December 2023

Bridging the Gap: Enhancing Coordination and Communication in Punjab's Educational Landscape

Diagnostic Report

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LIST OF ABBREVIATIONS

A&E	Assessment and Evaluation		**KP**	Khyber Pakhtunkhwa
ASDEO	Assistant Sub-Divisional Education Officer		**KPI**	Key Performance Indicator
BISE	Board of Intermediate and Secondary Education		**LMS**	Learning Management System
B-TAG	Bridging Technical Assistance for Government		**NFE**	Non-Formal Education
CPD	Continuous Professional Development		**NMD**	Newly Merged Districts
DCTE	Directorate of Curriculum and Teacher Education		**NOC**	No Objection Certificate
DPD	Directorate of Professional Development		**OOSC**	Out-of-School Children
ECE	Early Childhood Education		**R&I**	Reforms and Implementation
EMA	Education Monitoring Authority		**RPDC**	Regional Professional Development Centre
ESEF	Elementary and Secondary Education Foundation		**SDEO**	Sub-Divisional Education Officer
ESP	Education Sector Plan		**SL**	School Leader
ESRU	Education Sector Reform Unit		**TBB**	Textbook Board
FCDO	Foreign, Commonwealth & Development Office		**TCK**	Teacher Content Knowledge
IMU	Independent Monitoring Unit		**TCS**	Teacher Competency Survey
KESP	Khyber Pakhtunkhwa Education Sector Programme		**TLM**	Teaching Learning Material

01
Introduction

Background and Problem Statement

In Punjab, school education services are managed by various departments operating under the School Education Department (SED). Each department has its roles and responsibilities.

The Quaid-e-Azam Academy for Educational Development (QAED) focuses on training teachers, both before they start teaching and while they are already in service. The Academy also develops teaching materials and conducts research to improve teaching methods.

The Punjab Examination Commission (PEC) is in charge of assessing students from grades 1 to 8. The Commission creates assessment reports, develops materials for exams, and conducts research to enhance the assessment process.

The Project Monitoring and Implementation Unit (PMIU) collects data on various aspects of education, including teacher performance, school facilities, student enrollment, and more.

Other departments within the SED handle different aspects such as curriculum development, textbook distribution, and public-private partnerships.

Additionally, there are departments outside the SED, directly under the Government of Punjab, that support literacy programmes, non-formal education, special education, and services for those with disabilities. These departments collect information throughout the year to guide their planning and actions. However, there is limited sharing of data and information among these departments. This hampers effective planning and decision-making processes.

This report highlights the lack of coordination and communication among different departments under the SED, resulting in challenges and hindering collaborative planning and decision-making. It offers recommendations and guidelines to address these issues.

The main audience of this report is the SED and its associated departments. It is hoped that the SED will implement the recommendations given in this report to improve internal coordination and communication. An initial action to implement these recommendations involves establishing multi-tiered committees within the SED to facilitate coordination, communication, and data-sharing for collaborative planning purposes.

Policy Landscape

Various policy documents and reports in Punjab highlight the importance of data utilisation for better planning and implementation of school education initiatives while also acknowledging the challenges faced in data collection, sharing and use in decision-making.

The Punjab Education Sector Plan (ESP) 2019/2020 – 2023/2024 states that education data is collected regularly but there are challenges with its quality assurance, dissemination and utilisation for decision-making. Despite improvements in data collection, there are shortcomings when it comes to capturing information on school management; dissemination and effective use of the data is limited, including on learning assessments.

The EdTech Hub report on Data Access and Protection Laws in Pakistan (July 2022) mentions issues relating to coordination, communication, and data-sharing among stakeholders in education.

The New Deal (2018-2023) also mentions challenges in education governance in Punjab, citing data utilisation and sharing as one of many issues.

Key Data Types and their Utility

Student assessment data generated by PEC for grades 8 and below and by exam boards for higher grades serves as a cornerstone for gauging academic progress, identifying areas for improvement, and tailoring instructional approaches to address specific needs. When shared with relevant stakeholders, this data enables a comprehensive understanding of student performance trends, allowing for the development of targeted interventions to support struggling students and the implementation of successful pedagogical strategies. The collective utilisation of assessment data promotes a collaborative environment where educators can learn from each other's experiences, enhancing the quality of education across the entire department.

Similarly, the school facilities, enrolment, teachers, and other related data collected by PMIU play a pivotal role in optimising resource allocation and ensuring a conducive learning environment. Efficient utilisation of school-level data contributes to cost efficiency and better utilisation of resources and enhances the overall educational experience for students. The SED planning wing primarily utilises this data for carrying out its annual planning about physical school needs, recruitment, and financial outlays.

