

EVOLVING DISTRICT INFORMATION SYSTEM FOR EDUCATION*

For successful implementation of any educational programme, effective monitoring and an efficient information system are essential. While monitoring framework under *Sarva Shiksha Abhiyan* (SSA) is developed separately, concerted efforts have been made towards strengthening of Educational Management Information System (EMIS) in India in general and elementary level of education in particular.

A number of government and semi-government agencies are involved in the collection of information on educational variables. Among them the Department of Higher Education of the Ministry of Human Resource Development (MHRD), Government of India, is the main agency responsible for the collection of numeric information on regular basis. The MHRD collects information from all the recognized institutions of the country annually with 30th September as the reference date and school being the unit of collection. MHRD publishes the information thus collected in its publication *Education in India*. The latest available volumes of this publication covering various aspects are: 1998-99, Volume I: Numeric Information; 1996-97, Volume II: Financial Data; and 1999-2000, Volume III: Examination Results. However, a provisional publication *Selected Educational Statistics*, is the latest available for the year 2004-05.

*Prepared by Dr. Arun C. Mehta, Professor, NUEPA, New Delhi. District Information System for Education (DISE) is a joint initiative of the Government of India, UNICEF and National University of Educational Planning and Administration (NUEPA) towards strengthening EMIS in the country.

The National Council of Educational Research and Training (NCERT) also collects information on special variables through its All India Educational Survey, once in every five to eight years with habitation as its unit of data collection. Full results of the Seventh Survey, with September 30, 2002 as its date of reference, are still awaited. The basic purpose of collecting information on special variables through these surveys is to provide inputs for formulating five-year plans. The 10th Plan was developed much before the survey data could be disseminated. As of now, only *Flash Statistics* covering a few selected variables is disseminated, through the process of developing 11th Plan (2007 to 2012) has already been initiated. The limited latest survey data that is available is for the year 2002-03. NCERT has also disseminated limited statistics through its website. However, neither the MHRD nor NCERT disseminates full set of district-specific data.

On the other hand, a number of semi-government agencies, like the National Sample Survey Organization (NSSO), Census of India, and the International Institute for Population Studies (National Family Health Survey) also from time to time collect information on a few educational variables as part of their normal household sample surveys. In addition, recently the Government of India through the Educational Consultants India Limited and Indian Market Research Bureau (IMRB) had commissioned a nation-wide survey for estimating the out-of-school children of age group 6-14 years. Similarly, a non-government organization, *Pratham*, has also conducted a household survey to estimate out-of-school children (6-13 years), facilities in schools and learning ability of children in the rural India. It has decided to conduct similar surveys till 2010.

Indian education system is one of the largest education systems in the World as it caters to the needs of more than 1,028 million people (as per 2001 Census). In view of its size, the information system has certain limitations, both administrative and non-administrative. Some of these limitations are: (i) multiple data collection agencies and directorates involved in data collection and lack of coordination among them; (ii) lack of understanding of the concept and definitions of educational statistics; (iii) lack of adequate, qualified and trained staff at different levels; (iv) problems in distribution and collection of data-capture formats; (v) lack of district-specific time-series data; (vi) time-lag in data; (vii) reliability of education data; (viii) data gaps; (ix) lack of computers at lower levels; (x) creation of new districts and redemarcation of boundaries of the existing districts; (xi) poor dissemination and utilization of data; and (xii) lack of accountability at all levels. Notwithstanding these limitations, the school statistics form the basis of planning, monitoring and evaluation of various aspects of education, in general, and primary and elementary education, in particular. The manual collection of information system under the MHRD even does not have school specific format. Rather it has got consolidated sheets at different levels. In view of this, it is not possible to undertake validation of data at any level. The first consolidation of data takes place at the block level and in large blocks in view of a large number of schools; it is not an easy task to

consolidate the data manually, especially when officers at this level are generally not properly trained to deal with huge amount of data.

Sporadic attempts have been made in the past to develop a computerized educational management information system in India. Of these, efforts made under the District Primary Education Programme (DPEP) and *Sarva Shiksha Abhiyan* (SSA) are apparently among the sincerest ones. Most of the earlier attempts at the Central and State Governments levels failed to sustain and as such the overall situation remained a matter of concern. At the time of initiating District Primary Education Programme (DPEP) in 1994-95, it was felt that a sound information system was essential for successful monitoring and implementation of the programme. It was also realized that to strengthen the educational statistical database for planning and management in a decentralized framework, an innovative model was needed. It was expressed that DPEP, with a focus on decentralized planning, required up-to-date and reliable school level information as soon as it was collected. It further reiterated, in the context of decentralization of primary education, the imperativeness of more efficient and effective school and community databases so that the signals relating to the trends in critical indicators could be tracked at various levels of decision-making. The MHRD in 1994-95, as a part of the DPEP national endeavour, decided to design and develop a school-based computerized information system, the main responsibility for which was entrusted to the National Institute of Educational Planning and Administration (NIEPA), New Delhi (now National University of Educational Planning and Administration [NUEPA]).

