.

IMC noted that NHAI had already engaged independent professional organizations to undertake comprehensive quality audit of NHAI projects. The proposed cell would provide inputs for technological and system

initiatives to further improve the quality of NHAI works.

11.2.3 Standardization and R&D Cell

IMC recommended creation of a Standardization and R&D Cell with the following responsibilities:

- (i) Tracking new technological developments
- (ii) Tracking international best practices
- (iii) Facilitating design consistency & standardization
- (iv) Undertaking R&D activities

IMC also recommended that NHAI in due course should formulate its own manuals and standards for upgradation of National Highways entrusted to it. These would incorporate best international practices and IRC/MoST standards. For the present, NHAI will continue using the IRC/MoST standards.

The Cell will be headed by a CGM level officer and report to the Member (Tech).

11.2.4 Contract Management Cell

A contract management specialist unit, having adequate experience in managing road projects and having a thorough understanding of contracts relating to diverse relevant areas including those under Federation Internationale des Ingenieurs Conseils (FIDIC) will be inducted. The specialist unit would be responsible for advising on all key contractual

issues. In addition, the unit will advise NHAI in case any amendments are to be made during the implementation of the projects / contracts. The unit will also advise on the policy decisions that need to be taken in the context of any dispute / breach of contract. NHAI will ensure standardisation and uniformity in contract provisions which would enhance efficiency and help avoid lapses. This would result in fewer contractual disputes / complications during project implementation. The Cell will be headed by a senior level technical officer who has experience of more than 20 years in dealing with contract management. IMC also recommended that the professional may be appointed on contract basis and the remuneration would be decided on the basis of the market rates. The Cell will be located under the Member (Projects).

11.2.5 Legal and Arbitration Cell

IMC felt that the other area where some control is required is dispute resolution. A high proportion of contracts end up in arbitration despite the provision of Dispute Resolution Boards (DRB) in the contracts. There is a need for legal review of contract management disputes so as to filter the disputes going up to arbitration and litigation. The Cell will be headed by CGM (Legal) and will report to Member (Administration). The specific responsibilities of cell should include:

- (i) Monitoring of dispute resolution process and outcomes. Responsibility for dispute resolution shall primarily rest with the Project Division.

- (ii) Additional general legal issues arising out of dispute redressal and arbitration proceedings
- (iii) Advise on various legal cases pertaining to the contractual matters.
- (iv) Vetting of bid documents in case there is a deviation from the standard documents.
- (v) Advise on improvements to contract on the basis of the lessons learnt from disputes in the projects

11.2.6 Road Safety Cell

Road safety is a critical aspect of road development and maintenance. A Road Safety Cell is proposed to be set up with the responsibility to appraise safety, systems and procedures, set operational policy, safety standards and monitor road safety aspects during design, construction and operation. The Cell will be responsible for safety audits, collect accident data, and coordinate specific studies on road safety. The Cell would be headed by a CGM level officer and report to the Member (Technical).

11.3 Strengthening the existing structure

Other measures recommended by IMC for strengthening of the organization structure in the areas of Project Management, Corridor Management, Financial Management and HR and Administration are as follows:

11.3.1 Project management

The work under Project Management Divisions includes procurement of consultant for preparing Detailed Project Reports (DPRs), interacting with the DPR consultants and procurement of EPC contractors/BOT concessionaires, procurement of supervision consultants and implementation and monitoring of projects. Project Management Divisions work under Members and comprise Chief General Manager, General Managers and Managers at the headquarters and Project Directors of the Project Implementation Units (PIU), generally of the level of GM/DGM, in the field. Norms to determine the number of CGMs required for implementing the projects may be as approved by the NHAI Board.

11.3.2 Corridor management

Corridor Management includes routine and periodic maintenance of completed sections of the highways, maintenance of road furniture, prevention and removal of encroachments from the right-of-way, route patrolling and Advanced Traffic Management System (ATMS) for management of traffic, trauma care and collection of user fee (toll).

IMC was of the view that, as in the case of project management, two-tier structure should continue to be followed for the Corridor Management. The team at the corporate office would look at overall management of the CMUs and overall policies and systems. The Corridor Management Units would supervise

the works of operations and maintenance contractors and the tolling operations.

IMC also recognized that as larger number of NH stretches under NHDP are completed, the corridor management function at the headquarter level would get expanded and therefore suggested that on completion of the Project Management activities, the Project Management staff would be transferred to meet the increased staffing requirement in corridor management. To meet the increasing requirements of the Corridor Management Units, norms to determine the number of CGMs required for corridor management may be as approved by the NHAI Board.

11.3.3 IMC was of the view that corridor management should emerge as a technology intensive activity with deployment of advanced tolling technologies, Advanced Traveler Information System (ATIS) and other systems for managing the completed sections. Traffic data would be scientifically obtained and analyzed for future planning and requirements.

Though the management of road sections under PPP projects will remain with the concerned division, the Corridor Management Division would also have oversight of the maintenance aspects of such sections.

Member (Administration) would be responsible for supervising all the functions of the Corridor Management Division.

11.3.4 Financial management

IMC reviewed the existing structure of finance division based on specific functions of budgeting, accounting, taxation, payments, employee disbursements, contract management etc and recommends the following:

- (i) Two posts of CGM (Finance) to be created, one for budget, resource mobilisation fund management etc. including interface with multilateral funding agencies, like the World Bank / ADB; and other for expenditure control, audits, accounting, taxation, PFMS, etc.
- (ii) The incumbent for CGM (Finance) should have adequate qualifications and experience in respective fields.
- (iii) Creation of Internal Audit Cell for an oversight function and interacting with the internal auditors on continuous basis.
- (iv) At least four GMs to assist CGM (Finance), in handling the financial matters as mentioned above.
- (v) The norms and requirement for officer and staff for post of GM and below levels in Finance should be decided by the NHAI Board/ Chairman as per the requirement for managing the future programme.