The availability of teacher training, mentoring and classroom observation data supports ongoing professional development initiatives, enabling educators to stay abreast of the latest pedagogical trends, teaching methodologies, and technological advancements. This collaborative approach ensures that educators are well-equipped to provide high-quality instruction, fostering a culture of continuous improvement within the education department. The QAED as the apex teacher development body plans and administers teacher training activities, utilising data shared by PEC.

The I-SAPS team held meetings with different departments under the SED, including QAED, PEC, PMIU and Punjab Curriculum and Textbook Board (PCTB) to gather information about data and information-sharing in Punjab. The information shared by representatives from these departments, other sources such as websites, and documents such as the school census and PEC reports has been used to prepare findings for this report.

02
Stakeholders and Data Landscape

The importance of sharing education data encompassing vital information such as student assessments, teacher training records, enrolment, retention, and school facilities data, cannot be overstated. Promoting collaboration among educational entities paves the way for an education ecosystem that thrives on informed decision-making, evidence-based policies, and targeted interventions to address the diverse needs of students, educators, and educational institutions.

Following is a brief description of the functions of attached and autonomous departments under the SED and departments outside of the SED operating under the Government of Punjab, providing services in school education and generating data that is or should be shared among all stakeholders routinely for better planning and delivery of education services:

The Quaid-e-Azam Academy for Educational Development is an attached department of the SED and is responsible for training teachers, headteachers and education managers. QAED develops necessary Teaching and

Learning Material (TLM) and is mandated to conduct research to inform practice. There are 43 district-level QAEDs in 36 districts of Punjab offering pre-service training to teachers. QAED also uses sub-district (cluster) level facilities for offering in-service training programmes.

QAED offers module-based programmes to in-service teachers in grades 6-8, focusing on Mathematics, Science, and English. Additionally, it supports primary school teachers in developing the capacity to teach English as a subject.

QAED has also developed a Classroom Observation Tool (COT) used by the Assistant Education Officers (AEO) to observe primary-level teachers against 11 practices relating to improved teaching and student learning. The AEOs observe at least two teachers per school every month.

QAED has helped set up Early Childhood Education (ECE) classrooms across primary schools in Punjab,

and has trained concerned ECE school teachers, head teachers, members of the school council and educational managers.

QAED is also working with the afternoon schools to support their teachers. There are other trainings that are also offered such as performance-linked training, single national curriculum, and training of AEOs on COT.

Given the huge mandate of QAED that translates into several activities as mentioned above, a large volume of data on training is generated and maintained by QAED except the classroom observation data, which is collected and maintained elsewhere. The training data has the potential to inform decision-makers about individual competence, further professional needs, a sequential approach to professional development modules, allocation of resources for training, and may eventually be used for promotion and rewards.

The Punjab Examination Commission has the mandate to conduct student assessments from grades 1-8, conduct research to inform assessments, and develop material to support assessment-related interventions.

Following the ratification of the Assessment Policy Framework 2019, annual exams for grades 5 and 8 were replaced with sample-based yearly (10% schools and students) Large-scale Assessments (LSAs) for the same grades. The schools represented the mainstream lot under the SED as well as schools functioning under the Punjab Education Foundation (PEF) and the Punjab Education Initiative Management Authority (PEIMA).

PEC also conducts sample assessments of schoolteachers at both grade 5 and 8 levels. In addition, it collects demographic data of parents and community members to identify correlations between student learning and other factors such as teacher knowledge, qualifications, experience, and parents' educational background.

Schools conduct their assessments thrice a year for all grades from 1 to 8 – first term, midterm, and final term. The assessment items and tools are generated directly by the schools using the item bank software at PEC that they can access. PEC does not collect the school-based assessment data; however, SED has recently indicated that this data should also be collected by PEC and utilised for planning interventions, both by PEC and QAED.

PEC is currently finalising a pilot for formative assessments at ECE and grades 1-2 which will be implemented very soon. The planning includes developing an assessment strategy and a capacity-building manual for respective teachers.

PEC utilises assessment data to prepare comprehensive annual LSA reports for grades 5 and 8 separately and disseminates them widely. Once PEC begins to collect the school-based assessment data as per SED notification, it will also form part of the regular reporting. The student assessment data generated by PEC provides valuable insights into various aspects of students' academic performance, learning progress, and areas for improvement. This data is also particularly useful for curriculum authorities to make necessary changes in the curriculum, and for the textbooks authors to make revisions accordingly. The data is equally useful for the QAED to plan teacher training content by focusing on areas where children need more support.

The Project Monitoring and Implementation Unit (PMIU) conducts the Annual School Census where the collected data is reported on a School Information System (SIS) dashboard and updated continuously. The PMIU gathers information on classroom observation of teachers conducted through AEOs. The observation data was initially deposited with the Punjab Information Technology Board (PITB) but is now being transferred to the PMIU.

