

Mongolia System Capacity Grant Phase II

Update on a System-Level Reform Platform

Data-driven · Equitable · Digitally enabled · Fiscally grounded

01

**National Education
Data Ecosystem**

02

**National Education
Quality Standards**

03

**AI-Enabled
Teacher Support**

04

**Fiscal & Innovative
Financing Tools**

What the SCG Delivered: One Integrated Reform Platform

Four interlocking pillars supporting Mongolia's transition toward a data-driven, equitable, digitally enabled, and fiscally grounded education system

01

INTEROPERABLE DATA ECOSYSTEM

Decision-grade data foundation

- ▶ System-wide unique student identifier
- ▶ Unique school and teacher identifiers
- ▶ 160+ automated cross-system validation rules
- ▶ Governance architecture for data integrity
- ▶ Foundation for AI, EQS, and fiscal tools

02

NATIONAL QUALITY STANDARDS

First school-level equity floor

- ▶ 21 indicators across 4 dimensions
- ▶ Dual-track minimum + aspirational targets
- ▶ Validated with schools, endorsed by TWG
- ▶ Quality Standards Committee being established

03

AI-ENABLED TEACHER SUPPORT

Differentiation at national scale

- ▶ Government-owned curriculum dataset (Gr 1–5 Math)
- ▶ Teacher Virtual Assistant on national Medle platform
- ▶ Sovereign infrastructure, model-agnostic design
- ▶ RCT-ready for credible scale-up evidence

04

FISCAL & FINANCING TOOLS

Sustainability and policy choice

- ▶ Mid-Term Budgetary Framework analytical tool
- ▶ Policy-lever simulation for Cabinet decisions
- ▶ Initial exploration of innovative & blended finance
- ▶ Singapore PPP Symposium & UB workshop with IFC

ONE STORY — *the four pillars share a common architecture: government-owned, TWG-co-designed, and adopted within MoE operations.*

A Distinguishing Feature: Government-Embedded Co-Design

A distinguishing feature of this SCG was Technical Working Groups (TWGs) were fully engaged from design through implementation — driving institutional adoption and delivery

THE APPROACH

● Joint design

TWGs, Ministry officials, and World Bank teams co-designed each instrument from the outset.

● Field validation

Tools were tested in MoE workflows and in schools before finalisation, surfacing operational frictions early.

● Iterative refinement

Drafts were revised against TWG feedback over multiple rounds; final versions reflect government priorities and constraints.

● Transferred ownership

Code, data, methodology, and documentation transferred in formats the Ministry can extend without external support.

ADOPTION INSIDE THE GOVERNMENT SYSTEM

01 Data ecosystem

Validation framework and identifier governance integrated into ESIS / EITC operations

02 Quality standards

MoE establishing Quality Standards Committee; aimag consultations planned for Sep 2026

03 AI teacher support

TVA deployed on national Medle platform; full code & dataset transferred to MoE / EITC

04 Fiscal tools

MBTF model in use by MoE; informing 2026 Cabinet salary and shift-reform decisions

The TWG co-design approach is itself the system-capacity result — not a delivery method, but the durable institutional change.

ACTIVITY · 01

National Education Data Ecosystem

ESIS interoperability, automated validation, and equity-focused indicators — the foundation that makes every other reform possible.

Why Strengthening ESIS Is the Strategic Foundation

Without interoperable, validated, equity-disaggregated data, every downstream reform underperforms — EQS benchmarking, fiscal planning, and digital deployments all depend on it

THE STRUCTURAL PROBLEM

Data fragmentation across MoE systems — ESIS, HEMIS, and adjacent databases use overlapping fields with inconsistent formats, no shared identifiers, and limited automated validation.