* This is to address coordination of queries/information requirement that cuts across departments. Hence queries/information requirement coordination where there is clear co-relation with a specific individual department or functional area can be undertaken by the latter directly

11.3.5 Human resources, IT and administration

IMC recommended the following:

- (i) One CGM for HR and Administration, which would include Co-ordination*. Two GMs, viz., GM (Administration and Coordination) and one GM (HR) will assist the CGM (HR & Administration) in their respective specializations.
- (ii) One CGM (IT) for IT systems, procurement of hardware/software, procurement of consultants for various studies and service providers, Road Information System, and Management Information System (MIS) and user interactions. Two GMs to assist CGM (IT), one for MIS and monitoring and the other for IT systems management, including procurement of software and hardware.
- (iii) Monitoring Cell headed by GM (Monitoring & MIS) would report to CGM (IT). The function of the monitoring cell would be to monitor progress of projects, highlighting issues, bottlenecks, problem areas impacting time and cost and requiring corrective action. The GM (Monitoring & MIS) is expected to be familiar with IT enabled systems, project management in the highways sector, resource based CPM/PERT and other contemporary project tracking techniques. He would be supported by two Managers and a Statistician/Statistical Analyst.

- (iv) One CGM, preferably from the administrative services, having experience of land acquisition, may also be considered for handling land acquisition and related issues and coordinating with the State Governments. This would be desirable in view of the greatly increased work of land acquisition. GM (Estate Management) and GM (Environment) would report to CGM (LA).

11.4 Negotiated contract hiring of private sector experts

11.4.1 IMC was of the view that experts in areas of project appraisal, contract management, etc. are highly paid in the market and it may not be possible for NHAI to attract experts on public sector salaries. IMC felt that a programme of the importance and size of NHDP must not be handicapped because of non-availability of crucial skills.

11.4.2 IMC, therefore, recommended that the NHAI Board may be empowered to induct private sector personnel especially for the positions of Financial Analyst, Contract Management Specialist and Transport Economist on contractual employment to perform specific roles on negotiated compensation basis.

11.5 Development of institutional capabilities of partner institutions

IMC recognized that some State Governments are also developing State level institutions that

are quite similar to NHAI in functioning. IMC was of the view that such institutions may be considered for development as “Partner Institutions” at the regional level for implementing some of the mandated works under NHAI's umbrella. The role of the Partner Institution would be to carry out project implementation / operation & maintenance activities at the regional level for identified programmes / projects on behalf of NHAI. This would facilitate capability enhancement, risk reduction, accelerated implementation of programmes. Involvement of State level organization could be particularly useful for implementation of programmes like NHDP Phase IV (upgradation of single / two-laned highways to two-lane with paved shoulder).

11.5.1 IMC also recommended that for enhancement of all round capacity and capabilities in the highways sector organizations like National Institute for Training of Highways Engineers (training), Central Road Research Institute (research), Indian Road Congress (setting of standards) should also be strengthened.

12. Regional Set-up

12.1 IMC noted that at present NHAI is essentially a two-tier structure, namely, the head office at Delhi and Project Implementation Units (PIUs) or Corridor Management Units (CMUs) in the field. There is no regional set-up between the field units and the Corporate Office.

12.2 A suggestion was made by some members that for more effective monitoring of projects, particularly quality aspects, and better coordination with the State Governments, it would be desirable for NHAI to set-up four or five regional offices headed by CGM to cover all the States of the country.

12.3 The IMC deliberated on this suggestion at some length. Most of the members of the IMC did not favour the proposal for reasons given below:

- (i) Land acquisition, environmental and forest clearances, shifting of utilities and such pre-construction activities require intensive interaction and coordination with the district level authorities which the local Project Director is best placed to do. A regional head looking after several States would not be able to add much value to the Project Director's efforts. For addressing State level issues and resolution of bottlenecks holding up progress of works, the State Governments have nominated very senior officers as nodal officers. The nodal officers take regular review meetings to review the progress of works in the State and identify the issues holding up the implementation of projects. These review meetings are attended by all the Project Directors concerned and also the concerned Member / CGM from the head office.
- (ii) Quality is primarily the responsibility of the executing agency and the supervision

consultant for which an elaborate Quality Assurance Plan is drawn up by the executing agency by the executing agency and approved by the supervision consultant. To ensure that the Quality Assurance Plan is properly implemented, NHAI has engaged independent agencies for conducting comprehensive quality audits of ongoing works. Thus, there would not be much of a role for the NHAI regional head under this scheme of things.

- (iii) With modern communication system, it is possible for the head office to closely monitor the progress in implementation of projects and identify bottlenecks, if any. NHAI is also in the process of linking all its field units as well the contractor and consultants through WAN.
- (iv) A regional set-up may only diffuse responsibility and accountability without any tangible benefit. Coordination between the field unit, the regional office and head office may itself become a problem and this may result into delays in execution of projects.

12.4 This issue was also brought before the Committee of Secretaries in its meeting held on 16.6.2006. It was decided that issue would be reviewed after three years depending on the volume of work and experience since gained.

The IMC, therefore, did not recommend creation of regional NHAI offices at present. However, it recommends that measures should be taken to ensure that the supervision

consultants perform effectively including securing stiffer performance guarantees.

