

## **Indian Customs Electronic Data Interchange System (ICES 1.5)**

### **Chapter I: Introduction**

#### **1.1 Background**

The Indian Customs Electronic Data Interchange System (ICES) was developed as the core Information and Communication Technology (ICT) system through which import and export documents {Bills of Entry, Shipping Bills, Import General Manifests (IGMs) and Export General Manifests (EGMs)} were to be processed. The main objectives of ICES were to ensure uniformity of assessments and valuations; ensure faster processing; reduce transaction cost, interaction of the Trade with government agencies, and provide quick and accurate import/export statistics for compilation by DGCI&S. ICES Ver 1.0 was initially launched as a Pilot project at Delhi Custom House in 1995. It was gradually made operational at other custom houses from 1997.

The Central Board of Excise & Customs (CBEC) runs a number of projects aimed at harnessing ICT for achieving the objectives of Customs and Central Excise administration. The Directorate General of Systems & Data Management (DoS) has been entrusted with the implementation of these projects. There are three major components of Indian Customs ICT Systems:

- a. ICES is running at 116 customs locations and handling nearly 98 per cent of India's International trade. It is the core internal automation system of the Custom department intended to provide a comprehensive, paperless, fully automated customs clearance system.
- b. The Indian Customs EDI Gateway (ICEGATE), is the interface of ICES with the Trade for customs clearance related messages and with licensing and regulatory agencies such as Directorate General of Foreign Trade (DGFT), Directorate of Commercial Intelligence and Statistics (DGCI&S), Ministry of Steel, Ministry of Railways, Reserve Bank of India (RBI), etc. for sharing of trade statistics/Customs clearance data. The National Import Database (NIDB) and Export Commodity Database (ECDB) for Directorate of Valuation (DoV) are also serviced through ICEGATE. This portal (ICEGATE) provides a host of services like e-filing of customs documents, e-payment of duty, document tracking status, online verification of licences, importer-exporter code (IEC) status, PAN based Custom House Agent (CHA) data, etc.
- c. The Risk Management System (RMS), is a separate application, but integrated with the ICES, which facilitates faster clearance with

minimal or no checks for low risk import consignments/entities and focuses customs compliance enforcement efforts on high risk consignments/ entities. It was introduced in November 2005 and a newer version, RMS ver. 3.1, was introduced in June 2010. It had so far functioned for imports only, but RMS for exports has been introduced from 15 July 2013 at two ICES locations on trial basis.

The overall goal of DoS is to provide technical support to operations and safeguard resources by strengthening the computing and infrastructure of CBEC.

ICES was selected for performance audit since it forms the basis for public interface (ICEGATE) and is posited to leverage the CBEC revenue administration strategy as an operational solution which is efficient, effective, transparent and reduces transaction cost while augmenting trade facilitation.

Audit reviewed the Customs EDI System for the first time in the year 2000-01 and reported its findings in CAG's Report No. 10 of 2002 (Customs). The review focused on procurement and software development. ICES 1.0 was again reviewed in the year 2008, primarily to verify whether it had mapped the processes and provisions of the Customs Act and allied rules and regulations effectively. The audit review had revealed deficiencies in (i) system design leading to incomplete capture of data resulting in manual interventions, (ii) incorrect mapping of business rules, (iii) absence of appropriate input controls, (iv) absence of validation between 'customs tariff heading' and the serial number of the notification for ensuring correct availing of exemption notification, (v) absence of validation of licence and scheme code, (vi) inadequate change management controls and (vii) wastage of resources as the data available in the system was not utilised and manual process were restored instead. In all, five recommendations designed to address the system deficiencies were included in the report (Report No. PA 24 of 2009-10 -Customs):

- 1. Review of the business rules mapped in the systems may be carried out.*
- 2. Any changes built into the system may be documented and the conformity of the changes to the business rules ensured. The changes may be authorised by an appropriate authority. An audit trail of the changes made to the system and the data may be maintained. For centralised applications, a centralised change management system must be in place.*
- 3. Input controls and validation checks may be reviewed and built into the system, wherever required.*

4. *The system may be modified to use the available data fully so that all business processes are done through the system instead of resorting to manual procedures.*
5. *A periodical review of the performance of the system may be put in place to ensure continued efficiency and effectiveness of the system towards the desired/dynamic business objectives.*

The Ministry accepted all the recommendations.

The Customs ICT systems and the ICES application have been modified from time to time in accordance with the operational requirements of department and changes in the Customs Act and allied Acts, Rules and Regulations. Although the core ICES application has been in use for more than fifteen years, with the migration from decentralised to centralised environment from the year 2009-10, there were several changes in underlying ICT infrastructure, work flow, data transfer and storage, security, etc.