The findings from classroom observation data are taken up in Teacher Group Meetings (TGMs) facilitated by AEOs for peer-to-peer learning and further used when providing mentoring support to teachers at the school level.

- The PMIU is also responsible for providing implementation and monitoring-level support to SED in many other programmes such as girls' stipends, afternoon schools, and free textbooks.

- The PMIU's data landscape covers the entire school-level data, classroom observation data, and datasets from other initiatives. This data is being (and can further be) used by different organisations to inform their planning and implementation of activities.

The data generated by the PMIU is also useful for the QAED to plan customised trainings in keeping with the realities of multigrade classrooms, dropouts, and disability needs. A key piece of data that is missing and needs immediate attention is that on equity and inclusion -- not just focusing on visible physical disabilities but also invisible impairments and cognitive issues.

The Punjab Curriculum and Textbook Board (PCTB) is responsible for the development of curriculum and production of textbooks for all school levels. The PCTB also develops TLMs and teaching aids, is mandated to conduct research related to its scope, and trains writers on textbook development. It utilises school census and monitoring data available from PMIU to distribute textbooks.

The PCTB has the mandate to revise textbooks or produce new ones based on revisions in the curriculum, feedback received from teachers and other practitioners, and learning assessments. For reviewing textbook manuscripts, PCTB coordinates with QAED and PEC, whose staff are review committee members.

The PEF is mandated to promote quality education through Public-Private Partnerships (PPPs) by encouraging and supporting the private sector's efforts through technical and financial assistance, and innovating and developing new instruments to make wider educational opportunities accessible to underprivileged children at affordable cost.

PEF is implementing several programmes using PPPs to support the SED in its efforts to make education accessible to all children in the province. Currently, it supports almost 7,500 schools under three separate initiatives, enrolling almost 2.7 million boys and girls.

PEF coordinates with PEC to implement a Quality Assurance Test (QAT) for students to determine the quality of teaching and learning. PEF has its own teacher training and quality assurance systems, but for training master trainers, they utilise QAED services.

The data generated by PEF activities should help inform overall SED planning – and potentially PEC and QAED initiatives – to ensure quality assurance for PPP initiatives.

The Punjab Education Initiative Management Authority (PEIMA) supports low-performing public sector schools through private sector engagement. The objectives of PEIMA include:

1. Increase enrollment in low-performing public sector schools.
2. Improve the quality of education through various initiatives.
3. Provide conducive teaching and learning facilities.
4. Ensure enrolment of out-of-school children (OOSC).

PEIMA coordinates with PEC to ensure the quality of learning assessments in low-performing public schools. According to the 2022-2023 QAT conducted in 3,723 primary schools (grades 3-5) run by private groups across the province, 551 (~15%) schools failed the QAT because more than 50% students in these schools scored below 40%.

The Literacy and Non-Formal Basic Education (L&NFBE) Department works under the Government of Punjab and is guided by the Punjab Literacy and Non-Formal Education Policy 2019. The Department supports the provincial government with its access to basic education drive by supporting OOSC through non-formal education, to mainstream them. It also focuses on adult literacy, lifelong learning, and life skills-based education.

The activities under the L&NFBE Department, particularly the non-formal education that focuses on OOSC children and eventually their mainstreaming, closely align with the SED. The data and information available with the SED (SIS, PMIU) on enrolment, participation, retention, and dropouts should form the basis for the L&NFBE Department's planning initiatives. In return, the mainstreaming information should feed the SED planning for more schools, classrooms, facilities, and teachers.

The Special Education Department (SpED) operates directly under the Government of Punjab and is responsible for imparting education to children with Special Education Needs and Disabilities (SEND). It provides educational, psychological, and rehabilitative services to children with disabilities. The initiatives taken by SpED address challenges of access, equity, quality, stigma, discrimination, and skill development faced by Persons with Disabilities (PWDs).

The annual examination data for 2022-2023 in special education institutes shows that children with hearing impairment constitute the largest group (75%), followed by slow learners (10%), visually impaired (7.5%) and physically disabled (7%).

The enrolment data for 2019 shows that there are more than 32,000 children with differing SEND studying in 294 special education institutions from primary to college level. The results from the Teaching Effectively All Children (TEACh) survey and the Annual Status of Education Report (ASER) 2018 report find disability prevalence much higher than measured typically using binary approaches. At approximately 11.2% and 15.2%, respectively, these estimates are much closer to the World Health Organization's global estimate, which finds about 15% of the world's population lives with some disability.[1]

A little over 2,400 special education teachers are teaching in the 294 institutions. SpED has its teacher training system, but they coordinated with QAED when the Single National Curriculum (SNC) was notified for training their master trainers. Recently, QAED also supported them in developing teachers' standards.

