



DIAGNOSTIC REPORT

DISCONNECT BETWEEN CLASSROOM OBSERVATIONS, ASSESSMENTS, CURRICULUM, TEXTBOOKS, AND TEACHER TRAINING INTERVENTIONS IN PUNJAB

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List of Abbreviations

AEO	Assistant Education Officer
ASER	Annual Status of Education Report
BISE	Board of Intermediate and Secondary Education
B-TAG	Bridging Technical Assistance for Government
COT	Classroom Observation Tool
ECE	Early Childhood Education
ESP	Education Sector Plan
ETL	Extract Transformation Load
FCDO	Foreign Commonwealth and Development Office
KPI	Key Performance Indicator
L&NFBE	Literacy and Non-Formal Basic Education
LSA	Large Scale Assessment
OOSC	Out of School Children
PCTB	Punjab Curriculum and Textbook Board
PEC	Punjab Examination Commission
PEF	Punjab Education Foundation
PEIMA Punjab	Education Initiative Management Authority
PESP	Punjab Education Sector Programme
PITB	Punjab Information Technology Board
PMIU	Project Monitoring and Implementation Unit
PPP	Public Private Partnership
PWD	Persons with Disabilities
QAED	Quaid-e-Azam Academy for Educational Development
QAT	Quality Assurance Test
SED	School Education Department
SIS	School Information System
SLO	Student Learning Outcome
SpED	Special Education Department
TEACH	Teaching Effectively All Children
TGM	Teacher Group Meeting
TLM	Teaching Learning Material
TMS	Teacher Management system

1. Introduction and Background

School education service delivery in Punjab is shared between multiple attached and autonomous departments under the School Education Department (SED). The Quaid-e-Azam Academy for Educational Development (QAED) is responsible for training teachers, both pre- and in-service, developing necessary materials and conducting research to inform practice. Punjab Examination Commission (PEC) is mandated with conducting student assessment from grades 1-8 and generate reports, develop necessary materials, and do research. The Project Monitoring and Implementation Unit (PMIU) is responsible for collecting data on classroom observation of teachers, school facilities and infrastructure, student enrolment and retention, teachers, etc. Additional departments under the SED provide other services relating to curriculum and textbooks, public-private partnerships, and other initiatives. Then there are departments outside of the SED directly under the Government of Punjab providing support in literacy and non-formal education, special education, and disability. These departments generate a large volume of information and data year-round and utilise it to inform their respective planning and implementation.

It is, however, important that information and data is cross shared within a system to contribute towards overall efficiency, collaboration, and decision-making. Access to shared data by the policy makers enables them to base their decisions on accurate and up-to-date information, leading to more informed and data-driven choices, better strategic planning, and decision making.

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 as well as dissemination and utilisation for decision making. 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 the utilisation and sharing of data as one among many issues.

Student assessment data 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 plays a pivotal role in optimising resource allocation and ensuring a conducive learning environment. Efficient utilisation of school level data not only contributes to cost efficiency, better utilisation of resources, but also enhances the overall educational experience for students.

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.

For developing insights on school education data collection and dissemination in Punjab meetings were held with different departments under the SED including QAED, PEC, PMIU and Punjab Curriculum and Textbook Board (PCTB). The information shared by representatives from these

departments, and from other sources such as websites and social media pages, and documents such as the school census, and PEC reports has been used to prepare findings for this report.

2. 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 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 also mandated to conduct research to inform practice. There are forty-three district level QAEDs in thirty-six districts of Punjab offering pre-service training to teachers, and QAED also uses sub-district (cluster) level facilities for offering in-service training programmes.

QAED is offering module-based programmes to in-service teachers in grades 6-8, focusing on math, science, and English. Additionally, QAED is supporting primary school teachers develop capacity to teach English as a subject.

QAED has also developed a Classroom Observation Tool (COT) that is used by the Assistant Education Officers (AEO) for observing primary level teachers against eleven 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, and there are some 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 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 Punjab Examination Commission has the mandate to conduct student assessments from grades 1 - 8, conduct research to inform assessments, and develops 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 annual sample based (10% schools and students) Large Scale Assessments (LSA) 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 Punjab Education Initiative Management Authority (PEIMA).

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

In addition to the sample-based assessment, there are school based assessments conducted by the schools 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 of interventions, both by PEC and QAED.

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

PEC utilizes the assessment data for preparing 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 regular reporting.

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

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

PMIU is also responsible for providing implementation and monitoring level support to SED in many other programmes such as girls stipend, afternoon schools, free textbooks, inclusive education, non-formal education, and literacy, to name some.

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.

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

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 members of the review committee.

