WORKSHOP REPORT

Accessible Digital Textbooks

for Inclusive Education in Punjab

Three-Day Capacity Development Workshop on Accessible Digital Textbooks (ADTs)

Building Government Capacity for In-house Production of Accessible Learning Materials



17 – 19 November 2026 | Avari Hotel, Lahore

Special Education Department, Government of the Punjab
in collaboration with UNICEF Pakistan, with support from GPE

Message of the Special Assistant to the Chief Minister



Ms. Sania Ashiq Jabeen
Special Assistant to the Chief Minister Punjab for Special Education

Under the vision of the Chief Minister Punjab, the Government of the Punjab regards inclusive education as a matter of rights, equity and good governance. Our objective is an education system whose curriculum is responsive to the diverse needs of every learner, so that no child with a disability is denied access to the same knowledge, standards and opportunities as any other child in the province. It was in pursuance of this vision that I announced, on behalf of the Government of the Punjab, the launch of Accessible Digital Textbooks (ADTs) for Punjab.

As a matter of policy, the Government will institutionalise ADTs as a government-owned and sustainable programme within the Special Education Department, aligned with the mainstream curriculum, quality-assured with the participation of Organizations of Persons with Disabilities, and rolled out in phases on the basis of evidence. The Government will provide the governance, resources and inter-departmental coordination this reform requires, and will hold it accountable to a single measure of success: improved learning for children with disabilities. I commend the Special Education Department for its leadership, and thank UNICEF and the Global Partnership for Education for their partnership.

SANIA ASHIQ JABEEN
Special Assistant to the Chief Minister Punjab for Special Education

Message of the Secretary



Mr. Shoeb Iqbal Syed
Secretary, Special Education Department, Government of the Punjab

The Special Education Department, Government of the Punjab, is committed to safeguarding the right of every child with a disability to quality education. Under the vision of the Chief Minister Punjab for special children, the Department has steadily expanded its services, from customised curricula and adapted learning materials to new institutions and specialised centres across the province.

Access to the curriculum remains one of the most persistent barriers our learners face. A child who cannot see the printed page, hear the classroom explanation or follow complex text is excluded from learning even when seated in a classroom. Accessible Digital Textbooks (ADTs) address this barrier at its source by building text-to-speech, image descriptions, easy-read text, glossaries and sign language directly into the textbook, so that children with disabilities can learn from the same curriculum as their peers.

The three-day Capacity Development Workshop on Accessible Digital Textbooks, held in collaboration with UNICEF from 17 to 19 November 2026, marks the beginning of government-owned ADT production in Punjab. I am pleased that our teachers, curriculum specialists and technical officers worked hands-on with ADT Studio and adapted real chapters from Punjab textbooks during the workshop.

Our aim is clear: Punjab should be able to produce accessible textbooks in-house, to a high standard and at scale, with quality assured by disability experts and Organizations of Persons with Disabilities. The Department will take forward the recommendations of this report through a phased plan for prototyping, piloting and scale-up.

I thank UNICEF and the Global Partnership for Education for their technical and financial support, the international resource persons for sharing their expertise, and all participants for their commitment. Together, we will ensure that no child in Punjab is left behind because a textbook was not made for them.

SHOEB IQBAL SYED
Secretary, Special Education Department, Punjab

Message of the Director General



Lt. (R) Shoaib Khan Jadoon
Director General, Special Education, Punjab

It gives me great pleasure to present this report on the three-day Capacity Development Workshop on Accessible Digital Textbooks (ADTs), organised by the Directorate General of Special Education in collaboration with UNICEF from 17 to 19 November 2026.

The Directorate General runs a wide network of Government Special Education institutions across Punjab, serving children with hearing, visual, physical and intellectual disabilities and autism. Our teachers work every day to make the curriculum reachable for these children, often adapting materials by hand. Accessible Digital Textbooks give them a systematic, modern way to do this, with text-to-speech, image descriptions, easy-read text and sign language built into the textbook itself.

I am proud that our officers and teachers took part in the workshop with real commitment. They learned the ADT workflow, worked hands-on in ADT Studio, and mapped real Punjab textbook chapters into accessible formats. Building on the Department's own customised curriculum and sign-language-embedded textbooks, they have laid the foundation for in-house ADT production in Punjab.

The Directorate will now move from training to delivery: notifying a multidisciplinary ADT core team, producing and validating the first prototype chapters, preparing our institutions for the pilot, and training teachers to use ADTs in the classroom.

I thank the Secretary, Special Education Department, for his guidance, UNICEF and the Global Partnership for Education for their support, the international resource persons for their expertise, and the Curriculum and Academics Wings of the Directorate for organising the workshop.

LT. (R) SHOAIB KHAN JADOON
Director General, Special Education, Punjab

Acknowledgement by Special Education Department

The Special Education Department, Government of the Punjab, extends its sincere gratitude to all those who contributed to the success of the three-day Capacity Development Workshop on Accessible Digital Textbooks (ADTs), held at Avari Hotel, Lahore, from 17 to 19 November 2026.

We are especially grateful to **Ms. Sania Ashiq Jabeen**, Special Assistant to the Chief Minister Punjab for Special Education, for gracing the opening ceremony as Chief Guest and formally launching Accessible Digital Textbooks for Punjab on behalf of the Government of the Punjab.

We gratefully acknowledge **UNICEF Pakistan** for its technical partnership, and in particular **Mr. Ramiz Behbudov**, Chief, Punjab Field Office, UNICEF Pakistan, for his leadership and support, and **Ms. Sehr Raza Jafri**, Education Specialist and ADT Lead, UNICEF Punjab, for her coordination of the initiative. We also thank the **Global Partnership for Education (GPE)** for its support, the international resource persons from UNICEF's Learning Innovation Hub and UNICEF Innocenti, and UNICEF Bhutan for sharing its country experience.

We appreciate the contributions of PECTAA, PEIMA, PITB, PEF, JICA-AQAL, ITA, the Literacy & Non-Formal Basic Education Department, Deaf Reach, FESF and other partners, and of the principals, teachers and officers of Government Special Education institutions who participated with dedication. The Curriculum and Academics Wings of the Directorate General of Special Education were instrumental in organising the workshop and preparing this report.

LT. (R) SHOAIB KHAN JADOON
Director General, Special Education, Punjab

Acknowledgement by UNICEF



Mr. Ramiz Behbudov
Chief, Punjab Field Office, UNICEF Pakistan

On behalf of UNICEF Punjab, I extend sincere appreciation to the Government of the Punjab and the Special Education Department for their leadership in launching Accessible Digital Textbooks for Punjab. We thank **Ms. Sania Ashiq Jabeen**, Special Assistant to the Chief Minister Punjab for Special Education, **Mr. Shoeb Iqbal Syed**, Secretary, Special Education Department, and **Lt. (R) Shoaib Khan Jadoon**, Director General of Special Education, for their commitment and guidance.

We are grateful to the officers, teachers and specialists of the Department and partner organisations for their active participation, to the UNICEF Learning Innovation Hub, UNICEF Innocenti and UNICEF Bhutan for their technical leadership, and to the Global Partnership for Education for its support. Under the two-year workplan, UNICEF looks forward to continuing this partnership towards accessible learning for every child in Punjab.

