

Strengthening Data & Decision Support Systems:

Revitalizing School
Improvement Framework (SIF)
in Punjab



**Strengthening Data and Decision Support Systems:
Revitalizing School Improvement Framework (SIF) in Punjab**

Table of Contents

List of Acronyms	iii
List of Figures	iv
Executive Summary	1
Section 1:	3
Introduction	3
1.1 Background	3
1.2 Scope of the Report	5
1.3 Methodology	5
1.4 Scheme of Presentation	6
Section 2:	7
SIF: Overview, Rollout, and Current State of Implementation	7
2.1 Overview and System Design	7
2.2 Technical Layout	9
2.3 Rollout History	11
2.4 Current State of Implementation	12
Section 3:	13
Challenges Impeding SIF's Optimal Operationalization	13
3.1 Structural Challenges	13
3.2 Operational Challenges	16
3.3 Financial Challenges	19
Section 4:	21
Conclusion and Recommendations	21
4.1 Recommendations	22
4.1.1 Immediate Actions	23
4.1.2 Interim Actions	26

List of Acronyms

ADC	Additional Deputy Commissioner
AEO	Assistant Education Officer
CEO	Chief Executive Officer
COT	Classroom Observation Tool
COVID-19	Coronavirus Disease 2019
CPDP	Continuous Professional Development Programme
CSR	Corporate Social Responsibility
DEA	District Education Authority
DEO	District Education Officer
DMO	District Monitoring Officer
DFC	Divisional Field Coordinator
DDEO	Deputy District Education Officer
ECCE	Early Childhood Care and Education
EMIS	Education Management Information System
FGD	Focus Group Discussion
GRADES	Getting Results: Access and Delivery of quality Education Services
H./H. SEC.	High/Higher Secondary
HQ	Headquarter
LND	Literacy and Numeracy Drive
MEA	Monitoring and Evaluation Assistant
NSB	Non-Salary Budget
PESRP	Punjab Education Sector Reform Programme
PESP-II	Punjab Education Sector Programme II
PITB	Punjab Information Technology Board
PMIU	Programme Monitoring and Implementation Unit
POL	Petroleum, Oil and Lubricants
PST	Primary School Teacher
P&DB	Planning and Development Board

QAED	Quaid-e-Azam Academy for Educational Development
SC	School Council
SED	School Education Department
SIF	School Improvement Framework
SIS	School Information System
SLA	Service Level Agreement
SSI	School Status Index
STI	School Teaching Intern
S&GAD	Services and General Administration Department
TOR	Terms of Reference

List of Tables:

Table 1:	Domains and Performance Indicators of SIF	8
Table 2:	SIF's Action Matrix	16

List of Figures:

Figure 1:	Bands of Need Assistance Categories	9
Figure 2:	Technical Layout	10
Figure 3:	School Distribution in the Last Quarter of 2022	14

Executive Summary

Moving beyond hearsay, assumptions, and guesstimates and to make informed decisions that drive substantive improvement in academic delivery and outcomes, data collection and analysis have become an integral part of educational planning. As the educational planning processes undergo a continuous transformation, the role of Education Management Information Systems (EMISs) in this sphere is critical for a structured approach to collecting, processing, and disseminating reliable data. The School Education Department Punjab integrated EMIS into its monitoring mechanism in 2007 for streamlined data collection and processing. Such systems are, however, only useful when they provide *meaningful* data, and data is reviewed and analyzed objectively to foster a culture of evidence-based decision-making.

The School Improvement Framework (SIF) was developed to address the limitations of the preceding system and to provide a structured approach to leveraging data effectively rather than merely reporting on predetermined indicators. SIF provides a holistic view of a school's functioning and needs across multiple domains, and helps direct targeted support to schools. However, since its province-wide scaling in January 2021, the framework's implementation has faced multiple roadblocks. This report analyzes the barriers impeding SIF's systemwide implementation and puts forth a set of tangible recommendations to overcome these challenges.

This study reveals that SIF, while conceptually robust, faces interrelated structural, operational, and financial challenges. These challenges present substantial barriers to its optimal functioning and potential to drive meaningful improvements. In the structural domain, the framework is constrained by three fundamental flaws. Firstly, the way data is processed in generating composite score and reports which do not reflect the realistic picture of school performance and needs. Secondly, the differentiation of missing data is not taken into account, and, lastly, the erroneous assignment of some responsibilities in the Action Matrix.

Operationally, coverage of all schools due to a shortage of monitoring personnel is the foremost challenge. Cultural transition is also a considerable barrier given that government structures are somewhat characterized by a certain degree of inertia with firmly ingrained practices and procedures. The financial domain presents the most complex challenges as resource constraints lead to inaction on certain indicators,

increased financial strain on schools, and limited coverage of all schools thereby impacting the framework's consistent application across the system.

These challenges are intricately connected, often amplifying each other, and the state of affairs necessitates a coordinated effort to address these challenges. The recommendations presented in this report are structured in two phases: immediate actions for operationalization, and interim actions for consolidating and strengthening SIF within the system. The immediate actions focus on the rapid operationalization of SIF without requiring major system overhauls. These include an examination of SIF's design and architecture, establishing central and district routines, coverage of all schools with existing MEA force, ensuring system readiness, and coverage of all primary schools/sections by the AEOs. The interim actions are geared toward addressing challenges that may require policy modification and increased budgetary allocations. These include the revision of the Classroom Observation Tool (COT) by extending the scope of the Continuous Professional Development Programme (CPDP) to all teaching cadres, introducing fixed monthly mobility allowance for MEAs, and increasing resource allocation.

This phase-wise approach allows for the balance needed for immediate impact with long-term sustainability. It is hoped that the School Education Department will implement the recommendations outlined in this report for the realization of SIF's transformative potential as a data-driven, impactful framework.

Introduction

1.1 Background

Monitoring mechanisms are vital for the continuous improvement and enhancement of education systems, serving as the backbone for informed decision-making, targeted interventions, and policy formulation. As the education sector planning processes have become increasingly complex, and continue to evolve, monitoring mechanisms with robust data systems are at the center of this evolution by providing a nuanced understanding of the challenges and opportunities within the system. A monitoring framework, developed around an effective Education Management Information System (EMIS), enables the stakeholders to systematically collect, analyze, and leverage data, assess the efficacy of interventions, identify disparities, optimize resource allocation, and cultivate transparency within the system. EMIS facilitates education managers in adaptive planning by identifying trends, and emerging challenges, and by interpreting relevant data to stakeholders at all levels of access.¹ In the context of developing countries like Pakistan, effective monitoring mechanisms play an even more critical role as challenges are often aggravated by resource constraints. The efficiency and impact of monitoring activities can be maximized by integrating technology and careful data management to achieve systemic improvements in contexts where resources are limited.²

The Government of Punjab initiated a system of data collection and monthly monitoring of schools within the broader framework of the Punjab Education Sector Reform Programme (PESRP) in 2004. Under the oversight of the Programme Monitoring and Implementation Unit (PMIU), the system was tweaked to go live in 2007 with an EMIS development and field formation of around 1000 Monitoring and Evaluation Assistants (MEAs) tasked to visit and monitor public schools. By the end of 2015, the monitoring system went paperless with MEAs tabulating data through android-based application on tablets. MEAs visited all public schools across the province each month to collect and report data on a set of predetermined indicators

¹ World Bank. (2020). Education Management Information System (EMIS) Support for Education Sector Planning and Management. Retrieved from <https://www.worldbank.org/en/topic/education/brief/education-management-information-systems>

² United Nations Educational, Scientific and Cultural Organization. (2022). *Global education monitoring report 2022*.

covering mainly student and teacher participation and the school environment. Though, over time, the monitoring framework evolved with some changes in monitored indicators and the weightage applied to them, the core indicators aligned with the Chief Minister's Reforms Roadmap remained consistent. In January 2019, monthly monitoring indicators were revised by PMIU, and the MEAs started collecting data on a set of fourteen indicators.³ The collected data was then analyzed and processed into producing monthly district packs for each district, and quarterly data packs for inter-district ranking at the provincial level. Although this monitoring mechanism put an effective data collection system in place, with enhanced data accuracy and streamlined processing, it had its limitations with the sub-optimal use of the Education Management Information System.

