

Strengthening Educational Management Information System in India through U-DISE*

(A Story of its Evolution)

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INTRODUCTION

Background

Free and compulsory education to all children up to the age of fourteen years is a Constitutional commitment in India. The Government of India initiated a number of programmes to achieve the goal of Universalisation of Elementary Education (UEE), among which the *Sarva Shiksha Abhiyan* (SSA), launched in 2001, is the most prominent one. For successful implementation of any programme, in general, and educational programme in particular, effective monitoring and an efficient information system are essential. It was also necessary for India to develop a robust information system to meet international commitments. In conformity with the Dakar Framework for Action on Education for All (2000), governments were supposed to regularly monitor the progress for which a reliable and comprehensive education management information system at the country level was essential but in reality most of the countries did not have such information systems at that time. UNESCO Institute for Statistics (UIS) have been providing technical support to establish functional EMIS. It has phased out its software which was initially used in some African countries. In South Asia, UIS is providing support to establish a functional EMIS in Nepal, Maldives and Bhutan. In addition, it has also provided support to establish an integrated EMIS system in Bangladesh and Pakistan. At the global level, UIS is coordinating a Technical Cooperation Group of which India is also a member. The Group is working towards standardising and developing methodologies of 43 thematic indicators to monitor Strategic Development Goals (SDG-4) at the national, regional and global level.

Need of an EMIS, how it be developed, characteristics of an efficient EMIS, limitations in the existing EMISs, efforts made in strengthening EMIS across countries etc. have been widely documented by number of researchers and organizations including Chapman & Carrier (1990), UNESCO/PROAP (1992), McMAHON (1993), IIEP (2000), Carrizo (2001), Carrizo, Sauvageot & Bella (2003), World Bank (2005), Shooebridge (2006), Smith (2006), Powell (2006), Hassan & Saxena (2014) etc. Developing comprehensive EMIS has become more important as the global community refocuses its efforts toward Education 2030 and quality data can play an important role towards developing the evidence based decision support system.

Concerted efforts have been made through the District Information System for Education (DISE) towards strengthening the Educational Management Information System (EMIS) for the school education in India. The District Elementary & Secondary Education Plans across the country are being developed primarily based on the data generated through the

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information system developed for the *Sarva Shiksha Abhiyan* and *Rashtriya Madhyamik Shiksha Abhiyan* programmes, i.e. Unified District Information System for Education (U-DISE).

The Present Article

The article presents story of DISE, and later U-DISE, its evolution since inception which resolved most of the limitations, and helped immensely in strengthening Educational Management Information System in India. It deals with management and organization of information collection, coverage and flow of information, software, capacity-building programmes, publications, dissemination and data utilisation, as also limitations and major areas of concern and future course of action to fully develop a computerised on-line information system for school education. A separate section deals with the recently launched student data collection and suggest future course of action which can lead India moving towards developing an on-line Child-Tracking System (CTS).

The Traditional Information System

Indian education system is one of the largest in the world as it caters to the needs of more than 1,211 million people. In view of its size (about 205 million children of 6-14 years age, and 261 million enrolment in Grades I to XII), the information system had certain limitations, both administrative and non-administrative limitations. Some of these limitations were mentioned by Mehta (1993 & 1997) are: multiple data collection agencies and directorates (primary/elementary, secondary) involved in data collection and lack of coordination among them; lack of understanding of the concept and definitions of educational statistics; lack of adequate, qualified and trained staff at different levels; problems in distribution and collection of data-capture formats; lack of district-specific time-series data; time-lag in data; reliability & quality of education data; data-gaps; lack of computers at lower levels; creation of new districts (593 during 2001 Census, presently 680 districts) and re-demarcation of boundaries of the existing districts; poor dissemination and utilisation of data; and lack of accountability and priority at all levels. It is important to mention that no data was ever made available below the state level (except district level on quinquennial basis for a short period). Both Five Year and Annual Plans were used to formulate based on 7-8 years' old data.

Notwithstanding these limitations, the school statistics form the basis of planning, monitoring and evaluation of various aspects of education, in general, and primary (Grades I to V) and elementary (Grades I to VIII) education, in particular. The manual system of information collection under the Ministry of Human Resource Development (MHRD) (Department of Higher Education), even did not have a uniform school format. Rather, it had got consolidated sheets at different levels. It is also important to mention here that states provided only data in compiled form for the whole state in State Tables prepared manually. This practice continued for many years after Independence, and it was the source of all official statistics. In view of this, it was not possible to undertake validation of data at any level.

The first consolidation of data used to take place at the block level (on an average, a block in India has about 200 to 400 schools). In view of a large number of schools in a block; it was not an easy task to consolidate data manually, especially when officers at this level are generally not adequately qualified and properly trained to deal with huge amount of data. First deficiency in data used to occur during the process of cross-tabulation of information at block level. The next were the district and state levels, at which some deficiency also used to remain in data; however the same were never been intentional. Neither at elementary nor secondary level of education, no school-specific information was ever made available. Whatever the little information which used to be disseminated at the state level, had many

data-gaps. Of late, it had been observed that most of the publications of the Ministry of Education/HRD, discontinued and those continued, had a time-lag of about 7 to 8 years.

