

MONITORING EDUCATION PARTICIPATION

Framework for Monitoring Children and Adolescents
who are Out of School or at Risk of Dropping Out

BRIEF



UNICEF Series on Education

Participation and Dropout Prevention

This brief summarizes the UNICEF-UIS publication *Monitoring Education Participation*, henceforth referred to as the *Monitoring Framework*, which is the first volume of the **UNICEF Series on Education Participation and Dropout Prevention**¹. The purpose of this series is to equip and inspire decision-makers and practitioners working in the field of education with guidance and ideas – both to improve the data on education participation and exclusion, and the response interventions to ensure that all children are in school and learning.

Volume 1 – Monitoring Education Participation outlines a *Framework* for improving national systems for monitoring participation in education.

The aim of this publication is to provide a practical step-by-step guide which can support countries in developing and improving their national monitoring system to:

- Obtain better education data, both in terms of breadth (a broader range of relevant disaggregated data) and quality (more reliable data);
- Reliably identify out-of-school children (OOSC) and children at risk of exclusion, and make currently invisible OOSC visible to the monitoring system;
- Analyse the causes of exclusion;
- Develop and establish evidence-informed policies and interventions to prevent exclusion.

The *Sustainable Development Goals (SDGs)* adopted in 2015 emphasized the need to improve access to and use of data, to better monitor targets and make more informed decisions. Meeting the SDGs requires collecting more disaggregated data, and making better use of the data collected. The *Monitoring Framework* provides guidance on how to collect more detailed and reliable data, which is necessary for monitoring progress towards *SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*.

Volume 2 – Improving Education Participation complements the *Monitoring Framework* by providing policy and practice pointers to improve education access and retention².



¹ Download the full publication: <http://unesdoc.unesco.org/images/0024/002478/247861e.pdf>

² <http://www.oosci-mena.org/uploads/1/wysiwyg/reports/ImprovingEducationParticipation-WEB.PDF>

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Abbreviations and Acronyms

| | |
|-------|---|
| EMIS | Education Management Information System |
| ESL | Early School Leavers |
| ISCED | International Standard Classification of Education |
| NEET | Young people Neither in Employment nor Education and Training |
| NER | Net Enrolment Rate |
| OOSC | Out-of-School Children |
| SDGs | Sustainable Development Goals |
| SMIS | School Management Information System |
| UIS | UNESCO Institute for Statistics |

The Eight Steps of the Framework for Monitoring Education Participation

The Monitoring Framework is organised into eight steps, which are grouped into three phases:



Collect: Ensure that the right information is collected for monitoring education participation, and that the information collected is reliable.



Collaborate: Ensure that information is shared horizontally (through cross-sector collaboration) and vertically (between schools, education departments and the Ministry of Education), to obtain a more detailed and complete picture of education participation.



Create & Respond: Develop an early warning system and automated reporting routines to enable evidence-informed responses, meeting the needs of children out-of-school and at risk of dropping out - both through system-level policies and interventions, and individual support.



Collect

1. Establish indicators, definitions and benchmarks
2. Prevent, detect and resolve data inaccuracies
3. Update EMIS to incorporate new indicators and methodologies



Collaborate

4. Close gaps in vertical information flows between local and national level
5. Close gaps in horizontal information flows through cross-sector collaboration



Create & Respond

6. Create an early warning system
7. Create automated reporting and analysis routines
8. Develop and establish evidence-informed policies and interventions



Step 1

Establish indicators, definitions and benchmarks



Defining indicators is the first step towards improving the monitoring of education participation, as it determines which data will be collected, and what kinds of monitoring and analysis become possible. While an education monitoring system should include many types of indicators, this brief introduces those concepts and indicators which are essential to monitoring participation.

Absenteeism versus truancy

National legislation in many countries does not distinguish between absenteeism and truancy, but this distinction is important for monitoring purposes. **Absenteeism** refers to when a student does not attend school (for any reason), while **truancy** specifically refers to *unjustified* absenteeism, i.e. absenteeism without a valid reason such as illness. **Chronic truancy** is a strong sign of disengagement from school and among the surest signs that a student is about to drop out.

The elements of a precise definition of dropout

There is often confusion around what dropout means, leading to different interpretations by schools and inaccurate reporting. A clear and precise definition of **dropout** is therefore needed, which specifies the *age range* it applies to (typically, compulsory school ages), the *date(s)* on which schools are required to report enrolment and dropout, a list of *exclusionary conditions* (e.g., migrating abroad, completed compulsory education), and optionally a period of truancy after which a child is considered to have dropped out.