The limitations of this monitoring system could be attributed to one fundamental issue: the absence of an organized data structure. By assigning equal weightage to all indicators, the system failed to provide a comprehensive picture of a school's true standing. More significantly, amidst the statistical snapshots and information galore, the specific needs of an individual school were eclipsed under broader rankings and comparisons. Furthermore, the system lacked the capability to provide meaningful and actionable feedback to schools, thereby preventing them from self-assessing their performance and outcomes. Without an effective feedback loop, schools could not identify areas for improvement and make data-informed decisions. These limitations necessitated revisiting the data utilization by adopting a comprehensive framework built on systematic evaluation of the needs, and subsequent support required, for each school.⁴

Expanding on the established monitoring system, the School Improvement Framework (SIF) was developed with the technical assistance of the FCDO-funded Punjab Education Sector Programme-II (PESP II). SIF was aimed at enhancing the visibility of schools and fostering a shared understanding of prevalent issues among all relevant stakeholders. Perhaps the most significant aspect was the cultural shift it aimed to bring about, as SIF was zeroed in on providing tailored support by identifying the schools' needs rather than concentrating on aggregated data and broader rankings.

³ PMIU, Notification No. PMIU-PESRP/PD/2019-17243, dated 4th January 2019.

⁴ Cambridge Education. (2019). *School Improvement Framework: Punjab Education Sector Reform Programme II (PESP II)*. Mott MacDonald Limited.

SIF was rolled out across the province in February 2021. However, due to some barriers, it has not been operationalized to its full potential, thereby limiting its intended impact to aid in evidence-based decision-making and policy formulation. School Education Department's efforts to improve service delivery using data-driven insights are likewise hampered by this sub-optimal operationalization.

1.2 Scope of the Report

The report provides a synopsis of SIF's structure and data processing, discusses the barriers faced in the rollout phase, identifies key implementation challenges, and presents actionable recommendations to address these identified challenges effectively.

1.3 Methodology

The report uses a multi-method approach that includes focus group discussions, consultative sessions, and desk review. The desk review included an in-depth analysis of key strategic documents and data on SIF, reports and evaluations of the Reforms Roadmap monitoring system, data and action management reports produced by SIF, and best practices in education management information systems. The team carefully examined the SIF's structure, including data collection, processing, and report generation procedures to evaluate the technical architecture of the framework. An extensive consultation process was carried out to assess the current state of SIF and to determine the challenges preventing its implementation. The process included conducting consultative sessions and focus group discussions with the representatives of the School Education Department, PMIU, District Education Authorities, and key end users in the form of Assistant Education Officers (AEOs), Headteachers (HTs), and MEAs to identify the systemic and operational barriers encountered during the implementation of the framework.

These consultations helped in unearthing the challenges and on-ground hurdles impeding SIF's optimal operationalization. The feedback and insights from the people at the forefront of SIF implementation have greatly influenced the recommendations presented in this report.

1.4 Scheme of Presentation

The report is comprised of four sections. The first section outlines the background and scope of the report along with the methodology. The second section delves into an overview of SIF's structure, its data collection and processing methodology, rollout history, and current state of implementation. The third section details key challenges impeding SIF's implementation. The last section of the report concludes by presenting actionable recommendations to address the identified challenges to revitalize SIF by unlocking its true potential.

SIF: Overview, Rollout, and Current State of Implementation

2.1 Overview and System Design

A granular understanding of school-level needs, and unique challenges, is central to an effective Education Management Information System (EMIS) to drive impactful and sustainable improvement.⁵ At the core of its functionality, SIF does exactly that. It positions schools as the central unit of analysis with a well-structured framework for leveraging data to identify and address the specific needs and challenges of individual schools. It organizes key performance indicators into meaningful domains of school performance providing a structured approach to evaluating school performance. SIF categorizes schools based on their specific needs, creates an effective feedback loop, and generates data-driven action management insights for respective stakeholders at all administrative levels.

The framework is structured around four key domains of school performance, each representing an essential constituent of the efficiency and operations of the school. The four domains of school performance are:

- Student Participation and Personal Development
- Teachers and Teaching
- Leadership and School Support
- School Environment

Each domain has a set of relevant indicators and recognizing that not all indicators contribute equally to school improvement, each indicator is assigned a weight reflecting its proportional value in the school improvement process. By combining data from various sources, SIF generates a composite score called the *School Status Index (SSI)*, which is the precise measure to evaluate a school's overall performance and needs. This approach, instead of a one-size-fits-all, enables a more coherent

⁵ FCDO. (2021). Education Management Information Systems. Foreign, Commonwealth & Development Office. Retrieved from <https://www.gov.uk/government/publications/education-management-information-systems>

understanding of each school's requirements and helps direct customized support to schools.

Indicators under each school performance domain and the relative weight assigned to them are provided below:

Table 1: Domains and Performance Indicators of SIF

	Performance Indicators	Weight
Domain 1: Student Participation/ Personal Development		35
1	Student attendance rate	15
2	LND aggregate score	15
3	Student cleanliness	5
Domain 2: Teachers and Teaching		45
4	Teacher attendance	15
5	Teacher allocation	10
6	Teaching aids availability	3
7	Teacher CPD participation	12
8	Teaching practice score	5
Domain 3: Leadership and school support		10
9	Head teacher attendance	2
10	Non-teaching staff availability	1
11	Instructional leadership	4
12	School improvement plan	1
13	School council meetings held	1
14	NSB disbursement	1
Domain 4: School Environment		10
15	Security and safety arrangements	1
16	Dangerous buildings	1
17	Availability of electricity	1
18	Classrooms with adequate visibility	1
19	Availability of sufficient furniture	1
20	Provision of toilets	1
21	Maintenance of toilet facilities	1
22	Availability of safe drinking water	1
23	Availability of play area/playground	1
24	Cleanliness of school facilities	1
	Total	100

Based on their respective SSI scores, schools are then categorized into four distinct bands, each of which indicates a specific level of need for support and improvement. This school stratification, rather than the binary classification of performing and underperforming schools, enables a thorough evaluation of institutional needs, facilitating targeted resource allocation to only those institutions that require the most assistance. This approach also enables education managers to gauge the progress of schools by analyzing schools' progression between the bands over time.