In this background, a pilot project for revitalization of educational statistics in India was initiated at NUEPA during 1995 with financial assistance from UNICEF. 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 computerization, 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 in time and that it was highly limited in scope and coverage. Similarly, the use of educational statistics for planning and monitoring in the decentralized framework was also minimal. 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, district was selected as a nodal point for collection, computerization, analysis and use of school level data. NUEPA professionals, with the involvement of other experts, designed and developed the core Data-Capture Formats. Accordingly, NUEPA designed the software for implementation at the district level and provided the necessary technical and professional support to DPEP districts.

The first version (dbase) of the software, named as 'District Information System for Education' (DISE) was released during the middle of 1995. The district level professionals were assisted and trained in the establishment of EMIS units. The first major review of the DISE software was undertaken during 1997-98 (PowerBuilder/SQL Anywhere). The software was later re-designed in 2001 in the light of requirements of the SSA (PowerBuilder/Oracle). Not only the coverage of DISE was extended to non-DPEP states but it was also extended from primary to the entire elementary level of education.

DISE 2001: MAIN FEATURES

The main features of DISE 2001 are briefly presented below:

The system covers eight years of schooling in all primary, upper primary and primary/upper primary sections of the secondary and higher secondary schools.

The concept and definitions of educational variables involved therein have been standardized at the national level and are uniformly followed by all districts and states.

Manual aggregation of data at different levels is completely replaced by computerized data entry and report generation system.

It provides time-series data at school, village, cluster, block and district levels.

The system defines core data on school location, management, rural-urban, enrolment, buildings, equipment, teachers, incentives, medium of instruction, children with disabilities, examination results and student flows.

Detailed data on individual teachers, *para*-teachers and community teachers and their profile, including data on in-service training received, is collected and made available.

It eliminates the chances of data manipulation at various levels. The school remains responsible for correctness of the data supplied. States need to ensure correctness of the data supplied on five percent sample basis.

The states/districts have flexibility of adding supplementary variables depending upon their specific requirements on year-to-year basis. No additional software for computerization and analysis of state/district specific data is required.

The states/districts can develop their own large database using 'designer' module and integrate a variety of school/cluster/block level data with it. The software handles multiple databases at various levels and provides tools of data analysis and presentation.

A large number of standardized reports on school-related variables and performance indicators aggregated at the cluster, block and district levels, are generated by the software.

DISE ensures two-way flow of information. School summary report for each school is generated for sharing with the school and members of Village Education Committee.

It provides an easy-to-use dynamic graphics facility to enhance the presentation of various types of graphs and data.

DISE presents multi-user and modular system of software design for better management and security of databases.

It responds to pre-defined queries on standard aspects, like school list, list of villages without primary and upper primary schools, single-teacher schools, schools without buildings, schools with high PTR, etc.

It helps user defined dynamic query on hundreds of variables.

It provides facilities for basic statistical analysis, including generation of new variables and their analysis.

The reports can be shared across a large number of users without full software installation.

Data can be exported to many other formats for statistical and other analyses by users etc.

MAJOR OUTCOMES OF DISE EFFORTS

Through the concerted efforts, MIS Unit is now operational both at the district and state levels and is equipped with necessary hardware and software.

The DISE software is now operational in all the districts of the country (35 States & UTs) and is providing vital information for policy formulation and preparation of district elementary education plans.

What is more remarkable about 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 less than a year at the national level and only a few months at the district and state levels. Gap between collection and dissemination of data stands reduced dramatically. Time-lag within the state is reduced to a few months. Data (as on September 30, 2006) for 2006-07 is available in many states in ready-to-use form.

DISE has also eliminated data gaps as comprehensive information is now available on all aspects of universal elementary education across the country.

It is for the first time that a time-series data is made available at the school level. The trend analysis of DISE data helps in identifying major block and district-specific issues for being used in developing perspective and annual plans.

For the first time, a District Report Card on elementary education is being released annually as part of DISE dissemination activities, which contains time-series and cross-sectional data on a number of variables at the district level. State Report Cards have also been developed and are being disseminated for the last four years. The Analytical Report containing detailed analysis of DISE data is also being published annually.

A number of states have come out with their own publications and disseminate district and block-specific data on different aspects of UEE. In addition, a few states have extended the coverage of DISE to the unrecognized schools. A study based on the unrecognized schools of Punjab was recently brought out by NUEPA which was well received by the education planners and policy makers. Similarly, NUEPA also brought out a study on *Student Flow at Primary Level* which is based on DISE 2004-05 and 2005-06 data.

DISE helps develop a national level system, which integrates district and state systems into a hierarchical database. Every effort is made to promote the use of DISE data for planning, management and monitoring of SSA through case studies, orientation and training workshops of educational planners and administrators. It has now become a regular feature to share the DISE data at different levels every year. A number of states have recently conducted data sharing workshops. At the national level, major findings of DISE data are being shared every year with planners, administrators, policy makers, educationists and other data users.