Out-of-School Children (OOSC) and related terms

It is important to distinguish between *dropouts* and *OOSC*, as the terms are often used interchangeably. **OOSC** encompass both dropouts and children who have *never attended school*. This second group can either be late entrants, or children who will never attend school.

Another related term which should not be confused with OOSC is **Early School Leavers** or *Early leavers from education and training*. This term refers to an older age group – such as people aged 18 to 24³ – who have achieved no higher than lower-secondary education and are no longer in education or training. This indicator is useful as a proxy indicator for the labour market preparedness of young people. OOSC and dropout rates are better for monitoring the current situation regarding education participation.

Different approaches to calculating OOSC rates

There are two common approaches to calculating OOSC rates. The first approach is to use *administrative (EMIS) data* and calculate the difference between *enrolment* as captured by schools and *population* for specific age groups. The second approach is to use *household survey data*, which typically captures *attendance* rather than *enrolment*. It is possible for children to be *enrolled* but not *attend* school, and thus resulting figures may differ. Moreover, definitions of attendance vary (e.g., whether a single day of attendance in the school year counts as being in school). Household surveys are also sample-based so subject to sampling error. Another

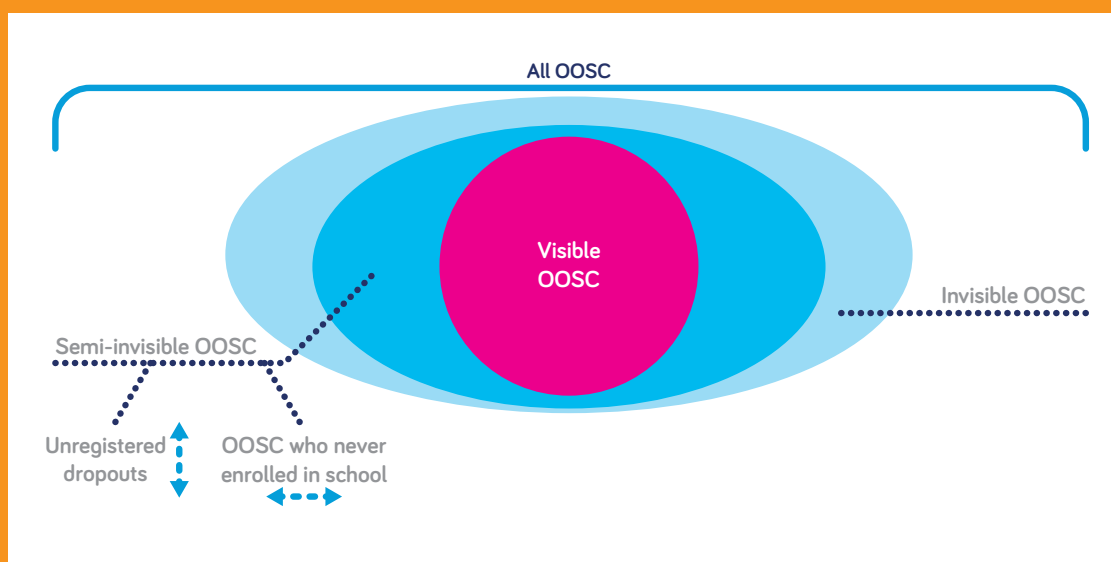
³ See the Eurostat definition: https://ec.europa.eu/info/sites/info/files/european-semester_thematic-factsheet_early-school-leavers_en.pdf. OECD defines early school leavers as students who do not complete upper-secondary education - <http://www.oecd.org/edu/highlights.pdf>

difference is that the first approach typically uses *projected* population figures from the latest household census. In contrast, household survey-based OOSC rates are based on the *sampled* population. Each approach has its advantages and disadvantages, and producing estimates with both methods is recommended.⁴



Visibility Model: making invisible children visible in data and monitoring systems

Visible, semi-invisible and invisible OOSC: The Monitoring Framework introduced the **Visibility Model**, with three categories of visibility of OOSC and corresponding approaches for identification and monitoring. **Visible OOSC** are so-called because they can be identified using the Education Management Information System or EMIS. **Semi-invisible OOSC** are not recorded in the EMIS, but could be made visible through improved reporting and information exchange. They include **unregistered dropouts** who have not been reported by schools, and **OOSC who never enrolled in school (so are not in the EMIS)** but are recorded in other government databases. **Invisible OOSC** are not in any database, and are the most difficult group to identify.