RAMIZ BEHBUDOV
Chief, Punjab Field Office, UNICEF Pakistan

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Acronyms and Abbreviations

Acronym	Full Form
ADT	Accessible Digital Textbook
AI	Artificial Intelligence
DGSE	Directorate General of Special Education
FESF	Family Educational Services Foundation
GPE	Global Partnership for Education
HI	Hearing Impairment
ICT	Information and Communication Technology
ITA	Idara-e-Taleem-o-Aagahi
JICA-AQAL	Japan International Cooperation Agency – Advancing Quality Alternative Learning project
LLM	Large Language Model
MCC	Mentally Challenged Children (intellectual disability)
NFBE	Non-Formal Basic Education
OPD	Organization of Persons with Disabilities
PCTB	Punjab Curriculum and Textbook Board
PECTAA	Punjab Education, Curriculum, Training and Assessment Authority
PEF	Punjab Education Foundation
PEIMA	Punjab Education Initiatives Management Authority
PITB	Punjab Information Technology Board
PSL	Pakistan Sign Language
QA	Quality Assurance
SACM	Special Assistant to the Chief Minister
SLO	Student Learning Outcome
SpED	Special Education Department
SSET / JSET	Senior / Junior Special Education Teacher
UDL	Universal Design for Learning
UNICEF	United Nations Children's Fund
VI	Visual Impairment

Executive Summary

The Special Education Department (SpED), Government of the Punjab, in collaboration with UNICEF Pakistan and with support from the Global Partnership for Education (GPE), organised a three-day **Capacity Development Workshop on Accessible Digital Textbooks (ADTs)** at Dinshaw Hall, Avari Hotel, Lahore, from **17 to 19 November 2026**. The workshop marked the start of **government-owned ADT production in Punjab**.

ADTs are curriculum-aligned digital textbooks designed on the principles of Universal Design for Learning (UDL). Instead of producing separate materials for different groups of learners, they build accessibility into the textbook itself through text-to-speech, image descriptions, easy-read text, glossaries, sign language video and structured navigation. UNICEF's open-source, AI-enabled **ADT Studio** converts standard PDF textbooks into these formats, cutting conversion cost from up to US$20 per page to under US$1 and turnaround from several months per book to minutes, while keeping review by disability experts at the centre of the process.

The workshop brought together **73 participants from 15 organisations**, including 16 officers nominated from Government Special Education institutions, senior officers of SpED and the Directorate General of Special Education (DGSE), PECTAA, PEIMA, PITB, PEF, development partners and disability-sector organisations. Four international resource persons from UNICEF's Learning Innovation Hub and UNICEF Innocenti led the technical sessions, and UNICEF Bhutan shared its country experience.

At the opening ceremony, **Ms. Sania Ashiq Jabeen, Special Assistant to the Chief Minister Punjab for Special Education**, formally announced the launch of Accessible Digital Textbooks for Punjab on behalf of the Government of the Punjab and set out the Chief Minister's vision of inclusion. The Department presented its own progress, including customised textbooks for all classes that pair every word with its sign in sign language, a ready foundation for the ADT sign-language layer.

UNICEF and the Special Education Department have signed a two-year workplan for Accessible Digital Textbooks, under UNICEF's ADT programme for Punjab and Sindh, and UNICEF has undertaken to complete a formal agreement with the Government of the Punjab. This gives the initiative a defined timeframe and a formal basis for joint delivery.

Key outcomes of the workshop

- Participants learned the full ADT workflow: UDL principles, accessible content methodology, ADT Studio, sign-language integration, GitHub repositories, and build and export.
- Mixed groups mapped real PCTB textbook chapters (Class 3 General Knowledge in Urdu; Class 6 and 7 General Science in English) into ADT layers: easy-read text, image descriptions, glossary, accessible exercises and video.
- Government roles, quality assurance arrangements and a pilot and results framework (UNICEF Innocenti) were discussed as the basis for in-house production.
- A two-year SpED–UNICEF workplan for ADTs is in place, with a formal agreement with the Government of the Punjab to be completed.
- Lessons from Bhutan showed that ADTs benefit all learners, that curriculum alignment drives teacher uptake, and that school leadership and ICT are critical.

The report's critical analysis finds strong government ownership, genuinely hands-on training and broad stakeholder participation, but also gaps: ICT infrastructure and connectivity in special education institutions, limited teacher digital capacity, the absence of Urdu and Pakistan Sign Language standards for ADTs, the need

for a multidisciplinary production team, and continuity of participation (about one in four participants attended only the first day).

The report sets out **eleven recommendations** and a **three-phase implementation roadmap**: establishing a notified ADT core team and production studio; developing and validating prototypes from the mapped chapters; piloting in selected institutions under a results framework; and scaling up with teacher training, an ADT Teacher Handbook, pre-service integration and a dedicated budget line.

1. Background and Introduction

1.1 Accessible Digital Textbooks: the global initiative

UNICEF's Accessible Digital Textbooks initiative, launched in 2016, has driven innovation in inclusive education in more than 14 countries, reaching over 2 million students and training some 169,000 teachers. ADTs are curriculum-aligned digital learning materials designed on UDL principles, so that children with disabilities learn alongside their peers from the same curriculum.

ADT feature	What it does for learners
Text-to-speech / narration	Reads text aloud for learners who are blind, have low vision or have reading difficulties
Image descriptions (alt text)	Describes pictures, diagrams and charts in words for learners who cannot see them
Easy-read (simplified) text	Presents the same content in simpler language for learners with intellectual disabilities
Sign language video	Explains the text in sign language for learners who are deaf or hard of hearing
Multilingual glossary	Explains key vocabulary, supporting language and concept development
Interactive, accessible exercises	Lets learners respond in different ways and receive immediate feedback
Structured navigation	Allows screen-reader and keyboard navigation through the book

The **ADT Studio** is an AI-enabled, open-source and LLM-agnostic production system that transforms standard PDF curricula into accessible formats. It reduces conversion cost from up to US$20 per page to under US$1, and turnaround from three to six months per book to under ten minutes, while keeping pedagogical review and validation by disability experts at the centre of the process.

1.2 Why ADTs matter for Punjab

Punjab's special education system serves learners with hearing, visual, physical and intellectual disabilities and autism through a large network of Government Special Education institutions. Printed textbooks remain the main medium of instruction, and access breaks down whenever information changes format:

- **Learners with hearing impairment** miss auditory information, and links between written text and sign language are limited.
- **Learners with visual impairment** depend on Braille, where every syllabus change triggers a full production cycle of composing, proofreading, printing, binding and distribution.
- **Assessment** in paper-and-pencil formats tests memory in written form for all learners, regardless of how they learn best.

A single accessible digital master file can be updated once and delivered in every format a learner needs. This is the central promise of ADTs for Punjab.



Special Education Department presentation: “Access breaks down when information changes format”

1.3 Purpose and objectives of the workshop

Overall objective: to build the capacity of government teams to independently produce Accessible Digital Textbooks using ADT Studio, ensuring accessibility for learners with disabilities, with minimal ongoing technical support.

Specific objectives for Punjab in this phase:

1. Introduce the ADT Studio workflow to SpED, PECTAA, government technical teams, special and inclusive education teachers and OPDs.
2. Adapt selected textbook chapters and learning resources into accessible formats.
3. Agree the roles, responsibilities and quality assurance arrangements needed to sustain in-house production.
4. Define the pilot, validation and roll-out steps that take Punjab from this first workshop towards institutionalised, scaled production.

