Manual on Educational Indicators for School Education under Samagra Shiksha

Introduction

This manual provides a comprehensive guide for planning officers under **Samagra Shiksha** to understand, compute, and utilize educational indicators effectively. *Samagra Shiksha*, an integrated Centrally Sponsored Scheme by the Ministry of Education, Government of India, supports school education from pre-primary to Class 12. It emphasizes universal access with equity, improving quality, and systemic reforms, aligning with the **National Education Policy (NEP) 2020**.

Universal School Education in India: Challenges and Prospects by 2030: Historical Efforts and Evolving Targets for Universal School Education in India

NEP 2020 aims for a 100% Gross Enrolment Ratio (GER) in school education by 2030 and a 50% GER increase in higher education by 2035. Monitoring through indicators is crucial for achieving these targets, reducing disparities, and ensuring inclusive education.

Target Audience: This manual is prepared primarily for planning officers engaged in Samagra Shiksha at national, state, district, block, and cluster levels. It is also helpful for educators, policymakers, and researchers involved in school education planning.

Objectives

- *To equip users with knowledge of key educational indicators, their computation, interpretation, and application in planning.*
- *To promote gender-specific and disaggregated Analysis (by national/state/district/block/cluster) for targeted interventions.*
- *To align with Samagra Shiksha objectives, NEP 2020 goals, and data sources like UDISE+ for evidence-based decision-making; and*
- *To highlight the role of indicators in monitoring progress toward universal school education and addressing equity gaps.*

Indicators measure progress in access, participation, retention, quality, equity, infrastructure, teachers, and efficiency. Data from sources like **UDISE+**, **NAS**, and **SDMIS** enable computation. Gender-specific indicators (e.g., separate for boys/girls) and disaggregation help identify gaps - e.g., low girls' enrolment in rural districts - for targeted interventions like scholarships or infrastructure in aspirational districts.

This manual draws from Samagra Shiksha guidelines (framework and PAB minutes), UNESCO technical guidelines, Performance Grading Index (PGI), National Achievement Survey (NAS), and resources like *"Concepts and Terms in Educational Planning and Administration"* by Y.P. Aggarwal and R.S. Thakur (2003). The names, Purposes/Objectives, Definitions, data

requirements, Sources of data, Computational Methods (with examples), interpretation and Analysis, and implications in planning are presented for each indicator.

Sections include *Access, Participation, Retention, Quality, Equity, Infrastructure and Facilities, Teachers, and Efficiency* (including financial utilization) indicators.

Educational Indicators: Definitions, Types, Characteristics, Limitations, Monitoring, and Evaluation

Educational indicators are essential for assessing the performance, efficiency, and effectiveness of school education systems in India. Drawing from *"Concepts and Terms in Educational Planning and Administration"* by Y.P. Aggarwal and R.S. Thakur (2003), and resources on educationforallinindia.com by Prof. Arun C. Mehta, this section provides foundational knowledge.

Definitions

Educational indicators are statistical measures, such as indices, ratios, or growth rates, calculated using educational, demographic, economic, and other data to assess the state of an education system (IIEP, Paris). According to Nuttall, an education indicator informs about the performance or behaviour of an education system and aids decision-making. They provide processed information for studying educational phenomena, as per the *World Education Report (1991)*. In the Indian context, indicators like GER and dropout rates help track progress under Samagra Shiksha and NEP 2020's universal enrolment goals.

Types of Indicators

Indicators are classified based on their focus in the educational process:

- **Input Indicators:** Measure resources invested, e.g., number of teachers, classrooms, and budget allocation (e.g., teacher training funds under Samagra Shiksha).
- **Process Indicators:** Assess implementation and delivery, e.g., pupil-teacher ratio (PTR), teaching methods.
- **Output Indicators:** Reflect immediate results, e.g., enrolment rates (gross/net), completion rates, transition rates.
- **Outcome Indicators:** Evaluate long-term impacts, e.g., literacy rates, employability, survival rates (percentage of cohort reaching a grade).

Other examples include:

- *Gross Enrolment:* Total enrolment regardless of age.
- *Net Enrolment:* Enrolment of the official age group.
- *Survival Rate:* Cohort reaching a specific grade.
- *Dropout and Repetition Rates:* Measures of wastage.
- *Coefficient of Efficiency:* Internal efficiency (ideal pupil-years vs. actual).