Consequences

- ▶ Cross-system queries require manual reconciliation
- ▶ Equity diagnostics blocked — children with disabilities and disadvantaged learners are not coherently tracked
- ▶ Indicator gaps for under-represented groups
- ▶ Downstream reforms (EQS, MBTF, digital tools) weakened by unreliable input

THE INTEROPERABLE ARCHITECTURE — WHAT THE SCG BUILT

① Unique identifier governance

Persistent student and teacher IDs enabling reliable cross-system linking and longitudinal tracking

② Automated validation at scale

160+ validation rules reviewed and deployed in ESIS; dashboards and visual alerts at school, regional, and national levels

③ National EMIS target architecture

Technical solution framework for streamlined, interoperable systems endorsed by TWG

④ Equity-focused indicators

New indicators aligned with ICF (children with disabilities); disaggregated by gender and disability

ESIS strengthening makes EQS benchmarking, MTBF analysis, and digital deployments operate on real government data — not parallel infrastructure.

From Tools to Operational Capability

Validation rules, interoperability tools, and indicators are running inside ESIS with continuing institutional ownership

GOVERNANCE ARCHITECTURE

Institutional ownership embedded

- ▶ Interoperability proposal and governance framework endorsed by TWG
- ▶ National EMIS target architecture and technical solution framework agreed
- ▶ Manuals for interoperability tools transferred and disseminated through workshop
- ▶ Cloud-compatible data processing workflows codified

OPERATIONAL UTILITY

Decision-grade data, in use

- ▶ 160+ automated validation rules reviewed and deployed across ESIS
- ▶ Data quality dashboards and visual alert prototypes at school, regional, national levels
- ▶ Unique-ID-based interoperability blueprint connecting high-priority databases
- ▶ School-level manuals for high-quality data entry in routine use

POLICY RELEVANCE

Enabling downstream reforms

- ▶ Equity tracking for children with disabilities (ICF-aligned) now feasible
- ▶ New disaggregated indicators (gender and disability) feed EQS benchmarking
- ▶ Reliable school-level data inputs to MTBF policy modelling
- ▶ Provides the data backbone for digital deployments, including TVA

- Final indicators presented to TWG (April), workshop in May
- Interoperability blueprint and governance framework endorsed
- Manuals disseminated and in use across ESIS

ACTIVITY · 02

National Education Quality Standards

*Mongolia's first school-level quality floor and improvement pathway —
anchoring equity, transparency, and investment targeting.*

Why a National Quality Standards Framework

A practical school-level management tool that reveals inter-school disparities, targets investment, and enables transparent communication with communities

Equity floor

A common minimum standard — applied to all public schools — that reveals where the system fails its most disadvantaged learners.

Investment targeting

Identifies which schools, in which dimensions, need priority support — moving public investment from uniform to evidence-targeted.

Public accountability

Translates technical school data into clear, actionable information that parents, communities, and aimag authorities can act on.

GROUNDING IN GLOBAL EVIDENCE — TRANSLATED TO MONGOLIA

GLOBAL LESSON

Avoid complexity; keep indicators limited and practical

Adopt dual-track minimum and aspirational standards

Align with national policy and existing data systems

Invest in stakeholder communication and feedback

MONGOLIA DESIGN RESPONSE

→ 21 core indicators across 4 dimensions, prioritizing ESIS data

→ Each indicator has a minimum (all schools) and aspirational target

→ Anchored in MNS 6799:2019, GAP 2024–28, ESMTDP, and ESIS

→ School validation completed

KEY TAKEAWAY — *the EQS Framework converts dispersed school data into a national equity diagnostic — usable by Ministry, aimags, and communities alike.*

EQS Framework Architecture

Four dimensions, dual-track standards — built to be administratively feasible, technically rigorous, and meaningful at school level

01

DIGITAL READINESS

SMIS use, internet, classroom display, student devices, teacher devices — the lead dimension reflecting the digital education priority.

02

PHYSICAL INFRASTRUCTURE

Single-shift coefficient, class size, safe water — the physical conditions for safe and effective teaching.

03

ACCESS TO LEARNING MATERIALS

Textbook coverage, library access, essential learning materials, accessibility provisions — the inputs for inclusive instruction.

04

TEACHER PROFESSIONAL CAPACITY

Teacher shortage rate — the human capacity inside each school.

