# AEBAS in School Education
## Tamil Nadu Govt. strides ahead with the best use of ICT

Edited by **REUBAN K**

**Government of Tamil Nadu has taken initiative to implement Aadhaar Enabled Biometric Attendance System (AEBAS) in Government and Government Aided Schools in Tamil Nadu. Tamil Nadu state consists of 120 District Educational Offices which comprises of 45,614 schools employed with 3.15 Lakh staff. To digitize the attendance of staff to make the monitoring process easy, Government of Tamil Nadu has decided to implement AEBAS in School Education Department.**

AEBAS has been implemented in more than 16,500 Schools & Education Offices in Tamil Nadu. An AEBAS web-monitoring portal for School Education has been designed and developed by NIC, TNSC in collaboration with NIC(HQ) for Education Department which helps in keeping the large volume of staff attendance details at single point thus enabling various stakeholders to access this valuable information online with a single click. The staff attendance maintained and generated through this portal has helped the Education Department to monitor the attendance pattern of teaching and non-teaching staff.
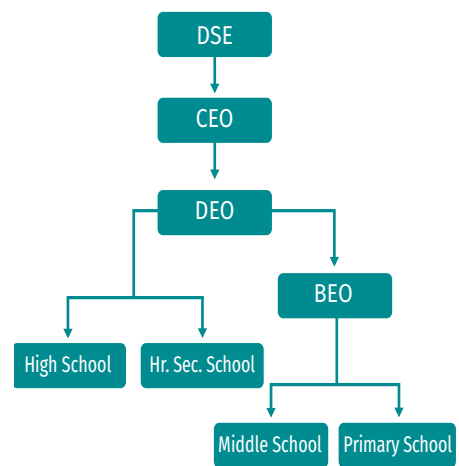
## Overview
### Objectives

1. To implement AEBAS in all the 45,614 Government and Government aided Schools, Chief Educational Offices (CEO), 120 District Educational Offices (DEO), 413 Block Educational Offices (BEO) in Tamil Nadu in phases.
2. To develop a web portal to receive AEBAS data of School Education through web services from AEBAS portal, generate various MIS, Analytical and Dashboard reports, GIS Based Reports for monitoring by officials at various levels of School Education Department, Government of Tamil Nadu.

### Organizational Structure of School Education Department, Government of Tamil Nadu

School Education Department have offices at Revenue District level, Education District level and Block level. On an average, each Revenue District is having 1425 schools.

District Educational Office (DEO), Block Educational Office (BEO) are controlled by Chief Educa-

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> **NIC, Tamil Nadu State Centre has played a pivotal role in aiding the administration to track the attendance of teaching and non-teaching staff of Government/ Government Aided Schools in Tamil Nadu, covering 16,444 Schools and 2,37,728 staff. This also covers staff in O/o DSE, Chief Educational Offices, 120 District Educational Offices, 413 Block Educational Offices. It covers almost 25% of Government Employees in Tamil Nadu Government.**
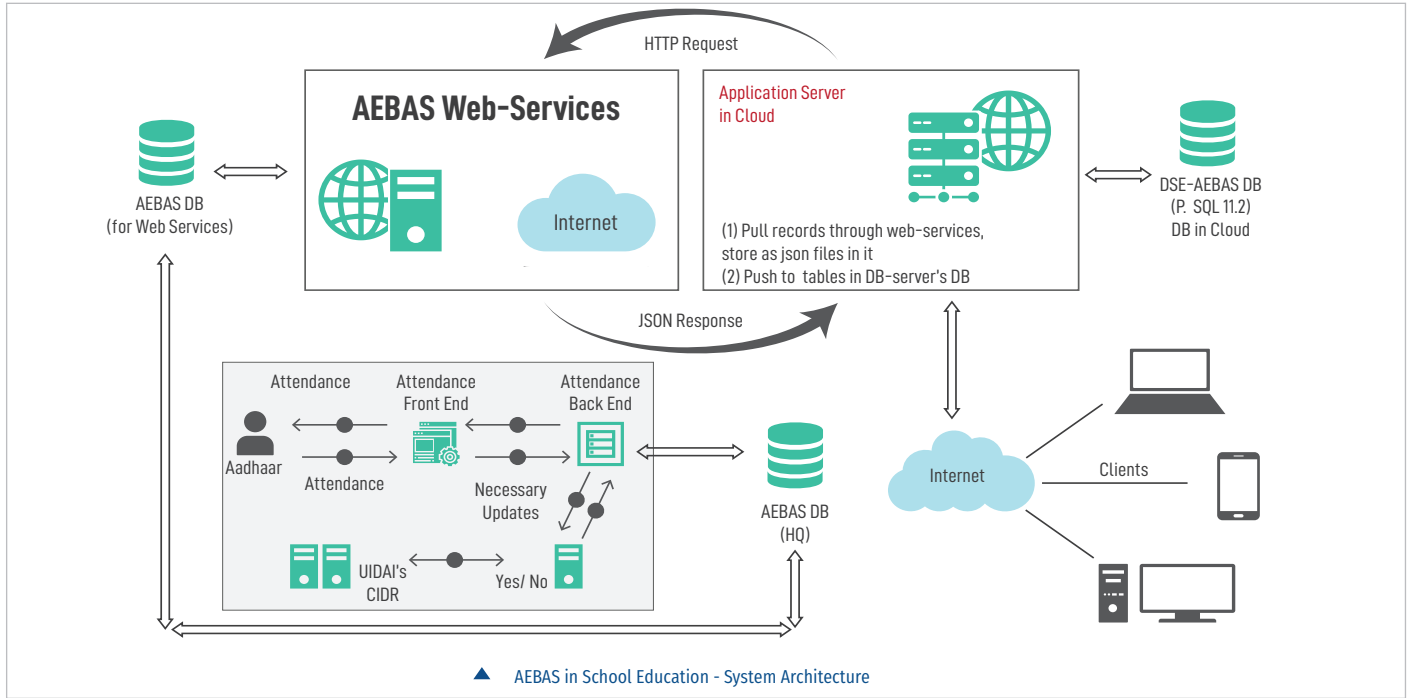>
> **During October 2018, Hon'ble Chief Minister announced on the floor of Tamil Nadu Assembly, on the implementation of Aadhaar Enabled Biometric Attendance System for teaching and non-teaching staff of Government/ Government Aided Schools in Tamil Nadu. Nearly 2.16 Lakh officials from 16,500 locations were covered in two phases. All staff were registered on their respective portal and they started marking attendance regularly.**