Punjab Education Foundation is mandated with promotion of quality education through Public-Private Partnerships (PPP) by encouraging and supporting the efforts of private sector through

technical and financial assistance and innovating and developing new instruments to make wider educational opportunities accessible to the 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 the children in the province. Currently PEF is supporting 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 utilised QAED services.

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

Punjab Education Initiative Management Authority is responsible for supporting low performing public sector schools through involvement of private sector. PEIMA objectives include:

1. Increase enrolment in low performing public sector schools.
2. Improve 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 for assuring quality of learning assessments in low performing public schools. According to the 2022-2023 QAT conducted in 3723 primary schools (grades 3-5) run by private groups across the province, 551 (~15%) schools failed the QAT, with less than 50% of the randomly selected sample students in these schools obtaining below 40% marks. The QAT for 2023-2024 will include students from grade 6 as well.

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

The activities under L&NFBE department, particularly the non-formal education that focuses on out of school 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 dropout, should form the basis for the L&NFBE department planning, and 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 (PWD).

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 handicapped (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 to be 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 to be living with some kind of disability.¹

There are a little over 2,400 special education teachers teaching in the 294 institutions. SpED has its own 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.

PESP 2019 mentioned that data on SEND is limited, and efforts are needed to collect the data by expanding 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 assessment framework for SpED schools and centers.

Boards of Intermediate and Secondary Education (BISE) operate under the Higher Education Department in Punjab and are responsible for conducting examinations at the secondary and higher secondary level. The examination data generated at the 9 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 is important for BISEs when designing exam papers.

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

3. 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 which are not sufficiently analysed and disseminated. The exchange of educational data within SED can lead to several specific goals, outcomes, and insights. Here are some key objectives that can be achieved through effective data sharing:

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 learning outcomes for students.

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 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 (KPI) 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 is 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 innovation and research efforts by providing access to relevant data.

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

The following table illustrates the various data sources, who their consumers are (or should be) and utilisation (as it currently is, and the potential for further use).

Data Source	Data Type	Consumer	Data Use
PEC	Student Assessment	QAED	Teacher Training
	Teacher Assessment	PCTB	Textbooks and Curriculum
	Correlation Factors (parents, community, leadership etc.)	SED Planning Wing	Resource Allocation, Quality Assurance
QAED	Teacher Training Record	SED Planning Wing	Resource Allocation, Quality Assurance
		PEC	Correlation Analysis
PMIU	School Census, Attendance Records	SED Planning Wing	Resource Allocation
	Classroom Observations	QAED	Teacher Training
	Classroom Observations	PEC	Correlation Analysis
PEF	Enrolment Data	SED Planning Wing	Resource Allocation
	Teacher Training Record	QAED	Teacher Training
	Assessment Data	PEC	Quality Assurance Testing
	Enrolment Data	PMIU	Census
PEIMA	Enrolment and Facilities Data	SED Planning Wing	Resource Allocation
	Enrolment and Facilities Data	PMIU	Census
	Assessment Data	PEC	Quality Assurance Testing
	Teacher Training Record	QAED	Teacher Training
L&NFBE	OOSC Data	SED Planning Wing And PMIU	Resource Allocation, Census
	Non-Formal Centres Data		
	Literacy Centres Data	PEC	Assessment Support
	Assessment Data		
	Teacher Training Records	QAED	Teacher Training Support
SpED	Enrolment Data	SED Planning Wing	Resource Allocation
	Disability Data		
	Teacher Data	PEC	Assessment Support
		QAED	Teacher Training Support
		PCTB	Textbooks and Curriculum
BISEs	Secondary and Higher Secondary Examinations	QAED	Teacher Training
		PCTB	Textbooks and Curriculum

		SED Planning Wing	Resource Allocation
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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 (SLO) 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, which is also especially useful for QAED when planning teacher training. The reports further include correlation showing student performance in relationship with numerous factors such as teachers' qualifications, experience, approach, behaviour, facilities and infrastructure, school leadership, parents' involvement, 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 because 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 report which could help them identify gaps in textbook development in terms of accuracy of content, or its ability to help students in developing 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 approach and capability so that need-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 in maintaining 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 will help QAED to develop bespoke initiatives for teachers.

BISEs produce exam results for secondary and higher secondary level 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, which if available and shared can be particularly useful for QAED and PCTB to accordingly design their training programmes and conduct curriculum and textbook revisions.