Further reading: The full publication also provides templates, definitions and calculation methods for the key indicators; indicators for monitoring children with disabilities; and proposed benchmarks and levels of disaggregation.

⁴ Regardless of the approach, the internationally agreed upon educational levels and corresponding age ranges should be used, as defined in the International Standard Classification of Education (ISCED) - <http://uis.unesco.org/en/topic/international-standard-classification-education-isced>.



Step 2

Prevent, detect and resolve data inaccuracies

 Once key indicators are defined and routinely calculated, another issue needs to be addressed: the data that goes into these calculations is often inaccurate. This step focuses on inaccuracies in population, enrolment and dropout data, and how to prevent, detect and resolve them.

Population data: census and civil registry

Projected population census data can be very inaccurate, especially if it has been a long time since the last census (which is typically carried out every 10 years), and if there is a highly mobile population. Population and household census data may also suffer from ‘age heaping’, which refers to ages being rounded to numbers ending in 0 or 5 when there is uncertainty about the exact age of household members. The civil registry may be a good alternative source of population data. However, unregistered births and migration can undermine its accuracy. Improving civil registration systems and introducing routine data quality checks and procedures is key to obtaining better population data.

Enrolment, dropout and truancy data

Causes of inaccurate reporting of enrolment, dropout and truancy include overly complex or confusing data collection forms, errors in data entry, misinterpretation of terms such as *dropout*, and lack of data quality controls. Such issues can be fixed through improved form design and data entry mechanisms, providing clear definitions of terms, providing training and support for the completion of forms, and data quality management (built-in data *validation* checks during data entry to prevent errors, and *data cleaning* to resolve errors which nevertheless occur).

In some countries, significant data inaccuracies are caused by *intentional* misreporting. Schools may do so for various reasons. For example, reporting dropout could have repercussions on school funding and staffing in per-student financing systems. Parents may apply pressure to not report non-attendance or dropout. And school administrators may fear they will be penalised.

This may be prevented by providing greater incentives to report data accurately, such as by (i) reassuring school principals/staff that they will not be penalized for reporting dropout, (ii) penalizing *non-reporting* of dropout, and (iii) incentivizing reporting of dropout and truancy by providing additional support to schools with high dropout (and truancy) rates.




Further reading: The full publication provides additional recommendations, such as on incentivising accurate reporting and conducting different types of data quality checks.



Step 3

Update EMIS to incorporate new indicators & methodologies

 Many countries have been moving from a (mostly) paper-based system to a fully digitized Education Management Information System or EMIS. This step is concerned with the development of an EMIS to expand education monitoring and management capabilities at national, regional and school levels.

What should an EMIS include to monitor education participation?

An EMIS is used to efficiently manage, disseminate and analyse education data, to support education planning and decision-making. A well-designed EMIS is essential in establishing a successful monitoring system. It is recommended that the following functions are incorporated in the EMIS:

1. Recording of *enrolment by date of birth, or single year of age* (required for the calculation of many key education indicators).
2. Recording of *absenteeism*, distinguishing between *excused* and *unexcused* absenteeism.
3. Cross-checking enrolment records with population registers to identify *school age children who have never been to school*.
4. Recording of dropout as well as *reason for dropout*.

Why transition to an electronic, web-based system?

1. **More timely data:** Access to real-time data, rather than periodically collected data.
2. **Greater flexibility and responsiveness to needs:** A web-based system can be updated and improved more easily as procedures and information requirements evolve.
3. **Greatly increased analysis capabilities:** Through the collection of detailed, person-level data.
4. **Accessible anytime, anywhere, by anyone:** From any Internet-enabled device.
5. **Improved data quality:** Such as through automatic data validation, as discussed in *Step 2*.



SMIS (or SIS), for *School (Management) Information System* is a school-level system for managing data and reporting data to the EMIS. It can be an independent system, or an extension of the EMIS, and may include many kinds of school management and administrative functions (such as admissions, automated reporting, accounting and budgeting, and monitoring student progress).



Further reading: The full publication goes into more detail regarding the characteristics of an EMIS and SMIS, including a detailed EMIS technical specification.