The ES Series Forms

The Department of Education (*Ministry of Education, Culture and Sports*) used to collect educational statistics through the Education Statistics (ES) Series Forms. Form ES-I was developed to collect numeric information on number of institutions, enrolment and teachers whereas information relating to financial, income and expenditure variables was proposed through the Form ES-II. Form ES-III was developed to collect information on examination results, so as Form ES-IV, for information on SC and ST population. District-wise information was proposed to collect through Form ES-V and information on special studies through Form ES-VI. Basically, these forms were the consolidated sheets. Later Form ES-V, was withdrawn in 1987 on the recommendations of the Seventh All India Conference on Educational Statistics. Further in 1981, the high level committee to review Educational Statistical System recommended that ES-I be bifurcated into two forms, namely, ES-I(S) for school information and ES-I(C) for information on colleges. Similarly, it also recommended that ES-II be bifurcated into two separate forms one each for schools and colleges. With the implementation of ES-Series forms, the time lag at one stage increased to about seven to eight years. At this stage, idea of computerisation of educational statistics was cropped-up. For the computerisation, three new forms, namely, S-1, S-2 and S-3 were evolved. In order to tone up the educational statistics, the scheme of Computerisation of Educational Statistics was further strengthened in year 1993-94. Despite this, time lag always remains the major area of concern.

Other Sources of Information

Apart from the Government (Ministry of Education/HRD) sources, which used to collect numeric information annually on schools, teachers and enrolment; NCERT also used to conduct All India School Education Survey, Eighth All India School Education Survey (AISES) with 30th September 2009, as its date of reference is the latest one. Details of AISES were never available at the time of formulation of Five Year Plans; premises on the basis of which AISES was launched in the early 60s. However, statistics generated through the AISES used to be treated as more reliable than any other source. It provided not only more comprehensive school level data but also data on habitations served by schools and thus on habitations lacking schooling facilities. Before DISE, it was the only source of data on facilities in school, teacher qualifications, etc. In addition, some statistics is also being collected on educational variables through specially designed surveys (participation & expenditure in education) on education by National Sample Survey Organisation. Census of India is another major source on literacy rates, attendance rate, etc; 2011 being the most recent one. In addition, National Family Health Survey, also disseminate information on a few educational variables, as part of its demographic survey; 2015-16 being the latest one.

Efforts Made in the Past to Strengthen Education Statistics

In the past, sporadic efforts were made to improve educational statistics in India. It was not only at the national level but attempts were also made by states to develop computerised educational management information system but none of these initiatives could sustain. During 80's, National Informatics Centre (NIC) and Planning Commission, Government of India had initiated a project to develop a computer-based Management Information System on education for the District Administration. The programme was named DISNIC-

EDUCATION. It was envisaged that the information collected through the NICNET will be made available at district, *taluk*, block, *panchayat* and village levels. It was also envisaged that information on various items necessary for micro level educational planning would also be collected not only at the national and regional levels but also at the sub-regional level. However, the scheme could fully implemented only in the state of Karnataka. One of the possible reason of the failure was lack of adequate staff, availability of computers and coordination between state statistical, monitoring and planning units.

In 1985-86, the Department of Education decided to computerise the statistical system and was initially implemented in Uttar Pradesh on pilot basis but soon followed in then nine educationally backward states of the country in collaboration with NIC in 1989-90. The scheme was further extended to all the remaining States and UTs in the following year. In 1991, the Department of Education in collaboration with NIEPA initiated a project on *Computerised Planning for Education* (COPE) with the main objective of reducing time-lag in the educational statistics. Initially, the project was implemented in all the districts of Madhya Pradesh and in one district each of Rajasthan, Bihar and Uttar Pradesh. Under the scheme, it was proposed to install computers in the office of District Education Officer. However, the project couldn't take off well as planned as only four states had shown keenness mainly because of its limited coverage.

In 1992, NIEPA in collaboration with UNESCO, Paris undertaken a project on use of sample survey techniques in educational statistics. The main objective of the project was to identify data-gaps and bridge the same by employing sample survey techniques. In the first phase, four states, namely, Gujarat, Haryana, Rajasthan and Uttar Pradesh were covered. It was envisaged that in the second phase remaining states will be covered but project could not progress as planned. In 1992, another project on monitoring of elementary education based on sample survey techniques was initiated by NIEPA in collaboration with the Department of Education which continued up to 1995. Amongst these initiatives, the *Computerisation of Primary Education* (COPE) project was the most important one which was later become the basis of launching the DISE.

Review Committees on Education Statistics

In 1982, the Ministry constituted a high level committee to review educational statistics system in India which recommended far-reaching interventions but most of the recommendations were never been implemented. The Indian Education Statistics System had thoroughly been reviewed by many researchers which include Bose (1968), Pandit (1976), Srivastava & Hiriyaniah (1977), Kamat (1977), Dhar (1978), Mehta (1993, 1996a & 1996b), Tilak (1985 & 2001), Premi (2001), Tilak, Panchmukhi & Biswal (2014), etc. The National Statistics Commission (2001), headed by Dr. Rangarajan, had a separate chapter on Education Statistics and thoroughly reviewed educational statistics system, but many of the recommendations are yet to be implemented.