1.4 Participants

Through Order No. DGSE-PO-2/63-2026/3795 dated 06.11.2026, the Directorate General of Special Education nominated 16 officers of Government Special Education institutions, including principals, lecturers, computer instructors and senior special education teachers, covering hearing impairment, visual impairment, intellectual disability, slow learners and teacher-training colleges. All 16 nominees attended.

Participant group	Representation
Government of the Punjab (SpED / DGSE)	Secretary, Director General, Directors, Deputy and Assistant Directors, SACM team, and 16 nominated officers from special education institutions
Allied government bodies	PECTAA, PEIMA, PITB, PEF, Literacy & NFBE Department, P&D Board, School Education Department
Development partners and civil society	UNICEF (Punjab Field Office and Country Office), JICA-AQAL, ITA, FESF, LNSS Enterprises, PSDA
Disability-sector organisations	Deaf Reach and FESF (deaf education sector), and participants with disabilities among the government teams

Participant group	Representation
International resource persons	UNICEF Learning Innovation Hub (Innovation Manager, ADT Technical Lead, ADT Consultant), UNICEF Innocenti (online), UNICEF Bhutan

In total, **73 participants** signed the attendance register. The full list is at Annex III.

2. Opening Ceremony

The workshop opened on Tuesday, 17 November 2026, in the presence of senior leadership from the Government of the Punjab and UNICEF, partner organisations and participants.

2.1 Address by the Chief Guest



Ms. Sania Ashiq Jabeen, Special Assistant to the Chief Minister Punjab for Special Education

Ms. Sania Ashiq Jabeen, Special Assistant to the Chief Minister (SACM) Punjab for Special Education, attended the opening ceremony as Chief Guest. She presented the Government of the Punjab's position on Accessible Digital Textbooks and its collaboration with UNICEF.

On behalf of the Government of the Punjab, she **formally announced the launch of Accessible Digital Textbooks for Punjab**. She highlighted the Chief Minister Punjab's vision of inclusion: that every child with special needs deserves the government's special attention and equal access to quality education.

Her announcement gave the initiative clear political backing at the highest level of the provincial government, an essential condition for institutionalising ADT production.

Government vision

The Government of the Punjab is committed to inclusion. Accessible Digital Textbooks will open the same curriculum to every child, whether they learn through sound, sight, sign or simplified text.

2.2 Address by the Chief, UNICEF Punjab Field Office



Mr. Ramiz Behbudov, Chief, Punjab Field Office, UNICEF Pakistan

Mr. Ramiz Behbudov, Chief, Punjab Field Office, UNICEF Pakistan, addressed the opening session. He commended the Government of the Punjab for launching Accessible Digital Textbooks and for its leadership on inclusive education.

He reaffirmed UNICEF's commitment to support the Special Education Department in building sustainable, government-owned capacity to produce accessible learning materials, so that every child with a disability in Punjab can learn from the mainstream curriculum. He noted that the two-year workplan signed with the Department provides the framework for this partnership.

2.3 Remarks by the ADT Lead, UNICEF Punjab



Ms. Sehr Raza Jafri, Education Specialist and ADT Lead, UNICEF Punjab

Ms. Sehr Raza Jafri, Education Specialist and ADT Lead, UNICEF Punjab, presented the objectives and design of the workshop. She explained how Accessible Digital Textbooks will be developed in Punjab in line with international accessibility standards and the mainstream curriculum, with quality assurance through the participation of Organizations of Persons with Disabilities.

She outlined UNICEF's technical support under the two-year workplan, covering capacity development of government teams, in-house production, piloting and evidence generation, to ensure ADTs are government-owned, sustainable and scalable across Punjab.

2.4 Welcome remarks



Mr. Shoeb Iqbal Syed, Secretary, Special Education Department, welcoming the participants

Mr. Shoeb Iqbal Syed, Secretary, Special Education Department, welcomed the Chief Guest, the UNICEF delegation, the international resource persons and participants. He described the workshop as a milestone in the Department's reform agenda, which places curriculum access, teacher capacity and the use of technology at the centre of inclusive service delivery for children with disabilities in Punjab.

He emphasised that the Department's objective is the in-house, government-owned production of Accessible Digital Textbooks aligned with the mainstream curriculum, and urged participants to apply the skills gained so that the initiative moves swiftly from training to prototypes, piloting and classroom use. He thanked UNICEF and GPE for their partnership and assured the Department's full commitment to the two-year workplan.

2.5 Remarks by the UNICEF Resource Person



UNICEF resource person, Learning Innovation Hub, addressing the opening session

On behalf of the **UNICEF Learning Innovation Hub**, the resource person introduced the global Accessible Digital Textbooks initiative, its experience across more than 14 countries and the international accessibility standards on which ADTs are built.

She explained the three-day programme and its practical focus: enabling government teams to produce ADTs independently with ADT Studio, while keeping review by educators and disability experts at the centre of quality assurance. She expressed appreciation for Punjab's leadership and its strong foundation in customised, sign-language-embedded curriculum.



Chief Guest addressing the opening ceremony



Head table during the opening session



Senior leadership of the Government of the Punjab and UNICEF at the opening



Senior officers attending the opening, with media coverage

3. Workshop Proceedings

The workshop followed a structured three-day programme that moved from concepts to production and then to quality assurance and sustainability. Each day combined presentations by resource persons, live demonstrations and hands-on practice in groups. The detailed agenda is at Annex I.

Day 1: Foundations and the ADT Workflow

Overview of the ADT initiative, UDL and methodology

The UNICEF Learning Innovation Hub introduced the ADT initiative, its global standards and its experience across 14 countries. A Universal Design for Learning icebreaker helped participants experience how the same content can be presented in multiple ways. The methodology session explained how textbooks and other education resources are adapted for accessibility, followed by a session on the history of ADTs and case studies of traditional production with PubCoder, alt text, and workflow inputs and outputs.

Existing inclusive content in Punjab: the Special Education Department's journey



Dr. Khaula Munawar Minhas, Deputy Director (Curriculum), Special Education Department, Punjab

Dr. Khaula Munawar Minhas, Deputy Director (Curriculum), traced how the curriculum for children with disabilities in Punjab has developed. Special education institutions began with no customised curriculum and relied on general textbooks that did not meet their learners' needs. Through sustained effort, the Department now has a substantial body of adapted curriculum and learning material.

She presented the Department's flagship work: **customised textbooks for all classes, aligned with the Mainstream Curriculum and PECTAA guidelines, in which every word carries its sign in sign language**, so that students with hearing impairment can read and understand their content independently. This is a pioneering initiative in Pakistan and the first of its kind in the country's public-sector special education system.