13. Strengthening of the Human Resource Management

13.1 IMC recognized the critical challenge to NHAI's HR framework arises from the outsourcing model. IMC was of the view that the ability of NHAI to effectively carry out the defined role depends primarily on the ability of its own employees to individually adapt to the outsourced model. NHAI employees have to work closely and effectively with employees of other entities, particularly State Governments and private sector service providers for NHAI to deliver results.

IMC also recognized that NHAI will remain dependent to some extent on deputation of officers given the need to adjust the work force to workload at different points of time. This poses challenges to NHAI as all the employees on deputation may not adjust equally to NHAI's business model. There is also the possible loss of continuity within NHAI as employees on deputation revert back to parent organizations. In this background, IMC recommended the following:

- (i) Empowering NHAI Board to create all posts below the Board level to meet its rapidly changing requirements.
- (ii) Facilitating the quick adjustment of employees on deputation through *structured induction programmes* that cover the key aspects of NHAI's functioning as well as its business model,

values and culture.

- (iii) Employing a transparent and *merit-oriented performance appraisal* system for all employees, whether on NHAI's rolls or on deputation. The appraisal system will cover the efforts put in by employees, the processes adopted as well as the outcomes achieved.
- (iv) The appraisal system may be used to identify and retain key persons and therefore build, over time, a *core of permanent employees* of NHAI, especially in the two core functions of project management and corridor management. Some personnel could also be directly recruited
- (v) NHAI shall also use movement of personnel between the two core functions to achieve appropriate levels of employee deployment and enhancing the career opportunities for employees on NHAI's rolls.
- (vi) To open recruitment of some of the required specialists/experts like the Financial Analyst, Transport Economist and Contract Management Specialist beyond the Government cadres with adequate safeguards in the recruitment process including screening of candidates by an independent professional organisation. Compensation could be determined by the Authority in line with experience and availability of appropriate personnel.

IMC recommended that permanent employees could eventually be about 50% of the total workforce and 25% to begin with. It is essential that such permanent technical employees are allowed to gain experience of both core functions and operational/corporate planning functions over a period of time to build a core of officers within NHAI that can provide long-term leadership and managerial material for the organization. This would facilitate knowledge management and the creation of a long term “institutional memory” without fundamentally altering the outsourcing model.

IMC felt the need to have a detailed job description with key result areas for each employee and using that as a criteria for redesigning the performance appraisal system for assessing the performance of the staff. This would also ensure a higher degree of accountability.

13.2 Structured training

IMC noted that NHAI has prepared a comprehensive training plan that has been approved by the NHAI Board. IMC recommended that the plan should be revisited in the light of shift of focus from EPC to PPP. IMC felt it was important to ensure that a shift in the mindset of the key managers in NHAI is brought in to reflect the changing nature of NHAI's interactions with the private sector. Going forward, NHAI has to clearly make a distinction between dealing with the “Contractor” (which will continue to remain but decline over a period of time) and dealing with private sector “Partner” (who will invest

and develop the projects). Such a change in the mindset, while facilitated by the restructuring of the organization will have to primarily come through a series of continuous training and organization development interventions. IMC also recommended that the training base be expanded to encompass contractors and consultants in addition to NHAI employees. The ability of NHAI employees, contractors, and consultants to work effectively together can be enhanced through select common training programmes, providing a strong basis for future interactions.

14. Enhancement of Systems and Processes

To address the significantly enhanced volume of operations as also the complexity of numerous formats in which NHAI will be involved, IMC recognized the importance of strengthening the systems and processes of NHAI.

One of the issues discussed in the COS was that since Detailed Project Reports (DPRs) are prepared by the consulting firms, NHAI should scrutinize and accept the DPRs before they become NHAI's approved documents for the purpose of project implementation. NHAI should have a system of internal scrutiny of the consultant's recommendations and undertake random checks before releasing payments. On this issue, Secretary, DoRT&H informed the COS that internationally reputed and qualified construction agencies are appointed through the transparent procurement processes. DPR consultant, in coordination

with Project Director, is required to carry out public consultations, geo-technical consultations, establish benchmark and other reference points and oversee preliminary construction activities. DPR consultants are required to give performance security equal to 10% of total contract value and agree to a penalty clause of 5% of the fees for checking delay in submission of reports. The DPRs are reviewed by Peer Review Experts engaged by NHAI and comments of Peer Review Experts are being incorporated in the DPRs to further enhance the quality of DPRs. All the DPRs are broadly examined at the stage of feasibility, preliminary project reports and DPR by the concerned NHAI officials. After detailed examination by Independent Experts, DPRs are examined and accepted at the level of CGM in NHAI, for preparing the bid documents.

Secretary, DoRT&H also informed the COS that Supervision Consultants are required to perform their duties within the restriction imposed by NHAI on the issue of variation orders beyond certain limits and grant of extension of time. The Supervision Consultants are required to consult NHAI before taking major decision. Detailed guidelines have been issued for processing and releasing the payments to the contractors including certification of payment by Supervision Consultants, maintenance and scrutiny of Measurement Books and approval of variation to the contractors. Supervision consultants can authorise an additional expenditure up to 10% of the contract amount. However, he needs to take prior approval of NHAI for all non-BOQ items and can approve variation up to 1% cost for individual items.

Variations in NHAI are approved by a Committee under Chairman, NHAI. COS was also informed that about the recent circular issued by the NHAI for making it mandatory for Project Directors to carry out random test check of 3% of the measurements, including 3% test checks of all hidden items of the works and all items for which the quantity exceeds more than 25% of the tender quantity, before making payment of any running/final bill. Planning Commission expressed that this circular takes care of the concerns relating to accountability.