- *School Life Expectancy:* Expected years of schooling.
- *Educational Wastage:* Combined dropout and repetition.

These types support school education planning, e.g., output indicators like GER monitor NEP 2020's 100% target.

Characteristics of a Good Indicator

A good indicator should be:

- **Policy-Relevant:** Addresses key issues like equity under Samagra Shiksha.
- **User-Friendly:** Comprehensive, timely, and limited in number for practical use.
- **Derived from a Framework:** Interpretable in context with other variables.
- **Technically Sound:** Valid, reliable, comparable across levels (national to cluster).
- **Feasible:** Measurable using available data (e.g., UDISE+) at reasonable cost.
- **Sensitive:** Detects changes in the system, e.g., gender disparities.

These indicators aid effective planning, as emphasized in UNESCO guidelines and Prof. Mehta's work on UDISE+.

Limitations of Indicators

While useful, indicators have constraints:

- **Qualitative Gaps:** Fail to capture aspects like teaching quality or student motivation (e.g., NAS scores may overlook socio-emotional learning).
- **External Influences:** Affected by poverty or migration, leading to misinterpretation.
- **Oversimplification:** Reduce complex issues to numbers, ignoring nuances (e.g., high GER may mask over-age enrolment).
- **Data Dependency:** Rely on accurate, timely data; inconsistencies in UDISE+ can skew results.
- **Comparability Issues:** Variations in definitions across states/districts.
- **Cost and Feasibility:** Resource-intensive in remote clusters.

These limitations highlight the need for complementary qualitative Analysis in Samagra Shiksha planning.

Monitoring and Evaluation

Monitoring: A continuous management function during program implementation, tracking progress against benchmarks (e.g., regular UDISE+ data checks for enrolment targets). It identifies issues for corrective actions, ensuring operational efficiency.

Evaluation: A periodic accountability tool assessing program effectiveness, efficiency, and impact (e.g., PGI or NAS for outcomes). It can be formative (mid-course feedback) or summative (post-implementation review).

Differences

- ***Focus:*** Monitoring processes and implementation; evaluation of outcomes and impacts.
- ***Timing:*** Monitoring is ongoing/frequent; evaluation is interval-based/strategic.
- ***Purpose:*** Monitoring for operational adjustments; evaluation for policy insights and accountability.
- ***Approach:*** Monitoring uses routine data (e.g., attendance rates); evaluation involves in-depth Analysis (e.g., cohort studies).

In school education, monitoring supports daily Samagra Shiksha operations (e.g., fund utilization), while evaluation informs NEP 2020 revisions (e.g., assessing GER progress). Prof. Mehta's analyses on educationforallinindia.com emphasize EMIS like UDISE+ for both.

Articles on Indicators from educationforallinindia.com

Prof. Arun C. Mehta's website lists relevant articles on indicators, concepts, and computation:

- *Analysis of UDISEPlus 2021-22, 2022-23, and 2023-24:* Trends in enrolment ratios, GER, dropout rates for national goals.
- *Computing Un-computed Indicators NEP2020:* Methods for NEP-related indicators like un-computed ratios.
- *Decoding UDISE+ 2021-22 Enrolment Ratios under Samagra Shiksha:* Computation and Analysis of Enrolment Indicators.
- *School Education in India: Where Do We Stand? Analysis based on UDISEPlus 2023-24 (PDF):* Overall status using key indicators.

These align with Aggarwal and Thakur's concepts, focusing on UDISE+ for planning.

Additional Relevant Indicators for School Education Planning

From Aggarwal and Thakur, and Prof. Mehta's resources, other indicators include:

- *Survival Rate:* Percentage of cohort reaching a grade (e.g., Grade 5); tracks retention.
- *Coefficient of Efficiency:* Ideal vs. actual pupil-years; measures internal efficiency.
- *School Life Expectancy:* Expected schooling years; informs long-term planning.
- *Educational Wastage Rate:* Combined dropout/repetition; identifies inefficiencies.

These complement Samagra Shiksha indicators for holistic planning.

Section 1: Indicators of Access

Access indicators track enrolment and school availability, supporting NEP 2020's 100% GER goal.

Indicator 1: Gross Enrolment Ratio (GER)

Purpose/Objective: Assess overall enrolment relative to age-group population to identify access gaps and plan infrastructure.

Definition: Total enrolment at a level (regardless of age) as a percentage of the official age-group population.

