STRENGTHENING INFORMATION SYSTEMS TO IMPROVE MONITORING OF OVER 40,000 SINDH GOVT. SCHOOLS

BACKGROUND

Monitoring and evaluation aims at improving the efficiency and effectiveness of school management. It is an integral component of the work of the Sindh Education and Literacy Department (SELD). The centralized Sindh Education Management Information System (SEMIS) was developed to provide concerned authorities with reliable information about the situation in schools so they can take appropriate measures.

In 2018, SELD developed a mobile application to track the attendance of teachers in schools. However, key indicators on the software were unable to reflect real-time monitoring, thus making the data unreliable. There was also evidence that data were tampered with. For example, the attendance of schoolteachers was misrepresented and it was hard to identify them. This resulted in low efficiency, weak management and poor assessment of what was happening in the field. Consequently, the authorities resorted to making decisions about education which were not data-driven and based on reliable evidence.

UNICEF AND EU'S ROLE IN DIGITISING DATA COLLECTION

To provide technical assistance to SELD, an initiative was taken by the United Nations International Children's Emergency Fund (UNICEF) and the European Union (EU) under the Sindh Technical Assistance for Development through Enhanced Education Programme (STA-DEEP). One of its key components is to strengthen the monitoring of SELD to help it operate more efficiently. UNICEF engaged the relevant institutions and stakeholders of the Sindh government's education department to effectively address major issues with a result-driven strategy. For data collection and analysis, researchers were taken on board and a scoping study was designed and conducted to identify the problems and associated solutions. The UNICEF initiative was supported by the Reform Support Unit (RSU) and the Directorate General, Monitoring and Evaluation, SELD.

A range of innovative methods were applied by initiating two types of information management systems: the Sindh Education Management Information System (SEMIS) and Sindh School Monitoring System (SSMS). The functioning of this supports all areas within the realm of Sindh's education which makes it a key investment area for UNICEF, the EU and SELD.

Some of the key elements of this strategy to strengthen the management and use of data include:

(i) The School Education Management Information System (SEMIS) was launched by Sindh Education Minister Syed Sardar Ali Shah on 18 August 2022. It is an integrated computer-based system that provides annual data of 48,000 government schools across Sindh.

- The Annual School Census (ASC): This is one of the main functions of the SEMIS. Previously, it was comprehensive activity undertaken annually by the RSU and over the year. STA-DEEP contributed to digitising the data of ASC from 2015 to 2022. The records of the past seven years are available so monitoring managers can review the ratio of teachers and students at any registered school in the system. Every school has been assigned a SEMIS code against which all the data are collected, updated, and maintained. The

ASC will now be collected digitally rather than through manual completion of forms. A Learning Support Unit (LSU) Coordinator stationed in every district is responsible to collect data from all the schools operating in the district. The data collection includes the ratio of students and teachers and the overall school infrastructure - from classroom furniture to the state of boundary walls. Pictures are uploaded on the application to support accumulated numbers with evidence. The concerned authorities are then able to evaluate school budget expenditure and assess what resources need to be repaired or replaced.

- The Girls Stipend Programme (GSP): It was initiated by SELD to motivate and retain girls in schools from grade 6 to 10 in government schools, especially in low-performing districts. A monthly stipend was a big incentive for girls to continue their education. STA-DEEP helped in digitising paper-based stipend collection forms in SEMIS. The purpose was to easily access and review the past and recent girls' stipend datasets. It enabled the monitoring team to track the stipend and the retention rate of the girls receiving it
- The School Management Committee (SMC): It is governing body of school systems; the SMC does not operate in isolation as it involves parents and communities in school management. Funds are disbursed to schools against a set criterion such as the number of classrooms and enrollment of students. The SEMIS system is then able to monitor the utilization of the grants received from the government. The funds can now be tracked, managed and monitored on the SEMIS. The SMC funds are allocated to functioning primary schools which have been given a designated SEMIS code against which all school information can be stored and checked. It comprises a total of 5 members, including a chairperson, general secretary, head teacher and elected parents.

The Sindh School Monitoring System (SSMS) is an application used with a portable biometric system. It consists of profiling of all the schools in 29 districts carried out monthly by Monitoring Assistants and Chief Monitoring Officers in every district. School teachers press their thumbs against the biometric device to mark their attendance and this information is fed to a mobile application which documents teachers' attendance. It is able to track the attendance of nearly 120,000 teachers in more than 40,000 schools across the province. It has improved the accountability of teachers as authorities can now verify teacher absenteeism and immediately take appropriate measures. The mobile application was initially developed in 2018 by the Sindh Education and Literacy Department. It has now been upgraded with UNICEF and EU's support.

PROMOTING DATA CULTURE

While introducing innovative tools to strengthen the monitoring of data processing, it is essential that the monitoring department can understand and interpret the data. Training courses were designed and effectively executed by UNICEF to upgrade the technical skills of Chief Monitoring Officers and Monitoring Assistants in the province. Managers, officers and assistants can now understand and analyse the information in the database and act accordingly to get better results. This means they are able to manage the system better.