The following figure depicts the four bands of need assistance categories:

Figure 1: Bands of Need Assistance Categories



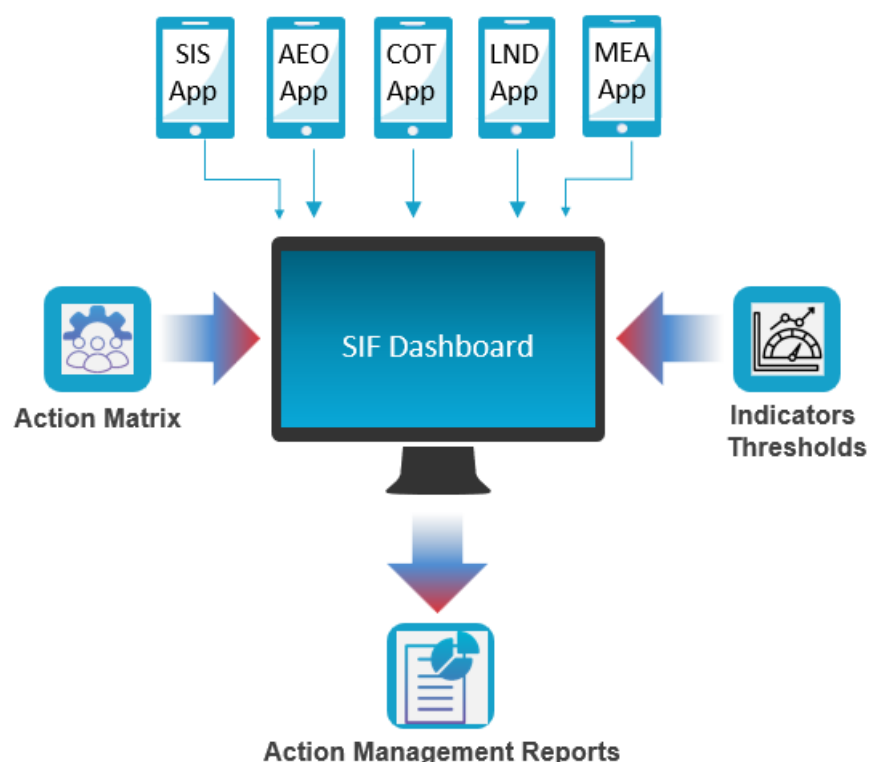
2.2 Technical Layout

SIF's robust data collection mechanism which systematically collects, processes, and analyzes data to drive the school improvement process is the cornerstone of its functionality. SIF integrates multiple data sources that collect information on a wide array of data points covering student and teacher attendance, LND performance, school infrastructure, and school environment. Once collected, the data is assessed for each indicator against predetermined thresholds thus providing a holistic understanding of each school's performance.

SIF generates detailed Action Management Reports at different administrative levels, which render data insights into actionable steps. These reports foster collaborative efforts to drive school improvement process by facilitating a top-down and bottom-up evaluation that keeps all administrative tiers closely aligned with the ground realities. These reports outline the specific actions required to address the identified school needs and designate the appropriate administrative level for undertaking the necessary actions. This clear delineation of roles intensifies transparency within the system and enables targeted intervention to address the identified needs or challenges. This, in effect, is a major transition from a target-oriented approach to a solution-based focus in school improvement, through a systemized approach to data collection, processing, and actionable reporting.

The figure below depicts SIF's technical layout, from data input, processing, and report generation:

Figure 2: Technical Layout



2.3 Rollout History

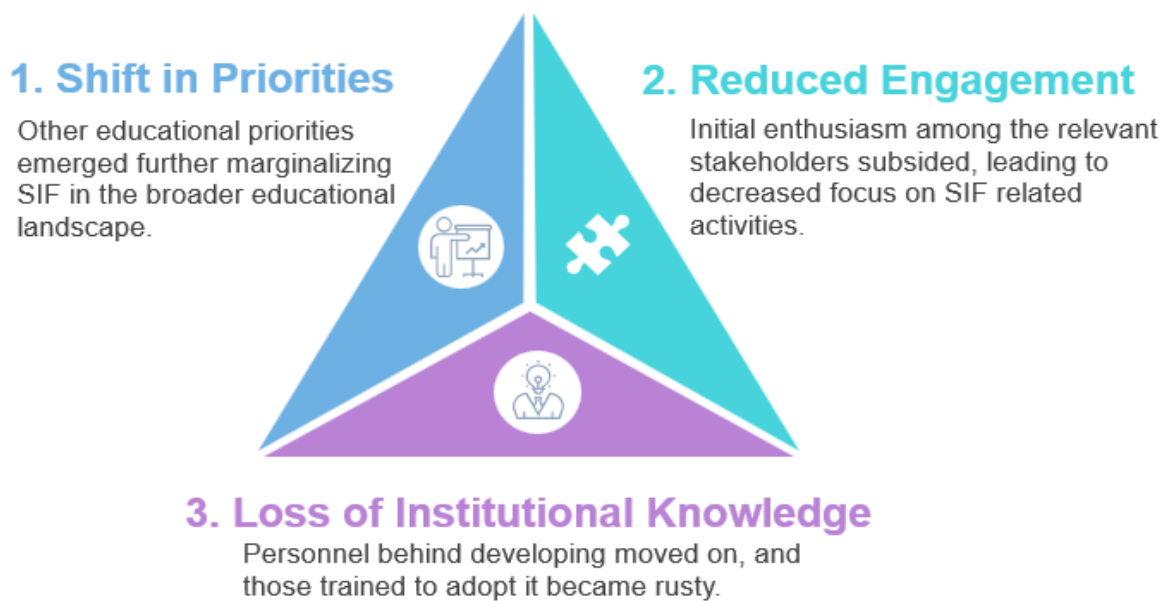
SIF was initially rolled out in March 2020 with the support of the Punjab Education Sector Programme-II (PESP II) as a pilot in six selected districts of Jhelum, Khushab, Pak Pattan, Lodhran, Chinniot, and Rajanpur to test the framework's readiness and operational aspects prior to wider application. At the outset, extensive training was imparted to the Divisional Field Coordinators (DFCs) and all tiers of District Education Authorities (DEAs) to ensure that relevant personnel were adequately equipped and prepared to adopt the new framework. Simultaneously, a centralized dashboard was developed and operationalized to streamline data sources and generate data-driven insights. Following the pilot phase, SIF was scaled province-wide in February 2021.

However, both the pilot phase and the wider scale-up were disrupted heavily due to mobility constraints and extended school closures during the COVID-19 pandemic. Since the imposition of the first national lockdown in March 2020, complete or partial school closures in Punjab continued till September 2021 resulting in the absence or lack of requisite data collection from schools. This data deficiency created a challenge that substantially restrained the framework's widespread adoption and implementation across the province.

In addition, there is an institutional resistance to change within the government structures with deeply embedded practices and systems. The previous monitoring system, the Reforms Roadmap, had grown into an integral part of the education ecosystem with high-stakes evaluations, inter-district comparisons, and established follow-up routines. Within this context, the introduction of a new system like SIF needed significant momentum to overcome this institutional resistance to change. However, the prolonged period of data deficiency and absence of follow-up contributed to the waning of this critical initial impetus.

As the schools finally reopened without any COVID-19 disruption, other educational priorities like stemming learning losses and recalibrating curriculum emerged, further marginalizing SIF in the broader educational landscape.

This loss of momentum led to the following consequences:



In addition to the above, the political and frequent administrative changes of SED leadership resulted in continual shifts in strategic direction. This constant flux made it difficult for stakeholders at all levels to fully engage with and commit to SIF's reception and adoption within the system. Moreover, the lack of consistent advocacy from the highest level of the department leadership weakened SIF's perceived importance. Overcoming these barricades would have required establishing mechanisms to ensure policy continuity, re-engaging stakeholders, reviving data collection procedures, and realigning the framework with the department priorities.