The ESP (2019-2024) mentioned that data on SEND is limited, and efforts are needed to collect the data by expanding the PMIU census. The annual census from 2020-2022 includes numbers of children with minor physical disabilities; however, no data is collected or reported on cognitive disabilities. PESP also mentions developing an

[1] Understanding Disability and the Path to Inclusive Education in Pakistan - Institute of Development and Economic Alternatives (IDEAS) 2020

assessment framework for SpED schools and centres.

The Boards of Intermediate and Secondary Education (BISEs) operate under the Higher Education Department in Punjab and are responsible for conducting secondary and higher secondary-level examinations. The examination data generated at the nine BISEs operational in Punjab is of paramount importance to the SED institutions, particularly QAED, PEC and PCTB. Likewise, data and information from PEC and PCTB are important for BISEs when designing exam papers.

BISEs share only exam results, which are sufficient for public use; however, more details at the item and outcome level can be shared with QAED and PCTB to inform instructional and curriculum interventions and textbook revisions.

The following figure shows SED and its attached and autonomous departments. It also depicts SpED and L&NFBE, two independent departments under the Government of Punjab (like SED) that are working to support school education in Punjab:

PUNJAB GOVERNMENT DEPARTMENTS & THEIR LINKAGES
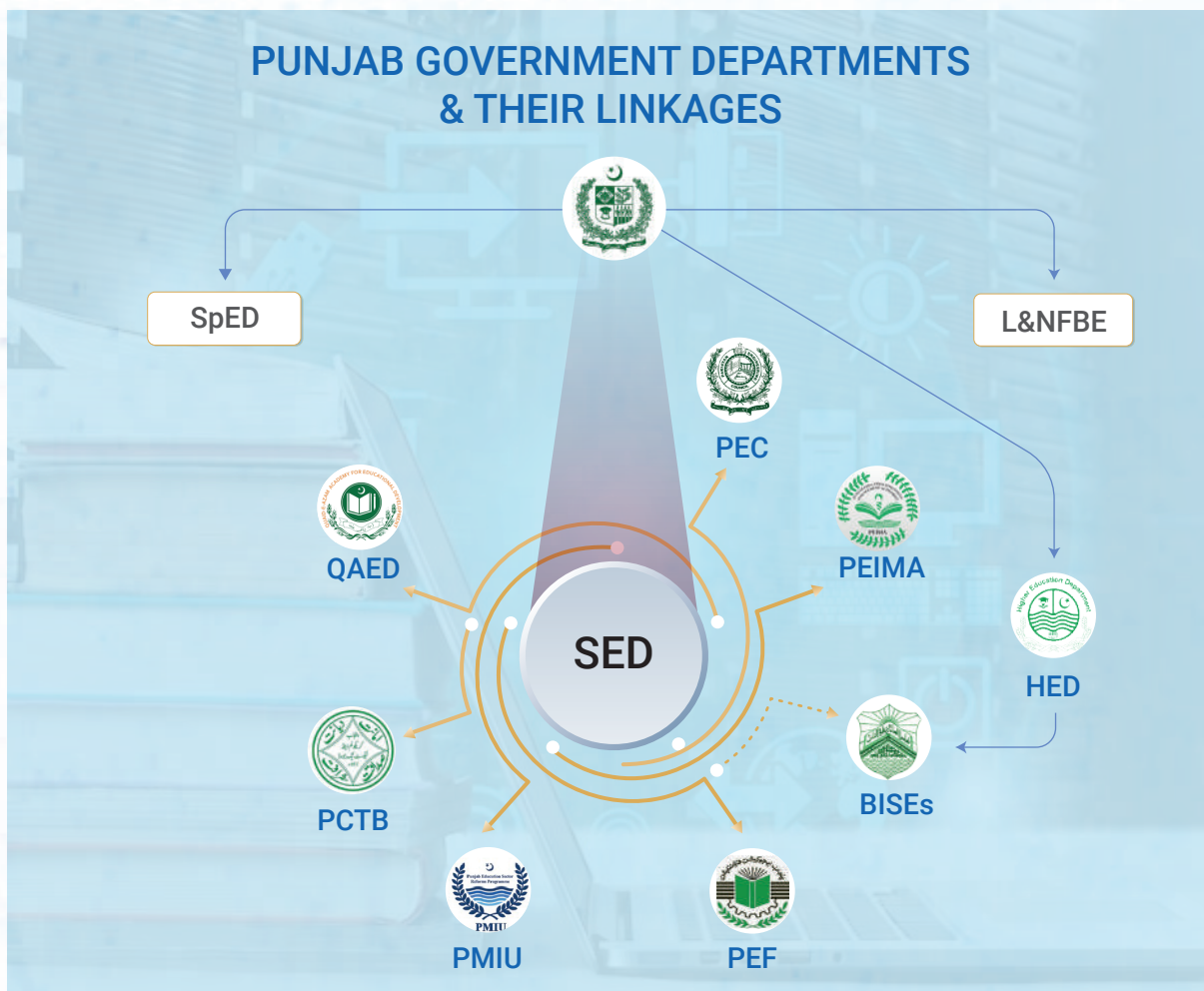
03

