

Nomination for

consideration of award for

Exemplary Implementation of e-Governance — Year 2004

Category – New Entrants

Area – Trail Blazing Application of the Year



Project – Enterprise wide implementation of Enterprise Resource Planning in ONGC, through Project ICE – Information Consolidation for Efficiency

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Nomination Form

Name of the Initiative : Project ICE- Information Consolidation for

Efficiency

Ministry/Department/ : Ministry of Petroleum & Natural Gas

Organisation : ONGC: Oil & Natural Gas Corporation Ltd.

Location New Delhi (Hqrs.)

Indicate the Award for which submission is made (tick one of the following)

(v) Trail Blazing application of the year

Select the Category under which the submission may be considered (tick one of the following)

(1) New Entrants Category

Details of Project Team

(i) Team Leader/Officer in Charge : Shri A. Kaviraj

Designation : Executive Director, Project Sponsor

(ii) Team Members with their role Designations (Please mention only 3 key Officers/staff whose contributions were most significant for the success of the initiative)

- 1. Shri K S Jamestin, GM, Project Head
- 2. Shri T. Ravindran, DGM (E&T), Project Manager

Nominated by Shri Subir Raha

Designation **Chairman & Managing Director**

on behalf of Executive Committee

Contact Person : Shri A. Kaviraj Designation **Executive Director**

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Please fill in the form in this Nomination form and send it by email to jaykay@hub.nic.in

or awards@arpg.nic.in, along with Executive summery and write-up.

Subject: "Awards for" Exemplary Implementation of e – Governance – Year 2004

Category: (V) Trail Blazing Application of the Year

Executive Summary

Oil and Natural Gas Corporation Limited (ONGC) is the biggest Public Sector upstream petroleum company. ONGC's activities cover all the aspects of upstream right from exploration, survey, drilling, and production from both onshore and offshore. The operations of ONGC have a vast geographical spread covering almost entire India. ONGC also undertakes similar operations in overseas locations through its wholly owned subsidiary ONGC Videsh Ltd. ONGC today, is repositioning itself to foster the principle of relational enterprise through partnerships/ strategic alliances / joint ventures with preferred partners and adopt a business strategy which relies on company skills and positional assets with focus on core business areas.

With a vision to be a world class oil & gas company integrated in energy business with dominant Indian leadership, global presence and strategic vision of to be a world class oil & gas company integrated in energy business with dominant Indian leadership, global presence and strategic vision of doubling reserves from 6.0 Bmt O+OEG to 12 Bmt, improving recovery factor average from 28% to 40%, sourcing 20MMTpa O+OEG from Equity Assets Abroad and Growth as a Global Integrated Energy Provider in next fifteen year. **ONGC aims to maximize hydrocarbon production thereby improving the economy of India.** This in turn will result in social and economical upliftment of people of India. The vision of ONGC is in line with the Hydrocarbon Vision 2025 of India.

Keeping in line with the requirements, ONGC conceived the Project ICE (Information Consolidation for Efficiency) and developed an integrated, flexible and standardized architecture for information network to position ONGC towards fundamental competitive advantage through a single ERP (Enterprise Resource Planning) package.

(i) Situation Before the Initiative:

For smooth operations and implementation of the plans, ONGC continuously monitor the activities on daily, monthly, quarterly and annual basis. These are monitored both at work centre and corporate level. This required comprehensive, exhaustive multi process based data integrated manually with each other. In absence of any integrated online data systems, key executives always had to face time lags between the activity period and data availability, resulting in constraints in logical decision making.

Few function based standalone system with very minimal interfacing/integration between them were earlier introduced. These systems typically for limited financial management, HR management and material management without any logistical connectivity, catered to very limited management requirements. This led to creation of an IT landscape that was decentralized, comprising of multiple stand-alone systems and packages. Evidently an integrated information system for good governance was missing.

(ii) Strategy Adopted:

ONGC selected the world class ERP package SAP R/3 for implementing under Project ICE. SAP is World's largest and the biggest ERP solution provider. The solution architecture proposed for ONGC by SAP aims to provide a comprehensive IT solution encompassing end-to-end business process requirements to address the expectations of the Business Users in terms of meeting the transaction needs, enabling tactical and strategic decision-making based on online information. ONGC used SAP R/3 platform to streamline and integrate its various functions.