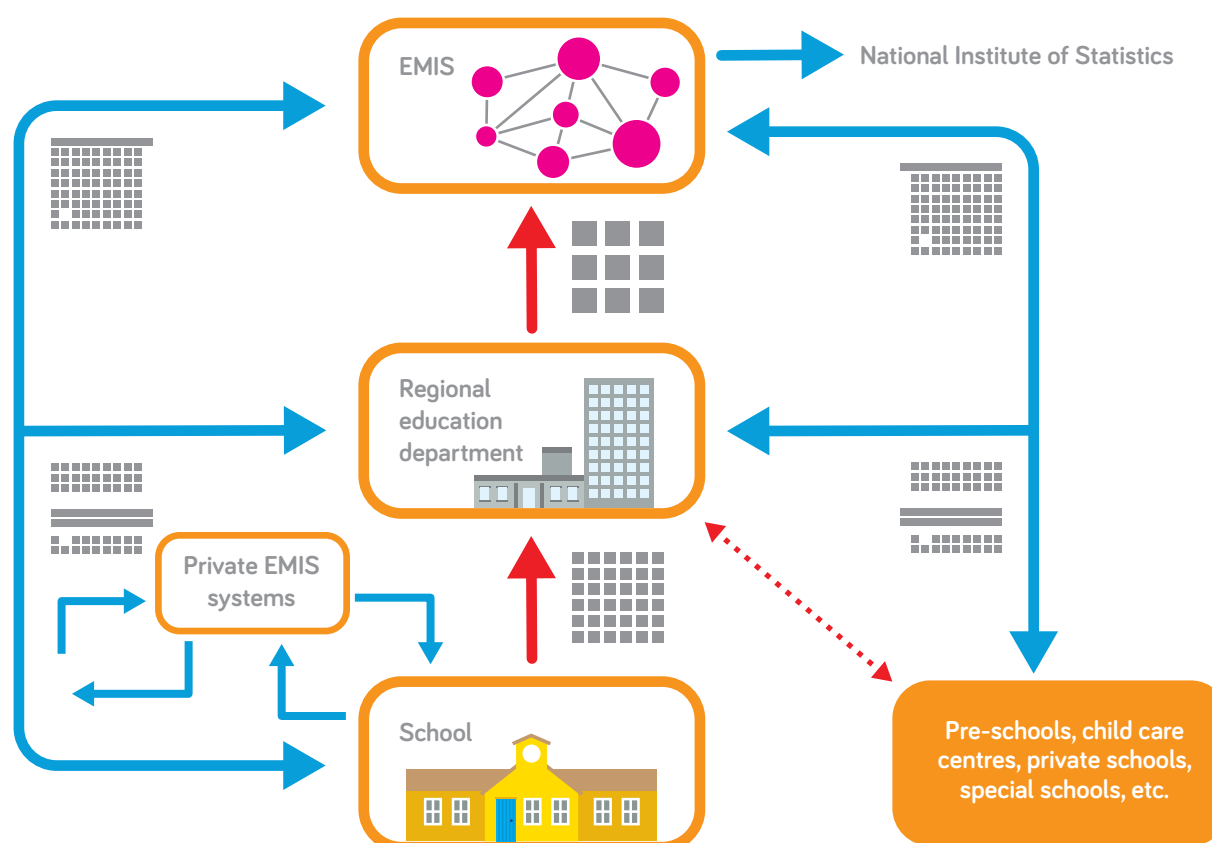
Step 4

Close gaps in vertical information flows

This step is concerned with closing gaps in vertical information flows - that is, two-way information exchanges between schools, education departments and the Ministry of Education.

Vertical information flows in a typical paper-based reporting system are illustrated in Figure 1 through **red** arrows. Information is lost in this process as student-level data is typically aggregated (summarized) by schools in reporting to the regional level, and further aggregated at this level in reporting to the Ministry of Education. Vertical information flows in **blue** illustrate a process in which **student-level data** is instead reported through a central web-based EMIS, to which users at different administrative levels have access. The EMIS should also enable two-way communication, such as between education departments and schools. Access to student-level data greatly improves the monitoring and analysis capabilities (for example, by enabling more disaggregated indicators). It also improves tracking of students as they move through the education system.

Figure 1. Limited (red) versus optimal (blue) vertical information flows



The dotted arrow in **red** in Figure 1 indicates an important gap: the Ministry of Education typically does not collect data on the education status of children in non-mainstream schools, e.g., community-run schools or special schools for children with disabilities. Ideally, the EMIS cover all school age children – through direct reporting, or horizontal information exchange as discussed in *Step 5*.



Further reading: The full publication goes into more detail with respect to two-way information flows, preventing information loss, and privacy and data protection.