2.4 Current State of Implementation

In addition to the barriers discussed above, the situation was aggravated by the emergence of some new challenges hindering SIF from gaining any traction within the system. Though SIF is operational, its current state of operationalization falls significantly short of its inherent potential and purpose. While data is being gathered from various sources, it is not being translated into practical insights that formed the foundation of SIF's design. The last tabulated report available on the SIF dashboard dates to the last quarter (October – December) of 2022 undermining the foundational premise of SIF. This disconnect between data collection and use, lack of insightful and frequent reports, underutilization of the system's potential, and decreased stakeholder engagement have all contributed to SIF maintaining a semblance of functionality without delivering on its core objectives.

The situation underscores the need for a thorough examination of the bottlenecks and challenges plaguing the framework. The subsequent section discusses these challenges in detail, setting the stage for tangible recommendations that will follow.

Challenges Impeding SIF's Optimal Operationalization

This examination reveals that SIF currently faces an array of interconnected challenges that considerably impede its successful operationalization and restrain its effectiveness. These challenges can be categorized into three primary domains: structural, operational, and financial. Each of these domains presents unique challenges that, when combined, pose formidable obstacles to the framework's optimal functioning and efficacy.

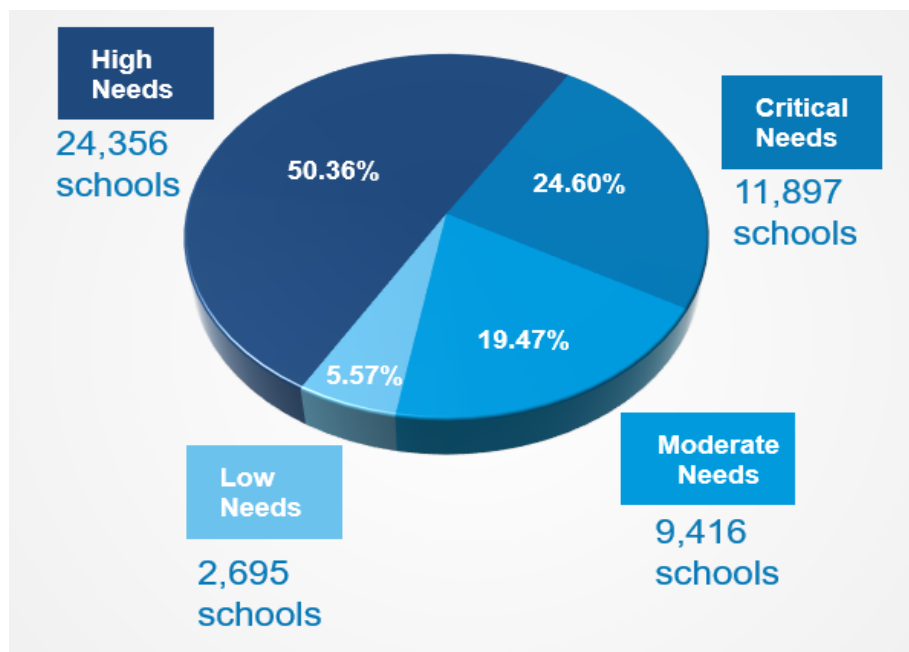


3.1 Structural Challenges:

- **Calculation of School Status Index (SSI):**

The foremost structural challenge is that data synchronization, including the calculation of SSI scores by combining data from five different data sources, results in inconsistencies and raises concerns about data reliability. This phenomenon was a recurring theme in the focus group discussions with the district formations which pointed out that reports generated by SIF do not depict the actual picture of a school's standing and performance. The figure below showcases the distribution of schools according to improvement needs as per the last report generated by SIF for the final quarter of 2022.

Figure 3: Distribution of Schools in the Last Quarter of 2022



Almost 75 percent of the total schools in Punjab have been placed in the ‘critical’ and ‘high’ needs category which is highly unlikely and does not reflect the actual ground position. This indicates some underlying flaws in the framework’s SSI calculation methodology. It is imperative to note that SIF’s technical architecture has not been reviewed once since its initial rollout in March 2020.

- **The case of Classroom Observation Tool (COT) and Missing Data:**

Classroom Observation Tool (COT) is a measure of the learning environment and instructional quality, key classroom practices associated with improved student learning, regardless of subject or grade. COT is part of the broader Continuous Professional Development Programme (CPDP) aimed at enhancing pedagogy and teaching practices. The data on COT is tabulated by the Assistant Education Officers (AEOs) through a mobile application, which is also used to track progress and provide feedback to teachers for improvement. As per their TOR, AEOs are required to conduct two classroom observations per school each month in their respective clusters.

Within SIF, the 'Classroom Observation Score' is an indicator under the 'Teachers and Teaching' school performance domain and has been assigned a weightage of 5 in the calculation of SSI. As it stands, the CPDP is currently only operational for Primary School Teachers (PSTs), leaving teachers operating at the post-primary level entirely excluded from the classroom observation process. An SSI computation without this differentiation reflects an incomplete picture of the teacher effectiveness indicator. This gap necessitates broadening CPDP to all teaching cadres, and a revision of COT to include all teachers in the observation process, regardless of the level at which they teach.

In addition to this, not all schools are being regularly visited due to a shortage of MEAs in many districts. However, data on 16 out of the total 24 performance indicators is collected from the two applications (MEA and LND apps) used by the MEAs to conduct their monitoring and assessments. In the case of schools not visited by the MEAs, the calculation of SSI scores based on partial data substantially hampers obtaining a comprehensive picture of the school's performance and needs.

- **Rationalization of Action Matrix:**

Another recurring concern raised in the Focus Group Discussions was the assignment of some responsibilities in SIF's Action Matrix, which the district education managers believed was not in line with their official roles and capacity. The 'Action Matrix', produced below, assigns the responsibility of improving each indicator to a specific tier of administrative level.

Table 2: SIF's Action Matrix

Sr. No.	Administrative Tier	No. of Indicators	Assigned Indicators
1	School Education Department	2	1. Teacher Allocation 2. Non-teaching Staff Availability
2	Chief Executive Officer (CEO)	2	1. NSB disbursement 2. Teacher CPD Participation
3	District Education Officer (DEO)	6	1. Security and Safety Arrangements 2. Provision of Toilets

			3. Availability of Sufficient Furniture 4. Dangerous Buildings 5. Student Attendance 6. Availability of Playgrounds
4	Deputy District Education Officer (DDEO)	4	1. Availability of Electricity 2. Headteacher Attendance 3. Teacher Attendance 4. School-based Improvement Plan
5	Assistant Education Officer (AEO)	4	1. LND Score 2. Classroom Observation Score 3. Instructional Leadership 4. School Council Meetings
6	Headteacher	6	1. Student Attendance 2. Student Cleanliness 3. Teaching Aids Availability 4. Blackboard Visibility 5. Maintenance of Toilets 6. Cleanliness of School

The three indicators of Dangerous Buildings, Provision of Toilets, and Availability of Playgrounds, all part of the School Environment domain, have been assigned to the District Education Officer (DEO) of the respective District Education Authority. All three, however, are directly linked to the availability of adequate development funds which are beyond a District Education Officer's purview.