(iii) Viability and Sustainability:

The Project ICE was implemented at a total cost of Rs. 136 crores, which includes the cost of Data Centre Systems also. ONGC has very large business operations with the annual turnover of more than Rs. 32000 crores and operating cost of around Rs. 6000 crores. The process-discipline enforced through systems like ICE, have unlocked a huge opportunity for value addition thereby improving the bottom line of the enterprise and wealth creation and economic development of our country.

ONGC's capital outlay including projects and schemes is around Rs. 10,000 crores. Non availability of timely information can cause slippages in the execution and thereby affect planned hydrocarbon production targets. A very minimal percentage improvement in execution of these projects and schemes due to timely availability of required information, can accrue much more benefit than the implementation cost of the project itself.

(iv) Transferability/Replication:

Due care has been taken for the Data Centre system to be replicated if need be as per the requirement of the organization. A fully redundant setup with three tier security zones, with no single point of failure has been established. Backup as well as a geographically separated disaster recovery centre is also part of the scheme.

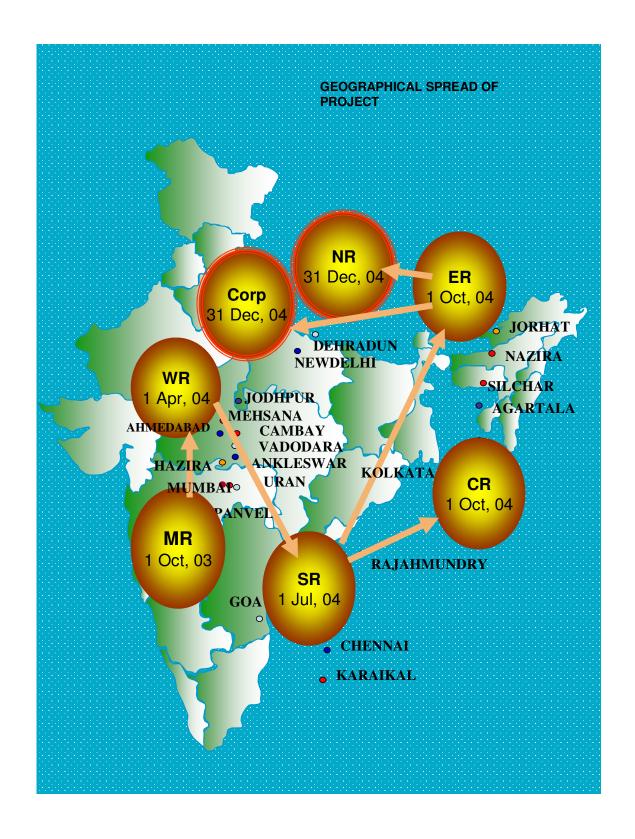
(v) Execution of Project ICE:

In any, scale, ICE, is one of the single largest implementation of ERP in the world. With 23 base modules to cover all activities of ONGC, a user base touching about 10,000, work centers scattered geographically around India, the implementation involving reengineering of business processes and remapping the business areas in terms of companies recently changed business structure was a great challenge. The project time lines with various stage wise milestones were also set very challenging to complete the roll out in 30 months from the zero date. The Project was completed exactly as per schedule with the implementation team size that was only 70% of the original planned size.

(vi) Results Achieved/Anticipated:

The implementation of the Project has resulted in the following benefits:

- Optimization and standardization of re-engineered business processes to enable integrated information availability
- Availability of single source management information that is accurate and on time to facilitate decision making.
- Elimination of duplication of activities across business processes by capturing data at source point itself.
- Facilitate information consolidation at all levels resulting in decentralization of decision making leading to better business governance through the information system.
- Availability of information at the right time, at the right place, thereby, enhancing managerial effectiveness leading to higher productivity.
- o Integrating all business applications under single ERP platform.
- Improved responsiveness to changing global market scenario by adopting new and improved technology solutions.
- o Improved stakeholder relationship management, providing better services to the society, share holders, partners, Government etc.
- o Integrated Supply Chain Management, optimization of inventory holding achieving better working capital utilization.