On this issue, the COS decided that the Committee under CGM should finally examine and accept the Detailed Project Report. A monthly report on the acceptance of various DPRs should be placed before the NHAI Board.

Variations in contracts shall be dealt with on the basis of guidelines to be framed by the Ministry of Finance.

IMC specifically recorded two important priority areas: Project Management covering all aspects of the entire project development cycle, and Information Technology as an enabler to strengthen all the systems and processes.

14.1 Project formulation, appraisal and monitoring

IMC recognized that project conceptualization and delivery skills (encompassing the entire range of the project-related activities from feasibility assessment, design, pre-

construction, construction, and post construction O&M) of a large body of private sector contractors and consultants have improved by participation in NHAI projects and in complying with NHAI guidelines.

14.2 To move in the direction of refinements in project activity management including formulation, appraisal and monitoring, the recommendations are as follows:

- (i) The Committee under CGM to examine and accept the Detailed Project Reports and to place a monthly report on the acceptance of various DPRs before the NHAI Board
- (ii) To prepare manuals and guidelines for various processes and proper administration of contracts
- (iii) Improvements in the quality assurance systems and methodologies
- (iv) Promotion of standardization of methodologies and application tools
- (v) Enhancement in the application of IT technologies including web enabled systems, MIS, and databases
- (vi) Incorporation of learnings from the expanding database of project experiences (including DPR preparation, bidding and actual implementation - providing opportunity for comparison of pre-and post-facto estimations and activities)

- (vii) Fine-tuning approval, certification, and disbursement procedures
- (viii) Enhancement/promotion of the training regimen to cover employees, as also (existing and prospective) contractors and consultants
- (ix) Involvement of specialist skilled resource persons including transportation planners/economists, technical specialists etc. for taking a broader perspective, refinement of cost benefit assessment and other parameters
- (x) Insistence on modern project management techniques by contractors and consultants.
- (xi) Development of a performance evaluation and rating criteria for different categories of outsourced contracting agencies etc.
- (xii) Promotion of institutional networking to systemize benchmarking and sharing of best practices

IMC felt that although PPP would henceforth be the primary mode of project delivery, some of the projects would still have to be executed as EPC contracts. Here, NHAI should examine wider application of turn key contracts which NHAI had already tried in some packages.

14.3 Strengthening investments in Information Technology

IMC strongly felt the need of strengthening investments in *Information Technology and its integration with information strategy* to increase efficiency, accountability and convenience of users to all customers. The effective use of Information Technology (IT) is a key determinant of its ability to effectively carry out project management and corridor management of NHs allotted to it.

IMC was informed that in recent years, NHAI has been actively pursuing a number of IT/IS initiatives. These are summarized in the table given as hereunder:

CORE FUNCTION	EXISTING/ PROPOSED INITIATIVE
Project Management	- CPIS - EDMS
Operational Planning	- Road Information System (RIS) - Electronic Document Management System (EDMS)
Project Preparation & Design	- Computerised Project Information System (CPIS) - EDMS - Computer Aided Design (CAD) facilities - Pilot GIS

CORE FUNCTION	EXISTING/ PROPOSED INITIATIVE
Corridor Management	- EDMS - CPIS - RIS - Pilot GIS
SUPPORT FUNCTION	EXISTING/ PROPOSED INITIATIVE
Finance and Accounts	- Project Finance Management System (PFMS)
Human Resources	- Personnel Information System (PIS)
NHAI website	- Facilities management team from Wipro
IT Management	- Facilities management team from Wipro - Internet access provided by Sify

However, the present situation assessment is also reflective of certain concern areas including the following:

- (i) Meeting limited information needs
- (ii) Repeating data entry often times
- (iii) Under utilization of the state of the art IT infrastructure
- (iv) Emphasis on technology and stand alone applications, not on the enterprise
- (v) Limited on-line information flow from offices outside HO and offices within HO etc.

Keeping in view the focus on future activities, IMC recommended the following for future course of action:

- (i) Full electronic connectivity between the offices of NHAI and its internal and external stakeholders
- (ii) An organisation-wide and secure intranet with appropriate static and dynamic databases
- (iii) Integrated financial management, revenue collection, projects and contracts management, procurement management, HR and payroll, electronic documents management, groupware and workflow
- (iv) Creation of roads network database with spatial and attributes based data through a mix of satellite imagery, aerial photography and ground level validation
- (v) Effective use of CAD, GIS, and

appropriate databases for operational planning

- (vi) Integrated use of GIS, GPS and RF Link systems for highway traffic monitoring and toll collection
- (vii) Integration of information that affects executive decision making from the Road Information System, Corridor Management System and other specialised technical and operational functions
- (viii) Establishment of Users Committee under Member (Administration and HR) with representation from all key functions, to fully involve the users in the development of systems and management of change.
- (ix) Focus on creating and enhancing connectivity between HO and the PIUs/CMUs through a secure Intranet to ensure timely flow of data and information within the organisation. All important policy decisions are to be documented in electronic databases that can then be referred to by employees.
- (x) Minimisation of paper work through the use of groupware and messaging. An Electronic Document Management System (EDMS) is used to manage the large volume of reports, contracts and other documents generated on paper in the course of operations. The use of groupware will also facilitate access of

all NHAI employees to manuals and standard operating procedures through the Intranet.

- (xi) A Procurement and Contract Management System will enable quick access to information on the status of procurement and contracts. Part of this System will also be accessible through the NHAI portal to bidders and contractors.
- (xii) To have a Task Force to identify and structure the MIS formats for information flow at the middle and top levels, determine the periodicity of reporting, the routing of information i.e. the source of generation, the path for validation and the ultimate beneficiaries of that information.