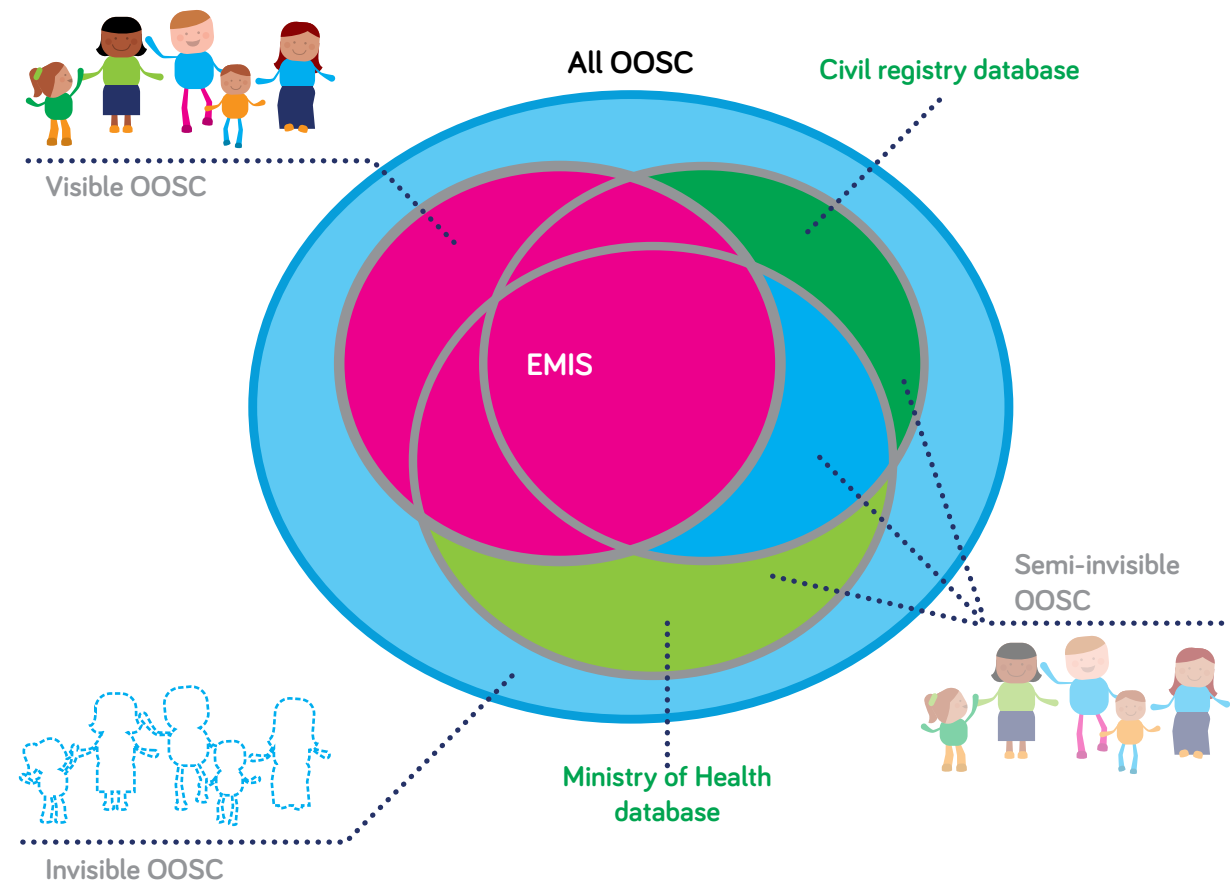
Step 5

Close gaps in horizontal information flows

Q Closing gaps in horizontal information flows involves improving cross-sector collaboration. Monitoring education participation is inherently a cross-sectoral undertaking. Out-of-school children and children at risk of dropout are vulnerable children, and it requires a joint inter-sector effort both to identify these children and to support them.