Data-Sharing: Opportunities and Challenges

The vast education data generated by different departments in Punjab has the potential to support evidence-based decision-making, planning and implementation. Some of this data is already being disseminated and utilised for planning and decision-making, but there are data sets and information that are not sufficiently analysed and disseminated. The following table illustrates the various data sources, who their consumers are (or should be), and utilisation (as it currently is, and the opportunity for further use).

Data Source	Data Type	Consumer	Data Use and Opportunity (appears in bold)
PEC	Student Assessment Teacher Assessment Correlation Factors (Parents, Community, Leadership, etc.)	QAED PCTB SED Planning Wing Teachers	Teacher Training Textbooks and Curriculum Resource Allocation, Quality Assurance **Teachers do not receive any information on PEC assessments, but allowing them access will help them better plan their instruction techniques**
QAED	Teacher Training Records CPD Other In-Service Trainings	SED Planning Wing PEC HR	Resource Allocation, Quality Assurance **Correlation Analysis** **Promotions and Rewards**

Data Source	Data Type	Consumer	Data Use and Opportunity (appears in bold)
PMIU	School Census, Attendance Records (equity and inclusion data is missing apart from physical disability) Classroom Observations Classroom Observations	SED Planning Wing QAED PEC	Resource Allocation Equity and Inclusion Planning **Teacher Training** **Correlation Analysis**
PEF	Enrolment Data Teacher Training Record Assessment Data Enrolment Data	SED Planning Wing QAED PEC PMIU	Resource Allocation **Teacher Training** **Quality Assurance Testing** Census
PEIMA	Enrolment and Facilities Data Enrolment and Facilities Data Assessment Data Teacher Training Record	SED Planning Wing PMIU PEC QAED	Resource Allocation Census Quality Assurance Testing **Teacher Training**
L&NFBE	OOSC Data Non-Formal Centres Data Literacy Centres Data Assessment Data Teacher Training Records	SED Planning Wing And PMIU PEC QAED	Resource Allocation, Census **Assessment Support** **Teacher Training Support**
SpED	Enrolment Data Disability Data Teacher Data	SED Planning Wing PEC QAED PCTB	Resource Allocation **Assessment Support** Teacher Training Support Textbooks and Curriculum
BISEs	Secondary and Higher Secondary Examinations	QAED PCTB SED Planning Wing	**Teacher Training** **Textbooks and Curriculum** Resource Allocation

The LSA data generated by PEC is disseminated in their Commission meetings, whose membership includes QAED, PCTB, PMIU, PEF and organisations at the Federal level. The LSA dissemination is also done at the district level and with universities, BISEs and federal-level organisations. PEC reports identify weak Student Learning Outcomes (SLOs) and are used by QAED when designing teacher training initiatives.

PEC reports also include teacher performance data at the primary and middle levels, assessed against the same SLOs as students. This is also especially useful for QAED when planning teacher training. The reports further include a correlation showing student performance in relationship with numerous factors such as teachers' qualifications, experience, approach, behaviour, facilities and infrastructure, school leadership, parents' involvement, and co-curricular activities. Correlation analysis is extremely useful and provides a basis for the SED to allocate resources to factors that positively influence student learning.

PCTB also receives the LSA reports and assessment data, but textbook revisions are not done regularly using the SLO-level information since the assessment reports do not specifically guide PCTB about whether the tests and other assessment devices, including experiments, practice exercises, and end-of-chapter queries included in textbooks appropriately benefit both the instructor and the student. In addition, PCTB does not have the requisite human resources to interpret PEC reports, which could help them identify gaps in textbook development in terms of the accuracy of content or its ability to help students develop critical thinking skills.

The classroom observation data is gathered by AEOs and deposited with PITB, which then transfers it to PMIU. The data, however, is not shared with QAED or PEC as a practice, apart from accessing it through the dashboard. There are complicated procedures and paperwork involved in accessing the raw data, and both QAED and PEC have reported their inability to access the information. The classroom observation data is extremely important for QAED to learn about teacher practices, teaching approaches and capability so that needs-based programmes can be designed. Similarly, PEC can use the data to correlate with student assessment data.