In 2008, another *Review Committee on Education Statistics* was constituted by the Ministry of HRD which had taken note of most of the limitations presented above and had also made far-reaching recommendations. It has recommended creation of a Central Bureau of Educational Statistics outside the Ministry of Human Resource Development. However, most of the recommendations of the Review Committee are yet to be implemented. Another Committee (2012), also constituted by the Ministry of HRD, recommended one statistical system of data collection for the entire school education sector in India which was largely based on the experiments being done through DISE at that time.

Towards developing a computerised educational management information system in India, efforts made under the *District Primary Education Programme* (DPEP) and *Sarva Shiksha*

Abhiyan (SSA) are apparently among the most successful ones. Most of the earlier attempts at the Central and State Government levels failed to sustain and as such the overall situation remained a matter of concern. However, DISE initiated in 1994-95 has become stronger over time and is the only initiative which sustained for more than two decades and has finally acquired the status of *Official Statistics*.

EVOLUTION OF DISE

The DPEP

In 1994-95, Government of India launched District Primary Education Project (DPEP) with following objectives (DPEP Guidelines, 1997):

- (i) to reduce differences in enrolment, dropout and learning achievement among gender and social groups to less than five per cent;
- (ii) to reduce overall primary dropout rates for all students to less than 10 per cent;
- (iii) to raise average achievement levels by at least 25 per cent over measured baseline levels; and
- (iv) to provide, according to national norms, access for all children, to primary education (Grades I to V).

The focus of DPEP was on primary education with emphasis on district planning. Each district covered under the DPEP was supposed to develop district plans to achieve the goal of Universalisation of Primary Education in participatory planning mode for which a number of pre-project activities were initiated. Varghese (1994) described DPEP as:

"The DPEP is an attempt to initiate a process of planning from below. The framework of the programme envisages initiating and completing the process of planning first at the district level. The state level intervention strategies and plans are meant to facilitate the successful implementation of the district plans. It can be seen that looking at linkages between state and district plans in this framework changes the relative roles to be played by agencies at different levels. This process of planning ensures that state plans cannot be prepared unless and until the district plans are complete and the state level plans are nothing but efforts to achieve district level targets".

To realise the goals of DPEP, the Government of India felt that a sound information system is essential for successful monitoring and implementation of the programme. It was also realised that to strengthen educational statistical database for planning and management in a decentralised framework, an innovative model is needed.

In the light of the above, the Ministry of HRD in 1994-95, as part of the DPEP national endeavour, decided to design and develop a school-based computerised information system, and entrusted the main responsibility to the *National Institute of Educational Planning and Administration* (NIEPA), New Delhi [now the *National University of Educational Planning and Administration* (NUEPA)]. In this background, a pilot project for revitalisation of educational statistics in India was initiated at NUEPA in 1995 with financial assistance from the UNICEF which has been supporting DISE activities at NUEPA since inception. The project aimed at examining issues related to identification of data needs, processes and procedures for data collection, developing a framework for data flows and computerisation, and facilitating the use of educational indicators in planning, management, monitoring and evaluation.

Such a comprehensive and integrated approach was necessitated by the fact that the then existing system could not provide the school level data and that it was highly limited in scope and coverage. Similarly, the use of educational statistics for planning and monitoring in the decentralised framework was also minimal. In the absence of school-specific data, there were no systematic checks on the internal consistency of data. Data on many critical variables was either not collected at all or was not processed to facilitate decision-making. In tune with the spirit of the DPEP, the district was selected as a nodal point for data collection, computerisation, analysis and use of school level data. In other words, it was decided school to be a unit of data collection and district, as unit of data dissemination (Figure 1.1).