Why the sign-language-embedded textbooks matter

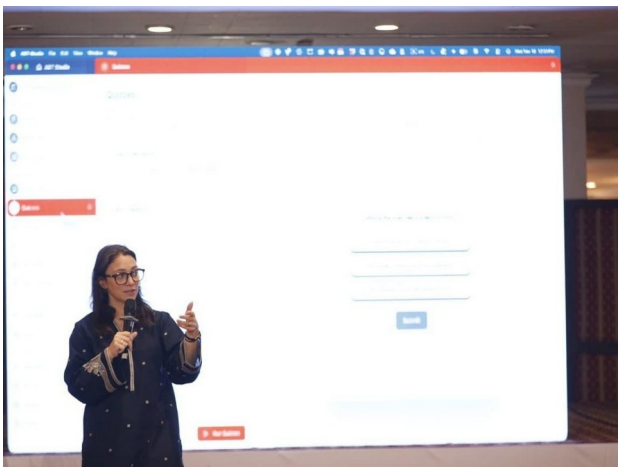
- **Addresses the core barrier for deaf learners.** For most children who are deaf or hard of hearing, sign language is their first language and written Urdu or English a second. A sign beside each word lets them understand the text directly.
- **Promotes independent learning.** Students can read, revise and complete homework on their own, building confidence and self-reliance.
- **Ensures equity in the curriculum.** Alignment with the Mainstream Curriculum and PECTAA guidelines keeps the pathway open to board examinations, higher education and employment.
- **Builds vocabulary and literacy together** by linking each sign to its written word.
- **Supports standard sign usage** across institutions through a department-wide sign vocabulary.
- **Provides a ready asset for ADTs.** The sign vocabulary and adapted content can feed directly into the ADT sign-language layer, shortening production time.
- **Fulfils rights and policy commitments** under Article 24 of the UN Convention on the Rights of Persons with Disabilities and the Special Education Policy of the Punjab.

Storybook activity, ADT Studio and live demonstration

In groups, participants adapted a storybook into easy-read text, a glossary and image descriptions, experiencing manual adaptation first-hand. The ADT technical lead then explained what ADT Studio is and how it works, and gave a live demonstration of end-to-end ADT production on the same storybook, allowing a direct comparison with manual adaptation. The day closed with the selection and mapping of Punjab textbooks and chapters by SpED and PECTAA, and a daily reflection.



ADT Studio: AI-assisted image captions shown live



ADT Studio: building accessible quizzes

Day 2: Content Production and Accessibility

After a recap of Day 1, participants were divided into groups and completed the technical prerequisites. The day was almost entirely hands-on:

- **Environment set-up and repository structure:** installing and configuring ADT Studio and understanding how an ADT project is organised.
- **Content adaptation and validation tools:** generating and reviewing easy-read text, glossaries and image descriptions, and checking them for accuracy and accessibility.
- **Recording and integrating sign-language videos**, led by UNICEF with a Hearing Impairment OPD, so that each section of a textbook can carry a sign-language explanation.
- **Working with GitHub repositories:** version control and collaborative editing, so that teams can maintain textbooks over time.
- **Peer review and group feedback** on the work produced during the day.



Hands-on production session in progress



Participants working on ADT Studio



Resource person guiding a group at the table



One-to-one technical support during practice



Participants following the technical session

Day 3: Quality Assurance, Research and Sustainability

The final day focused on what it takes to produce ADTs reliably within government:

- **Build, export, packaging and maintenance** of finished ADTs.
- **Experience sharing from Bhutan** by UNICEF Bhutan (see Section 6).
- **Integrating stakeholder comments and feedback** into ADTs as part of quality assurance.
- **Government ADT production workflow, roles and responsibilities**, discussed by the resource persons with SpED and PECTAA.
- **Pilot study and results framework**, presented by UNICEF Innocenti, covering study design, user testing and the evidence needed to inform scale-up decisions.
- **Post-workshop technical support and sustainability model.**
- **Group showcase** of the ADT work produced during the workshop, followed by closing remarks and the certificate ceremony.



Session on the problem ADTs are designed to solve



Resource person presenting to the plenary

4. Group Work: Mapping Punjab Textbooks for Accessibility

A central activity of the workshop was the mapping of real PCTB textbook pages into the layers of an ADT. Mixed groups of teachers, curriculum specialists, IT officers and development partners worked on chart paper, breaking each page down by content, image description, easy-read text, glossary, accessible exercise and video or sign-language slot, and then presented their work for feedback from the resource persons and senior officers.

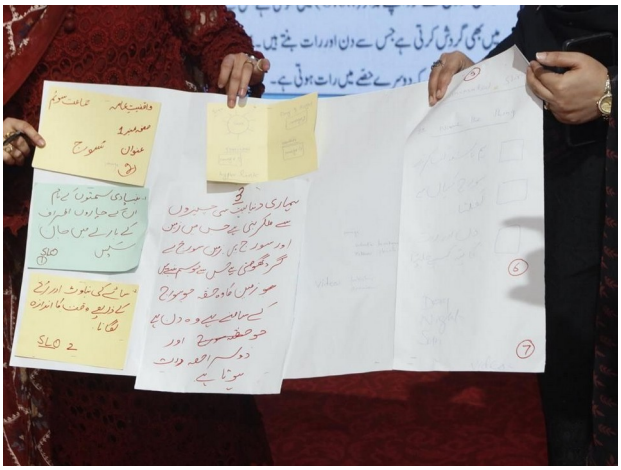
Group	Textbook and chapter	How the group adapted it
Urdu-medium group	Class 3 General Knowledge (واقفیت عامہ), Lesson 1: "The Sun" (سورج)	Mapped the lesson to its SLOs (the four cardinal directions; estimating time from the length of a shadow), rewrote the text in simplified Urdu, designed a "Name the Thing" exercise with checkboxes, and planned image descriptions and day-and-night videos
Science group (Class 6)	General Science, Chapter 1: "Classification of Living Organisms" (Five Kingdom System)	Built a table of content, image descriptions, exercises, glossary and video for each section
Science group (Class 7)	General Science: roots, shoots and parts of plants	Prepared image descriptions, true/false and multiple-choice exercises, and a glossary (stem, roots, flower, leaf)



Group presentation on Class 6 General Science, "Five Kingdom System", presented by a participant with a disability



Urdu group presenting Class 3 General Knowledge: "The Sun"



Urdu easy-read text, SLOs and an accessible exercise on chart paper



Class 7 General Science chart: page, content, description, exercise and glossary



Groups receiving feedback from resource persons and senior officers

What the group work shows

- Participants could break a real PCTB page into the ADT layers, the core skill the workshop set out to build.
- The groups worked across subjects (Science, General Knowledge), grades (3 to 7) and languages (Urdu and English).
- The exercise was the **planning stage**. The next step is to convert the same chapters digitally in ADT Studio as Punjab's first prototypes.
- Urdu-medium ADTs will need Urdu text-to-speech and Pakistan Sign Language video, which must be planned for in the pilot.

5. Participation and Engagement

Participation was active throughout. Officers, teachers and partners questioned the resource persons, shared field experience from their institutions and worked directly on laptops during every technical session. Senior officers of SpED and DGSE sat through the technical sessions as well as the ceremonies, a strong sign of institutional ownership.



Participant raising a question



Sharing field experience



Discussion with resource persons



Question from the floor



Participant contributing to the discussion



Presentation to the plenary

5.1 Resource persons

The technical sessions were led by UNICEF's international resource persons: the Innovation Manager who leads the global ADT initiative, the ADT Technical Lead who led development of the open-source ADT AI pipeline, a Digital Learning and ADT Consultant, and a Research Specialist from UNICEF Innocenti who supported the pilot and results framework online. Their profiles are at Annex IV.



UNICEF resource persons during the technical sessions



Resource person working with a participants' table



Resource persons reviewing participants' work



Reviewing printed ADT material with senior officers

6. Lessons from the Bhutan Experience

UNICEF Bhutan shared its experience of introducing Accessible Digital Textbooks. Bhutan built its programme on four pillars: **teacher training, curriculum alignment, development of prototypes and piloting**. Teachers were trained to use ICT and ADTs in the classroom, and students were trained to use ADTs for learning.