DUAL-TRACK STANDARDS — DESIGNED FOR PROGRESSIVE IMPROVEMENT

MINIMUM STANDARDS

The threshold every school must meet. Anchored in national regulations (MNS 6799, MoE policy targets) and calibrated against current school performance to identify priority equity gaps.

ASPIRATIONAL STANDARDS

The level of quality representing best practice. Informed by international benchmarking (Viet Nam, Singapore, Pakistan, Uzbekistan and Indonesia), Mongolia's policy targets, and the current performance of leading domestic schools.

From Co-Design to Institutional Adoption

TWG-led design, school-level validation, and operational rollout — the EQS Framework is moving into Ministry workflows, not waiting for one

ADOPTION PATHWAY



INSTITUTIONAL ANCHOR

MoE establishing Quality Standards Committee

3–4 sub-Director-level officials with cross-Ministry mandate. The Framework has an institutional home — not a stand-alone document.

SCHOOL-LEVEL VALIDATION

Eight schools across UB, aimag, and soum

Practicality, measurability, and contextual relevance confirmed. Schools endorsed minimum standards as a system-wide equity floor.

CROSS-CUTTING CONNECTION

Costing linked directly to Activity 4

Activity 4 MTBF analysis estimates the cost of meeting key minimum standards — fiscal feasibility built into the Framework, not bolted on.

EQS Framework adoption is operational, not aspirational — institutional anchor, validation evidence, and fiscal grounding all secured.

ACTIVITY · 03

AI-Enabled Teacher Support

*Differentiated instruction at scale — the Teacher Virtual Assistant (TVA)
and the government-owned curriculum assets that power it.*

Why TVA Matters: From Teacher Burden to System Capacity

Mongolia's instructional quality gap is structural — TVA targets the binding constraints on classroom learning, especially for the most disadvantaged learners

①

Differentiated instruction

Standard instruction targets the average student. TVA generates lesson plans and questions at three difficulty levels, calibrated to the national curriculum.

②

Support for teachers at scale

Lesson preparation and curriculum-aligned question design absorb hours per week. TVA shifts the burden — teachers review and adapt rather than draft from scratch.

③

Rural classroom support

Soum and rural schools have the lowest teacher subject-match rates. TVA brings curriculum-grade content into every classroom equally.

④

Learning recovery & remediation

Students below grade level rarely catch up without bridging support. Mode B retrieves prerequisite content from prior grades — turning gaps into pathways.

⑤

Instructional efficiency

Teachers reclaim preparation time for higher-value work — formative assessment, student feedback, and classroom differentiation.

EVIDENCE BASE — WHY TVA TARGETS WHAT IT TARGETS

0.73 / 0.62

Effect sizes for feedback and professional learning (Hattie, 2009) — the two channels TVA directly augments

2.0 SD

Learning gain when instruction is matched to current mastery level vs. conventional teaching (Bloom, 1984)

Foundational

Children who do not gain numeracy in early grades rarely catch up — Grade 1–5 maths chosen on this evidence

TVA Architecture: Three Layers, One National Asset

- Government-owned curriculum dataset · AI-powered generation grounded in vetted content
- Embedded in Mongolia's national Medle platform

01 · NATIONAL CURRICULUM ASSET

The dataset

4,900

structured
questions

730

lesson plans

746

prerequisite pairs

- ▶ Grade 1–5 Mathematics, validated by GAE and EEC specialists
- ▶ TaRL-tagged at 3 difficulty levels using rule-based framework
- ▶ Independent of any AI engine — durable national asset
- ▶ Open format — usable by EdTech firms and researchers

02 · AI-POWERED GENERATION

The engine

Sovereign Auditable Portable

deployment

every output

model-agnostic

- ▶ AI retrieves only from vetted government content
- ▶ Factual errors reduced by design through retrieval from vetted content
- ▶ Engine choice can change without rebuilding content
- ▶ Long-term investment protected from technology shifts

03 · TEACHER EXPERIENCE

The interface

Medle

national platform

Single

sign-on

Mode A & B

in one UI

- ▶ No new app or login — embedded in existing MoE workflow
- ▶ Mode A — grade-aligned differentiation across 3 levels
- ▶ Mode B — adds prerequisite review for learning recovery
- ▶ Lesson plans and question sets generated together

Each layer is durable on its own — and government-owned. The sequence builds a permanent national capability, not a vendor dependency.