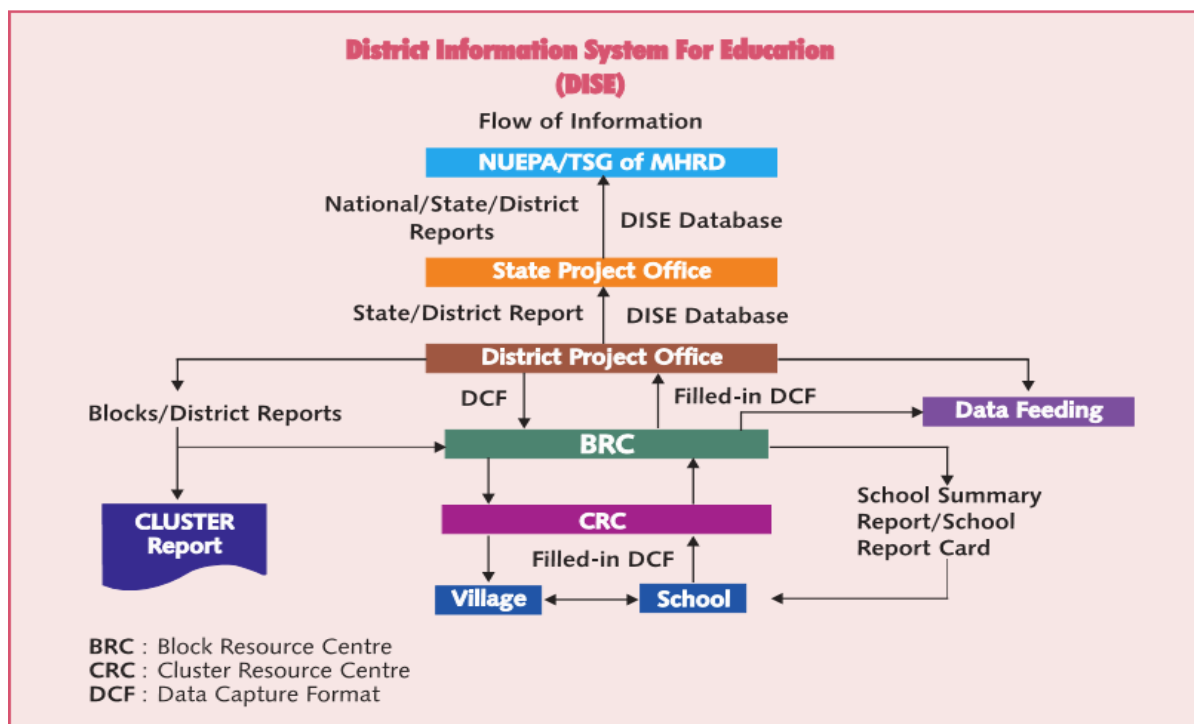


Figure 1.1 : Data Flow Diagram

The Initial Phase of DISE

NUEPA designed and developed core Data-Capture Formats in consultation with the experts and states. Accordingly, the NUEPA designed the software in-house for implementation at the district level (initially in case of primary level) and provided necessary technical and professional support to all the DPEP districts and states. The first version (d-base) of the software, named as *District Information System for Education (DISE)*, was released in the middle of 1995. The district level professionals were assisted and trained in the establishment of the EMIS units. In its first year, i.e. 1994-95, DISE was implemented in seven DPEP phase-one states in 42 districts and it reached to about 65,000 primary schools/sections. The first major review of the DISE software was undertaken during 1997-98 (PowerBuilder/SQL Anywhere). By the end of DPEP in 2000-01, DISE could cover 18 states and 272 districts but all confined to DPEP states and still covered only the primary level of education.

From Primary to Elementary Level

When SSA was launched in 2001, the coverage of DISE was not only extended to non-DPEP states but was also expanded to cover the entire elementary level of education. The main objectives of SSA were: (i) all children in schools, (ii) all children complete five years of primary schooling, (iii) all children complete elementary schooling, (iv) focus on elementary education of satisfactory quality, and (v) bridge gender and social category. Unlike, DPEP, SSA was supposed to cover the entire elementary level of education and its focus was also on district level planning in a decentralised participatory planning mode. In view of this, DISE

software was later re-designed (in 2001) in the light of the requirements of SSA (PowerBuilder/Oracle). But, it was the year 2005-06 during which the entire country got covered under DISE for the first time. DISE data is now available for over a decade i.e. 2005-06 to 2015-16, all of which is made available, both in raw and processed form, in the public domain. When *Right to Education* (RTE) was enacted in 2009, Data Capture Format was further modified. At present, DISE is the only source of information which provides comprehensive information on all aspects of RTE on regular basis. DISE has rated each school on a 10-point scale based on RTE implementation.

From Elementary to Secondary Level

In view of successful implementation of DISE in terms of coverage, time-lag and data-gaps, the Ministry of HRD again advised NUEPA to expand coverage of DISE from elementary to entire secondary and higher secondary levels of education in 2007. NUEPA designed a separate on-line application, namely Secondary Education MIS (SEMIS) and implemented during 2007-08 data collection. Though data was successfully collected through SEMIS but a few limitations remained with regard to coverage and data-entry. The on-line system continued till 2009-10 after which it was replaced by an off-line software similar to DISE software for elementary level.

From DISE to U-DISE

Under DISE, it is made mandatory for each school to have a unique 11-digit Identification Code (2 digits each for states, districts & blocks, 3 digits for village/wards and 2 digits for school sequence). However, the system which NUEPA designed and implemented had provided a code to elementary classes, and a different code to secondary sections even though the school was the same having Grades from I to XII. The system in the form of DISE (elementary) and SEMIS (secondary), had two codes; two different Data Capture Formats, one for elementary and another for secondary; two softwares: one off-line (DISE) and another on-line (SEMIS); two data entry centres; and two Nodal Officers at district and state levels respectively for SSA and RMSA which causes lot of duplicity of efforts and created confusion among respondents.

In view of the above, during 2010-11, NUEPA designed one Data Capture Format for the entire school education, i.e. Grades I to XII, and successfully piloted it in one of its states, namely Puducherry. In the following year, i.e. 2011-12, the same was successfully piloted in Puducherry and West Bengal and data from all schools having Grades I to XII was successfully collected by using single DCF and Software. Further, to develop a unified school education statistics system, later MHRD constituted a committee in 2012 to suggest modalities to develop such a system which recommended integration of DISE and SEMIS.

The Landmark Year 2012-13

It was during 2012-13, for the first time, that single Data Capture Format was used across the country for the entire school education sector for which the MHRD issued detailed guidelines (on 18th September, 2012). It was decided that all the States & UTs will print the Data Capture Format from the DISE software by generating previous year's data into the current year with all constant variables printed; data-entry through DISE SW would take place in the office of SSA; schools will have only one unique 11-digit Identification Code; One Nodal Officer both at the district and state levels and issued guidelines for smooth coordination between the SSA and RMSA officers. Year 2012-13 was the first year of unification; DISE since then is known as the **Unified-DISE** or popularly as **U-DISE**.