Data Requirements:

- Total enrolment (boys, girls, total).
- Age-group population (e.g., 6-10 for primary).

Source of Data: UDISE+ for enrolment; Census/NSS for population.

Computation Method (with Example):
GER = (Total Enrolment / Age-Group Population) × 100
Example: Primary enrollment is 50,000; population is 60,000. GER = (50,000 / 60,000) × 100 = 83.3%. Gender-specific: Boys' GER = (28,000 / 32,000) × 100 = 87.5%; Girls' = 78.6%. Disaggregate by district/block.

Interpretation and Analysis: >100% indicates over-age enrolment; <100% shows out-of-school children. Lower girls' GER in blocks suggests barriers like distance.

Implications in Planning: Low GER prompts school upgrades in low-access clusters under Samagra Shiksha. Aligns with NEP 2020 for 100% by 2030, prioritizing EBBs (Educationally Backward Blocks).

Indicator 2: Net Enrolment Ratio (NER)

Purpose/Objective: Measure correct-age enrolment to gauge precise access and resource needs.

Definition: Enrolment of the official age group as a percentage of that age-group population.

Data Requirements:

- Age-specific enrolment.
- Age-group population.

Source of Data: UDISE+; Census/NSS.

Computation Method (with Example):
NER = (Age-Specific Enrolment / Age-Group Population) × 100
Example: Upper primary (11-13) correct-age enrolment 30,000; population 35,000. NER = 85.7%. Gender/disaggregated as above.

Interpretation and Analysis: <100% highlights out-of-school issues. Disparities by district indicate regional inequities.

Implications in Planning: Supports transport/schools in low-NER areas per Samagra Shiksha PAB reviews.

Indicator 3: Adjusted Net Enrolment Ratio (ANER)

Purpose/Objective: Per UNESCO guidelines, provide a refined NER accounting for over-/underage students for better access planning.

Definition: NER adjusted by including over-/under-age students in the calculation to reflect effective participation.

Data Requirements:

- Enrolment by age (including over-/under-age).
- Age-group population.

Source of Data: UDISE+; Census.

Computation Method (with Example):
ANER = [(Correct-Age Enrolment + Adjusted Over/Under-Age) / Population] × 100 (adjustment factor from UNESCO: cap at 100%).
Example: Elementary correct-age 40,000; adjusted over-age 5,000; population 50,000. ANER = (45,000 / 50,000) × 100 = 90%. Disaggregate by gender/state.

Interpretation and Analysis: Higher than NER if many over-age; low values signal systemic delays.

Implications in Planning: Informs remedial programs in districts with low ANER, aligning with Samagra Shiksha's equity focus.

Indicator 4: Age-Specific Enrolment Ratio (ASER)

Purpose/Objective: Track enrolment for a single age to identify age-related access barriers, per UNESCO.

Definition: Enrolment at a specific age as a percentage of the population of that age.

Data Requirements:

- Enrolment by single age.
- Single-age population.

Source of Data: UDISE+; Census.

Computation Method (with Example): ASER = (Enrolment at Age X / Population at Age X) × 100 Example: Age 6 enrolment 10,000; population 12,000. ASER = 83.3%. Gender-specific/disaggregated.

Interpretation and Analysis: Low ASER at entry age (e.g., 6) indicates delayed entry; trends by age show progression issues.

Implications in Planning: Targets awareness campaigns in low-ASER clusters for early enrolment under NEP 2020.

Indicator 5: Percentage of Identified Out-of-School Children Mainstreamed

Purpose/Objective: Measure efforts to bring out-of-school children (OOSC) into education, per PGI and Samagra Shiksha.

Definition: OOSC mainstreamed in the last year as a percentage of identified OOSC (Classes 1-8).

Data Requirements:

- Identified OOSC.
- Mainstreamed OOSC.

Source of Data: SDMIS/UDISE+.

Computation Method (with Example): % = (Mainstreamed / Identified) × 100 Example: Identified 2,000; mainstreamed 1,500. % = 75%. Disaggregate by gender/district.

Interpretation and Analysis: <100% shows gaps in outreach; lower for girls indicates equity issues.

Implications in Planning: Allocates funds for special training centers in high-OOSC blocks per PAB approvals.

Section 2: Indicators of Participation

Participation indicators assess active involvement.

Indicator 1: Average Attendance Rate

Purpose/Objective: To gauge regular school attendance, reflecting participation and engagement. Low rates signal issues like health or economic factors, aiding retention planning.