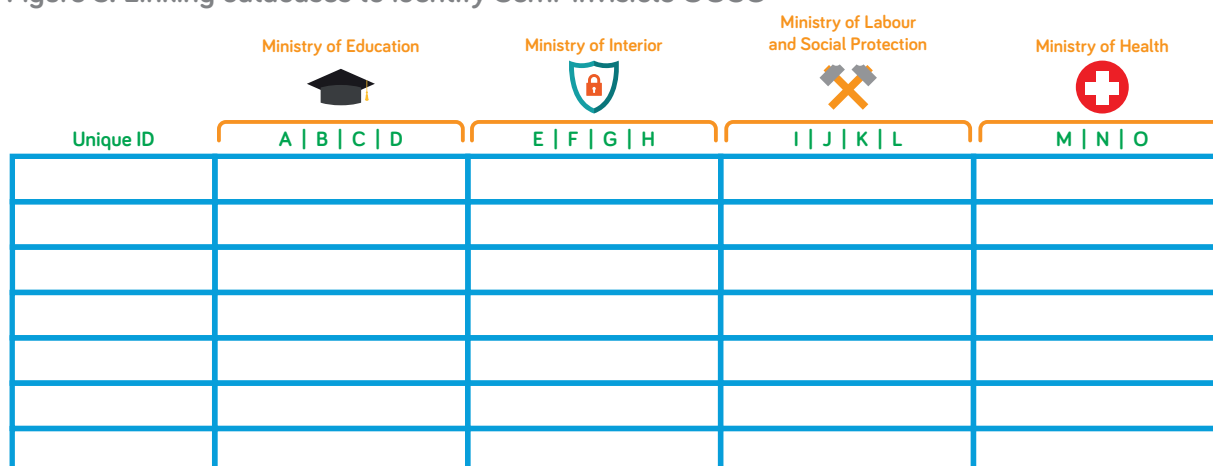
In many countries, no single government database has complete and up-to-date information about every child in the country. The most complete databases are often the EMIS (see Step 3) and civil registry database, while at the local level, health centres may have the most complete coverage due to regular interaction with children in the community (such as for vaccinations). Figure 2 illustrates how linking such databases enables a more complete coverage of all children in the country, based on the **Visibility Model** described in Step 1.

Figure 2. Linking databases to identify Semi-invisible OOSC (Out-of-School Children)



Linking databases enables the identification of **Semi-invisible OOSC**. For example, if a school age child recorded in the civil registry has no matching record in the EMIS, the child is likely to be out of school. Figure 3 below illustrates how individual child records can be matched between databases using a unique ID common to these databases, such as a birth certificate number.⁵ When children's personal data is concerned, the issue of data protection and privacy is crucial and appropriate safeguards and regulations should be in place.

Figure 3. Linking databases to identify Semi-invisible OOSC



Identifying Invisible OOSC

Invisible OOSC are by definition not visible in any government database, and are therefore much harder to track down. Invisible OOSC are generally vulnerable and disadvantaged children, and hence it is in the interest of different Ministries to identify and support them, while also protect sensitive personal data. They may include, for example, children with disabilities hidden at home due to the social stigma, street children, internally displaced persons (IDPs), and refugees or migrants without valid identity documents. There are different approaches to identifying invisible OOSC, such as:

- **Collaborating with local organisations and community members:** Exchange information at the local level with, for example, NGOs, village councils and community leaders.
- **School procedures:** Allow children to enrol without identity documents, and develop guidelines for schools on how to advise families in such circumstances.
- **Door-to-door visits:** In some post-Soviet countries, teachers make door-to-door visits in the school zone to identify children expected to enter grade 1 the coming school year.
- **Addressing the issue of home births:** Ensure home birth registration, e.g. by making it the responsibility of the attending midwife or doctor to register the birth, simplifying registration procedures and making it free of charge.




Further reading: The full publication further describes the procedures for cross-sector information exchange and the establishment of information-sharing agreements.

⁵ See also the *Brief on Data Privacy and Protection*, UNICEF 2018 forthcoming.

Step 6

Create an early warning system

 **An early warning system entails monitoring children's education participation, achievement, and general well-being at school. Its purpose is to identify and address issues as early as possible, which increases the success rate of interventions and is more cost-effective.**

It is better to prevent dropout than to address dropout once it has already occurred. An early warning system can prevent dropout through the monitoring of multiple student-level indicators with a proven strong association with dropout. The Monitoring Framework proposes a set of core indicators for monitoring dropout risk, and a more elaborate set of optional indicators, based on research on OOSC and dropout risk. They are referred to the A to E of dropout risk, as follows:

- **A:** Academic achievement is below standard
- **B:** Behaviour problems
- **C:** Chronic absenteeism
- **D:** Disability
- **E:** Entry and progression in education (late entry to grade 1 or repetition)

Figure 4 below provides an example template for monitoring student-level dropout risk, for use at classroom and school level to identify students at highest risk of dropout, and to see at a glance what the risk factors are. The number of points, 1 or 2, reflects the severity of the issue (where 2 is more severe than 1). The total number of points helps to identify children at highest risk of dropout, taking into account that these are estimates of dropout risk, which need to be interpreted together with knowledge regarding each child's situation. If the data is entered electronically, the generation of such reports can be automated.