**Pradeep Yadav, IAS**
Principal Secretary
School Education Department
Government of Tamil Nadu

tional Office (CEO) in respective revenue district. There are 32 CEOs, 120 DEOs, 413 BEOs in Tamil Nadu. Government & Government Aided High Schools and Higher Secondary Schools are monitored by respective DEOs. Government & Government Aided Primary Schools and Middle Schools are monitored by respective BEOs.

School Education Department, Government of Tamil Nadu planned to implement AEBAS in three phases. Phase-I covers CEO Offices, DEO Offices, High Schools & Higher Secondary Schools; Phase-II covers BEO Offices, Middle Schools and Phase-III covers Primary Schools.

▲ AEBAS in School Education - System Architecture

## Features of "AEBAS Web- Monitoring" Portal Developed for DSE

- Dashboard facilities available in the system will help to study the pattern of attendance marked by officials posted in different locations of school department.
- Role-based authentication for monitoring the attendance by officers at State level, District lev- el, DEO level, BEO level and School level.
- Various MIS reports are available to monitor the attendance of staff in schools.
- GIS based reports available in this system helps for easy understanding / comparison.
- The exception reports help to figure out default-

er's locations & further follow-up.

- SCHEDULE option helps to Schedule job to receive AEBAS records of School Education through AEBAS web-services.
- VIEWLOG option helps to monitor the status Attendance Marked of API for desired period.
- REPULL option helps to receive records of failed APIs for the desired period.
- CRON MONITOR option helps to Monitor the status of jobs scheduled to receive the records through web-services.
- REBUILD SUMMARY option helps to rebuild summary table for attendance records received through web-services for desired date/ period.
- This is a responsive portal which can be accessed through various ICT devices.

▼ Sample Hourly Breakup Attendance Report for 03-Oct-2019



Sample Chart Report for the Period 09-Oct-2019 to 23-Oct-2019



## Technologies Used

### for Development of AEBAS Web- Monitoring portal for School Education

Linux - Apache - PHP – PostgreSQL 11.2 Database. HTML5, CSS3, Javascript, Ajax, Bootstrap Libraries, RESTful Web Services

## Innovations Applied / Software Architecture

The attendance marked data from 120 AEBAS Domain sites of School Education department in **https://tamilnadu.attendance.gov.in** are being replicated at regular Intervals to Instance in Amazon Cloud through AEBAS web-services. At present, on an average 14 Lakh records are getting replicated per day.