## **1.2 System architecture**

ICES 1.5, an upgrade of the original ICES 1.0 Version was rolled out in a phased manner across various customs locations from June 2009. The main features of the upgraded version were a migration from Oracle database 8i to 10g, which runs in an environment with a centralised application having:

- I. Multi-locational functionality;
- II. Single database with partitions for users to access data only for their location;
- III. Centralized maintenance and updating of software;
- IV. Faster and better communication with external stakeholders, banks, e-PAO, etc.
- V. Integration with ICEGATE in central environment leading to better response time.

However, having spent ₹ 604 crore in upgrading the application, estimation of commensurate gains in terms of cost and time savings have not been made.

## **1.3 Audit objectives**

PA has been conducted to gain an assurance that:

- a. the ICT system has adequate controls in place to safeguard assets (data, technology, applications, facilities and people),
- b. to maintain data confidentiality, integrity, and
- c. to ensure fulfilment of the department's business requirements set down in the Customs Act and allied rules and regulations by

effectively mapping the processes and provisions of the Customs Act and allied rules and regulations through the ICES 1.5 application and its inter phases.

#### **1.4 Audit scope, sample, criteria and methodology**

The Performance Audit has reviewed macro level systemic issues in the last five years (2008-2013) and micro level issues in the years 2011-12 and 2012-13 pertaining to the functionality of the ICES 1.5 application. The performance of the ICES 1.5 application at field locations was reviewed at EDI enabled locations (ports, airports and ICDs) coming under the audit jurisdictions of Customs Receipt Audit (CRA) offices at Ahmedabad, Chennai, Delhi, Kolkata and Mumbai.

This Performance Audit was conducted on the basis of Control Objective based assessment of the Customs ICT Systems and IS applications as per the C&AG's Performance Audit and IT Audit Manuals based on the framework of 'control objectives for information and related technology (COBIT)', comprising collection of background information on the CBEC (Customs) ICT Systems, identification and conduct of audit checks needed for reviewing the Control environment of the ICT System and analysis of the effectiveness of the controls. Audit also reviewed application related issues and the extent of field level monitoring and control at ICES locations.

The Process control questionnaire (COBIT – 4.1) and the bench marking of the process performance and capability expressed as the maturity model was used to derive an assurance. In order to gain an understanding of the audited entity's operational environment and the extent of its dependence on ICT System, background information on its organizational setup and detailed technical information on its ICT Systems and resources was obtained from the department. Audit based its conclusion on the response to process control questionnaire, observations on different importation/exportation processes in CBEC and its field formations, replies provided by CBEC/DoR, analysis of All India Customs database (ICES 1.5) and the policy and procedure documents, manuals, reports, directories, etc. relating to the ICT Systems and IS applications, available with DoS, Risk Management Division (RMD) Mumbai and DoV, Mumbai, listed in Annexure A. Information on the Department and its ICT Systems, available in the various official websites associated with the Department were also examined.

#### **1.5 Review of the Control environment of the ICT Systems**

Information system (IS) General Controls, Application Controls, and Security Controls, as enumerated below, were also reviewed:

### **General IS Controls**

- a. Organizational & Management Controls (IS Policies & Standards)
- b. IS Operational Controls
- c. Physical Controls
- d. Logical Controls
- e. Program Change Controls
- f. Business Continuity and Disaster Recovery Controls

### **IS Application controls**

- a. Input Controls
- b. Process Controls
- c. Output Controls

The audit checks conducted for evaluating the existence and adequacy of these Controls and their results are enumerated in Checklists 1, 2 and 3. Audit findings are discussed in the succeeding chapters of this report.

### **1.6 Review of application data and extent of field level monitoring and control**

All-India ICES 1.5 data for the year 2011-12 and 2012-13 was analyzed for reviewing the application's effectiveness in business process mapping and existence of validation controls. The monitoring of issues having a bearing on the performance of the ICES 1.5 application at field locations, such as Post Clearance Audit (PCA) and Local risk Management (LRM), was reviewed at EDI enabled locations (ports, airports and ICDs).

### **1.7 Challenges to the audit process**

Audit was not provided the SLAs, risk register, change logs, redo logs, data flow diagram, ICT training documents and directory updation procedures.

Despite universal standing of C&AG on IT project implementation and audit of IT system backed by a comprehensive mandate, audit's request for access to the entire export and import data with all the captured fields was continually deflected. The information and data that was assured during the Exit conference was also not made available to audit. The control evaluation and business mapping was done on the limited data made available to audit and the field audits.

Objectives, scope and audit methodology for the Performance Audit was discussed with the representatives of CBEC, DG (System and Data Management), DoV and RMD present on 15 April 2013 in the entry conference. Audit was conducted during May 2013 to August 2013. Draft report was issued on 29 November 2013 and audit findings and recommendations were discussed in the Exit conference held on 21 January 2014. The draft PA report was again sent to CBEC for final comments which were received on 25 February 2014