Sovereign by Design — Credible by Evaluation

Government ownership of every layer, plus an RCT engineered for policy-relevant evidence

GOVERNMENT OWNERSHIP — WHAT IT MEANS IN PRACTICE

- **Data sovereignty**
Curriculum and student data never leave EITC infrastructure. No vendor holds the dataset; no external system stores user data.
- **Factual integrity**
AI generates only from vetted content reviewed by named experts. Content reaching teachers is accountable to the national authority — not to a private dataset.
- **Vendor independence**
Code, schemas, and instructional logic transferred to MoE / EITC. If Mongolia changes engines or extends to new grades, the asset stays.
- **Open national infrastructure**
The dataset itself is a public good — usable by private-sector EdTech, researchers, and successive applications without rebuilding.

EVALUATION DESIGN

RCT ready for September 2026 launch

School-level

randomisation prevents within-school spillover

3 arms

Mode A · Mode B · Control

Grade 4 Math

first-grade entry point with strong assessment alignment

ADOPTION SIGNAL — *Full code, dataset, and documentation transferred to MoE / EITC. TVA deployed within national Medle platform.*

ACTIVITY · 04

Fiscal & Innovative Financing Tools

Putting reform on a sustainable financial path — analytical capacity for trade-offs and early exploration of blended finance.

MBTF Analytical Tool: From Forecast to Policy Choice

An interactive Mid-Term Budgetary Framework model — putting evidence-based trade-off analysis directly into government decision-making

STRATEGIC CONTEXT

6.1 → 7.0%

Projected K–12 expenditure as share of GDP, 2025–28, with existing policy commitments

- **Demographic peak**
Enrollment rises to 991,000 by 2028 before declining — narrow window for targeted investment.
- **Policy commitments outpace fiscal space**
GAP, ESMTDP, and salary commitments together exceed feasible budget envelope without prioritisation.
- **Decision support gap**
Policymakers need evidence on cost of each policy lever — and the trade-offs between them.

THE MBTF TOOL — INTERACTIVE POLICY MODELLING

Teacher salaries

Model alternative minimum salary scenarios — tested at MNT 3.0M vs 3.5M, identifying MNT 665B in five-year savings under lower scenario

School shifts

Cost of moving schools to single-shift operation — with targeted alternatives (e.g. 169 remote schools at slightly higher rate)

Free school meals

Cost of expanding lunch coverage — phased options (lower-secondary first) save MNT 92B over five years

Textbooks & devices

Provision of additional textbooks and digital devices — modelled against ESIS shortage data and 1:7 device ratio target

USED BY MoE — informing 2026 Cabinet decisions on salary and shift reform. Policy commitments are no longer assessed in isolation; the tool surfaces real cost trade-offs at the moment of decision.

Initial Exploration of Innovative & Blended Finance

The SCG seeded structured engagement on alternative financing — recognising that fiscal feasibility for sector-wide reform requires more than budget reallocation

Context — MTBF analysis confirmed that meeting full GAP / ESMTDP commitments would require unprecedented fiscal space. Innovative & blended finance — including PPPs and IFC-style structured instruments — was identified as a complementary pathway to be tested, not a substitute for public investment.

SINGAPORE PPP SYMPOSIUM

Education infrastructure & financing

- ▶ Convened government, multilateral, and private-sector counterparts
- ▶ Mapped financing instruments used in comparable middle-income systems
- ▶ Established working relationships with IFC and other partners
- ▶ Surfaced specific instruments adaptable to Mongolia's school construction needs

PPP & blended-finance instruments examined

ULAANBAATAR TECHNICAL WORKSHOP

Operational design with national counterparts

- ▶ Brought MoE, MoF, MoED, PPP Center and IFC technical teams into joint design
- ▶ Translated symposium concepts to Mongolia's regulatory environment
- ▶ Identified pilot opportunities aligned with single-shift agenda
- ▶ Anchored to MBTF findings on capacity gaps and unit costs