Definition: Percentage of enrolled students attending school on average over a period (e.g., year).

Data Requirements:

- Total enrolment.
- Average daily attendance (from school registers).

Source of Data: UDISE+ or school-level attendance records.

Computation Method (with Example): Attendance Rate = (Average Daily Attendance / Total Enrolment) × 100 Example: Secondary level enrolment: 10,000; average daily attendance: 8,500. Rate = (8,500 / 10,000) × 100 = 85%. Gender-specific: Boys 88%, Girls 82%. Disaggregate by cluster to spot local patterns.

Interpretation and Analysis: Below 80% indicates poor participation. Analyse by gender: Lower girls' rate may mean safety concerns. Seasonal drops (e.g., harvest time) need monitoring.

Implications in Planning: Under Samagra Shiksha, low rates trigger mid-day meals or awareness campaigns. Aligns with NEP 2020 by ensuring participation leads to 100% GER, e.g., incentives in low-attendance districts.

Indicator 2: Participation Rate in Organized Learning (Pre-Primary)

Purpose/Objective: Measure early childhood participation, per UNESCO SDG4, to build foundational skills.

Definition: Children in organized learning one year before primary entry age as a percentage of that population.

Data Requirements:

- Enrolment in pre-primary.
- Population one year before primary age.

Source of Data: UDISE+; Census.

Computation Method (with Example): Rate = (Pre-Primary Enrolment / Age Population) × 100 Example: Enrolment 8,000; population 10,000. Rate = 80%. Gender/disaggregated.

Interpretation and Analysis: Low rate signals access gaps in early education.

Implications in Planning: Expands anganwadis/schools in low-rate areas under Samagra Shiksha.

Section 3: Indicators of Retention

Retention indicators monitor completion and dropouts.

Indicator 1: Dropout Rate

Purpose/Objective: To identify the proportion of students leaving school prematurely, helping target interventions for at-risk groups.

Definition: Percentage of enrolled students who drop out in a given year at a level.

Data Requirements:

- Enrolment at start of year.
- Number of dropouts during the year.

Source of Data: UDISE+ annual data.

Computation Method (with Example): Dropout Rate = (Number of Dropouts / Enrolment at Start) × 100 Example: Elementary level start enrolment: 100,000; dropouts: 5,000. Rate = (5,000 / 100,000) × 100 = 5%. Gender-specific: Boys 4%, Girls 6%. Disaggregate by district.

Interpretation and Analysis: High rate (>5%) signals issues like poverty. Higher girls' rate may indicate early marriage. Compare levels: Spike at secondary suggests exam pressure.

Implications in Planning: Samagra Shiksha uses this for counselling programs in high-dropout blocks. NEP 2020's retention focus: Plan vocational tracks to keep students till higher secondary.

Indicator 2: Average Annual Dropout Rate

Purpose/Objective: Track average dropouts over the years for trend analysis, per UNESCO.

Definition: Average annual dropout rates (e.g., 3-5 years).

Data Requirements:

- Annual dropouts and enrolment for multiple years.

Source of Data: UDISE+.

Computation Method (with Example): Average = (Sum of Annual Rates / Number of Years) Example: Rates 5%, 4%, 6%. Average = 5% - gender/disaggregated.

Interpretation and Analysis: The rising average indicates persistent issues; the higher rate for secondary girls suggests socio-economic barriers.

Implications in Planning: Informs long-term interventions like counselling in high-rate districts.

Indicator 3: Transition Rate

Purpose/Objective: To measure smooth movement between levels (e.g., upper primary to secondary), identifying bottlenecks.

Definition: Percentage of students from one level enrolling in the next level the following year.

Data Requirements:

- Enrolment in completing grade (e.g., Class 8).
- Enrolment in the starting grade of the next level (Class 9).

Source of Data: UDISE+ cohort data.

Computation Method (with Example): Transition Rate = (Enrolment in Next Level / Enrolment in Completing Grade) × 100 Example: Class 8 enrolment: 40,000; Class 9 enrolment: 36,000. Rate = (36,000 / 40,000) × 100 = 90%. Gender-specific: Boys 92%, Girls 88%. By state/district.

Interpretation and Analysis: Below 90% shows access barriers. Lower for girls may mean a lack of nearby secondary schools.

Implications in Planning: Supports Samagra Shiksha's infrastructure upgrades in low-transition clusters. For NEP 2020, improve to ensure 100% progression to higher secondary.