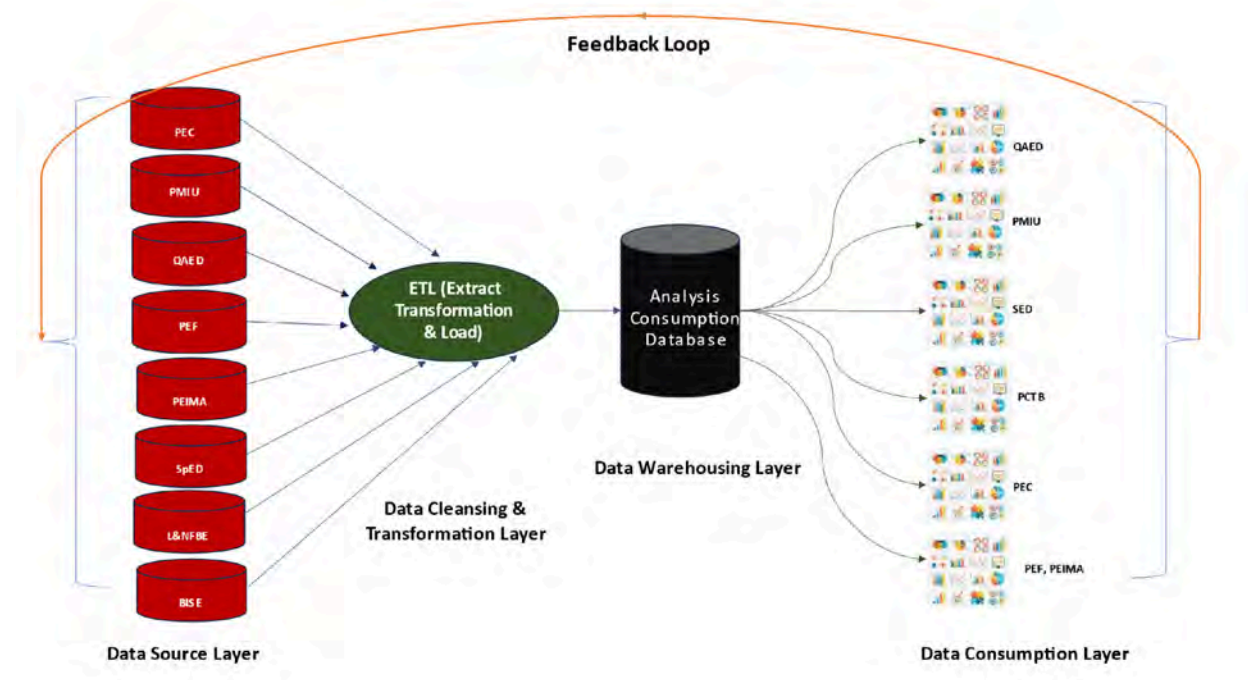
The data from PEF and PEIMA informs SED planning on PPPs, but a closer coordination on information sharing with QAED and PEC can be very useful for strengthening assessment frameworks, teacher professional development and overall quality assurance for PPP initiatives.

SpED and L&NFBE are independent departments under the Government of Punjab contributing to equity, inclusion, and access in 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.

4. Recommendations

i) *A 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 will create a mechanism whereby data is generated by different departments, processed, and shared with the consumers. 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 (red cylindrical shapes) and entered in a database, a mechanism or system (ELT in the diagram) is required that extracts data, then transforms it into a suitable shape after cleaning, validation, and aggregation, and then loads it in a database or warehouse in a form that will allow analysis and reporting. The analysed data is then 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.

ii) *Guidelines for the SED for establishing educational 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 for sharing 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.

iii) Horizontal and Vertical Coordination and Communication

It is important for the SED to ensure that there is regular and close coordination among its attached and autonomous departments for information sharing, planning, implementation, monitoring and reporting against all activities. At present this coordination is mostly limited to a need basis, and there is no set routine requiring all concerned stakeholders to come together regularly to review and report progress.

Under a previous Foreign Commonwealth and Development Office (FCDO) initiative, the Punjab Education Sector Programme (PESP), quarterly meetings were held at the provincial level bringing together district and provincial stakeholders under the leadership of the Chief Minister for a progress overview of education. The quarterly stock-take ensured coordination and communication among stakeholders and created accountability for departments and individuals. During PESP regular budget tracking meetings were also held under the leadership of Secretary Education, engaging provincial department heads under the SED. 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 for enhancing coordination and communication at the horizontal and vertical levels. The suggestions are included as recommendations.

- A high-level committee that brings together Secretaries from SED, SpED, L&NFB and Higher Education, and departmental heads of QAED, PEC, PMIU, PEF and PEIMA should be notified to meet once every quarter for sharing progress and identifying 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 meetings every four to six weeks to share progress, seek collaboration, and resolve issues.



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