14.4 IT based knowledge Management System

IMC recommended that NHAI set up a Knowledge Management System for capturing and using experiences in bid process; contract management; time, cost and quality performance of contractor; and performance of design consultants in terms of abnormal variations.

15. Quality Assurance

IMC recognized the need for a Quality Assurance System that outlines the quality requirements and standards through all stages of highways development and maintenance. The aim is to achieve, sustain and improve the

quality of services/ goods and ensure effective internal control.

The key elements of NHAI's Quality Assurance System should include documenting the tasks and works to be done, following defined procedures and engineering best practices to execute the tasks, undertaking regular quality control checks in accordance with the accepted standards, documenting results and obtaining the requisite sign-offs through all the stages viz. Project Preparation, Project Implementation and Corridor Management. Some of the salient features of the IMC's recommendation include:

- (i) Streamlining the procedures of evaluation while selection of consultants so as to make the valuation uniform and objective to the maximum extent
- (ii) Employment of proof consultants by NHAI to review all reports / documents for ensuring quality projects
- (iii) Stipulation and enforcement of set of prescribed procedures for land acquisition, relocation of utilities and obstacles removal before start of project
- (iv) Evolving a system of appraisal of the consultancy services either by itself or through an independent agency for rating of the consultant's services
- (v) Periodic review by NHAI of the reports generated by the Independent Engineer in accordance with the scope of services

16. Conclusion

Clearly, the challenges of institutional strengthening are complex and huge. While a number of initiatives have been identified and recommended, IMC understood that institutional strengthening is a continuous and evolving process. The various proposals and suggestions made in this report need to be detailed out into an implementation plan which is appropriately phased and costed so as to carry out the implementation in a planned and efficient manner with regular monitoring mechanisms. NHAI has already obtained very good feedback from a larger group of stakeholders and the suggestions have been evaluated and appropriately incorporated into the proposals included in this report. IMC believed that implementation of its proposals and recommendations would substantially address the issues raised during the consultative process and also in the CAG's report (a note on which is at Annexure-3). This issue regarding the weaknesses reflected in the report of C&AG was also discussed in the COS. The COS was informed that the issues raised by the C&AG have already been taken care of by various measures already initiated as well as proposed by the IMC. In order to strengthen the systems, the COS decided that NHAI should prepare manuals of processes and guidelines so that proper reference points are available for planning and implementation. It would also equip NHAI to meet the demands of a vastly expanded PPP programme.

17. Recommendations

(i) The vision statement of NHAI to be:

“To meet the nation's need for the provision and maintenance of National Highways network to global standards and to meet user's expectations in the most time bound and cost effective manner, within the strategic policy framework set by the Government of India and thus promote economic well being and quality of life of the people.”

(ii) NHAI's business model of outsourcing major activities to be essentially retained. NHAI Board to evolve an appropriate procedure/system of sample test checks by Project Directors for ensuring the veracity of the bills prepared by the Supervision Consultant for payments to the contractor and appropriateness of the authorisation given by the Supervision Consultant for variations.

(iii) Selection of the Chairman by a Search Committee headed by the Cabinet Secretary and comprising Secretary, DORT&H, Secretary, Planning commission, a CMD or MD of a financial institution and one of the directors of IIMs to be nominated by the Cabinet Secretary.

(iv) The tenure of the Chairman to be fixed for at least three years which can be extended upto five years.

(v) Age in case of the Chairman to be relaxed upto 62 years if required for three-year tenure.

(vi) Increase in the number of part-time Members by two (from 4 to 6), who would be from the non-Government sector, one from IITs/IIMs and the other from financial institutions.

(vii) NHAI to have six full time Members (against five at present) one each for finance, administration, public private partnership (PPP), two Members (Project) and one Member (Technical).

(viii) Member (Finance) to have adequate experience in finance and financial management, preferably knowledge of financial market and funding of infrastructure projects.

(ix) Member (PPP) to be responsible for formulating policy for PPP projects, financial modelling and appraisal of PPP projects and should have adequate experience in the field of planning, structuring and management of PPP projects of infrastructure sector, preferably in the highways.

(x) Member (Technical) to act as the repository of technical knowledge to be responsible for R&D, technical manuals, standards, and specifications that guide design and safety. The Member (Technical) and the proposed Standardization and R&D Cell would supervise the technical sanctions and standards for all the stages of the preparation of DPRs and administration of contracts.

(xi) Creation of a Project Appraisal Cell to undertake comprehensive project appraisal and

critically examine realistic capacity planning, optimal specification, estimates of toll revenue, cash flows, funding tie-up, and financial viability within the maximum grant permissible. The Cell to be headed by Financial Analyst (rank of CGM) and to comprise experts in the areas of finance, transport economics, transport planning, and legal aspects.

(xii) Creation of a Planning Cell with key responsibilities of planning for new projects and supporting the strategic functions of top management. The Cell to be headed by a GM level officer reporting to CGM (PQ). The CGM (PQ) will report directly to the Chairman.

(xiii) Creation of a Quality Assurance Cell with key responsibilities for promotion of quality assurance initiatives, quality checks through inspection of the ongoing works including quality audit through external professional agencies. The Cell would be headed by a GM level officer and report to CGM (PQ).

(xiv) Creation of a Standardization and R&D Cell for tracking new technical developments and international best practices in road and bridge construction, formulating standards and manuals, and for undertaking R&D activities. The Cell to be headed by a CGM level officer, to report to Member (Technical).