Indicator 4: Retention Rate

Purpose/Objective: Measure students retained till the end of the level, per PGI/UNESCO.

Definition: Students at the end grade as a percentage of the start-grade cohort.

Data Requirements:

- Cohort enrolment at start/end.

Source of Data: UDISE+.

Computation Method (with Example): Rate = (End Enrolment / Start Enrolment) × 100

Example: Primary start 100,000; end 90,000. Rate = 90%. Levels: primary, elementary, secondary.

Interpretation and Analysis: <100% shows dropouts; disaggregate to spot level-specific issues.

Implications in Planning: Fund vocational programs in low secondary retention areas.

Indicator 5: Repetition Rate

Purpose/Objective: Identify grade repetition to improve efficiency, per UNESCO.

Definition: Repeaters in a grade as a percentage of the previous year's enrolment.

Data Requirements:

- Repeaters.
- Previous enrolment.

Source of Data: UDISE+.

Computation Method (with Example):
Rate = (Repeaters / Previous Enrolment) × 100
Example: Repeaters 3,000; previous 50,000. Rate = 6%. By grade/gender.

Interpretation and Analysis: A High rate (>5%) indicates learning gaps; a higher rate in primary suggests foundational issues.

Implications in Planning: Remedial teaching in high-repetition blocks under Samagra Shiksha.

Indicator 6: Grade-to-Grade Promotion Rate

Purpose/Objective: Assess smooth progression, complementing retention.

Definition: Students promoted to the next grade as a percentage of current enrolment.

Data Requirements:

- Promoted students.
- Current enrolment.

Source of Data: UDISE+.

Computation Method (with Example):
Rate = (Promoted / Enrolment) × 100
Example: Promoted 45,000; enrolment 50,000. Rate = 90%. By grade.

Interpretation and Analysis: Low rate signals exam/quality issues; analyze by district.

Implications in Planning: Teacher training in low-promotion clusters.

Section 4: Indicators of Quality

Quality indicators evaluate learning and environment, incorporating NAS.

Indicator 1: Pupil-Teacher Ratio (PTR)

Purpose/Objective: To evaluate teacher availability per student, ensuring effective instruction.

Definition: Number of students per teacher at a level.

Data Requirements:

- Total enrolment.
- Number of teachers.

Source of Data: UDISE+.

Computation Method (with Example): PTR = Total Enrolment / Number of Teachers Example: Higher secondary enrolment: 20,000; teachers: 800. PTR = 20,000 / 800 = 25:1. Disaggregate by level/location; gender not directly applicable, but track female teachers.

Interpretation and Analysis: Ideal PTR (per RTE): 30:1 primary, 35:1 upper primary. High PTR (>40:1) means overcrowded classes, affecting quality.

Implications in Planning: Samagra Shiksha recruits teachers for high-PTR districts. NEP 2020 quality focus: Train teachers in blocks with poor ratios.

Indicator 2: Percentage of Schools with Basic Infrastructure

Purpose/Objective: To measure the availability of essentials like toilets, water, and its impact on safety and learning.

Definition: Percentage of schools having key facilities (e.g., functional toilets, drinking water, ramps per PGI).

Data Requirements:

- Total schools.
- Schools with a specific facility.

Source of Data: UDISE+ school profiles.

Computation Method (with Example): % = (Schools with Facility / Total Schools) × 100 Example: Total primary schools: 1,000; with functional girls' toilets: 900. % = (900 / 1,000) × 100 = 90%. Gender-specific: Focus on girls' toilets. Disaggregate by block.

Interpretation and Analysis: Below 100% indicates gaps. Low in rural clusters affects girls' attendance.

Implications in Planning: Samagra Shiksha funds infrastructure in deficient areas. NEP 2020: Ensure 100% for equitable quality, prioritizing higher secondary upgrades.

Indicator 3: Average Subject Scores from NAS

Purpose/Objective: Assess learning outcomes in key subjects, per NAS/Samagra Shiksha.

Definition: Average student score in Language, Math, Science, and Social Science at Grades 3, 5, 8, and 10.

Data Requirements:

- NAS scores by subject/grade.

Source of Data: NAS reports.

Computation Method (with Example): Average = Sum of Scores / Number of Students Example: Class 3 Math average 60% (benchmark 75%) - Disaggregate by gender/state.