Benefits reported

- More engagement and participation from learners
- Better early-grade reading and comprehension skills
- A positive response across different types of schools
- Stronger inclusive teaching practices

Lessons learned

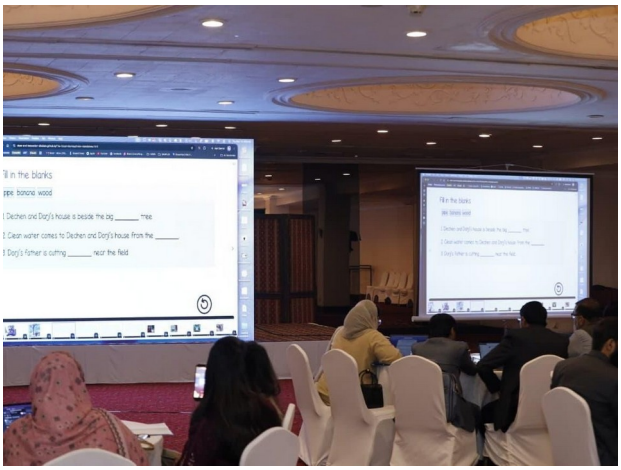
- ADTs benefit **all learners**, not only children with disabilities
- Curriculum alignment **increases teacher uptake**
- **School leadership and ICT** are critical to success
- Development takes sufficient time: weeks, months and potentially years

6.1 Interactive session with UNICEF Bhutan

The Bhutan experience was shared in an interactive online session. The UNICEF Bhutan representative joined by video link, explained how Bhutan introduced and piloted ADTs, and answered questions from participants in the hall on teacher preparation, curriculum alignment and classroom use.



UNICEF Bhutan representative explaining Bhutan's ADT experience in an interactive online session



An interactive "fill in the blanks" exercise from a Bhutanese ADT shown during the session

7. Critical Analysis of the Workshop

This section assesses the workshop against its stated objectives, drawing on the agenda, attendance records, photographs and the discussions held.

7.1 Strengths

- **High-level government ownership.** The SACM formally launched ADTs for Punjab; the Secretary SpED attended all three days; and senior officers of DGSE sat through technical sessions, not just ceremonies.
- **Genuinely hands-on training.** Nearly every session involved participants working on laptops in ADT Studio, and groups produced tangible outputs based on real PCTB chapters.
- **Strong local foundation.** The Department's customised curriculum and sign-language-embedded textbooks give Punjab content and expertise that can be fed directly into ADTs.
- **Broad, cross-functional participation.** Teachers, curriculum staff, IT bodies (PITB, PEIMA), PECTAA, development partners and OPDs worked side by side, the right mix for a future production unit.
- **Inclusion in practice.** Participants with disabilities presented group work and received certificates, and the venue was accessible to wheelchair users.
- **Evidence orientation.** UNICEF Innocenti's pilot and results framework, and the Bhutan experience, grounded the discussion in evidence rather than technology alone.

7.2 Gaps and areas for improvement

Observation	Implication
About 49 of 73 participants signed for all three days; around 19 attended Day 1 only, mostly senior officers, SACM team members and guests.	Continuity matters for skills transfer. The core production team should be drawn from those who completed all three days.
Group work was done on chart paper; digital conversion of the mapped chapters in ADT Studio was not completed within the three days.	The first prototypes still need to be produced. This should be the immediate next step.
Urdu text-to-speech, Urdu easy-read conventions and Pakistan Sign Language standards for ADTs were not yet settled.	Most Punjab textbooks for the primary grades are in Urdu. Language standards must be addressed before piloting.
Representation of OPDs was limited (mainly the hearing impairment sector).	Validation by Deaf-led, blind-led and other OPDs is needed for every disability layer.
ICT readiness of special education institutions (devices, labs, internet) was not assessed during the workshop.	A rapid ICT readiness assessment should precede selection of pilot institutions.
The agreed roles and responsibilities for government ADT production have not yet been formally notified.	Without a notification, the trained team may be dispersed. A formal order is needed.

7.3 Overall assessment

The workshop achieved its primary objective of introducing government teams to the full ADT workflow and building initial hands-on capacity. It was strongest on awareness, political ownership and practical exposure. It was weaker, as a first workshop inevitably is, on producing finished outputs and settling the institutional arrangements for sustained production. The recommendations below address these gaps directly.

8. Key Challenges for ADTs in Pakistan

Measured against the Bhutan experience and the workshop discussions, Punjab faces the following challenges in adopting ADTs at scale:

#	Challenge	Description
1	**ICT infrastructure gap**	Most special education institutions lack modern devices, computer labs and interactive boards or classroom screens, and there is no dedicated ADT production set-up.
2	**Unreliable internet connectivity**	Uninterrupted internet, needed for ADT production, updates and classroom use, is not available in many institutions.
3	**Limited teacher digital capacity**	Teachers need training both in basic ICT skills and in teaching with ADTs.
4	**Student readiness**	Learners with disabilities need structured orientation to use digital textbooks independently.
5	**Need for a multidisciplinary team**	Quality ADTs require input from practitioners across every disability area. A team drawn from one or two areas will miss some learners.
6	**Time and resource demands**	ADT development is not a one-off task. It needs sustained effort over weeks, months and potentially years, with continuing commitment of staff and budget.
7	**No tested local model yet**	Punjab has no prototypes or pilot evidence yet to guide decisions on scale-up.
8	**No guidance material for teachers**	There is no handbook to help teachers use ADTs in the classroom.
9	**Gap in pre-service education**	Teacher-training colleges and institutes do not yet cover ADTs, so new teachers enter service without these skills.
10	**School leadership buy-in**	Without the active support of heads of institutions, classroom uptake will remain low.

9. Recommendations

The following recommendations respond to the challenges above and to the gaps identified in the critical analysis. Proposed lead agencies and timeframes are indicative and subject to the Department's approval.

#	Recommendation	Proposed lead	Timeframe
1	**Equip institutions with ICT** Provide modern devices, computer labs and interactive boards or classroom screens, and establish a dedicated **ADT Production Studio** at DGSE.	SpED (P&D Wing), PITB	Medium term
2	**Ensure reliable internet** Provide uninterrupted high-speed internet, with power backup, in all ADT pilot institutions and the production studio.	SpED, PITB	Short–medium term
3	**Notify a multidisciplinary ADT core team** Include practitioners from every disability area (hearing, visual, physical, intellectual, autism), curriculum and IT staff, and OPD representatives, drawn from workshop participants who completed all three days.	DGSE (Curriculum Wing)	Short term
4	**Develop prototypes first** Convert the chapters mapped during the workshop (Class 3 General Knowledge; Class 6–7 General Science) into prototype ADTs, and validate them with disability experts and OPDs.	ADT core team, UNICEF	Short term
5	**Settle language and sign standards** Agree Urdu easy-read conventions and Urdu text-to-speech, and build on the Department's sign-language word bank to standardise Pakistan Sign Language video for ADTs.	DGSE, PECTAA, Deaf-led OPDs	Short–medium term
6	**Pilot before scale-up** Pilot ADTs in selected institutions under the UNICEF Innocenti results framework, and use the evidence to plan province-wide roll-out.	SpED, UNICEF Innocenti	Medium term
7	**Train teachers and orient students** Train teachers in ICT and classroom use of ADTs, cascading through the Government In-service Training College for Teachers of Disabled Children, and orient students to the accessibility features suited to them.	DGSE, training colleges, heads of institutions	Short–medium term
8	**Develop an ADT Teacher Handbook** A practical guide, in Urdu and English, on using ADTs in the classroom.	DGSE Curriculum Wing, UNICEF	Short term
9	**Integrate ADTs into pre-service education** Hold ADT workshops and add ADT modules in pre-service teacher-training colleges and institutes.	SpED, training colleges, PECTAA	Long term
10	**Engage school leadership** Orient heads of institutions and District Education Officers (Special Education) to lead ADT use and monitor uptake.	DGSE	Short term
11	**Plan realistically and fund sustainably** Treat ADT production as a multi-year programme, with a phased workplan, a dedicated budget line and clearly defined roles, so that it continues beyond donor support.	SpED, Finance and P&D	Medium–long term

10. Way Forward: Implementation Roadmap

Formal partnership with UNICEF

UNICEF and the Special Education Department have signed a two-year workplan for Accessible Digital Textbooks, under UNICEF's ADT programme for Punjab and Sindh, and UNICEF has undertaken to complete a formal agreement with the Government of the Punjab.