Figure 4. Example template for reporting and monitoring dropout risk

| Student name | Class | Academic achievement | Behaviour problems | Chronic absenteeism | Disability | Entry and progression | Total |
|--------------|-------|----------------------|--------------------|---------------------|------------|-----------------------|-------|
| May Roe | IV | 2 | 1 | 1 | | | 5 |
| Matt Doe | IV | | | | 2 | | 2 |
| John Doe | V | | | 1 | 1 | 1 | 3 |


The Monitoring Framework describes a new approach to monitoring children with disabilities, which takes into account that *difficulty participating and learning* depends not just on the impairment, but also on the school environment and support provided. The approach is to monitor not just the *type* of impairment, but also the *level of difficulty participating and learning* due to this impairment.



Further reading: The full publication includes indicators specifically for monitoring children with disabilities, a comprehensive list of dropout risk indicators, and templates for recording absenteeism and dropout.

Step 7

Create automated reporting routines for evidence-informed monitoring, analysis & decision making

 *Once data is collected, automated reporting is required to enable routine monitoring and analysis. In many countries, the large amounts of data collected are underutilized. The lack of routine reporting of data is a key barrier to using the data for monitoring and decision making.*

When data is captured electronically, the reporting of data can be automated. Different types of reports are required to enable different kinds of analysis, and meet different user needs – because each type of user (e.g., teacher, principal, school psychologist, education planner, policy maker, financial analyst) has different information needs as well as different information *presentation* needs.

Two major types of reporting can be distinguished for monitoring education participation: system-level reporting and case-level reporting.

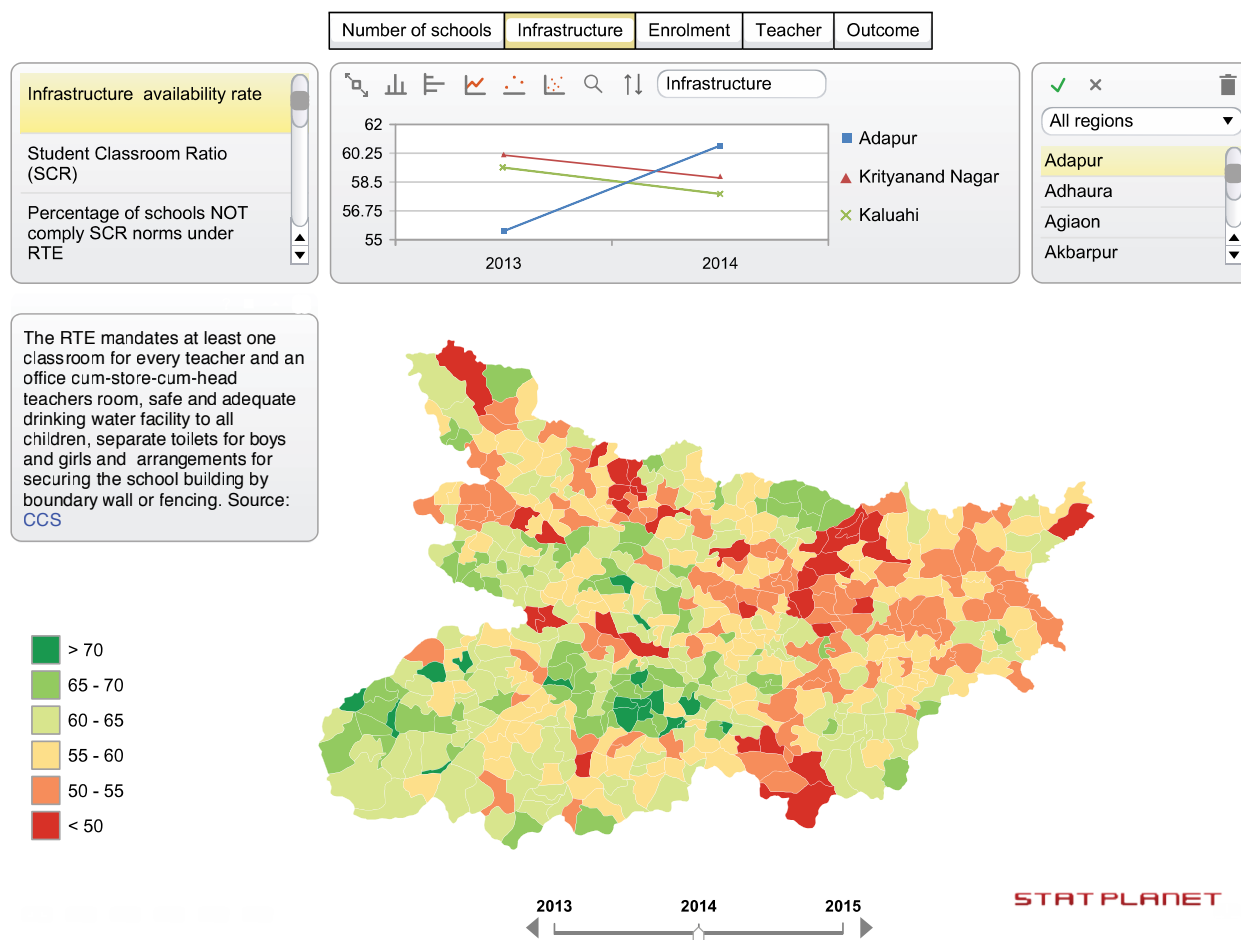
System-level reporting, monitoring and analysis