QAED maintains teacher training data on a Teacher Management System (TMS) developed to profile teachers who undergo training. The data from TMS helps QAED maintain the training profile of all the teachers who undergo training. It also helps them identify the training needs of the teachers. If the TMS data is shared with PEC, it can be triangulated with the student assessments to identify exclusive aspects in training that correlate with student learning and help QAED develop bespoke initiatives for teachers.

BISEs produce exam results for secondary and higher secondary levels, which are published for consumption by students, schools, and colleges. However, no detailed data on exams is made available by BISEs, such as item analysis, or learning outcome level information. Such information, if available and shared, can be particularly useful for QAED and PCTB to design their training programmes and conduct curriculum and textbook revisions accordingly. The data from PEF and PEIMA informs SED planning

on PPPs. However, closer coordination on information-sharing with QAED and PEC can be particularly useful for strengthening assessment frameworks, teacher professional development and overall quality assurance for PPP initiatives.

SpED and L&NFBE are independent departments under the Government of Punjab, contributing to equity, inclusion, and access to education for the province. Their close coordination with SED and its departments will ensure that better planning is in place for achieving national and international goals in education and resources are well spent.

The exchange of educational data within SED can lead to several specific goals, outcomes, and incentives. Here are some key outcomes that can be achieved through effective data-sharing, leading to both intrinsic and extrinsic motivation.

Informed decision-making will enable decision-makers (SED at the provincial level, attached and autonomous departments at their respective levels) to make well-informed and evidence-based decisions.

- Outcome: Improved decision-making processes, leading to better strategies, operational efficiencies, and resource utilisation, resulting in improved student learning outcomes.

Cross-Departmental Collaboration will facilitate collaboration and information-sharing among different departments or teams.

- Outcome: Enhanced communication, synergy, and innovation across the organisation, leading to a reduction in duplication, optimised workflows, and saving of resources.

Departmental Productivity will empower departments and staff through access to relevant data and information necessary to perform their roles effectively.

- Outcome: Increased productivity, as employees can make more informed decisions and perform their tasks more efficiently

Accountability and Performance Measurement will help establish Key Performance Indicators (KPIs) and measure organisational performance.

- Outcome: Clear insights into how well the departments and concerned staff members are meeting their objectives, ensuring compliance, facilitating continuous improvement, and contributing to the larger goals and objectives.

Information/Data-Driven Culture will help foster a culture where information and data are valued, and decisions are based on evidence provided by data.

- Outcome: Increased data literacy, better understanding of the importance of data, and a culture of continuous learning.

Innovation and Research will support efforts to providing access to relevant data.

- Outcome: Accelerated research and development, leading to the refinement of existing and the creation of new products, services, or processes to improve practice.

The following figure shows the data and information flow between different departments under the SED. The dotted lines show that the information-sharing is not adequate and needs to be strengthened:

INTER-DEPARTMENTAL DATA SHARING & FLOW
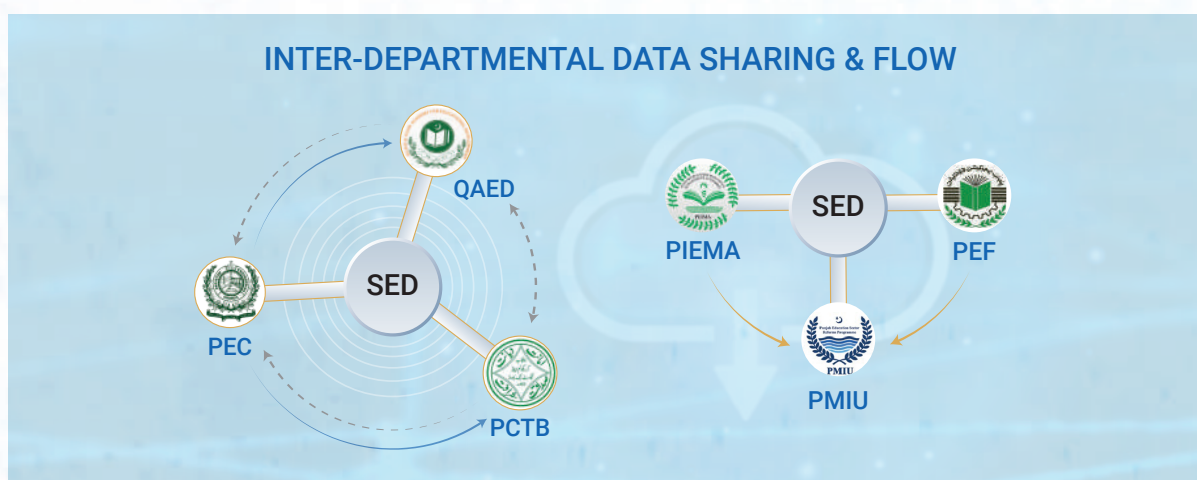
04

Recommendations

Horizontal and Vertical Coordination and Communication

The SED needs to ensure that there is regular coordination among its attached and autonomous departments for information-sharing, planning, implementation, monitoring, and reporting against all activities. Currently, this coordination is mostly limited to a needs basis; there is no set routine that requires all concerned stakeholders to come together regularly to review and report progress.