Detailed Write up

(i) Strategic Planning and Implementation

The IT mission of ONGC is to develop an Integrated, Flexible and Standardized Information Technology architecture so as to assist ONGC in achieving its vision of improving the overall economy of the country.

The **Project ICE** (**Information Consolidation for Efficiency**) was conceived, with the aim to provide a comprehensive IT solution encompassing end-to-end business process requirements through a globally reputed ERP package in which all the previous decentralized IT solutions were to be merged. It planned to address the expectations of the total Business transaction needs of ONGC, enabling tactical and strategic decision making based on Online information, henceforth accessible from a single platform. The Objectives of the Project are:

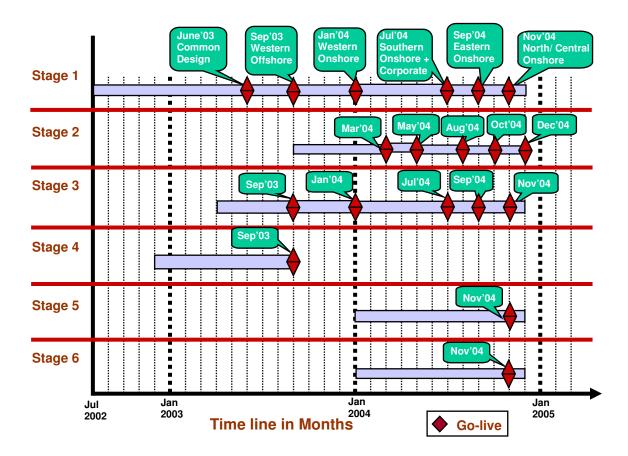
- a) Optimization and standardization of business processes.
- b) Moving up the Value chain
- c) Higher Productivity
- d) Cost Reduction
- e) Strengthening Efficiencies
- f) Lowering of Inventories
- g) Increasing Customer service and satisfaction

Selection of ERP software was on utmost importance. Keeping the requirements and overall world wide performance SAP was selected as ERP solution for this project and M/s SAP, India as the implementation partners. M/s SAP are the third largest independent software vendor in the world and is the market leader in enterprise software solutions. Most of the top petroleum companies in the world use SAP.

The state of art datacenter consisting of high end RISC Servers, Intel Severs, Storage Area Network (SAN), multi level security fire walls, Robotic tape library etc. has been now established at the 14 Floor, Scope Minar. The datacenter is one of its kind in Asia. The Datacenter was system engineered by the ICE team and has been established in record time by the team of ONGC engineers and the implementation partners M/s Hewlett Packard. The Center is spread across a farm area of four thousand square feet. Data backup is maintained in Scope Complex at Lodhi Road on day to day basis. In order to maintain business continuity unaffected, a disaster recovery centre as per international standard is being setup at the ONGC office complex Dharavi, Mumbai.

The Project Office was initially established at Scope Minar, Laxmi Nagar, New Delhi with make shift and bare minimum infrastructure. A core implementation team of nearly 150 executives belonging to various disciplines from all over ONGC were posted and trained in the functional modules of SAP.

The implementation strategy and scope as well as the time lines were clearly specified in the Project Charter Document. The Project scoping in itself was a tall order. The Geographical Expanse of the Project covered the length and breadth of the country. The number of users of the system envisaged all over the organization was nearly 10000. All the modules related to ONGC's business were to be implemented. The schedule of the Project as given below, was very tight keeping the implementation urgency objectives in view.



The whole task was to be implemented by 31.12.2004. Despite the odds and the gigantic task in hand, the enterprise wide roll out was completed on schedule by 31.12.2004. As per the statutory requirements, financial reports of the company are to be published and reported to SEBI every quarter. Considering this requirement, roll out at various places have been made on the first day of every quarter, so that activities in any quarter need not be pooled from two different systems. Further business process under Stage 4 for EDMS for document management, advanced modules requiring stabilization of processes in Strategic Enterprise Management (SEM), Asset Life Cycle Costing (ALC) under Stage 5 and 6 and e-procurement under Supplier Relationship Management are under process and shall be completed by May 2005. The business process roll out covered under corporate wide roll out covers 23 modules, more than 10000 users spread over 400 geographical locations spread across length and breadth of India.