This disconnect between the theoretical design and practical realities suggests a recalibration of the Action Matrix based on the mandate and roles of various administrative levels.

3.2 Operational Challenges:

- **Cultural Shift:**

A fundamental component of SIF's design was the transition from a culture rooted in broader rankings and accountability to one that was more supportive and collaborative by acknowledging the diverse contexts in which schools operate. This cultural shift, however, has created a unique challenge of changing long-standing institutional behavior toward monitoring and evaluation. The system has been run for years under the constant pressure of rankings and the pervasive fear of penalties. This deeply ingrained mindset mistakenly perceives that a lack of

such pressure therefore means low relevance and low importance, thereby leading to reduced participation and interest. Practitioners accustomed to the preceding system of fear-based accountability find it particularly challenging to adjust to a new system that encourages support and collaboration.

Embracing this cultural shift is a gradual and multilayered process. Overcoming this challenge requires persistent communication and an environment that enables the practitioners to flourish in a supportive ecosystem. At the same time, it is equally essential to demonstrate that SIF is not a retreat from accountability, and support is *not* a substitute for results.

- **Shortage of District Monitoring Officers (DMOs) and MEAs:**

The systematic approach to data collection is designed to collect school-wise data by the MEAs under the administrative control and leadership of the District Monitoring Officers (DMOs) at the district level. DMOs also play a pivotal role in facilitating monthly and quarterly review meetings with the District Administration to track progress on all performance indicators. MEAs, on the other hand, form the backbone of the field-level data collection process, ensuring that all schools are visited at least once within any given timeframe.

A severe shortage of essential monitoring personnel at the district level is substantially hampering timely data collection and coverage of all schools. Only one of the 36 sanctioned DMO posts across the province is currently occupied, leaving a substantial gap in district-level oversight. The situation is equally concerning for MEAs. Out of 1068 sanctioned MEA posts, approximately 31 percent (331) are vacant, indicating a significant shortfall in on-ground data collection capacity.

- **Absence of Central and District Routines:**

Accountability and follow-up mechanisms are core elements of an effective governance structure making certain that policies and initiatives move from conception to implementation with the intended impact. Regular review meetings at both central and district levels called the ‘routines’, were a vital feature of the

Reforms Roadmap monitoring system. These routines served as a platform to track progress, identify bottlenecks, establish accountability, and foster adaptive management within the education system.

Once a central routine with higher administrative authority is established, similar routines at the district level drive the entire system toward sustainable enhancement in educational governance. Since the province-wide scale-up of SIF in January 2021, no central or district routines have been established limiting its relevance and adoption within the system and intended impact.

- **AEOs Coverage of Primary Sections of High and Higher Secondary Schools:**

As already discussed above the CPDP is currently only operational for the Primary School Teachers (PSTs), and AEOs tabulate COT scores of PSTs within standalone primary and elementary schools in their respective clusters. In January 2023, the School Education Department directed the District Education Authorities to broaden the scope of CPDP to High and Higher Secondary schools having primary sections, but this has not yet been fully implemented. Consequently, the COT score for PSTs teaching in High and Higher Secondary schools is not tabulated and, hence, cannot be reflected in SSI. This gap deprives those PSTs of the much-needed CPD support and puts such schools at a clear disadvantage as the COT score is applied to the SSI computation of all schools, even if no actual classroom observation has been conducted.

- **System Readiness at PMIU:**

SIF's dashboard was developed with the support of the Punjab Information and Technology Board (PITB) and all data sources feeding into the dashboard were hosted and configured at PITB. By June 2022, the establishment of SED's Data Center at PMIU facilitated the migration of all SED-related databases, portals, and applications to this centralized facility. The Data Center at PMIU has been made operational with the latest infrastructure and the placement of appropriate human resources.

The majority of SED's applications, including SIF, have been successfully migrated and hosted at PMIU. However, for SIF's optimal operationalization, all these data sources need to be deployed, configured, and tested in the new environment before going live in the field. Additionally, the customization of data to generate data-driven insights requires appropriate tools and corresponding technical expertise. The integration of all education-related digital resources is currently under process at PMIU. This streamlining of all digital resources and ensuring system readiness is central to the maximized execution of SIF. While the Data Center at PMIU is operational, it may not be sufficiently equipped to manage the operationalization of SIF considering the scale and complexity inherent in a province-wide management information system.

- **Limited Comprehension of SIF Indicators:**

The absence of district routines and inadequate orientation has resulted in limited comprehension of SIF's domains and indicators among tiers of District Education Authorities. This gap is further compounded by the frequent turnover of officials in district formations with the new officials having limited to no knowledge of the framework. This situation necessitates conducting thorough orientation sessions and refresher training for all tiers of the District Education Authorities.

3.3 Financial Challenges:

- **Persistent Lack of Action on Certain Indicators:**

The primary financial challenge is a persistent lack of action on certain indicators due to fiscal constraints, i.e., teacher allocation, dangerous buildings, and provision of toilets. This financial limitation also has a multiplier effect on other aspects of school improvement. For instance, poor teacher allocation, dangerous school buildings, and inadequate sanitation may all have an impact on the resultant outcomes of learning, retention, or attendance.

Furthermore, this also leads to inequity where certain schools or districts are disproportionately affected because of financial constraints that might hinder them from addressing a wider range of indicators. However, reporting on these indicators

is essential to advocate for increased budgetary allocation or alternative funding sources.

- **Insufficient Non-Salary Budget:**

The School Education Department provides a school-specific Non-Salary Budget (NSB) to all public schools to cover recurrent operational costs of schools. These funds are executed through respective School Councils (SCs) entrusted with planning, managing, and utilizing these funds as per the school's needs and requirements. NSB comprises 9 distinct components with significant variation in allocation across different school levels.

While this allocation has certainly been helpful, it has become increasingly inadequate over the years as operational expenditure has increased along with inflation. Schools use these funds to cover essential expenses, from utility bills that have seen considerable hikes, to furniture, school maintenance, and salaries for ECCE caregivers. Most of the schools need sweepers to meet cleanliness standards as schools continue to face a shortage of non-teaching staff. These growing needs and delays in disbursement consequently leave many schools, especially at the primary level, in a precarious financial position where they make difficult trade-offs and compromise the school improvement process.

- **Inadequate Petroleum, Oil, and Lubricants (POL) Costs for MEAs:**

Inadequate and delayed provision of POL costs for MEAs creates an additional barrier to effective monitoring. Considering the acute shortage of MEAs and mandatory coverage of all schools, each MEA is assigned a larger number of schools often spread across a wide geographical area. MEAs, particularly those in remote and hard-to-reach areas, find it difficult to cover all schools if mobility costs are not paid regularly. This challenge necessitates prioritizing mobility costs as an essential element of the MEA role.

Conclusion and Recommendations

The School Improvement Framework presents a significant stride forward in SED's strategic push to drive systemic improvement in the education landscape by instilling a culture of continuous improvement and evidence-based decision-making. SIF demonstrated considerable promise in its conceptualization and initial development. However, as this analysis reveals, the road from inception to its effective implementation has been characterized by some gains and substantial challenges.