Under a previous Foreign Commonwealth and Development Office (FCDO) initiative, the PESP, quarterly stock-take meetings were held at the provincial level bringing together district and provincial stakeholders under the leadership of the provincial chief minister for a progress overview of education. The stock-take ensured coordination and communication among stakeholders and created accountability and incentives for departments and individuals. During PESP, regular budget tracking meetings were also held under the leadership of the Secretary Education, engaging provincial department heads under the SED. Similarly, other donors working with the SED have adopted their coordination mechanisms to ensure smooth implementation and service delivery. Such regular progress updates and reviews under the highest leadership ensure the required coordination and communication among stakeholders and may be initiated by the SED yet again.

In consultations with the departments, suggestions were made to formulate multi-tiered committees to enhance coordination and communication at the horizontal and vertical levels. Multi-tiered committees are needed to ensure that coordination and communication below the level of departmental heads is taking place, as this is where the bulk of technical activities are planned and rolled out. Similarly, the sub-provincial committee involving districts is important to ensure that departments are in touch with districts and planning their interventions in discussions with the district staff for better implementation and support. The suggestions are included as recommendations.

- A high-level committee that brings together Secretary SED, BISE Chairs, and departmental heads of PEC, PCTB, QAED, PMIU, PEF, and PEIMA should be notified to meet once every quarter to share progress and identify areas for collaboration. All challenges requiring policy-level attention should be part of the agenda.

- Smaller sub-committees involving technical leads from the attached and autonomous departments should also be notified for meeting every four to six weeks to share progress, seek collaboration and resolve issues.

- A sub-provincial level committee involving district education offices and including representation from SED institutions should also be notified for a quarterly progress review of education.

- The details about these committees including their membership, functions and responsibilities will be shared subsequently under a separate task in the Bridging Technical Assistance for Government B-TAG workplan.

Responsible Person and Department: Additional Secretary Schools and Additional Secretary District Education Authority.

Communications Strategy

SED will need to develop a provincial communications strategy; its attached departments should develop their respective communication platforms/frameworks. The strategy will principally aim to enable coordination and communication routines between tiers of SED and its departments at the provincial, district and sub-district levels to administer and manage the delivery of the school education initiatives. In addition, the strategy will facilitate informing and raising awareness among stakeholders, communities and end-line beneficiaries. It will pronounce accountabilities and rewards on duty bearers for the functions entrusted upon them. The communications strategy will support the SED theory of change at respective levels/tiers to achieve the outcomes. The strategy should lead to the following outcomes:

- Generate an environment for cooperation, effective communication, and coordination between different tiers of SED.

- Provide effective coordination for the implementation of programmes.

- Ensure effective and efficient information flow about core objectives and programmes for ownership at all levels.

To develop a communications strategy, the following preliminary actions are proposed:

1. The committee proposed under the previous recommendation should be tasked with identifying goals and objectives for the strategy.

2. It should identify key audiences for the strategy and commission a stakeholder analysis to identify the needs and communication channels for an effective outreach.

3. A stakeholders workshop should be organised to agree on the strategy contours, objectives and its development and rollout mechanism.

Responsible Person and Department: Secretary, Special Secretary and Department Heads.