The two-year workplan provides the framework for Phases 1 and 2 below. Completion of the formal agreement with the Government of the Punjab is a priority action in Phase 1.

The recommendations are sequenced into three phases, in line with the Bhutan lesson that prototypes and piloting must come before scale-up.

Phase	Timeline	Key actions	Milestone
Phase 1: Foundation	0–3 months	Complete the formal agreement between UNICEF and the Government of the Punjab; notify the ADT core team; agree roles and QA arrangements; conduct an ICT readiness assessment of institutions; agree Urdu and sign-language standards; begin prototype production of the mapped chapters	Core team notified; first prototype chapters ready for review
Phase 2: Prototype and pilot	3–12 months	Validate prototypes with disability experts and OPDs; equip pilot institutions; train pilot teachers and orient students; develop the ADT Teacher Handbook; run the pilot under the results framework	Pilot completed; evidence report available
Phase 3: Institutionalise and scale	12–36 months	Establish the ADT Production Studio; convert priority textbooks for all classes; integrate ADTs into in-service and pre-service teacher education; secure a recurring budget line	ADTs available across Government Special Education institutions

10.1 Measuring change for children

Progress should be tracked through a small set of indicators, agreed with UNICEF Innocenti as part of the results framework:

Area	Indicator
Production	Number of textbook chapters and full textbooks converted to ADT format and validated by OPDs
Access	Number of learners with disabilities using ADTs, by type of disability, grade and district
Learning	Change in reading comprehension and attainment of SLOs among pilot learners
Teaching	Number of teachers trained and regularly using ADTs in class
Infrastructure	Share of pilot institutions with functional devices and reliable internet
Sustainability	ADT Production Studio operational; dedicated budget line approved

11. Closing Ceremony and Certificate Distribution

The workshop concluded on 19 November 2026 with closing remarks and next steps from the Special Education Department and UNICEF. The Secretary, Special Education Department, thanked the resource persons and participants and reaffirmed the Department's commitment to taking ADT production forward. UNICEF representatives appreciated the participants' commitment and the Department's leadership, and reaffirmed continued technical support under the two-year workplan signed with the Special Education Department.



Closing remarks by the Secretary, Special Education Department



Closing remarks by UNICEF



UNICEF resource person sharing reflections



Closing session with SpED and UNICEF leadership

11.1 Certificate distribution

Certificates of Participation were awarded to all participants who completed the workshop.



Certificate of Participation awarded by the Secretary, Special Education Department, and UNICEF



Certificate awarded to a participant



Participants with their certificates



Participants after receiving certificates



Participants at the certificate ceremony

11.2 Souvenirs for the international resource persons

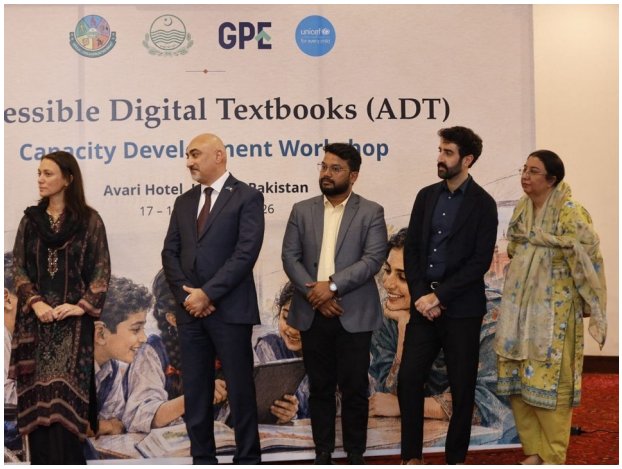
In keeping with Pakistani tradition of hospitality, the Secretary, Special Education Department, and UNICEF presented gifts to the international resource persons in appreciation of their expertise and contribution to the workshop.



Gift presented to an international resource person



International resource persons with SpED and UNICEF leadership



UNICEF delegation and resource persons



Resource persons with SpED officers

12. Conclusion

The three-day Capacity Development Workshop on Accessible Digital Textbooks was a significant first step towards government-owned production of accessible textbooks in Punjab. With political backing from the Government of the Punjab, the leadership of the Special Education Department and the technical partnership of UNICEF and GPE, the province now has a trained group of officers and teachers who understand the ADT workflow and have begun to adapt real Punjab textbooks. The two-year workplan signed by UNICEF and the Special Education Department, and the formal agreement with the Government of the Punjab that UNICEF has undertaken to complete, give this work a clear and accountable framework.

The Department brings a strong foundation of its own: customised curricula and sign-language-embedded textbooks that can feed directly into ADTs. The challenges ahead, from ICT infrastructure and connectivity to language standards, teacher capacity and sustainable funding, are real but manageable if addressed in sequence: prototype, pilot, then scale.

> **Our ambition**
>
> Every child with a disability in Punjab should be able to open the same textbook as their classmates and learn from it, through sound, sight, sign or simplified text. Accessible Digital Textbooks make that ambition achievable.

Glimpses of the Workshop









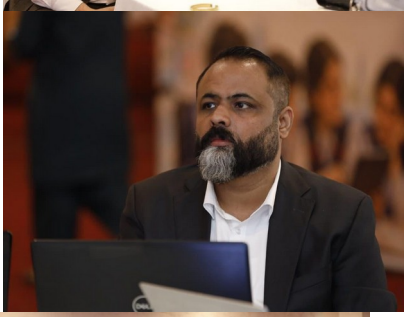





















GPE
Digital Textbooks (ADT)
Capacity Development Workshop


Capacity Development Workshop



Additional Photographs of the Event



Participants, resource persons and officials of the Special Education Department and UNICEF at the ADT Capacity Development Workshop