Interpretation and Analysis: The benchmark below indicates quality gaps; urban-rural disparities highlight inequities.

Implications in Planning: Curriculum reforms in low-score districts, aligning with NEP 2020.

Indicator 4: Percentage of Students Achieving Minimum Proficiency (NAS)

Purpose/Objective: Measure proficiency levels for SDG4 alignment.

Definition: Students scoring above the benchmark (e.g., 75%) in NAS subjects.

Data Requirements:

- Students above the benchmark.
- Total tested.

Source of Data: NAS.

Computation Method (with Example):
% = (Above Benchmark / Total) × 100
Example: 30,000 above in Math; 50,000 tested. % = 60%. By subject/grade.

Interpretation and Analysis: Low % shows ineffective teaching; gender gaps need Analysis.

Implications in Planning: Targeted training in underperforming blocks.

Section 5: Indicators of Equity

Equity indicators address disparities, per Samagra Shiksha objectives.

Indicator 1: Gender Parity Index (GPI)

Purpose/Objective: Measure gender balance in enrolment/retention, per UNESCO/PGI.

Definition: Ratio of girls' to boys' GER/NER/dropout rate (ideal 1).

Data Requirements:

- Girls' and boys' figures for the indicator.

Source of Data: UDISE+.

Computation Method (with Example):
GPI = Girls' GER / Boys' GER
Example: Girls' GER 80%; Boys' 90%. GPI = 0.89. By level/district.

Interpretation and Analysis: <1 indicates girls' disadvantage; analyzed by social group.

Implications in Planning: Girls' hostels in low-GPI areas.

Indicator 2: Social Parity Index (SPI)

Purpose/Objective: Track equity for SC/ST/minorities.

Definition: SC/ST enrolment ratio to their population share.

Data Requirements:

- Enrolment by category.
- Population by category.

Source of Data: UDISE+; Census.

Computation Method (with Example):
SPI = (SC Enrolment % / SC Population %)
Example: SC enrolment is 15%; population is 20%. SPI = 0.75. Disaggregated.

Interpretation and Analysis: <1 shows under-representation.

Implications in Planning: Reservations/scholarships in low-SPI districts.

Section 6: Indicators of Infrastructure and Facilities

From PGI/Samagra Shiksha.

Indicator 1: Percentage of Single-Teacher Schools

Purpose/Objective: Identify understaffed schools affecting quality.

Definition: Schools with one teacher as a percentage of the total.

Data Requirements:

- Single-teacher schools.
- Total schools.

Source of Data: UDISE+.

Computation Method (with Example):
% = (Single-Teacher / Total) × 100
Example: 200 single; 1,000 total. % = 20%. By level.

Interpretation and Analysis: High % (>10%) in rural areas signals recruitment needs.

Implications in Planning: Teacher deployment in high % blocks.

Indicator 2: Percentage of Schools without Enrolment

Purpose/Objective: Spot non-functional schools for rationalization.

Definition: Zero-enrolment schools as a percentage of total.

Data Requirements:

- Zero-enrolment schools.
- Total schools.

Source of Data: UDISE+.

Computation Method (with Example):
% = (Zero-Enrolment / Total) × 100
Example: 50 zero; 1,000 total. % = 5%.

Interpretation and Analysis: High % indicates migration/access issues.

Implications in Planning: Merger/closure per Samagra Shiksha.

Indicator 3: Percentage of Schools without Functional Computers

Purpose/Objective: Assess ICT gaps for digital learning.

Definition: The percentage of Schools lacking functional computers.

Data Requirements:

- Schools without computers.
- Total schools.

Source of Data: UDISE+.

Computation Method (with Example):
% = (Without / Total) × 100
Example: 400 without; 1,000 total. % = 40%. Upper primary/secondary focus.

Interpretation and Analysis: High % hinders NEP 2020 digital goals.

Implications in Planning: ICT labs in deficient districts.

Indicator 4: Percentage of Schools with Internet Connectivity

Purpose/Objective: Measure online access for modern education.

Definition: Schools with internet as a percentage.

Data Requirements:

- Schools with internet.
- Total schools.

Source of Data: UDISE+.

Computation Method (with Example):
% = (With Internet / Total) × 100
Example: 600 with 1,000 total. % = 60%.

Interpretation and Analysis: Low % in rural areas limits resources.

Implications in Planning: Connectivity projects per PAB.