Concrete pilot pathways identified

PARTNERS — World Bank Education · IFC · Singapore institutional partners · Mongolia MoE, MoF, MoED, PPP Center · Multilateral counterparts on education financing

How the Four Pillars Reinforce Each Other

The system-level value of the SCG is in the connections — each pillar makes the others more effective and more durable

01

DATA ECOSYSTEM

Decision-grade foundation

02

QUALITY STANDARDS

Equity diagnostic

03

AI TEACHER SUPPORT

Differentiation at scale

04

FISCAL TOOLS

Sustainability engine

01 → 03

Data enables AI deployment

Verified teacher and student identifiers and ESIS data governance from Activity 1 are what allow the TVA to run on Medle inside government schools.

01 → 02

Data enables benchmarking

Identifier governance and ESIS data quality protocols make accurate school-level EQS benchmarking possible. Standards without reliable data are unenforceable.

02 → 04

Standards price the policy

EQS minimum thresholds give MBTF concrete inputs to estimate the cost of equity — moving fiscal analysis from aggregate forecasts to specific policy instruments.

03 ↔ 04

Scale-up modelled jointly

TVA scale-up costs and PPP financing pathways are analysed inside the MBTF tool — keeping AI deployment grounded in fiscal feasibility from the outset.

ONE PLATFORM — *the four pillars share one architectural commitment: government ownership, TWG co-design, and adoption inside MoE / EITC operations.*

Foundations Established Through SCG Phase II

What the grant leaves behind — institutional capability, system architecture, and government-owned assets that persist beyond the SCG itself

01

DATA ECOSYSTEM

WHAT REMAINS WITH GOVERNMENT

- ✓ Validation framework integrated into EITC operations
- ✓ Identifier governance protocols agreed and in use
- ✓ 160+ automated rules running in ESIS
- ✓ Equity-disaggregated indicators feeding downstream

02

QUALITY STANDARDS

WHAT REMAINS WITH GOVERNMENT

- ✓ 21-indicator framework across 4 dimensions
- ✓ MoE Quality Standards Committee being established
- ✓ School validation protocol and refinement cycle
- ✓ Aimag consultation process scheduled

03

AI TEACHER SUPPORT

WHAT REMAINS WITH GOVERNMENT

- ✓ TVA system deployed on national Medle platform
- ✓ Curriculum dataset (Gr 1–5 Math), TaRL-tagged
- ✓ Full code, documentation, and methodology transferred
- ✓ RCT design ready for September 2026 launch

04

FISCAL TOOLS

WHAT REMAINS WITH GOVERNMENT

- ✓ Interactive MBTF model — used by MoE / MoF
- ✓ Five-year cost projections for K–12 sector
- ✓ Policy-lever simulation capability
- ✓ Initial PPP / blended-finance partner network

INSTITUTIONAL LEGACY — *the TWG-embedded co-design model is now established as the SCG operating method — adopted across all four activity areas.*

Next Steps and Sustainability Pathways

From foundation to operation — the immediate horizon and the structural pathways that keep the SCG investment compounding

IMMEDIATE HORIZON · May 2026 → mid-2027



INSTITUTIONAL CONTINUITY

Embedded inside government

- ▶ Quality Standards Committee — bi-annual review cycle
- ▶ EITC running TVA and curriculum dataset operations
- ▶ MBTF tool in MoE / MoF planning workflows

FINANCING PATHWAYS

From SCG to sustained funding

- ▶ PPP / blended-finance instruments under consideration
- ▶ MBTF cost projections informing Government investment
- ▶ Open dataset enables private-sector EdTech participation and investment

EVIDENCE GENERATION

Building the global knowledge base

- ▶ TVA RCT — first credible evidence on AI-assisted differentiation in LMICs
- ▶ EQS validation lessons feed into regional standards work
- ▶ Mongolia methodology replicable for peer education systems

The SCG ends — the platform continues. What was built sits with the TWGs and impacts compound with use.

A coherent system-reform platform — built with government, for government use.

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Interoperable
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Thank you