Information and Analysis:

Through out the implementation of the Project, the Board of Directors, majority stake holder – the Government of India as well as the general public was kept abreast with the

latest developments of the Project through various meetings, papers presentations and news briefings through press and media. For example:

Business Today, March 28, 2004





All the employees were kept updated through the internal website of ONGC through regular updates and articles. For Example (attached as Annexure A)

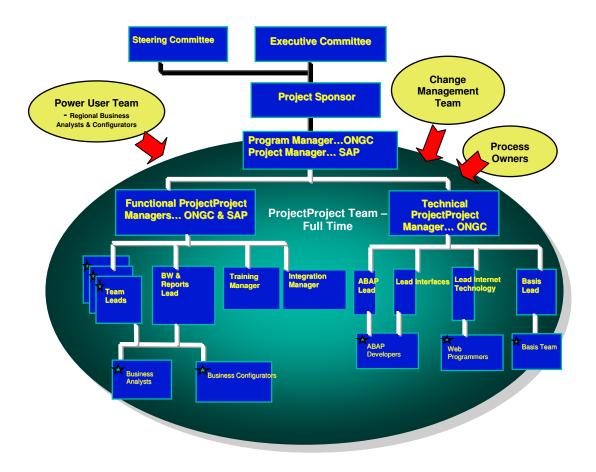
All through out the Project implementation, feedback and the inputs were taken from employees all over ONGC through various workshops and requirement gathering meetings. Regular Brochures were published at each milestone achievement and were distributed through out the organization. (Copies of two such publications are kept at Annexure B)

Human Resource Focus:

Change from legacy system of recording and reporting to adopting of a computer based integrated system which instantly become visible at all places required attitudinal change. It was one of the important factor/Key to successful implementation of the Project. Originally it was conceived to appoint an outside expert as change management agent. Ultimately, this task was also totally taken up by the Project team. In every work centre, top down approach was adopted. That meant first senior executives were convinced through presentation and discussion about the benefit of the new system and gradually these were percolated to junior most users for the acceptability of the new system.

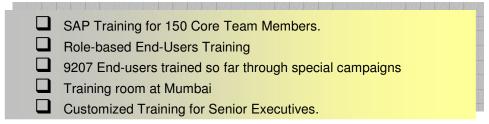
The main emphasis right from the beginning was to put in place a trained multidisciplinary team. Accordingly a core implementation team of nearly 150 executives from all over ONGC were trained at SAP, India for Knowledge building and system understanding and then posted to Project ICE for implementation. The team was divided into different groups depending on the module in which they were trained.

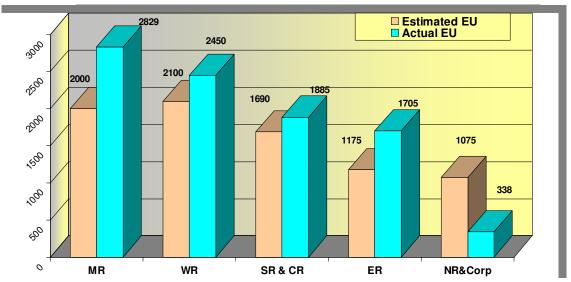
Every team was headed by a Team Lead who was empowered for taking decisions as per the delegation of authority. The Project organization is as follows:



It was also important for the Project Team to develop the knowledge and the competency of the end users who would finally be using the system to carry out the transactions. Hence training the end users in the functional modules before each milestone was also an important task that is one of the key factors for an effective ERP implementation. Till date nearly 10000 users all over ONGC have been trained on the various modules of SAP. Plans have been prepared to make this training and retraining a continuous process. Even knowledge refurbishment of core team is also carried out from time to time. The response from the employees in the organization has been tremendous as depicted from following chart:

Knowledge Transfer- Training





Process Management:

The major task of design and reengineering phase was carried out vide a systematic approach and documented approach.

A systematic approach of disseminating the logic and processes following an approach of seminar, discussions etc., involvement of process owners from business blueprint to testing and validation prior to implementation was followed. The top management was involved through out the Project to enforce faster acceptability.