Since 2012-13, a lot of improvement in terms of coverage, quality, sharing, dissemination and utilisation has taken place. U-DISE is now smooth across the country and it has systematised; U-DISE is here to stay.

THE U-DISE: MAIN FEATURES

Some of the salient features of U-DISE are listed below:

- ✓ *Uniform DCF*: A uniform Data Capture Format is being used across the country for the entire school education. The concept and definitions of educational variables involved therein have been standardised at the national level and are uniformly followed by all districts and states across the country.
- ✓ *Supplementary Variables*: The states have flexibility to add 'n' number of supplementary variables depending upon their specific requirements. In addition, the states can also specify and add state-defined school managements, category, status of school building, teacher category and other such items in the existing categories specified at the national level. No additional software for computerisation and analysis of district & state specific data is required; states are using this provision extensively.
- ✓ U-DISE software is developed in-house at NUEPA and is time-tested, user-friendly, menu-driven and with no scope for data manipulation.
- ✓ *Manual* aggregation of data is completely replaced by computerised data entry and report generation system. At no level, data is transmitted manually.
- ✓ Since 2005-06, the Educational Development Index based on a set of 24 parameters falling under access, infrastructure, teacher and outcome indicators is being computed by NUEPA separately for primary and upper primary, as well as composite primary and upper primary levels of education.
- ✓ DISE is the recipient of four *National Awards*. U-DISE has acclaimed recognition not only within the India but also at the international level. Countries like Cambodia, Ghana, Southern Sudan and Iraq invited U-DISE team at NUEPA to review their MIS and suggest modalities. Comprehensive Mission reports can be seen at www.educationforallinindia.com
- ✓ *Perhaps*, one of the most significant aspects of U-DISE is to ensure that data is provided to users in a hassle-free manner. Users need not physically visit NUEPA to collect data as the same is being provided through the electronic modes.
- ✓ To *promote* use of data, research studies exclusively based on U-DISE data with a grant of Rs. 100 thousand to young researchers has been recently launched by NUEPA.
- ✓ All U-DISE websites are hosted in-house on NUEPA's Server for which a state-of-the-art Server room has been specially designed. Server room is equipped with Blade Servers and a host of necessary hardware and softwares. Websites are being visited by 100 of thousand users.
- ✓ As an on-line help to users, the DISE group of users is formed on Internet. In addition, a national toll-free number has also been acquired for U-DISE. U-DISE has an impressive presence on social media: Facebook, Twitter, YouTube, WhatsApp, Telegram, Google Groups, etc.
- ✓ Three android-based mobile applications: School-Finder, Compare-School and School Report Cards have been developed in-house.
- ✓ *Reporter-Module* made available to users at www.udise.in presents a variety of indicators/reports which can be filtered by school category, type, management, location, etc and can be generated at all levels. Serious researchers can download school-specific raw data (school-wide) in user-friendly format from www.schoolreportcards.in.

- ✓ With an aim to further improve the quality and reliability of data, it has been made mandatory for all the States and UTs to get the DISE data sample checked by an independent agency. State-specific PES reports, as well as summary of major findings may be seen at *www.dise.in*. In the initial years, a number of variables where discrepancy was observed were many but, over a period of time, the same has come down significantly. A few states also reported discrepancy in enrolment.

MAJOR OUTCOMES OF U-DISE EFFORTS

U-DISE as Official Statistics

The Ministry of HRD (MHRD) had recently taken two important landmark decisions. U-DISE has now acquired the status of *Official Statistics* and all parallel collection of information systems, including annual data collection by the MHRD, is discontinued and U-DISE has become the only source of information so far as the school education statistics is concerned. Henceforth, all the Ministry of HRD publications (2012-13 onwards) with regard to school education statistics would be exclusively based on U-DISE data. It has also been decided that the *All India School Education Survey*, if conducted in future, would confine to variables which are not school-based; all-school based information would exclusively be continued to be collected only through the U-DISE. Of-late, the Government of India has also started submitting U-DISE data to UNESCO and UIS, as a part of its international commitment.

Landmark Achievements

- Through the concerted efforts, MIS units have been made operational both at the district and state levels across the country and is equipped with necessary hardware and software.
- The U-DISE has eliminated data gaps as comprehensive information on all aspects of school education is now available over a period of time at all disaggregated levels, such as, school, cluster, block, district, state and national levels.
- Both district elementary and secondary education plans are exclusively based on U-DISE data.
- What is more remarkable about U-DISE is that it has drastically reduced the time-lag in the availability of educational statistics, which is now down from 7-8 years to about a year at the national level, and only a few months at the district and state levels.

Organisation of U-DISE

- DCFs are being printed from U-DISE software across the country which reach schools through the block and cluster resource centre coordinators
- Provisions have been made to decentralise the data entry to block level for which Data Entry Operators and necessary hardware and software have been provided at the block level. U-DISE software support data entry at any level and 'n' number of systems can enter data simultaneously.
- Cluster Resource Centre's* (CRC) Coordinators have been made accountable to ensure that DCF reach all schools falling under his/her jurisdiction. They also ensure

* Cluster Resource and Block Resource Centres were first created under DPEP and continued in SSA. An important role of BRC and CRC Coordinators is to visit schools and to provide on-the-spot academic support and guidance to teachers. The number of schools in the block is too large for making frequent visits. CRC Coordinators, however, could make relatively more visits to schools as they have to cover fewer schools (20 to 25) which are generally within easy reach (TSG, EdCIL, 2010).

that data is collected on time and there are no missing values and inconsistency in the filled-in formats.