The portal https://aebas.tnschools.gov.in/aebasv1/ has the facilities for monitoring the data replicated status, rescheduling of failed jobs and generating dashboard & reports.
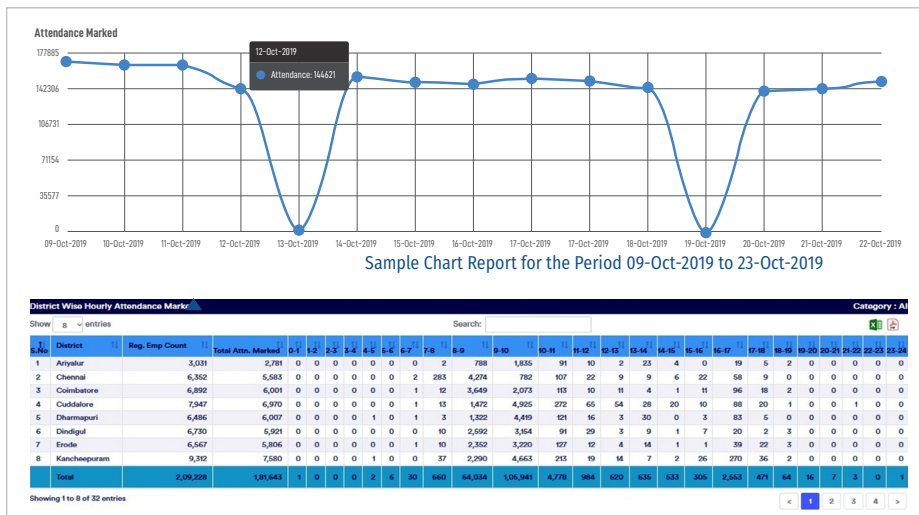
Through this role-based system, School Education Department officials at State level, Revenue District level, Education District level, Block level, School level can generate various types of reports, exception reports, dashboard for their school(s) / office(s).
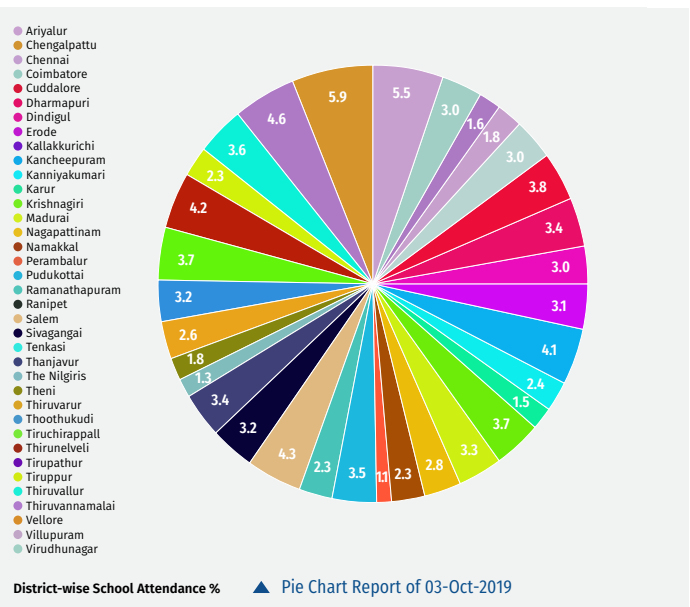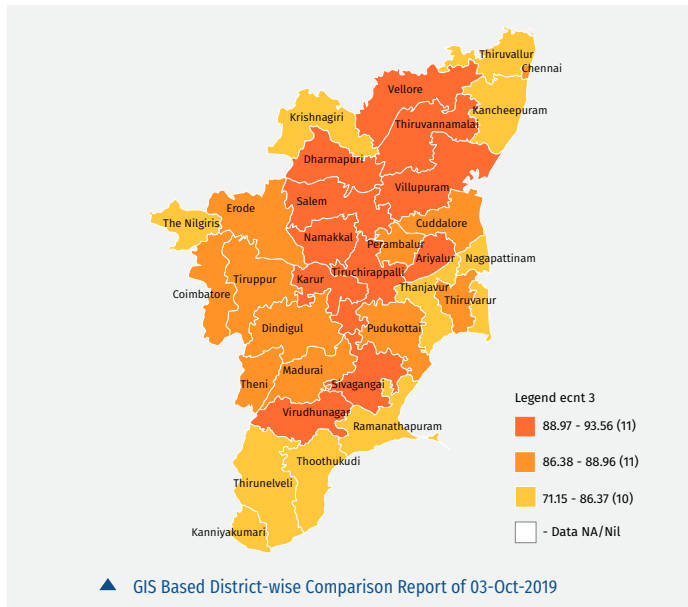
### AEBAS Implementation methodology