(xv) Creation of a Contract Management Cell for advising on all key contract agreement issues. In addition, the unit will advise NHAI in case any amendments to the contracts are to

be made during the implementation of the projects. The Cell will be headed by a contract management specialist (rank of CGM) reporting to one of the Members (Project).

(xvi) Creation of a Legal and Arbitration Cell headed by a Chief General Manager with experience in concessions and contract law. Apart from building sufficient in-house capabilities, the Cell should be enabled to retain specialist legal counsel. The specific responsibilities should include legal vetting of the terms of reference of consultants, bid documents etc., legal advice on contract management and other issues, monitoring of dispute resolution process and outcomes and all legal and arbitration cases. The Cell would be located under Member (Administration).

(xvii) Creation of a Road Safety Cell to appraise safety, set operational policy and safety standards and monitor asset performance to be located under Member (Technical).

(xviii) Powers and responsibilities for approving variations in contracts would be exercised on the basis of guidelines to be framed by the Ministry of Finance.

(xix) A Committee under CGM would finally examine and accept the Detailed Project Report. A monthly report on the acceptance of various DPRs would be placed before the NHAI Board.

(xx) NHAI should prepare manuals and guidelines for various processes and proper

administration of contracts.

(xxi) Empowering the Authority to create posts in NHAI upto the level of Chief General Manager.

(xxii) Creation of posts of CGM (Finance) (2 posts), CGM (PQ), CGM (SR&D), CGM (Administration and HR), CGM (IT), CGM (LA), CGM (Legal), CGM (Safety), Financial Analyst (CGM level), Contract Management Specialist (CGM level). CGMs for Project Implementation and Corridor Management as per the norms fixed by the NHAI Board.

(xxiii) To consider State level institutions including some State Governments as “partner institutions” at the regional level for implementing some of the mandated works under NHAI's umbrella.

(xxiv) To identify and retain key persons and also recruit some personnel directly to build, over time, a *core of permanent employees* of NHAI.

(xxv) To revisit the comprehensive training plan prepared by NHAI for its employees in the light of shift of focus from EPC to PPP and also to expand the plan to include consultants and contractors.

(xxvi) Empowering the Authority to engage, where required, outside experts (with relaxation of age if needed) specifically the posts of for financial analyst, transport economist, contract management specialist and legal expert; on compensation to be

determined by the Authority in line with the experience and availability of the appropriate personnel.

(xxvii) To revamp and strengthen organizations like the National Institute for Training of Highways Engineers (NITHE), Central Roads Research Institute (CRRRI), Indian Roads Congress (IRC) to enhance overall capacity and capability in the highways sector.

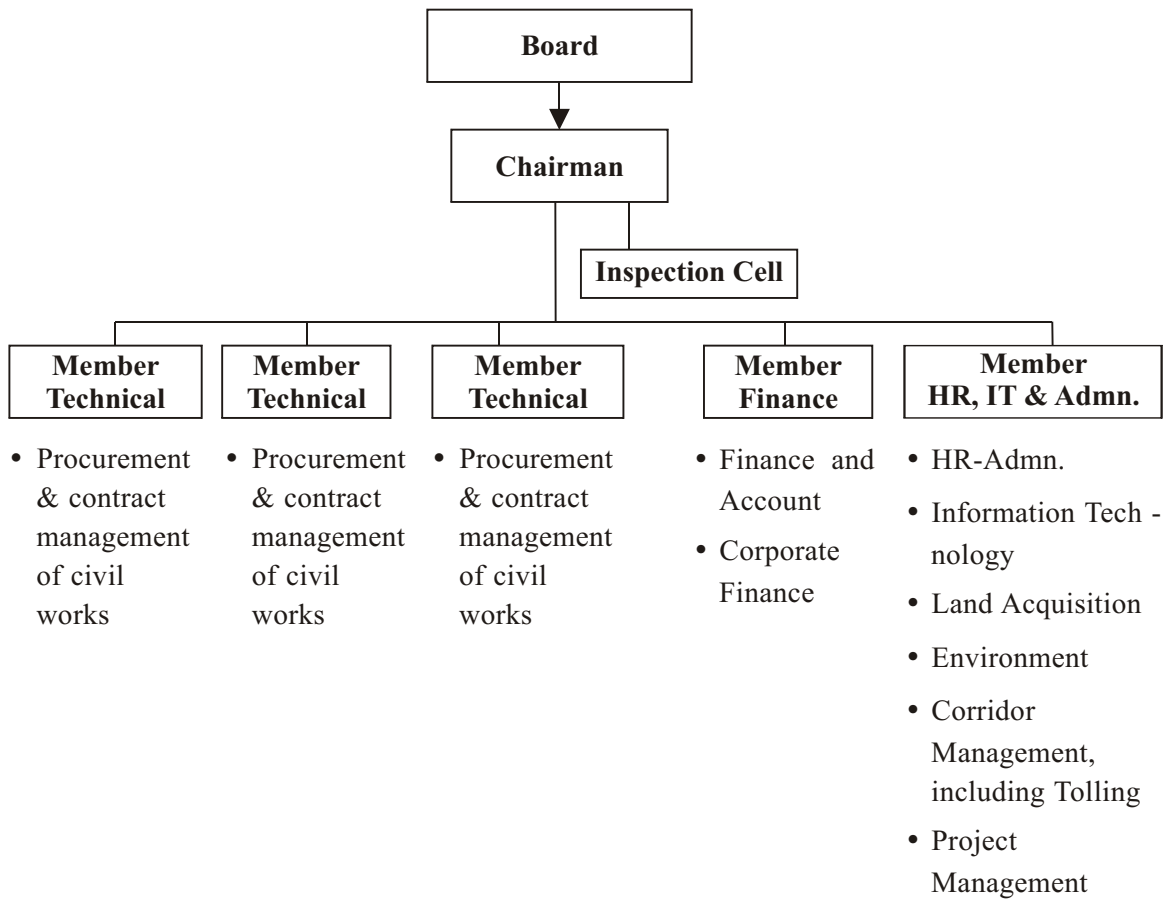
(xxviii) To set-up a Knowledge Management System for capturing and using experiences in bid process; contract management; time, cost and quality performance of contractor; and performance of design consultants in terms of abnormal variations.