At its core, SIF provides a comprehensive assessment of a school's needs and then provides strategic direction for tailored support. It goes beyond specific metrics to take into account all pertinent factors that can have an impact on the school improvement process. The framework facilitates targeted resource allocation, potentially amplifying the impact of limited available resources. A notable departure from the previous accountability-based model is the framework's emphasis on school support systems as opposed to an evaluative approach. However, despite its inherent potential, the implementation of the framework has been marred by underlying barriers and challenges. The framework's layout and architecture have not been reviewed or updated creating data inconsistencies. The lack of a regular follow-up mechanism and the staff shortage at the district level have contributed to reduced stakeholder engagement. Financial constraints have emerged as a notable barrier, based on the fact that inaction on some indicators, inadequate POL, and insufficient NSB all limit the full realization of SIF's objectives.

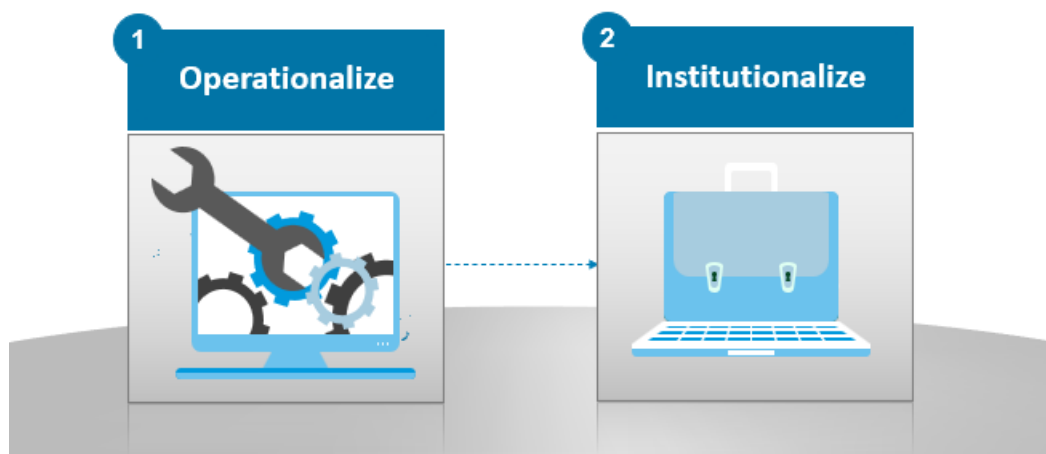
Despite these challenges, the framework holds great promise for a sustainable and systemic transformation to cultivate a collaborative and informed decision-making culture. The framework's success lies in the willingness and ability of all stakeholders to navigate the structural, operational, and financial challenges without losing sight of its core objectives. There is an urgent need to put strategies in place to overcome these obstacles to ensure that SIF can fulfill the potential for which it was designed, which is driving meaningful, system-wide educational improvement.

4.1 Recommendations:

The preceding section has highlighted key interconnected challenges impeding SIF's effective implementation. While these challenges exist, it is essential to recognize that SIF can be operationalized and strengthened without undertaking an extensive overhaul. The following recommendations are aimed at addressing these identified challenges outlining a roadmap for immediate implementation, and interim institutionalization.

These recommendations are structured in a phased approach:

- **Immediate Actions:** These immediate actions focus on the rapid operationalization of SIF by establishing foundational operational procedures to create the much-needed impetus.
- **Interim Actions:** These recommendations seek to strengthen and institutionalize SIF through a sustained implementation to maximize its impact. They may necessitate realignment of resources or policy modification but are crucial for the full realization of the framework's potential.



The recommendations are targeted, actionable, and aligned with the core objectives of SIF. A key consideration while formulating these recommendations is that SIF can be strengthened and implemented by streamlining processes and leveraging existing resources effectively. While these recommendations provide a structured approach to

strengthening SIF, emerging challenges, and local contexts may necessitate adaptations to this roadmap. Given this fact, it will be imperative to regularly review and adjust these strategies so as to incorporate feedback and data insights.

4.1.1 Immediate Actions:

- **Review of Data Architecture and Algorithm:**

This analysis has revealed a flaw in the underlying manner in which SIF processes the collected data and generates action management reports. These reports often fail to accurately reflect the true conditions and challenges faced by the schools, raising concerns about data reliability and validity. Given that SIF's system design and architecture have not been evaluated since its introduction, it is recommended to conduct a comprehensive examination of its data and application architecture and algorithm. This evaluation includes assessing the data collection protocols, examining integration and data flow, and analyzing the algorithm used for calculating performance indicators. It is imperative to establish that data collection, processing, and data analysis mechanisms within SIF, the cornerstone of the framework, are sound, effective, and aligned with its goals.

- **Data Integration and System Readiness at PMIU:**

SIF is currently being hosted at SED's Data Center established within PMIU. For SIF to function optimally and deliver on its promise, it is crucial that all relevant data sources are integrated into the system, with seamless data and information flow. This integration is not just a technical requirement but a fundamental necessity for creating a holistic view of the education landscape.

The deployment and configuration of all data sources at PMIU must be carried out expediently. The user-testing phase and data security are equally important, which guarantees that the system is not only technically sound and secure but also user-friendly, and meets the requirements of various stakeholders. As PMIU will be handling all customization and change requests going forward, the human resource aspect cannot be overstated. It is critical that appropriate human resources, particularly on the development side, be placed to manage and configure SIF effectively.

- **Engagement of Punjab Information Technology Board (PITB):**

Optimal realization of SIF's potential requires a more robust approach. Considering the constraints of SED's Data Center, it would be prudent to engage PITB for SIF's initial operationalization, while PMIU continues to build its capacity. PITB played a crucial role in the design architecture and development of SIF's dashboard. Given that all data sources feeding into the dashboard were hosted at PITB, the board was also responsible for generating and disseminating all Action Management Reports.

As per the current Service Level Agreement (SLA) between PITB and PMIU, PITB continues to provide hosting services to some of SED's digital resources, mainly the department's primary database, the School Information System (SIS). Customization and handling of change requests is, however, PMIU's responsibility. Within the established SLA, PITB can be engaged to provide the necessary technical expertise and take the lead in the initial stages of SIF's implementation. To this end, a clear engagement structure can be devised to delineate roles, set timelines, and establish protocols for support and consultation. It is essential to recognize that PITB's engagement is viewed as a strategic partnership, rather than a replacement for PMIU's role. This partnership, while temporary, would be instrumental in addressing immediate technical challenges, paving the way for SIF's full operationalization.

- **Establishment of Central and District Routines:**

Regular review meetings at the central and district levels serve as the platform for tracking progress, needs analysis, accountability setting, and collaborative planning. They also set the tone for a systematic reception of an intervention or initiative. In this context, it is recommended to constitute quarterly and monthly routines, at the provincial and district levels respectively. The quarterly routine, referred to as a 'stocktake', should be chaired by a higher administrative authority, such as the Minister or the Secretary of the School Education Department Punjab. The monthly district routines may be held under the aegis of respective Deputy Commissioners who also serve as the Administrators of the District Education Authorities. These routines, when institutionalized, can provide a structured approach for continual monitoring, evaluation, and system-wide implementation of SIF.

- **Revival of Inter-District Rankings:**

While SIF was initially designed to be a non-ranking system, revitalizing SIF presents an opportunity to reintroduce a modified version of inter-district rankings without compromising the supportive nature of the framework. SIF's concept document rightly points out the problematic nature of such rankings and high-stakes evaluations, which may lead to unintended consequences such as eclipsing individual school's needs, or developing perverse incentives.