This type of reporting is used for monitoring, planning and strategic policy and decision-making at the regional and national level. Data for such reports are aggregated to fit the needs of the audience, such as at national, regional, district or school level. The reports can be used for different types of monitoring, analysis and decision-making activities, for example:

- Monitoring performance of key indicators over time against set benchmarks;
- Identifying key problems and inequalities, such as high out-of-school rates in certain regions and districts, or high dropout rates linked to specific profiles of children through disaggregated data analysis;
- Analysis of why these inequalities exist or problems are occurring, in relation to barriers to education participation;
- Devising national or regional strategies to improve education participation.

At the regional and national level, it can be especially useful to summarise information from multiple indicators through composite indexes. This enables more efficient and insightful analysis of large amounts of data. Figure 5 provides an example of a **school infrastructure index** for the state of Bihar in India, mapped at the block (district subdivision) level. Such an index combines multiple indicators of school infrastructure, such as electricity, running water, boundary wall, etc., into a single index. Another example is a school performance index, which may comprise of several types of measures such as absenteeism, dropout rates and academic achievement.

Figure 5. Dashboard example for national or regional monitoring and analysis



Case-level reporting, monitoring and analysis

Case-level (or child-level) reporting is used at the local level, including in schools, by those working directly with children – for example, by principals, teachers, case managers and social workers. Figure 4 in Step 6 is an example of a case-level report.

Children in difficult circumstances may need support from different service providers depending on the problems they face. This goes beyond education exclusion, but also concerns other related factors such as poverty, health issues and disability. Therefore, case-level reporting ideally combines information from different sources, enabling someone in a coordinating role (such as a case manager) to undertake a needs assessment, and liaise with the appropriate persons or organisations which can provide the support needed.



Further reading: The full publication goes into more detail regarding the different types of reporting and analysis (system level and case level), and includes suggestions for presenting information according to the type of analysis required.



Step 8

Implement system-level and case-level monitoring, decision-making and interventions

 *Effective and productive decisions and strategies require not only evidence which is reliable, relevant and complete. It also requires capacity to interpret the evidence, and tools and guidance for acting upon the evidence. The final step of the Monitoring Framework is therefore to ensure that the analysis in Step 7 is followed-up with an evidence-informed response.*

As discussed under *Step 7*, there are two main approaches to addressing education exclusion – at the system level, and through case level (individual) interventions. These two approaches have different challenges with respect to evidence-informed decision-making.

At the **system level**, the purpose of the monitoring system is to inform policies and strategies which reduce exclusion from education and close equity gaps. Education exclusion is associated with a wide range of cross-sector issues, including poverty, disability, health problems, early marriage, trafficking, child labour, lack of legal documentation, conflict with the law and discrimination. A wide range of expertise and interventions are needed from different sectors in order to fully address the complex and multifaceted causes of education exclusion.

At the **case level**, the multi-faceted issues faced by children excluded from education, or at risk of exclusion, likewise requires an inter-disciplinary response. Once an issue has been identified, clear referral and intervention procedures are needed, with a division of roles and responsibilities. For example, when dealing with chronic absenteeism, a decision flow and referral system can be established for systematically responding to different levels of absenteeism.

The types of decision making and support interventions can be grouped into four categories:

1. Ensuring all children enter school on time (at the right age).
2. Implementing measures to prevent students from becoming at risk of dropping out.
3. Intervening at the moment a student is identified as at risk of dropping out (see *Step 6*).
4. Implementing compensation measures to support the return to school for OOSC, or providing alternative educational arrangements.



Further reading: *Step 8* is further covered in Volume 2 of the UNICEF Series on Education Participation and Dropout Prevention.⁶

⁶ Volume 2 addresses policy measures and interventions to improve education access and retention.

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