The legacy system data was cleansed, restudied and then uploaded into the new system by the team.

There were five major steps in the implementation of the Project:

- Project Preparation (Design for all Business modules for all Stages and phases)
- Business Blueprint (Design for all Business modules for all Stages and phases)
- Realization (phase wise)
- Final Preparation (phase wise)
- ➤ Go-live and Support (phase wise)

The team prepared module wise business blue prints, bringing out in detail the areas of implementation, the business process and activities mapped in each module. It needs to be mentioned that during this process, many existing systems and processes were re-

engineered and optimized. All these business processes were validated by Process owners – executives with functional expertise nominated by Board of Directors/Key Executives of ONGC. Once validated by the process owners, the blue print was used in designing the final system. The fully integrated system was tested by running business scenarios initially by core team and the Power Users validated the integration testing.

Post go live support for nearly six to eight weeks was provided onsite to address change management by hand holding and frequent meetings to address issues. All these works were carried out by following laid down standard operating procedures

The following are the modules implemented in ONGC:

Production Planning (PP):

The primary objective of the PP module is to track planned and actual costs of production / processing of Crude Oil, Natural Gas and VAP. It facilitates real time updating of data, helps in calculating actual & standard costs at any stage in the product cycle, monitors real time production environment with online availability of Information related to Materials & Products, as well as customized report generation for faster decision making.

Plant Maintenance (PM):

The PM module provides a system for the management and maintenance of technical systems including the cost incurred in the planned and breakdown maintenance. By being integrated with other modules it gives the cost of each maintenance activity. It will also track various audit activities and their follow up actions in ONGC. New feature, like online availability of equipment manuals was invoked through LDM functionality.

Financial Accounting (FI):

This module Integrates General Ledger, Accounts Payable, Accounts Receivable with all the sub ledgers synchronized with the G/L in an on-line, real-time manner. The existing UFSO (KUBER) is a stand alone module with only FI functions. In ICE FI function is integrated with all the adopted R/3 modules starting from supply to the sales. FI function have been suitably updated and up linked to this integrated system to seamlessly interact with all other modules for comprehensive transaction tracking and reporting facilities in all the areas of Financial Management System.

Controlling (CO):

Controlling (CO) covers the functionalities of Cost Centre Accounting, Profit Centre Accounting and Product Costing for wide range of Management reporting. Controlling features are integrated to the operational modules such as Sales & Distribution, Material Management, Production Planning, Plant Maintenance, OLM, Project System and Financial Accounting.

Joint Venture Accounting (JVA):

This module is to cover the Joint Venture activities, starting from Joint operating agreements, Work Programs, Equity equations, Expenditure, Cash Calls, Recovery, Billing and Accounting (as operator and non-operator).

Sales & Distribution (SD):

SD module comprises of entire Sales & Distribution activities starting from sales agreements to delivery and generation & printing of invoice in integrated sales process for all products of ONGC including scrap and services. It is integrated with financial accounting for account receivable management; material management and production planning for real time stock updating and quality management for quality analysis and reporting. Fully compliant with Indian taxation requirement including VAT, it will generate statutory documents, eg. excise invoice and sales registers and maintain audit trail of transactions through document flow.

Project System (PS):

This module encompasses all phases of a project from Project Conceptualization, Budgeting, planning of costs and resources and approval of Estimates to Execution, payment and Completion of the project in an integrated scenario. Many customized developments have been made in PS module for Engg. Services, Drilling, Workover, Survey, NELP, Dry docking and consultancy/ R&D operations. It enables the treatment of a project as an Enterprise with links to other functional modules and the project can be analyzed in its entirety.

Material Management (MM):

This module Integrates all transactions and functions necessary for material requirement planning, procurement, inventory management, invoice verification, and material valuation. In addition to handling special stock types for Crude oil and other product materials transported by pipeline, this will monitor stocks and automatically generate purchase order proposals for the purchasing department. Existing IMMS system have been seamlessly updated into this system. Additional feature of mapping Service Contracts and Works has been done in this module.