Data Feedback Loop

The data generation, collection, analysis, and utilisation in Punjab should take the form of a loop, informing research, practice and decision-making. The loop should create a mechanism whereby data is generated by different departments, processed, and shared with the consumers, and the feedback is provided to the concerned departments for reviewing their practices. The following diagram illustrates a data feedback loop that can be conceived and created to ensure that the data generated from various sources is shared with concerned stakeholders, processed, and fed back into the system.
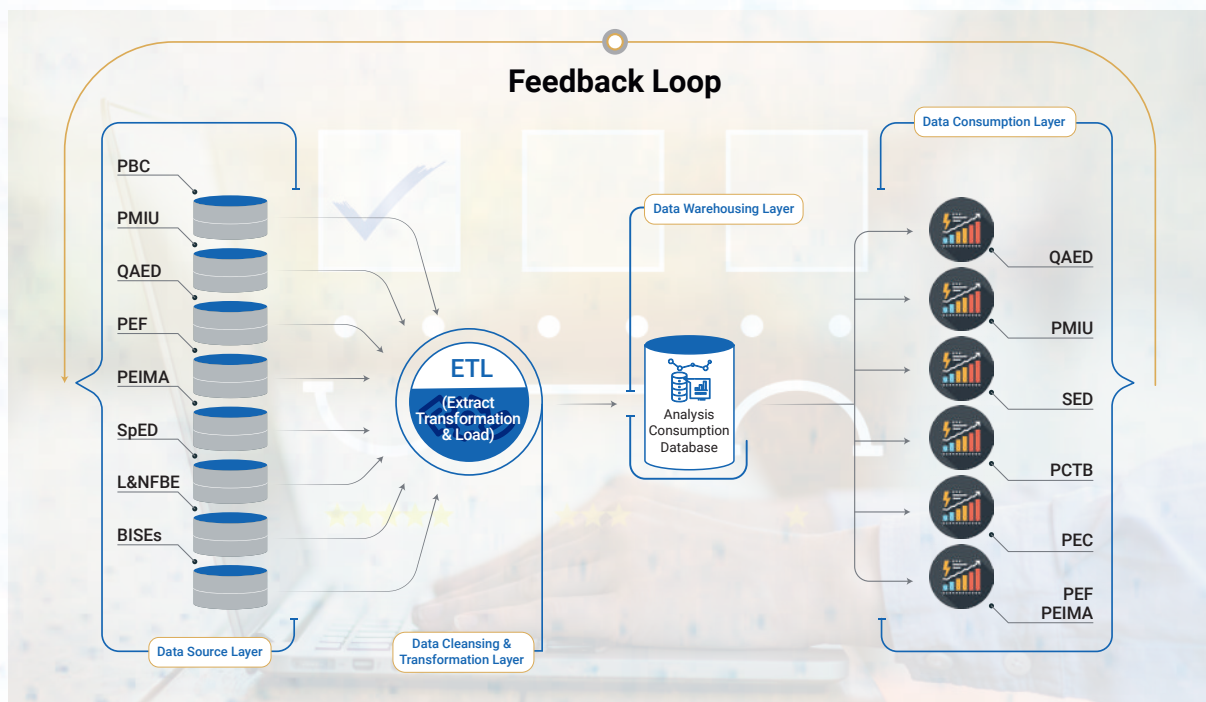
Once the raw data is generated by various departments (blue and grey cylindrical shapes) and entered into a database, a mechanism or system (ELT in the diagram) is required that can extract the data, transform it into a suitable shape after cleaning, validation, and aggregation, and then load it into a database or warehouse in a form that will allow analysis and reporting. The analysed data can then be shared with the consumers for multiple uses and providing feedback to the data sources for necessary modifications to their activities. This loop should form a continuous system in the SED allowing data-sharing and feedback.

Responsible Person and Department: Chief PMIU and Additional Secretary Monitoring.

Guidelines for SED on establishing education data-sharing practices

⦿ Establish a Data Governance Framework

Develop and implement a data governance framework that includes policies, procedures, and standards for data-sharing. Clearly define roles and responsibilities and establish data stewardship practices to ensure data quality and consistency.

⦿ Define Data Ownership and Access Controls

Clearly define data ownership to identify responsible individuals or teams for different datasets. Implement access controls to ensure that only authorised personnel can access and modify specific data.

⦿ Ensure Data Quality and Consistency

Prioritise data quality by implementing data validation, cleansing, and enrichment processes. Consistent and accurate data is essential for reliable decision-making.

⦿ Implement Secure Data-Sharing Practices

Prioritise data security and privacy. Implement encryption, access controls, and other security measures to protect sensitive information. Ensure compliance with relevant data protection regulations.

⦿ Facilitate Inter/Intradepartmental Collaboration

Encourage collaboration between different departments or teams. Establish channels and platforms to share insights, best practices, and data-driven findings. Foster a collaborative environment that values cross-functional knowledge sharing.

⦿ Create Data-Sharing Policies and Agreements

Develop precise data-sharing policies and agreements that outline the terms, conditions, and expectations for sharing data. Ensure that all parties involved understand and adhere to these policies.

⦿ Monitor Data-Sharing Practices

Conduct regular monitoring to ensure compliance with data-sharing policies and identify areas for improvement. Implement tools to track data usage, access patterns, and potential security incidents.

⦿ Stay Compliant with Regulations

Keep abreast of data protection regulations in Punjab and Pakistan. Ensure that data-sharing practices align with legal requirements and ethical considerations.

Responsible Person and Department: Special Secretary, Additional Secretary IT.