Section 7: Indicators Related to Teachers

Teacher indicators ensure quality staffing.

Indicator 1: Percentage of Trained Teachers

Purpose/Objective: Evaluate teacher qualification for better outcomes, per PGI.

Definition: Professionally trained teachers as a percentage of the total.

Data Requirements:

- Trained teachers.
- Total teachers.

Source of Data: UDISE+.

Computation Method (with Example):
% = (Trained / Total) × 100
Example: 700 trained; 1,000 total. % = 70%. By level.

Interpretation and Analysis: <90% indicates training gaps.

Implications in Planning: In-service programs in low % states.

Indicator 2: Percentage of Contractual Teachers

Purpose/Objective: Monitor reliance on temporary staff, which is affecting stability.

Definition: Contractual teachers as a percentage.

Data Requirements:

- Contractual teachers.
- Total teachers.

Source of Data: UDISE+.

Computation Method (with Example):
% = (Contractual / Total) × 100
Example: 300 contractual; 1,000 total. % = 30%.

Interpretation and Analysis: High % (>20%) may impact quality.

Implications in Planning: Regularization drives.

Indicator 3: Percentage of Female Teachers

Purpose/Objective: Promote gender balance in teaching, per PGI.

Definition: Female teachers as a percentage.

Data Requirements:

- Female teachers.
- Total teachers.

Source of Data: UDISE+.

Computation Method (with Example):
% = (Female / Total) × 100
Example: 500 females; 1,000 total. % = 50%.

Interpretation and Analysis: Low % (<40%) affects girls' role models.

Implications in Planning: Incentives for female recruitment.

Section 8: Indicators of Efficiency

Efficiency indicators include financial and systemic.

Indicator 1: Percentage of Funds Utilisation

Purpose/Objective: Assess scheme implementation efficiency, per PAB minutes.

Definition: Expended funds are the percentage of allocated funds.

Data Requirements:

- Allocated funds.
- Expended funds.

Source of Data: Samagra Shiksha financial reports/PAB.

Computation Method (with Example):
% = (Expended / Allocated) × 100
Example: Allocated Rs. 100 crore; expended Rs. 85 crore. % = 85%. By component/state.

Interpretation and Analysis: <90% indicates delays; analyze by district.

Implications in Planning: Capacity building for better utilization.

Analysis of Available Indicators: UDISE+ 2020-21 to 2023-24

Based on *"UDISE National Data 2020-21, 2022-23, and 2023-24"* by Prof. Arun C. Mehta.

Major Findings

- **Enrolment Decline:** Total enrolment (Pre-Primary to Higher Secondary) dropped from 264.4 million (2020-21) to 248.0 million (2023-24). Primary enrolment fell from 122.0 million to 107.8 million.
- **Access Indicators:** GER declined: primary (103.3% to 93.0%), upper primary (92.2% to 89.7%), secondary (79.8% to 77.4%), higher secondary (53.8% to 56.2%). NER and ANER also fell, e.g., primary NER from 92.7% to 79.0%, ANER from 98.6% to 85.9%. ASER for primary (6-10 years) dropped from 98.6% to 85.3%.
- **Retention/Dropout Trends:** Dropout rates increased: primary (0.8% to 1.9%), upper primary (1.9% to 5.2%), secondary (14.6% to 14.1%). Transition rates decreased, e.g., upper primary to secondary (91.3% to 83.3%). Retention rates fell: primary (95.4% to 85.4%), elementary (81.2% to 78.0%).
- **Positive Developments:** Total teachers increased from 9.7 million to 9.8 million. PTR improved: primary (26:1 to 21:1), upper primary (19:1 to 18:1), secondary (18:1 to 16:1), higher secondary (27:1 to 24:1). Infrastructure coverage is high: electricity (91.8%), drinking water (98.3%), toilets (98.6%), girls' toilets (97.2%). Computer access rose from 47.7% to 57.2%, and internet from 49.7% to 53.9%. Vocational schools under NSQF grew from 12,292 to 18,610. Residential schools increased from 34,946 to 43,389.
- **Equity Aspects:** Enrolment for SC (47.8 million to 42.8 million), ST (24.9 million to 23.4 million), OBC (113.5 million to 106.5 million), and minorities (45.5 million to 46.4 million) declined. GER for SC/ST improved slightly, e.g., ST higher secondary from 45.2% to 48.7%. CWSN enrolment is stable at ~2.1 million, but CWSN-friendly toilets are low at 34.4%.
- **School Infrastructure and Types:** Total schools decreased from 1.51 million to 1.47 million. Government schools dominate (~1.01 million), followed by private unaided (331,108) and aided (80,313).