Nonetheless, it is essential to consider the unique characteristics of Punjab's educational landscape and the cultural context in which it operates. The previous ranking system served as a powerful motivator, creating a sense of urgency, fostering healthy competition, and keeping stakeholders engaged and accountable. In the local context, the absence of such evaluation may lead to complacency and a lack of focus on continuous improvement. In addition, the expectation of predetermined benchmarks and public recognition for achievement is deeply ingrained in the system. These cultural attributes can be harnessed to drive improvement by reintroducing a carefully designed ranking system. This can be achieved by designing a ranking system that aligns with the core principles of SIF while creating a balanced approach to motivate districts to improve their performance.

Key considerations for the proposed ranking system include:

- **Selective Indicator Inclusion:** Only those indicators directly under the control of district administrations may be included in the ranking system. Indicators that are linked to the availability of development funds, such as Dangerous Buildings, Provision of Toilets, and Availability of Playgrounds, may be excluded from the rankings. Similarly, indicators such as Teacher Allocation, CPD participation, and NSB disbursement may also be excluded from the ranking as they are beyond the district administration's purview.
- **Progressive Benchmarking:** Instead of relying solely on absolute rankings, a system that measures progress against each district's baseline may be considered. This approach would recognize and reward improvement efforts, regardless of the district's starting point.

- **Transparency and Fairness:** A clear, transparent methodology for the ranking system, and computation of selected indicators, may be devised and communicated to district formations for an understanding of all stakeholders.
- **Monthly District Packs:** PMIU may be tasked to prepare monthly, tailored district packs for each district to provide an overview of the district's performance for each monitoring month. Preparation and dissemination of such district packs were a regular feature of the Reforms Roadmap's monitoring and ranking system.
- **Incentives for High-Performers:** The ranking system may be linked to a structure of incentives, such as financial awards, for the top five high-performing districts to foster a culture of healthy competition.

This system can serve as a bridge between the Reforms Roadmap and SIF, helping to ease the transition and increase buy-in from the practitioners who are accustomed to the previous system. This strategy recognizes the cultural context where rankings have traditionally driven engagement, while also acknowledging the need for a more holistic approach to school improvement.

- **Posting of District Monitoring Officers (DMOs):**

The District Monitoring Officers (DMOs) play an essential role in providing administrative leadership and support to the district-level monitoring system. They also help in establishing structured monthly routines in respective districts. Despite the department's continued efforts, the DMO posts across the province are lying vacant except that of Faisalabad, highlighting the severity of this issue. This leadership vacuum compromises established protocols, consistent data collection, and accountability setting in district-level monitoring. There is a dire need to advocate for the immediate staffing of these positions through regular engagement with the concerned authorities. It is proposed that the matter be taken up with the Chief Minister's Office to prioritize posting DMOs through the Services and General Administration Department (S&GAD). As an immediate measure, until the DMO posts are filled, the additional charge for the post may be assigned to an officer of the rank

of an Additional Deputy Commissioner (ADC) in all districts to maintain monitoring activity.

- **Recruitment of MEAs:**

MEAs form the backbone of SED's monitoring mechanism as they are responsible for collecting and tabulating data on 16 out of 24 SIF indicators. Their role is critical in reliable data collection which serves as the foundation for data-driven decision-making. The existing shortfall in MEA staffing must be addressed to ensure 100 percent coverage of all schools across the province. Therefore, the process for recruitment of MEAs against 331 vacant posts needs to be initiated at the earliest to address the shortage of these key monitoring personnel.

- **Coverage of All Schools with Existing MEAs:**

Partial coverage of schools leads to data gaps, resulting in SSI scores portraying an incomplete picture of school performance and needs. Till the recruitment of MEAs on vacant seats, there is a need to recalibrate the current school visiting schedule to cover all schools at least once within a quarter. This rescheduling will involve careful planning including equitable redistribution of existing MEAs, grouping schools in proximate locations, and prioritizing schools such as time since the last visit or consistent poor metrics to name a few. It is proposed that PMIU, in liaison with the offices of DMOs, prepare such a rescheduling plan to ensure coverage of all schools.

- **Revision of Classroom Observation Tool (COT):**

As pointed out in sub-section 3.1 of the report, teachers at the post-primary level are excluded from the classroom observation process as CPDP is currently only operational for PSTs. This requires broadening the scope of CPDP to all teaching cadres which will be discussed in the succeeding section of this report.

During the period before CPDP is scaled up to include all teaching levels, it is essential to revise COT and adopt a provisional method for assessing Elementary, Secondary, and Higher Secondary Schools on this indicator. A meaningful COT score for these schools can be achieved by taking an aggregate of all other indicators within the same domain, reflecting the overall teaching effectiveness in these schools.

- **Redressal of POL Issue:**

As already highlighted in this analysis, mandatory coverage of all schools by the MEAs is crucial for reliable, consistent data collection and analysis. However, covering all schools with the existing workforce remains a challenge as 331 posts of MEAs are lying vacant. Furthermore, the challenge is aggravated due to the non-payment of mobility costs to MEAs, tasked to cover a greater number of schools. There is currently a significant backlog of millions of rupees in outstanding POL claims across various districts, which is severely hindering the monitoring of schools. It is, therefore, recommended to promptly address all longstanding POL claims with immediate realignment of available resources.

- **Expansion of AEOs Coverage to Primary Sections of H./H. Sec Schools:**

AEOs are required to carry out at least two classroom observations of every primary school in their clusters every month. However, the lack of coverage of primary sections of High and Higher Secondary schools in such observation is a glaring oversight due to insufficient inter-wing coordination within the District Education Authorities. The School Education Department had directed the District Education Authorities (DEAs) to broaden the scope of CPDP to all High and Higher Secondary Schools having primary sections.⁶ However, the directive has not been fully implemented in many districts resulting in neglect of primary sections of higher-level schools and also creating data inconsistency on the classroom observation score. It is recommended that the implementation of this directive be ensured in its full letter and spirit, authorizing the Assistant Education Officers (AEOs) to visit all such schools and conduct classroom observation of PSTs regardless of the school level.

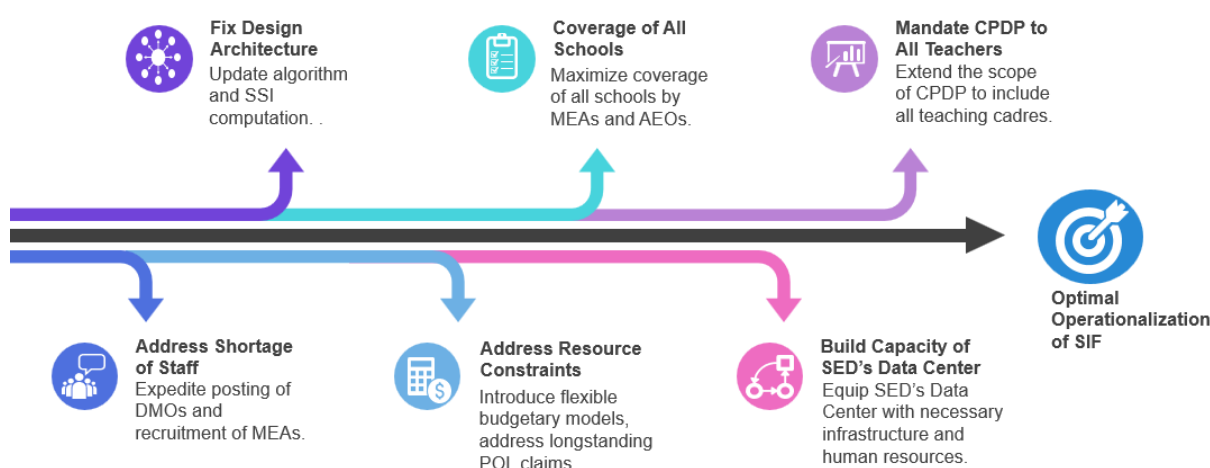
- **Orientation of SIF and Data Literacy Training of DEAs:**

Insufficient orientation sessions and the absence of monthly routines have contributed to a limited understanding of SIF's core components and performance indicators among the tiers of DEAs. Additionally, representatives of DEAs often fail to comprehend data interpretation due to inadequate data literacy. To address this issue,

⁶ School Education Department, Notification No. SO(TRG)MISC/2023(CPD), dated 19th January 2023.

it is recommended to roll out orientation sessions and data literacy workshops focusing on SIF components, categorization of schools, and data collection protocols. It is proposed that such sessions and workshops be conducted at all divisional HQs by PMIU.