Participant drafting a storybook adaptation chart



General Science group presenting its "Ecosystem" adaptation



Participants and officials during a plenary session



Presentation on the UNICEF Accessible Digital Textbooks initiative



Presentation on digital Pakistan Sign Language learning resources



Participants in discussion during a session



Participant raising a point in the plenary



Resource persons following the group presentations



Chief Guest interacting with UNICEF and SpED officials



Participants reviewing content on a laptop



Participants at work during a hands-on session

Annex I: Workshop Agenda

Day 1, Tuesday 17 November 2026: Foundations and ADT-Press Workflow

Time	Activity	Responsibility
08:30	Arrival and registration	
08:45	Housekeeping	UNICEF Pakistan CO
09:00	Welcome remarks	Secretary, Special Education Department, Punjab
09:15	Objectives of the workshop	Chief, Punjab Province Office, UNICEF
09:30	Opening address and launch of ADTs for Punjab	Chief Guest: SACM for Special Education, Punjab
09:45	Overview of the ADT initiative and global standards	Julie de Barbeyrac
10:00	Universal Design for Learning (UDL) icebreaker	Ravindra Kumar Sah
10:15	Break	
10:30–11:15	Existing inclusive content, accessibility considerations and produced contents	Special Education Department
11:15–11:45	Methodology: adapting textbooks and education resources for accessibility	Julie de Barbeyrac
11:45–12:30	ADT history and case studies: traditional production with PubCoder, alt text, workflow, inputs and outputs	Julie de Barbeyrac, Ravindra Sah
12:30–13:30	Lunch	
13:30–14:15	Storybook activity in groups (easy read, glossary, image description)	Julie de Barbeyrac, Ravindra Sah
14:15–15:30	ADT Studio: what it is and how it works	Elias Constantopedos
15:30–15:45	Break	
15:45–16:00	Live demonstration: end-to-end ADT production on a storybook and comparison with manual adaptation	
16:00–16:30	Textbooks and education resources: chapter selection and mapping	SpED Punjab / PECTAA
16:30–17:00	Daily reflection and wrap-up	Ravindra Sah

Day 2, Wednesday 18 November 2026: Content Production and Accessibility

Time	Activity	Responsibility
08:15–08:30	Recap of Day 1 and objectives for Day 2	Ravindra Sah
08:30–09:15	Agenda overview, group division and prerequisites	All groups
09:15–10:30	Hands-on: environment set-up and repository structure	Ravindra Sah
10:30–10:45	Break	
10:45–12:30	Hands-on: content adaptation and validation tools	Julie de Barbeyrac, Marta Carnelli
12:30–13:30	Lunch	
13:30–14:00	Hands-on: recording and integrating sign-language videos in ADTs	UNICEF, Hearing Impairment OPD
14:45–15:00	Break	
15:00–16:30	Hands-on: repository in GitHub	Elias Constantopedos

Time	Activity	Responsibility
16:30–17:00	Peer review and group feedback	All participants

Day 3, Thursday 19 November 2026: Quality Assurance, Research and Sustainability

Time	Activity	Responsibility
09:00–09:45	Hands-on: build, export, packaging and maintenance	UNICEF, Elias Constantopedos
09:45–10:15	Experience sharing from Bhutan	UNICEF Bhutan
10:15–10:30	Break	
10:30–11:15	Integrating stakeholder comments and feedback in ADTs	Elias Constantopedos, Marta Carnelli
11:15–12:30	Government ADT production workflow, roles and responsibilities	Ravindra Sah, SpED, PECTAA
12:30–13:30	Lunch	
13:30–14:30	Pilot study and results framework	UNICEF Innocenti, Marta Carnelli
14:30–15:15	Post-workshop technical support and sustainability model	Julie de Barbeyrac, Ravindra Sah
15:15–15:30	Break	
15:30–16:30	Group showcase of ADTs produced during the workshop	All participants
16:30–17:00	Closing remarks, next steps and certificate distribution	Special Education Department and UNICEF

Annex II: Nominated Officers of the Special Education Department

Nominated under Order No. DGSE-PO-2/63-2026/3795 dated 06.11.2026, issued by the Director (Academics) and Deputy Director (Curriculum), Directorate General of Special Education, Punjab.

Sr.	Name and designation	Institution
1	Ms. Eisha Tur Raazia, Assistant Professor (P.D)	Govt. In-service Training College for the Teachers of Disabled Children, Lahore
2	Dr. Latif Ahmad, Principal	Govt. Secondary Special Education School for Hearing Impaired, Kasur
3	Dr. Kashif Iqbal, Lecturer (V.I)	Govt. Training College for the Teachers of Blind, Lahore
4	Mr. Shehzad Latif, Lecturer (Computer Science)	Govt. Degree College of Special Education, Rawalpindi
5	Mr. Sarfraz Ahmad Khan, Lecturer (V.I)	Govt. Training College for the Teachers of Blind, Lahore
6	Ms. Asma Shiraz, Computer Instructor	Govt. High School of Special Education for H.I (Boys), Lahore
7	Dr. Iftikhar Naseer, Computer Instructor	National Special Education Centre, Johar Town, Lahore (Dev)
8	Dr. Tayyaba Naz, S.S.E.T (H.I)	Govt. Degree College of Special Education, Lahore
9	Ms. Mamoona Khan, S.S.E.T (M.C)	Govt. Middle Special Education Centre, Ravi Town, Lahore
10	Dr. Shagufta Khanum, S.S.E.T (H.I)	Govt. High School of Special Education for H.I (Girls), Lahore
11	Dr. Qurat-ul-Ain Rizvi, S.S.E.T (H.I)	Govt. Secondary School of Special Education for HIC, Sialkot
12	Mr. Nauman Qamar, S.S.E.T (M.C)	Govt. Special Education Centre, Nishtar Town, Lahore
13	Ms. Sadia Mustafa, S.S.E.T (M.C)	Govt. High Shadab Training Institute for MCC, Lahore
14	Dr. Muhammad Saeed, Senior Teacher (P.D)	National Special Education Centre, Johar Town, Lahore (Dev)
15	Dr. Muhammad Kashif, J.S.E.T (H.I)	Govt. Secondary Special Education School for Hearing Impaired, Kasur
16	Mr. Muhammad Inam-ul-Haq, Educator	Govt. Institute for Slow Learners, Hafizabad

Annex III: List of Participants

As recorded on the workshop attendance sheets (17–19 November 2026). Names are transcribed from handwritten entries.

No.	Name	Designation	Organisation
1	Ms. Mehreen Abrar	Professional Development & PSL Manager	FESF
2	Ms. Zahra Masood	Education Officer	UNICEF
3	Mr. Elias Constantopedos	Education, HQ	UNICEF
4	Ms. Julie de Barbeyrac	Education, HQ	UNICEF
5	Mr. Ravindra Kumar Sah	Education, HQ	UNICEF
6	Ms. Iqra Abid	Education Associate	UNICEF
7	Ms. Noreen Hasan	Education Specialist	UNICEF
8	Ms. Sadia Mustafa	SSET (MCC)	SpED
9	Mr. Shehzad Latif	Lecturer (Computer Science)	SpED
10	Mr. Muhammad Inam-ul-Haq	Educator	SpED
11	Mr. Shoeb Iqbal Syed	Secretary	SpED
12	Dr. Uzma Rafique	Deputy Director (Inclusive Education)	SpED
13	Ms. Iqra Hussain	Social Media Team	SpED
14	Ms. Aqsa Muzafar	Social Media Team	SpED
15	Mr. Ghulam Murtaza	Principal	SpED
16	Ms. Asma Shiraz	Computer Instructor	SpED
17	Ms. Nabila	Assistant Director	SpED
18	Ms. Mamoona Khan	SSET (MCC)	SpED
19	Mr. Noor Hassan Fauzan Ali	CEO	LNSS Enterprises
20	Ms. Aqsa Rehan	Assistant Director (Training)	PECTAA
21	Mr. Zahid Majeed	Director (P&D)	SpED
22	Ms. Alia Hasnain	Director (R&D)	PECTAA
23	Mr. Ramiz Behbudov	Chief Field Office	UNICEF
24	Mr. Talal Iftikhar	Senior Project Manager	ITA
25	Mr. Muhammad Younus	Programme Specialist	JICA-AQAL
26	Ms. Shabnam Fareed	Professional Trainer	—
27	Mr. Mehboob Elahi	Provincial Coordinator	JICA-AQAL
28	Mrs. Abdur Rehman	SACM Team	SpED
29	Mr. Daniel Marc	Director	Deaf Reach
30	Mr. Atif Moeen	Director (Operations)	Literacy & NFBE
31	Mr. Jahanzaib Khan	SS (CS)	PECTAA
32	Mr. Danial	PA to SACM	SpED
33	Mr. Waqas Rauf	SACM Team	SpED