Official website of DISE (<http://dpepmis.org>) has been developed and is being updated frequently. District Report Cards and raw data in case of each of the district covered under DISE are uploaded. Data-Capture Formats, software patches etc. are also made available to users. Analytical Reports are also made available on the Internet.

District Report Cards and Analytical Reports have also been made available to users in a Compact Disk. As an online help to users, DISE group of users is formed on the Internet, which is very active. Users post problems of common interest to group for their solutions.

The Government of India has recently constituted a committee to review educational statistics, report of which is awaited. Most likely the committee may recommend expansion of DISE from elementary to secondary and higher secondary levels of education. In fact, a few states at their own have already extended the cover of DISE in their states. A few states have also decided to have DISE as the only source of information so far as elementary level of education is concerned.

DISE Annual Publications

Elementary Education in India: Progress towards UEE: DISE Flash Statistics

Elementary Education in India: Where do we stand?, District Report Cards, Volume I

Elementary Education in India: Where do we stand?, District Report Cards, Volume II

Elementary Education in Rural India: Analytical Tables

Elementary Education in Urban India: Analytical Tables

Elementary Education in India: Where do we stand?, State Report Cards

Elementary Education in India: Progress towards UEE, Analytical Report

In addition to the annual publications mentioned above, the Union Human Resource Minister recently released School Report Cards of more than 1 million primary and upper primary schools/sections. In addition to quantitative information, the Report Cards also provide qualitative information and a descriptive report about individual schools. And, all that can now be accessed with the click of a mouse (www.schoolreportcards.in). The Report Cards are produced to provide users comprehensive information on all the vital parameters, be it student, teacher or school related variables, yet concise, accurate information about each school in a standard format which is easy to understand and allows meaningful comparisons to be made among schools.

Through DISE Flash Statistics: 2005-06, an effort has also been made, perhaps for the first time, to compute an Educational Development Index based on DISE data and states were ranked accordingly. To facilitate computation of district-specific EDIs, NUEPA recently conducted workshops to orient state level officers towards computation of an EDI. In addition, based on EDI, an attempt has also been made to rank all the districts of the country. It is hoped that EDI will help in deciding the future course of investment on elementary education.

Despite all these significant achievements, inadequate utilization of DISE data still remains a major area of concern. Though over time, data utilization has improved, which is reflected in the District Elementary Education Plans developed under the aegis of *Sarva Shiksha Abhiyan*, yet there is still scope for further improvement. States have been encouraged to organize sharing workshops at block, district and state levels. During the previous years, efforts have been made to create demand for the DISE data. District Report Cards, State Report Cards, DISE Flash Statistics, Elementary Education in Rural and Urban India and Analytical Reports have been made available to a large number of university libraries, research and resource institutions,

educationists, planners, administrators, policy makers and other data users across the country. This will be further intensified during the current year. In addition, UNICEF has also decided to support studies based on the DISE data. At the international level, to create awareness about DISE and type of data it generates, presentations were made at the Oxford and Cambridge Universities (UK). Through concerted efforts, it is hoped that demand for DISE data will be generated in years that follow.

DISE: COVERAGE

Initially, 42 districts across seven DPEP phase-one states, namely Assam, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra and Tamil Nadu, were covered under DISE. The number of districts covered has gradually increased with the expansion of the DPEP as the districts included under phase-two and three have also been covered. At the end of 2001, more than 270 districts spread over 18 states of the country had adopted DISE. With the launching of the *Sarva Shiksha Abhiyan* in 2001, the scope of DISE was extended to the entire elementary level of education, embracing all the districts of the country. It is worth mentioning here that one of the important pre-project activities under the *Sarva Shiksha Abhiyan Programme* was to strengthen the management information system, for which funds were provided to districts covered under SSA. Even prior to SSA, a number of DPEP states expanded the coverage of DISE to their non-DPEP districts. In 2002-03, the coverage was further expanded to 461 districts across 18 states. However, the coverage was confined only to DPEP states. During 2003-04, the coverage was further widened to cover as many as 539 districts (including bifurcated districts) across 25

states & UTs of the country. Except Haryana, the coverage in all other states in terms of districts in 2003-04 was complete. Haryana could supply data of only 17 out of its 19 districts. On the other hand, Punjab submitted data only in case of government schools. It was for the first time that seven non-DPEP states

i.e. Chandigarh, Manipur, Meghalaya, Mizoram, Nagaland, Punjab and Tripura adopted DISE during 2003-04. During 2004-05, four more states and UTs, i.e. Arunachal Pradesh, Delhi, Jammu & Kashmir, and Puducherry were covered under DISE. However, Jammu & Kashmir could cover only 12 out of its 14 districts. By the year 2005-06 (*30 September 2005*), all the districts of the country spread over all the 35 states and UTs had been covered under DISE.

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