Prof. Mehta notes that despite declines, indicators like GER for marginalized groups show resilience, but trends indicate stagnation or regression post-2021- 22.

Major Issues

- **Enrolment Decline and Access Gaps:** Sharp drops in primary and elementary levels suggest increased out-of-school children, possibly due to post-COVID effects, migration, or under-reporting. Low GER (<100%) highlights barriers in rural and marginalized areas, challenging NEP's 100% GER goal.
- **High Dropout and Low Retention:** Elevated secondary dropout (14.1%) and declining transition rates (e.g., 83.3% upper primary to secondary) indicate systemic bottlenecks like economic pressures, lack of vocational options, and quality issues.
- **Equity Disparities:** Declining enrolment for SC/ST/minorities and low CWSN-friendly facilities (34.4%) exacerbate inequalities, contradicting NEP's inclusion focus.
- **Infrastructure Gaps:** While basic facilities are near-universal, digital infrastructure (computers 57.2%, internet 53.9%) and CWSN-specific facilities (ramps 52.3%) remain inadequate, limiting NEP's tech-integrated learning goals.
- **Data Comparability Challenges:** Shift to SDMIS in 2022-23 raised incompatibility concerns, with varying cut-off dates (September 2020-21/2021-22; March 2022-23/2023-24). Prof. Mehta argues that indicators remain comparable as they reflect point-in-time realities.

Strategies to Bridge Gaps

- **Enhance Access and Retention:** Implement targeted OOSC mainstreaming, scholarships, and transport in low-GER districts/blocks. Strengthen vocational education under NSQF to reduce secondary dropouts.
- **Equity Interventions:** Prioritize girls, SC/ST, and CWSN through hostels, incentives, and inclusive infrastructure in aspirational districts, aligning with Samagra Shiksha's equity component.
- **Quality and Infrastructure Upgrades:** Accelerate digital connectivity and teacher training in high-PTR clusters. Use NAS data for remedial programs in underperforming areas.
- **Data and Monitoring Improvements:** Standardize EMIS methodologies for consistency; conduct regular audits and cohort tracking to address limitations.
- **Policy Alignment:** Scale up mid-day meals, community mobilization, and public-private partnerships to reverse enrolment declines.

Prof. Mehta suggests integrating UDISE+ with SDMIS for robust tracking and using disaggregated data for localized planning.

Data Limitations

- **Methodological Changes:** SDMIS in 2022-23 altered data collection (student-based vs. school-based), affecting comparisons with pre-2022 data. Cut-off date variations introduce inconsistencies.
- **Inconsistencies and Under-Reporting:** Possible inaccuracies in self-reported data, especially for private schools and minorities. Efficiency indicators (e.g., dropout) rely on prior-year data, introducing biases.

- **Scope Gaps:** Limited coverage of qualitative aspects (e.g., learning outcomes beyond NAS) and external factors (e.g., socio-economic influences). Prof. Mehta cautions users to account for methodology shifts.
- **Timeliness and Granularity:** Delayed releases and aggregated national data limit real-time, cluster-level analysis.

Towards NEP 2020 Goals

NEP 2020 envisions 100% GER by 2030, but declining trends (e.g., primary GER at 93%) make this "far-reaching," per Prof. Mehta. Progress in PTR and infrastructure supports quality goals, but high dropouts hinder universal retention. Equity for marginalized groups shows marginal gains, yet gaps persist. Accelerated strategies like foundational learning focus, digital equity, and localized planning are essential to achieve targets. The document warns that without addressing data limitations and enrolment declines, universal school education by 2030 remains challenging, urging evidence-based reforms under Samagra Shiksha.

Concluding Observations

This comprehensive manual covers indicators from Samagra Shiksha (framework, PAB, PGI), UNESCO guidelines (e.g., ASER, repetition), NAS, and Aggarwal & Thakur's document for holistic monitoring. Use UDISE+/NAS dashboards for data; compute gender-specific/disaggregated versions annually. Compare with national benchmarks (e.g., PGI) to adjust plans, ensuring alignment with NEP 2020 and Samagra objectives like equity in aspirational districts. Refer to MoE guidelines and educationforallinindia.com for updates.