- CRC Coordinators are made accountable to check filled-in DCF on 100 per cent basis and BRCs, 20 per cent. After data-entry is over, DCFs are sent back to school in the form of School Report Cards through CRC for re-verification. CRC Coordinators are generally present at the time of data-feeding at the block level.
- Capacity building programmes are being organised for respondents (Head Masters/Teachers and Principals) annually; in this concern orientation on U-DISE DCF through EDUSAT, over a period of five years, was a grand success (for details, visit www.dise.in).

Annual Publications

A variety of publications are being brought out annually based on U-DISE data which are made available (since 2001) at www.dise.in. Through publications, information on every aspect of universalisation of elementary, as well as secondary education is being disseminated at the district, state and national levels. Except Flash Statistics, all other publications are web-enabled. U-DISE is fast moving towards a paper-less set of publications.

- Elementary Education in Rural India: Analytical Tables
- Elementary Education in Urban India: Analytical Tables
- Elementary Education in India: Where do we stand?, District Report Cards, Volume I & Volume II
- Elementary Education in India: Where do we stand? State Report Cards
- Elementary Education in India: Thematic Maps
- Elementary Education in India: Graphic Presentation
- Elementary Education in India: Progress towards UEE, Analytical Tables
- Elementary Education in India: Trends, 2005-06 to 2015-16
- Secondary Education in India: Progress towards UEE: U-DISE Flash Statistics
- Secondary Education in India: U-DISE Flash Statistics
- Secondary Education in India: Thematic Maps
- Secondary Education in India: Graphic Presentation
- Secondary Education in India: Where do we stand? State Report Cards
- U-DISE School Education in India

School Report Cards (www.schoolreportcards.in)

In addition to the web-enabled and printed publications based on the U-DISE data, the Union Minister of Human Resource Development released School Report Cards of more than one million primary and upper primary schools/sections (in November 2006) which are based on the DISE data. Besides quantitative information, the Report Cards also provide qualitative information and a descriptive report about individual schools. All that can now be accessed with the click of a mouse. Apart from English and Hindi, the School Report Cards have also been made available in a number of regional languages while the descriptive report has been made available in English, as well as in Hindi. The School Report Cards now present over a period of 2005-06 to 2015-16. Users can also download data as per his/her requirement. More than 9,500 users from across the world are registered for downloading of data. The website is the recipient of four *National Awards*.

Display of School Report Card, preferably a flex of 3.5 x 2.5 feet in school, has been made mandatory for all schools covered under U-DISE across the country. Schools are supposed to display report cards at prominent location in the school.

Quantitative Dimension of School Education System in India

Perhaps the Indian education system is the largest in the World. Table 1 presents quantitative dimension of school education system in India in terms of number of schools, enrolment and teachers. Over a period of time, the number of schools covered under U-DISE increased many-fold which is true for schools run by both the Government and Private managements. Each year, number of schools being covered under U-DISE is on rise. During 2015-16, U-DISE covered 15,22,346 schools across all the 36 States and UTs of India, from about 594 thousand villages spread over 7 thousand blocks and 83 thousand clusters from 680 districts. With the increase in coverage, enrolment at all levels of school education has also increased; a total of 261 million enrolment in Grades I to XII has been reported in 2015-16. U-DISE also maintains comprehensive profile of more than 8.7 million teachers. It may also be observed that the smallest UT Lakshadweep has only 45 schools and the largest state, Uttar Pradesh has more than 255 thousand schools but as it seems, EMIS problems across the country are the same.

Table 1
School Education in India: Quantitative Dimension, 2015-16

Variable	Educational Level					Total
	Primary	Upper Primary	Elementary	Secondary	Higher Secondary	
Total Schools/Sections	1213199	608532	1449078	239148	112637	1522346
Enrolment (In Million)	129.12	67.59	196.72	39.15	24.74	260.60
Teachers (In Million)	6.19	5.47	8.08	1.45	0.66	8.69

Note: Primary level in India consists of Grades I to V, Upper Primary Grades VI to VIII, Secondary Grades IX & X and Higher Secondary Grades XI & XII. Total may not match because of overlapping of schools/sections.

Source: *School Education in India: 2015-16, U-DISE, NUEPA, New Delhi (www.dise.in)*.

Limitations of U-DISE Data

U-DISE achievements are significant and have helped immensely in strengthening EMIS in India. However, there are still a few areas of concerns despite impressive improvement in coverage, quality, consistency, sharing, dissemination and utilisation of data. Efforts are being made in further improving the quality of data but the same is slow and continuing process. Even though U-DISE has covered more than 1.5 million institutions imparting school education still it is not clear how many schools are yet to be covered which is because of the fact that states generally do not maintain *School Directory*. However, it can be said that majority of the government-run schools have been covered under U-DISE but the same is not true for private-managed schools even though more than 350 thousand such schools have already been covered under U-DISE. The number of schools covered under U-DISE is on rise; states initiate special drives every year to reach all uncovered schools, states made U-DISE code mandatory, media campaigns launched all which ensure that U-DISE will reach all uncovered schools soon. The mandatory use of U-DISE code in government schemes, such as *National Scholarship Portal* has immensely helped in creating awareness about U-DISE.