For the effective implementation of AEBAS in School Education Department, 120 AEBAS domain portals have been created for the 120 DEOs in Tamil Nadu. The domain sites are named as <tn><deo name><district code>eg: URL of DEO, North Chennai Education District in Tamil Nadu is https://tndeonorthchn.attendance.gov.in

All the schools are mapped to AEBAS location as

▲ GIS Based District-wise Comparison Report of 03-Oct-2019

Legend ecnt 3
- ▮ 88.97 - 93.56 (11)
- ▮ 86.38 - 88.96 (11)
- ▮ 71.15 - 86.37 (10)
- ▯ - Data NA/Nil



District-wise School Attendance %  ▲ Pie Chart Report of 03-Oct-2019

<School-Name><School- Type><Place><UDISE Code>.

Nodal Admin logins have been created for Head Masters of schools.

Unified District Information System for Education (UDISE) is a unique code created by Director of School Education (DSE) for each School in Tamil Nadu (eg. GOVT Boys HSS Parangipettai-33181004412).

For the purpose of AEBAS implementation the following division names are created

- DEO <Office Name><Office>
- DEO <Block Name>
- BEO <Block Name><Office>
- BEO <Block Name>

Staff in school / office locations are registered under their respective divisions.

## Training

### Phase-1 Training

The Department has identified 10 Key Resource Persons (KRPs) for each district, a full-fledged hands-on training has been given to the 320 KRPs at the state-level for implementing AE- BAS in DEO offices, High Schools and Higher Secondary Schools. An AEBAS technical hand- book has been prepared and circulated among the KRPs.

### Phase-2 Training

In addition to the 320 KRPs, the Department has identified another 3 KRPs

### Attendance Marked on 3rd October 2019



■ 87% Attendance Marked
■ 13% Attendance not Marked

from BEO level for implementing AEBAS in Middle Schools and BEO offices. Necessary trainings have been given to the new KRPs through VC and at the district level.

### Implementation Status

With the best support from AEBAS team at NIC- HQ, AEBAS has been successfully implemented in 16,500 Schools & Education Offices of Phase-I and Phase-2. Nearly 2.16 Lakh staff across the state are registered in their respective portals and started marking attendance.

### AEBAS Web-Monitoring Portal for School Education

A web-portal https://aebas.tnschools.gov.in/aebasv1/ has been designed and developed by NIC-TNSC. This portal helps to receive the AEBAS records of all the 120 DEOs AEBAS Portal at regular Intervals to Instance in Amazon Cloud. This portal has the facilities for monitoring the data received status, rescheduling of failed jobs and generating dashboard & reports.
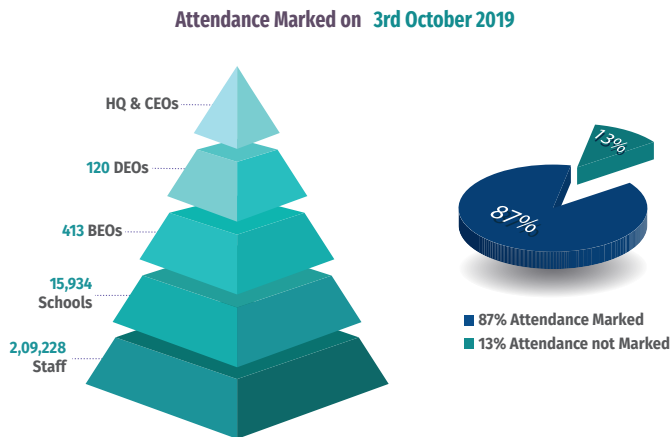
This portal has various features like Dashboard, Logins for officials at various levels, Various MIS Reports, Exception Reports, GIS Based Reports etc.

## Benefits / Impact

- AEBAS System is implemented for 15,934 Government & Government Aided Schools in Tamil Nadu.
- AEBAS System is implemented for DSE, all CEO's, DEO's, BEO's offices.
- Monitoring Attendance at various stages of DSE becomes very easy.
- In due course, Manual Attendance Registers maintained in the locations may be replaced.
- Real-time monitoring of DSE officials posted across state becomes very easy.
- In the long-run, this system will help in improving learning outcomes of students.

## Way Forward

The Department has planned to implement the system in Phase-3 which covers 29,170 primary schools. An android mobile application to view the summary statistics of attendance marked will be developed. This App is meant for State Level Officers, CEOs, DEOs, BEOs of School Education Department.

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