No.	Name	Designation	Organisation
34	Ms. Aqsa	Assistant Director (Development)	SpED
35	Ms. Mahnoor Shahid	Senior Programme Manager	PITB
36	Ms. Noreen Anwar	Senior Programme Manager	PITB
37	Mr. Iftikhar Naseer	Junior Computer Instructor	SpED
38	Dr. Muhammad Saeed	Senior Teacher	SpED
39	Mr. Nauman Qamar	SSET (Autism Unit Lahore)	SpED
40	Dr. Qurat-ul-Ain Rizvi	SSET	SpED
41	Dr. Kashif Iqbal	Lecturer (VI)	SpED
42	Mr. Sarfraz Ahmad Khan	Lecturer (VI)	SpED
43	Dr. Shagufta Khanum	SSET (HI)	SpED
44	Mr. K. I. Love	Education Manager	UNICEF
45	Hafiz Muhammad Masood	Deputy Director (Operations)	Literacy & NFBE
46	Dr. Latif Ahmad	Principal	SpED
47	Ms. Rubina Nadeem	Education Specialist	UNICEF
48	Dr. Muhammad Kashif	JSET	SpED
49	Ms. Eisha Tur Raazia	Assistant Professor	SpED
50	Mr. Imran Sher	Assistant Director (General)	SpED
51	Dr. Irfan Ahmad	Senior Specialist	PEF
52	Dr. Khaula Munawar Minhas	Deputy Director (Curriculum)	SpED
53	Mr. Sajid Mehmood	Assistant	SpED
54	Ms. Mehwish Naveed	Director	PSDA
55	Mr. Abdul Sattar	Director (Academics)	SpED
56	Ms. Sehr Raza Jafri	Education Specialist	UNICEF
57	Dr. Tayyaba Naz	SSET (BS-18)	GDCSE Lahore, SpED
58	Mr. Ali Asadullah	Deputy Secretary	School Education Department
59	Lt. (R) Shoaib Khan Jadoon	Director General (Special Education)	SpED
60	Ms. Sadaf Ashraf	Assistant Director (E)	SpED
61	Mr. Usama	SACM Team	SpED
62	Ms. Asma Malik	Assistant Director (Training)	PECTAA
63	Mr. Danish	Subject Specialist (English)	PECTAA
64	Mr. Jawad Ali	Assistant Director (IT – Software Development)	PEIMA
65	Ms. Amna Talat	Assistant Director (A&R)	PEIMA
66	Mr. Zeeshan Hussain	Supply Associate	UNICEF
67	Mr. Jamshed Bashir	Assistant Director	SpED
68	Mr. Basit Anwar	Communications Specialist	JICA-AQAL
69	Syed Azizullah Safdar Rizvi	Senior Programme Manager	ITA
70	Ms. Anum Abdul Rehman	Programme Officer	PITB

No.	Name	Designation	Organisation
71	Ms. Faiza Saleem	Senior Programme Officer	PITB
72	Mr. Aoun Raza	Assistant Chief (Special Education)	P&D Board
73	Dr. Afifa Mushtaq	Director (QA)	PEF

Annex IV: Profiles of Resource Persons (UNICEF and Special Education Department)

UNICEF

Julie de Barbeyrac

Innovation Manager, UNICEF Learning Innovation Hub

Julie de Barbeyrac leads UNICEF's Accessible Digital Textbooks initiative. Since 2017 she has driven the global "Accessible Digital Textbooks for All" project, now present in 14 countries, using technology and AI to make education inclusive for children with disabilities. She brings 20 years of international experience in health, disability inclusion and accessible EdTech, has shaped global strategies within UNICEF in New York and Latin America, and has advised organisations including Inclusive Development Partners, EdTech Hub, UNESCO and Disability Education and Development.

Elias Constantopedos

Technical Lead, Accessible Digital Textbooks

Elias Constantopedos is a product-focused technology leader in accessible digital publishing and inclusive education technology. He founded the interactive media-tech company CAAST in 2013. Since 2017 he has worked with UNICEF across Disability, Education and the Learning Innovation Hub as Technical Lead for the ADT initiative, delivering digital accessibility solutions with governments in 14 countries across Africa, Latin America and South Asia. In 2025 he led the technical development of the open-source ADT AI pipeline, developed with OpenAI, enabling conversion of textbooks into accessible digital formats at scale.

Ravindra Kumar Sah

Digital Learning and ADT Consultant, UNICEF

Ravindra Kumar Sah brings over a decade of experience in education technology, inclusive learning, project management and digital innovation. His expertise includes accessible content development, Universal Design for Learning, teacher professional development, inclusive education for children with disabilities, and the deployment of digital learning platforms such as the Learning Passport and ADTs across South Asia.

Marta Carnelli

Research Specialist, UNICEF Office of Strategy and Evidence – Innocenti (online)

Marta Carnelli brings expertise in digital learning, implementation research and the evidence base for ADTs, and has supported ADT research across several countries. She has also supported UNICEF Pakistan's Learning Passport evaluation. For the Punjab ADT initiative she provides technical support on pilot study design, the results framework, user testing and evidence generation, to inform government decisions on scale-up.

Special Education Department, Government of the Punjab

Dr. Khaula Munawar Minhas

Deputy Director (Curriculum), Directorate General of Special Education, Punjab

Dr. Khaula Munawar Minhas is a special educational needs and institutional strategy specialist with more than 20 years of experience in special and inclusive education reform in the public sector. She holds a PhD in Special Education from the University of Management and Technology, Lahore, with doctoral research on aligning curriculum with the support needs of students with intellectual disability. As Deputy Director (Curriculum) since 2021, she has designed a customised curriculum for students with hearing impairment, an alternative curriculum and guidelines for students with intellectual and developmental disabilities, tailored textbook manuscripts, assessment frameworks, a screening tool for slow learners and school leadership standards. She led the establishment of Autism Units across Punjab and of the Maryam Nawaz School and Resource Centre for Autism, Lahore, where she also served as Principal. She has worked with UNICEF, GPE, the British Council, the World Bank and PECTAA on inclusive education, and has published and presented research nationally and internationally, including at ISEC (UK) and the PAL Network Conference (Nepal). At the workshop she presented the Department's curriculum journey and its sign-language-embedded textbooks.

Report Prepared By

This report was compiled and prepared on behalf of the Special Education Department, Government of the Punjab, by the following officers, who also participated in the three-day Capacity Development Workshop on Accessible Digital Textbooks:

DR. KHAULA MUNAWAR MINHAS
Deputy Director (Curriculum)
Directorate General of Special Education, Punjab
Lahore

SHEHZAD LATIF
Lecturer, Computer Science
Govt. Degree College of Special Education
Rawalpindi

Special Education Department, Government of the Punjab | in collaboration with UNICEF Pakistan
November 2026