Another major area of concern is quality of data, in general, and enrolment data in particular. Despite improvement, in a few states, drop-out rate is still reported in negative, transition and retention rate above hundred, all which suggests that enrolment statistics is not free from the inconsistencies, and need improvement. Sharing, utilisation and dissemination of data though improved significantly but there is scope for further improvement.

A few states had initiated the use of ICT in further improving the quality of data among which collection of student data is the most important one. However, such initiative must have scaled up only after successful pilots. None of the states, till recently, was reporting U-DISE enrolment tables based on the student data so collected. States have initiated special drives to ensure that Aadhaar Id (12-digit unique number) is provided to all students. States are at different stage with regard to Aadhaar Id but as it seems that in another year, all the states would be able to provide Aadhaar Id to all of its students. Recently, the Government of India has made Aadhaar mandatory for residents of India.

With information on each student together with Aadhaar Id, the system will move towards developing a child-tracking system. Such a system will be of limited use if it confines to within the state only. Therefore, it is pertinent to initiate on-line student data collection in all the states and that such initiative must be taken at the national level. This will require single web application and single server where web application and database may be hosted.

States those who initiated collection of student-wise information have shown a decline in enrolment. In some states, decline is huge and significant. More than 26 states reported decline in primary enrolment and 20 states, in upper primary enrolment. One of the common reasons specified for decline in enrolment is the demographic transition. Others specified that enrolment in their state is now more realistic. In addition, states have also reported that enrolment in government schools is migrating to private schools. A few others suggest that decline is due to fake, duplicate and over reporting of enrolment. In aggregate enrolment, it is not possible to identify reasons of decline for which student data collection may be the only solution.

Is the System Ready for Student Data Collection?

Needless to say that an on-line system would be on-line in the real sense if the data entry takes place from the schools. Even in Andhra Pradesh which has recently adopted on-line U-DISE, only 3,800 of 62,000 schools entered data from schools, rest of the schools went to Mandals for data entry. SEMIS launched by NUEPA in 2007-08 couldn't see any state to have data entered from the schools. U-DISE, at present, is totally an off-line application. Before we envisage on-line data entry from the school; it is useful to have a look at availability of computers and electricity in schools (Table 2) which suggests that the majority of schools in India do not have computers in school.

Table 2
Percentage of Schools with Computers: All India

Indicator	Primary	Upper Primary	Elementary	Secondary	Higher Secondary	All Schools
%age of Schools with Computers	22.34	46.33	25.23	66.82	71.39	26.42
%age of Schools with Computers & Electricity	20.90	43.89	23.54	64.23	69.18	24.65

Source: U-DISE, 2014-15

Is Block the Most Viable Level for Data Entry?

One immediate possibility where data entry can take place is the block level. As has already been pointed out, more than 5,000 blocks of the country have some short of MIS units

equipped with the Data Entry Operator/Computer Programmer and necessary HW & SW. Currently, U-DISE data entry is taking place at the block level in most of the states. Except in a few blocks, nowhere data-entry is taking place at the cluster level, which is otherwise a potential level at which data entry can be envisaged. On an average, a cluster has 15 to 25 schools under its jurisdiction. In view of only a few clusters fully equipped with computer, data-entry at the cluster level at this stage cannot be a viable option. Therefore, the best option initially left for an on-line U-DISE and student-wise data entry is the block level which would be required to further strengthen both in terms of manpower and HW and SW. Those schools who can manage data-entry from school may be encouraged to do the same.

By ensuring data entry at the block level would not only help in developing a real-time system but also the same can easily be updated at least twice a year. The suggested model may continue until all the schools are provided computers with internet facility and may be treated purely as a temporary arrangement. Once all the schools are provided computers with working internet connection, electricity, UPS, etc. and trained teachers to use the same, a variety of school-specific initiatives can be undertaken. This could happen in the near future because of the Digital India initiative of the Government of India.

STUDENT DATA COLLECTION IN-SYNC WITH U-DISE

Need for Student Data

In the light of the above, Government of India has decided to collect detailed student data on 35 parameters in-sync with U-DISE from the year 2016-17. Student name, mother's & father's names, social category, class in which studies, incentives received, repetition, Aadhaar number, date of birth, gender, etc. are some of the variables on which information about each student is envisaged to collect. Initially, existing off-line U-DISE and student data collection will go parallel. Ultimately, all U-DISE enrolment tables will be generated based on student data so collected, which includes: enrolment by Castes, Age, Medium of Instruction, Religion, Streams, Trade and Sector (vocational education), CWSN enrolment, Repeaters, Incentives, etc. For this purpose, one rupee per student has been sanctioned to states. In addition, 100 thousand rupees per district have also been provided to augment internet and up to Rs. 1 million for server at the state level. NUEPA would continue to provide technical support to all districts and states. It has prepared a detailed roadmap for successful implementation of student data collection. Keeping in view the availability of manpower and computer & internet, NUEPA has provided a variety of options to users for data-entry which include:

- i. Complete on-line application which is hosted in-house at NUEPA on its blade server;
- ii. Bulk uploading through specially designed EXCEL Template which has provision for off-line validation;
- iii. An independent application, namely SDMIS through which data can be entered in off-line mode from schools which doesn't require back and front-end software; and
- iv. A component on student data has been added to the existing U-DISE software which has already been installed in all the districts of the country to which users are very much familiar.