Annexures 1 - 3

Annexure -1

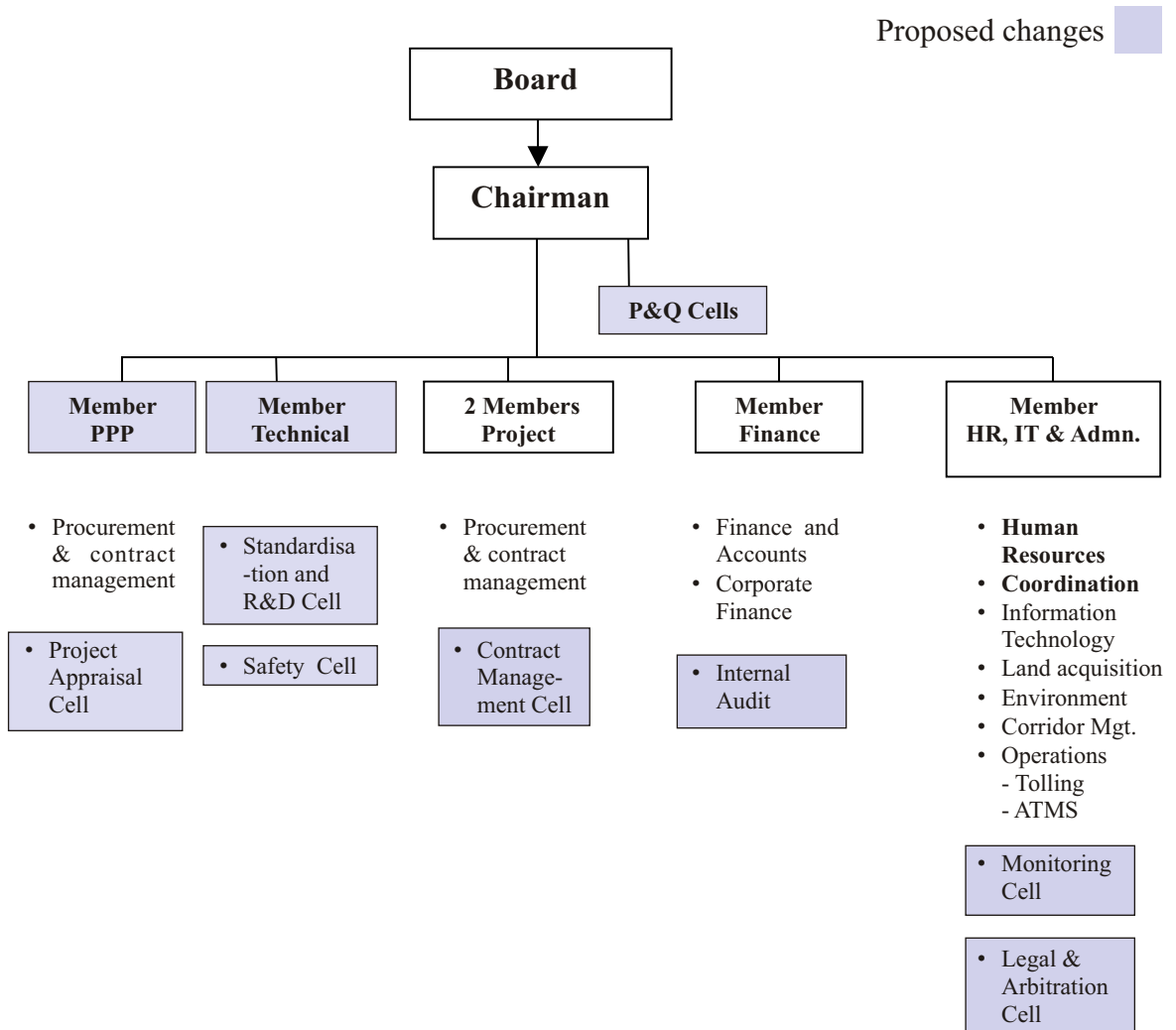
Outline of Top Level Organisation Structure & Key Role Areas

Existing Structure



Outline of Top Level Organisation Structure & Key Role Areas

Proposed Structure



Recommendations by the CAG and How Addressed

CAG'S RECOMMENDATIONS	HOW ADDRESSED
<p>NHAI should</p> <p>1. Strengthen its planning regime and follow up mechanism with various authorities/ agencies so as to avoid bottlenecks like land acquisition, tree cutting and shifting of utilities that caused avoidable delays and consequent cost overruns. These activities may be synchronized and greater emphasis be laid on monitoring critical activities in the achievement of targets in a time-and-cost-bound manner.</p>	<p>i) Planning Cell recommended to be set up headed by CGM reporting directly to the Chairman.</p> <p>ii) Dedicated Monitoring Cell recommended to be set up in the IT Division.</p> <p>iii) State Government have nominated Nodal Officers to review the progress of works on a regular basis and take steps to resolve any bottlenecks in land acquisition, shifting of utilities etc. for speeding up the progress of works.</p> <p>iv) Chief Secretary also requested to take regular meetings.</p> <p>v) Shifting of utilities now entrusted to civil works contractors as part of the contract and to concessionaire as part of the Concession Agreement for BOT projects.</p> <p>vi) Committee of Secretaries set up under the chairmanship of Cabinet Secretary on the direction of Committee on Infrastructure to resolve Inter Ministerial issues and issues with the State Governments holding up the progress of works.</p> <p>vii) On the recommendations of the Committee of Secretaries (CoS) draft notifications for land acquisition are no longer required to be sent to Ministry of Law for vetting. Instead the notifications are approved in the</p>