The recommendations presented above are focused on operationalizing SIF by addressing some pressing challenges without requiring any substantial system overhaul or additional resources. These recommendations are attainable within a relatively smaller timeframe by removing procedural barriers and optimizing existing resources. The goal is to provide the needed impulse to SIF by putting the processes and systems in place to generate comprehensive action management reports for the last quarter, from October to December 2024.



4.1.2 Interim Actions:

- **Broadening the Scope of CPDP to All Teaching Cadres:**

To address the gap in the classroom observation process, the scope of the Continuous Professional Development Programme (CPDP) needs to be expanded to include teachers across the Elementary, Secondary, and Higher Secondary levels. This requires the Quaid-e-Azam Academy for Educational Development (QAED) to develop CPDP modules for the elementary and secondary levels and may require additional resource allocation. The development of CPDP modules for the elementary

level is included in the upcoming World Bank-funded GRADES project which is expected to be rolled out by the end of this year.

For standardized classroom observation practices, it is proposed that the development of CPDP modules for the secondary level may also be carried out in tandem with the elementary level. This approach will streamline and mandate CPDP participation for all teachers, regardless of their level of teaching. Consequently, the COT app will have to be revised again and updated to include all teachers in the classroom observation process eliminating the discrepancies in COT data.

- **Introduction of Fixed Monthly POL Allowance for MEAs:**

At present, the POL allowance for MEAs is not fixed, and the incurred expense is reimbursed as per the submitted claims, subject to the verification by the office of the District Monitoring Officer (DMO) and the availability of funds within this budget head. In addition to their primary responsibility of monitoring schools, MEAs are also assigned tasks such as conducting needs assessments and spot-in checks for ongoing interventions. Delays in reimbursement procedures may lead to financial strain and decreased job satisfaction among MEAs. It is, therefore, recommended that a fixed monthly POL allowance for MEAs be introduced to promote fairness and accuracy in reimbursement. A fixed monthly allowance of Rs.15,000 is proposed for fair compensation keeping the current fuel price indices in view. This recommendation should be considered in the context of reducing financial stress and enhancing the motivation and productivity of this crucial workforce.

- **Improved Resource Allocation:**

Insistent resource constraints are a formidable barrier that continues to hamper progress on essential indicators such as the availability of teaching and non-teaching staff and the provision of adequate school infrastructure. The impact of this resource constraint is far-reaching affecting school environment, instructional quality, and retention rates. The resource constraint, however, is largely linked to the reduced fiscal space available to the government, and this contraction leads to budgetary limitations, with available funds often insufficient to address all pressing needs simultaneously. The challenge is compounded by a lack of long-term financial planning and inflexible

budgetary structures, resulting in funds being underutilized in some areas while the crucial or emerging challenges remain unaddressed in others.

The addressal requires a multifaceted approach involving increased advocacy, efficient and equitable resource allocation, resource optimization, and exploring alternative funding sources. Keeping all the above in view, the recommendations include:

- **Increased Advocacy Efforts:** Intensify advocacy efforts with data-driven evidence for increased education funding targeting parliamentarians, the Finance Department, and the Planning & Development Board (P&D) for a broader support base.
- **Rationalization and STIs:** Rationalization of teachers be carried out to ensure systematic redistribution of teachers based on enrollment and other relevant factors. Additionally, the acute shortage of teachers in certain rural and remote areas may be addressed by hiring School Teaching Interns (STIs).
- **Efficient Resource Allocation:** Implement an evidence-based resource distribution process, prioritizing critical needs and having the flexibility needed to route resources to address emerging ones.
- **Exploring Alternative Sources:** Proactively engage with the development partners and explore corporate social responsibility (CSR) opportunities with local and multinational companies operating in Punjab.

Overcoming fiscal constraints in the education sector is a complex challenge due to the interplay of political, economic, and social elements. Yet, it is an undeniably vital undertaking. It is imperative to recognize that enhanced resource allocation in education is not just a departmental requirement, but a social necessity for the long-term development of human capital. While resource constraints present significant challenges, they should not serve as a justification for inaction or lack of progress in educational improvement. SIF offers avenues for enhancement that do not necessarily mandate substantial financial outlays. The key lies in cultivating a culture of resourcefulness, where commitment and effective resource management can often overcome financial limitations.

As this analysis concludes, it is evident that SIF reflects both promise and areas of concern alike. While the framework's design aligns well with the contemporary principles of education management, there remain substantial challenges to overcome before SIF's true potential can be realized. The recommendations presented in this report aim to transform SIF from a promising concept into a fully operational and effective tool for educational improvement. Their success, however, hinges on the unwavering commitment and decisive actions of the School Education Department.

The potential impact of a fully operationalized SIF on the educational landscape cannot be overstated. By providing a holistic picture of various aspects of the school improvement process, SIF offers a paradigm shift in how educational governance and management are approached. Such a shift will help establish a more responsive, efficient, and effective education system that serves the needs of all stakeholders, ultimately leading to improved teaching and learning environments for all learners. The call to action is clear: it's high time to invest in SIF's potential and embrace a culture of evidence-based decision-making to ensure that educational reforms and initiatives are data-driven, impactful, and aligned with national and global educational goals.

Proposed Action Plan

No.	Action	Responsible Entity	Immediate (3-6 months)	Interim (1 year)
1.	Conduct a thorough review of SIF's Data Architecture and algorithm.	PMIU		
2.	Establish central and district routines.	SED / PMIU		
3.	Reintroduce inter-district rankings.	PMIU		
4.	Equip SED's Data Center with necessary data environment and Human Resource.	PMIU		
5.	Engage with concerned quarters to expedite the posting of DMOs.	SED		
6.	Initiate recruitment process for vacant posts of MEAs.	SED		
7.	Recalibrate the MEAs schedule to cover all schools.	PMIU/DMOs		
8.	Revise COT to include all teaching cadres in SSI computation.	PMIU		
9.	Expand AEOs coverage to all High. / H. Sec schools with primary sections.	SED		
10.	Allocate resources to address longstanding POL claims.	SED/PMIU		
11.	Conduct workshops on Data Literacy and SIF	PMIU		
12.	Extend the scope of CPDP to all teaching cadres.	QAED		
13.	Introduce fixed monthly POL allowance for MEAs.	SED		
14.	Introduce flexible budgetary models.	SED		