Quality Management (QM):

QM module covers inspection of procured material, inspection of in-house products, and generation of Quality certificate for issuing finished products to the Customers. Among many features, Vendor/Material complaints processing, quality clearance certificate for incoming material and for the products, failure analysis etc. shall be available through this system.

ABAP:

The ABAP (Advanced Business Application Programming) development team provides support to functional module team pertaining to any new developments, enhancements, feasibility, data migration etc. in the standard SAP R/3 system so as to configure as per ONGC's business process pertaining to MIS reports, strategic decision making reports.

Business Information Warehouse (BW):

This module shall generate analytical and strategic reports for Business Analysis and performance tracking including the Corporate Key Performance Indicators. The inputs will come from all finance and logistics SAP modules as well as from non-SAP systems like Excel files also. This would become the single, integrated, MIS System for ONGC. These reports would be available online and on the web.

ICE, like any ERP implementation, has components of business process re-engineering, optimization of business process, re-definition of role and responsibilities. This necessitated a careful and deliberate strategy of change management. This was achieved through multiple scoping exercises, presentations, discussions and structured training. During the post go live scenarios close rapport was achieved amongst the hand holding team of core team members, SAP consultants and the users, which helped in a smooth transition.

Performance and Results:

Project ICE went live at Western Offshore on 1st October,2003, Western Onshore on 1st April, 2004, Southern Onshore on 1st July,2004, Eastern Region on 1st October,2004 and Enterprise Wide roll out on 31st December, 2004. The legacy business applications UFSO and IMMS were migrated and integrated on to the common platform under ICE. Acceptance of the system through out the organization has been very successful. Information on inventory, production of our finished goods, costing of goods and services, operational reports like DPR's and our performance reports etc. are now available online. Transparency is ensured by ready access to information on stock availability, purchase order status, funds utilization etc. This has enabled executives of the regions to get relevant information right at their desktops. Corporate executives can view and identify at any time the productivity from the functional operations and can also identify the reasons for much higher and lower productivity. Sales and production can also be monitored online with facility to draw profit and loss account and balance sheet sector ally instead of only company level reports.

Processes that have been re-engineered have resulted in:

• Tangible Benefits

- o Optimization & standardization of processes
- o Elimination of redundant & duplicate activities
- o Reduction of inventory
- o Moving up the value chain
- Higher productivity
- Improved efficiency
- o Higher customer satisfaction
- Creation of Wealth resulting in economic development of the Country
- o Automatic financial accounting
- Standardized reporting structure
- o Access from anywhere, anytime through corporate portal

• Intangible benefits

- o Availability of information to aid strategic decisions
- o Skill & knowledge enhancement of human capital
- o Improved corporate image
- Creation of an in house niche team with in depth ERP(SAP) Knowledge

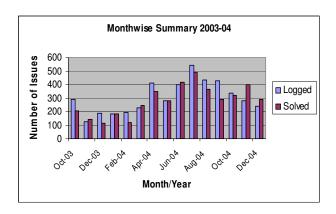
There has been elimination of duplicate and redundant activities in case of reporting chain where there were different levels of reporting consolidation before it could be compiled at corporate level. Now the data entry at source point itself helps in generating standardized reports that are available online.

Mapping of empowerment as per approved delegation been mapped on the system itself, to eliminate manual intervention/supervision and to adherence to organization standards. This has brought in a tremendous amount of system assisted self auditing.

There has been reduction in material codes from 14.9 lakhs to 2.9 lakhs in the process of data cleansing. This has resulted in cutting down duplicate codes and has led to overall transparency in stock availability, resulting in reduction in procurement lead time and ultimately reduction in inventory levels.

There is a centralized help desk at New Delhi that looks into regular problems of the end users. The ICE team provides backup support to the end users from this facility. In exigencies, teams are deployed for on site assistance. The number of responses through the help desk, is depicted below, indicating the increased usage of the system and the responsiveness of the helpdesk.

Solution Manager - Logged Issues/ Solved Issues



The objective with which the Project ICE was launched has finally been met. ONGC through this tool has effectively moved from a disintegrated Information System to an integrated flexible and standardized ERP system, which is now the tool for taking informed decisions leading to sound governance in the organization. The higher productivity and reduction in costs resulting due to Project ICE would definitely enhance the stake holder's wealth and the social and economical development of the country as a whole.