In addition, NUEPA would facilitate, uploading of previously available student data on its portal. To acquaint district and state MIS officers, six technical workshops were conducted in 2016 with participation of about 750 district and state level MIS officers engaged in U-DISE activities. Some of the salient features of *Roadmap* are as follows:

- Initially, U-DISE in its existing form would continue until successful implementation of student-wise information collection;

- Data shall be collected from all schools irrespective of the School Category, School Management, School Type and School Location. *Madarsas* are also supposed to be covered;
- When data-entry of student data is over, a consolidated statement consisting of class-wise details of each child, as per Student-DCF will be generated and sent to schools through CRC Coordinator;
- Next year, new entrants in Grade I only would be required to be collected, etc.

Status of Student Data Collection

The date of reference of U-DISE 2016-17 is 30th September 2016. It is heartening to note that the National Student Portal already has 57 million student records as on *27th December 2016* which is very encouraging. Students' records of 20 States & UTs is available on the National Portal; Remaining states will soon upload student records on the National Portal. The states have adopted different modes of data-entry many of which have almost completed the process and validation of student records is going on.

THE ROAD AHEAD

Systematic Changes

To further improve the coverage, quality and consistency of data, the following systematic reforms are suggested.

School Records & PES

In the line of the recommendation of the Unified Committee (2008), schools are required to maintain a set of core school records.

Accountability & Responsibility

Responsibility and accountability is required to be fixed in case of those officers who are involved in MIS at all levels. Existing laws (RTE Act) may be fully used. Submitting data is required to be made mandatory and a law. There is no provision to reward those who supply in time, correct and complete information, and also there is no penalty clause for those who do not supply data, submit wrong and incomplete information. Therefore, at each level, such as, school, cluster, block, district, state and national levels, accountability is required to be fixed in clear terms to ensure that those who are responsible submit correct and complete data in time. Ad-hoc arrangement shall not work in long term.

Creating Permanent Structure for MIS

DISE took two decades to reach at this stage. It can be termed as one of the most successful initiatives towards strengthening EMIS in India. It is one of the most visible initiatives of SSA as also one of the important activities of NUEPA. It is successful because of the creation of cluster and block resource centres and establishment of MIS units at block, district and state levels all of which are ad-hoc, inadequate, understaffed and temporary in nature. Computer Programmers with adequate number of Data Entry Operators may be provided to state and district MIS units. States also have a provision of State MIS Coordinator for RMSA but no separate staff is provided exclusively for MIS in most of the states at the district level. At all levels, manpower, internet and software & hardware needs significant strengthening. Rather, there may be only one unit which may look after all MIS related work at all levels.

Ad-hoc Arrangements May Not Last Long

It is interesting to know that U-DISE is being managed by a low-salaried contractual staff across the country which may be dangerous in view of U-DISE now being acquired the status of Official Statistics. Salary of contractual MIS staff at block, district and state levels vary from state to state. Many MIS Programmers and Data Entry Operators have been working for DISE since its inception. As per the recommendations of the *Review Committee on Education Statistics*, permanent, independent and autonomous body exclusively for Educational MIS needs to be created.

As has been specified, both at the state and district levels, U-DISE is being managed by the contractual staff even though there are adequate regular staff available in the mainstream departments. Officers working with the *State Directorate of Education* are generally not involved in strengthening of EMIS/U-DISE. In addition, Directorate of Economic and Statistics also have statistical staff both at the state and district levels but, in none of the states, they are made involved in U-DISE. Similarly, at the national level, there are about 20 officers exclusively working for MIS and are located in the Statistics Cell of the Department of Higher Education of the MHRD which is headed by the Deputy Director General (Statistics). Since DISE is now the *Official Statistics*, data collection with regard to school education as a part of annual activity in the Ministry has been discontinued. At the national level, separate Technical Support Groups for MIS have been created one each for SSA and RMSA. NUEPA has been given the responsibility of U-DISE since inception and it is located in the Department of EMIS with only two faculty members involved in U-DISE, it is not able to meet the challenges. In light of the above, all may now be made to work under one umbrella body which may be exclusively created for EMIS at the national level on permanent basis. Similar structures are also required to be created at the state and district levels.

CONCLUDING OBERVATIONS

Efforts made through the U-DISE has definitely helped in improving the quality of educational data to a great extant but the same still has a few areas of concern and scope for further improvement. Student data collection launched recently may eventually help India in improving quality of enrolment data. Drastic reduction in time-lag in educational statistics is one of the significant achievements. Disaggregated information is now easily available at all desired levels. However, utilisation of U-DISE data though improved but the same is still not optimal. Demand for data, if created, may help in further improving the quality of data. To sustain the efforts, it is important that systematic changes are initiated without loss of time. Technology would eventually play an important role in achieving all unfinished goals.

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