CAG'S RECOMMENDATIONS	HOW ADDRESSED
<p>NHAI should</p> <p>2. Evolve a system where Detailed Project Reports are reviewed before the commencement of tendering process so as to avoid large variations, adoption of non-uniform specifications for similar site conditions, sub-standard construction quality and inefficient project management on account of insufficient and inaccurate information/data contained in the DPRs.</p>	<p>Department of Road Transport & Highways itself on the formats approved by the Ministry of Law.</p> <p>Consultants of proven experience and repute are engaged for preparation of Detailed Project Reports (DPRs). Following additional measures have been taken up for improvement of quality of DPRs.</p> <p>i) System of Peer Review of the Detailed Project Reports and proof checking of designs of major structures by Proof Consultants have been put in place.</p> <p>ii) Project Implementation Units set up and involved in Detailed Project Reports from the initial stage.</p> <p>iii) Detailed Project Report Consultants told to have extensive consultations to take into account local requirements in the preparation of DPR.</p> <p>iv) Detailed Project Report Consultant's services to be continued during the initial phase of construction to ensure better coordination with the Supervision Consultants.</p> <p>v) Contract provides for 10% performance guarantee.</p> <p>vi) Stiffer penalty provisions have been</p>

CAG'S RECOMMENDATIONS	HOW ADDRESSED
<p>NHAI should</p>	
	<p>introduced in the contracts, including penalty upto 5% for delays and 5% in case of large variations ($\pm 15\%$).</p>
<p>3. Ensure standardization and uniformity in contract provisions and approval process which would enhance efficiency and help avoid lapses; this would result in less contractual complications during project implementation.</p>	<p>i) Standard documents have been prepared and adopted for engagement of contractors and consultants.</p> <p>ii) Standardisation Cell recommended to be set up under Member (Technical)</p> <p>iii) Contract Management Cell recommended to be set up to ensure interpretation and contract provision.</p>
<p>4. Include and invoke stringent provisions in the agreements against erring consultants to convey seriousness in action in view of the major omissions by the consultants that led to substantial time and cost overruns. NHAI may also fix bid capacity for Project Supervision Consultants (PSCs) and ensure that the same key personnel are not proposed for multiple projects.</p>	<p>i) Stringent penalty clause provided in the Agreement for major lapses of the Detailed Project Report Consultants.</p> <p>ii) Credentials of the Supervision Consultants thoroughly verified before they are allowed to bid. The Consultants are required to field an entire new team for each project.</p> <p>iii) Care is taken to ensure that the key personnel are not proposed for multiple projects. The list of key personnel of the preferred consultants is circulated to all the technical divisions for getting their feedback.</p>
<p>5. Devise vendor development policies and framework so that better competition in terms of cost as well as technology</p>	<p>i) Recommended that NHAI training programme to be expanded to include contractors and consultants.</p>

CAG'S RECOMMENDATIONS	HOW ADDRESSED
<p>NHAI should</p> <p>transfer could be generated; NHAI needs to improve the monitoring of quality of work done by the civil contractors.</p>	<p>ii) With the increasing emphasis on Public Private Partnership (PPP) new players who may not have experience in road making as such but have capacity for project development in infrastructure sector can also enter the field.</p> <p>iii) NHAI engages external agencies for conducting independent comprehensive quality audit of the work done by the Civil Contractors.</p> <p>iv) Quality Cell recommended to be set up headed by GM reporting to CGM directly under the Chairman.</p>
<p>6. Ensure better financial management and closer monitoring of cash management to bring down the cost of capital as well as cost reduction; toll notification and collection system needs to be systematized and made more efficient.</p>	<p>Two Chief General Manager level post in Finance recommended to be created, one to look after resource mobilization and financial management and the other to look after accounts management.</p>
<p>7. Avoid delays in issuance of gazette notification for tolling, handing over of site, finalization of site for the toll plaza through better planning and timely action to prevent loss of toll revenue.</p>	<p>To ensure that toll notifications are issued in time:</p> <p>i) Draft notifications are sent to Ministry 90 (Ninety) days before the expected date of completion of the project.</p> <p>ii) Nodal Officers have been appointed in the Department of Road Transport and Highways and Law Ministry to follow up and ensure that notifications are approved in</p>

CAG'S RECOMMENDATIONS	HOW ADDRESSED
<p>NHAI should</p> <p>8. Maintain its accounts on commercial principles in consonance with the Generally Accepted Accounting Practices</p>	<p>time.</p> <p>iii) An Annual Plan indicating stretches to be brought out under tolling (month-wise) has been prepared and used for monitoring.</p> <p>iv) Action initiated for introduction of Modern Integrated Electronic Toll Collection system at all the Toll Plazas.</p> <p>i) Accounts are maintained as per the standard accounting practices.</p> <p>ii) Internal audit manual and standard account operating procedures have been prepared and adopted for better financial control and monitoring.</p>

Published by
The Secretariat for the Committee on Infrastructure
Planning Commission
Government of India
Yojana Bhawan, Parliament Street
New Delhi - 110 001