Critical factors For Success:

- ➤ Efficient project management team duly supported by a supportive steering committee consisting of heads of Key Business Functions.
- ➤ Ideal core team with right mix of dedicated and experienced resources as team leads and young talent as team members.
- Maintaining consistent motivational levels within the core team through empowerment and nurturing provided by the senior project management team.
- ➤ Participative Project management style, where issues were discussed and resolved through regular interactions.
- Availability of high levels of in house technical expertise, particularly the area of creation of the Data Center and network systems.
- > Timely creation of infrastructure for the project office and also at implementation sites across ONGC.
- > Reliable and uninterrupted network connectivity to offshore rigs and platforms.
- Time is the most valuable factor for this project. Hence, timely decisions taken at various levels played the crucial role.

Dated 08.02.2003

PROJECT ICE – AN UPDATE

Sh. A. Kaviraj, ED, Project ICE

PROJECT ICE

The Project ICE (*Information Consolidation for Efficiency*) has been launched with aim to retain ONGC's leadership position in the energy sector. The Project's objectives are:

- Optimization and standardization of business processes to enable integrated information availability
- Availability of single source management information that is accurate and on time to facilitate decision making.
- o Elimination of duplication of activities across business processes by capturing data at source point.
- o Facilitate information consolidation at corporate level.
- Availability of information at the right time, at the right place, thereby, enhancing managerial control leading to higher productivity.
- o Integrating all business applications under single ERP platform with minimum interfaces.
- o Improved responsiveness to changing global market scenario by adopting new and improved technology solutions.
- o Change management- both attitudinal and business process.
- o Integrated Supply Chain Management and optimization of inventory holding and working capital resulting in lowering of inventories.

There are five major steps in the implementation of the Project as per ASAP methodology (Accelerated SAP):

Project Preparation (Design for all Business modules for all

Stages and phases)

> Business Blueprint (Design for all Business modules for all

Stages and phases)

- ➤ Realization (phase wise)
- Final Preparation (phase wise)
- ➤ Go-live and Support (phase wise)

The business Blueprint Phase of Project ICE was launched officially on 22nd of October 2002 by C&MD.

The whole implementation is spaced in 6 stages and 24 phases. The SAP/ERP implementation consists of the following functional areas/ Business Modules:

STATUS OF IMPLEMENTATION

- Contract was signed with SAP on 9.7.2002
- ➤ 142 ONGC executives have been trained in various modules. These executives are from various disciplines and areas of operation.
- ➤ Project technical infrastructure including development server has been set up at 15th Floor, SCOPE Minar, Laxminagar, New Delhi.
- ➤ The project preparation Consisting of Team mobilization, training plan, project structure, Standards and procedures has been completed by 21.10.2002.
- ➤ Kickoff meet for the business blue print phase of the project was addressed by C&MD on 22.10.2002.
- ➤ The business blue print phase for common design for offshore and onshore is currently under process.

- ➤ The Western Offshore realization and final preparation is underway.
- ➤ The Western Offshore go live is scheduled from 01.09.2003 to 30.11.2003.
- ➤ The Western Onshore go live is scheduled from 01.01.2004 to 31.03.2004
- ➤ The Southern Onshore & Corporate operation, go live is scheduled from 01.07.2004 to 30.09.2004.
- The Northern & Central Onshore go live is scheduled from 01.11.2004 to 31.12.2004.
- ➤ The scheduled completion of the Project ICE is by 31.12.2004.

The completion of this Project would result in integrating and assimilating all the processes of ONGC including UFSO, SHRAMIK, IMMS etc. under one single package. All inputs for managerial decisions at all levels will be available uniformly and transparently.

It would also bring about a seamless integration of personal file data and claims/benefits of the employee with the financial system – leading to access of the relevant data at any place in the organization

Success of ICE Project depends not only a laying down the system and network facility but also on the efficient use of facilities at all levels through out the organization.

ICE family has been getting complete support from top management and key executives at all locations across the organization. We also look forward for total support from the employees at all locations.

Let's strive to achieve our vision of "ONE ORGANISATION - ONE INFORMATION - ONE DATA"