Apart from transforming the physical information system, STA-DEEP made pivotal behavioural and attitudinal changes among the education authorities, and monitoring staff. The use of data to strengthen decision-making has proved its importance. SELD is using data to address challenges in education affecting children and their learning outcomes. For instance, absent teachers without justifiable reasons were terminated which has led to a reduction in overall teacher absenteeism. Similarly, the lack of resources in schools is more easily identified and effectively addressed as a result of the evidence that the data system provides.

These developments have led to improved accountability and findings that are publicly accessible online. Functional and updated information systems support the overarching cause of children's welfare by enabling the effective utilization of resources to facilitate students' learning and school management. Both aspects promote accountability and support better delivery of education services through publicly accessible software coupled with the use of mobile technology. It allows government institutions and their partners to use real-time monitoring effectively, with valuable feedback from schools.

Sindh Education Minister Syed Sardar Ali Shah was present at the launch of both information management systems. Speaking on the SEMIS launch, he said that it was one of his dreams which had finally turned into a reality. The state of each government school building and other relevant information about it can be accessed at the touch of a button.

IMPACT

Flood emergency in Sindh

One of the major innovations is that the data of SEMIS and M&E Department are integrated and can be accessed online through a smartphone. During the devastating flood disaster in Sindh, the SEMIS dashboard was most useful in identifying schools that were partially or fully damaged. Satellite imagery was taken from the United Nations Satellite Centre (UNOSAT). This imagery was used in SEMIS to locate flood affected schools in Sindh. RSU-SELD then designated the task of reporting the conditions of schools to schoolteachers using the new technology. Appropriate training enabled teachers to use the app to report accurate information in real time. It helped Sindh government in assisting government schools during the flood emergency across the province. According to RSU, approximately 30,000 schools claimed to be damaged. The figure was reduced to 20,000 after a thorough investigation and evidence that was verified through the data system, which, as a result, made a real difference in portraying the ground realities through evidence-based conclusions. This way they were able to verify whether the teachers' claims over property damage were valid or not.

Recruitment of 55,000 teachers in Sindh

Updated data on schools and teachers is now available as a result of these enhanced data management tools. This has long-term benefits as it helps institutions such as RSU in making informed decisions and assessing the shortage of teachers in the province. As things currently stand, as revealed by available data, approximately 8,000 government schools are closed in Sindh. Out of which more than 7,000 schools do not have any teachers and thus are not functioning. The remaining 12,00 schools remain closed due to litigation matters. Aftab Alam, Senior Program Manager, RSU, said, “This year, 55000 teachers have been appointed and are in the process of being posted so closed schools can reopen. In addition to this, efforts were made to reduce the student-teacher ratio. Teachers prefer to live in urban areas rather than isolated rural areas, so these schools were neglected. Therefore, teachers have now been selected and posted in schools from the area they belong. This aims to build longer-term stability and sustainability.”

Procurement of School Facilities and Infrastructure

With data on enrolled students and furniture available in schools, RSU has been able to identify the shortage of furniture in each school. New school furniture has been procured and is being allocated to schools in different districts of the province. Similarly, flood-affected schools were identified for reconstruction or repair work. School infrastructure has a positive impact on student attendance. With better facilities, parents will be more inclined to send their children to school. Good quality facilities in schools also help to reduce the drop-out rate and contribute to better retention of students in the school system.

CONCLUSION

UNICEF is committed to develop and integrate three management information systems with SELD (i) the School Education Management System (SEMIS), (ii) Directorate General, Monitoring and Evaluation (DG M&E) and (iii) Human Resource Management System (HRMS). Two out of three systems have been successfully launched and integrated. The third system (HRMS) will be developed and launched in 2023.

After assessing the positive outcomes of reliable information management systems, UNICEF has recommended to integrate data of all allied agencies operating under SELD. These agencies include Planning Development and Research (PDR), Directorate of Curriculum, Assessment & Research Sindh (DCAR), Provincial Institute of Teacher Education (PITE), Sindh Teachers Education Development Authority (STEDA), Teacher Training Institution (TTIs), Directorate Non-Formal Education (NFE) and Directorate Human Resource Management Information System (HRMIS).

Real-time data are vital for the achievement of better education outcomes, considering the results mentioned above. The Education Department has been able to make important decisions over the year pertaining to education due to the reliability of its accurate and improved information system. Data integration of all the other concerned authorities (e.g., PITE, STEDA, TTIs etc.) will help authorities access and track all records systematically.

SELD still lacks data storage facilities on cloud. A data warehouse system needs to be created for better reporting and analysis to make more informed decisions, which can be done by integrating data from various sources into a standard structure.

Furthermore, there is further work required in the Girls' Stipend Programme. Schools need to register girls eligible for GSP with a unique Quick Response (QR) code. This code contains the student's personal details and family information. Scanning the code would help the monitoring team identify the record of who has received the stipend. The stipend collection forms of GSP have been digitised. However, there are still some challenges in tracking the progress of the girls' retention ratio.