SDG indicator 4.a.1(d):
Review of definitions and data collection approaches

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Indicator 4.a.1(d): Proportion of schools with access to adapted infrastructure and materials for students with disabilities

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Background to the review

Following the adoption of the 2030 Agenda for Sustainable Development (United Nations, 2015) and the Education 2030 Framework for Action in 2015 (UNESCO & World Education Forum, 2015), the UNESCO Institute for Statistics has been leading the development of a thematic indicator framework for the follow-up and review of Sustainable Development Goal 4 on education. A set of 43 indicators for the Framework for Action, including the 11 global indicators recommended by the Inter-Agency and Expert Group on SDG indicators, was approved in October 2016 by the Technical Cooperation Group for SDG4-Education 2030 Indicators. At the same time, the TCG identified several indicators requiring further methodological development.

The purpose of this review is to inform the methodology for the global indicator **4.a.1 (d) Proportion of schools with access to: (d) adapted infrastructure and materials for students with disabilities.** The study investigates definitions and data collection approaches used, including in less developed countries, and their relative advantages or disadvantages, including costs. The findings will lead to a set of recommendations for the TCG, on a proposed common set of definitions and data collection methodology which could be applicable in countries at different stages of development.

Current metadata for this indicator

As described in the *Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030* (July 2017) (United Nations Statistics Division, 2018), the method of calculation is simply the number of schools having access to the relevant facility, as a percentage of all schools (by level of education – primary, lower secondary and upper secondary).

Existing definitions outlined in the *Metadata* document are:

Adapted infrastructure is defined as any built environment related to education facilities that are accessible to all users, including those with different types of disability, to be able to gain access to use and exit from them. Accessibility includes ease of independent approach, entry, evacuation and/or use of a building and its services and facilities (such as water and sanitation), by all of the building's potential users with an assurance of individual health, safety and welfare during the course of those activities.

Adapted materials include learning materials and assistive products that enable students and teachers with disabilities/functioning limitations to access learning and to participate fully in the school environment. Accessible learning materials include textbooks, instructional materials, assessments and other materials that are available and provided in appropriate formats such as audio, braille, sign language and simplified formats that can be used by students and teachers with disabilities/functioning limitations.

Existing challenges with the metadata

Whilst calculation of the indicator is simple, data collection is less straightforward. It is necessary to ensure that the available facility/ies are of a reasonable **quality** and **range**; it may be necessary to ask multiple questions to determine if a school can be judged as having access to the facility; and it is unlikely that data will be based on actual inspection of school premises by an independent assessor to determine the quality of the available facilities.

Review questions

The questions for the review were:

1) What are the potential data collection approaches in both more and less developed countries in different regions of the world, in relation to measurement of SDG4 indicator 4.a.1(d) 'proportion of schools with access to adapted infrastructure and materials for students with disabilities'?

2) What are the potential definitions of both 'adapted infrastructure' and 'adapted materials' for students with disabilities?

3) What types of questions can be used to elicit information from schools on the availability, quality, operational state, and range of adapted infrastructure and materials?

Methodology for this review

The review involved three methods:

– Examination of annual school census survey forms from countries in different regions of the world, which provide data for education management information systems (EMIS) through which countries report against SDG 4-Education 2030 indicators. The review was specifically looking for information in the forms that related to infrastructure and adapted infrastructure, and materials for students with disabilities. The review considered content of these topics, as well as structure and layout of the forms. This was important to inform recommendations that are feasible and practical for governments to implement in the context of existing data collection methods, whilst enabling comparability of resulting data across countries.

– A targeted literature review, including documents with applicability to less developed countries (in which 'adapted infrastructure and materials for students with disabilities' are relatively limited in scope and where it is not practical to implement overly complex data collection systems). Notably, UNICEF's document *Guide for Including Disability in Education Management Information Systems (UNICEF, 2016)*, which involved analysis of 40 EMISs in 2015, was a key reference and the lead author was closely consulted in the development of the recommendations arising from this review. A detailed study of EMISs in the Pacific also informed this review (Sprunt, Marella, & Sharma, 2016).

– Direct email or phone communication with officers from ministries of education where annual school census surveys were not available on websites, or where EMISs are online and therefore do not have annual census/survey forms.

A key limitation of this review methodology is its focus on annual school census survey data. Clearly, it is possible that there are other sources of information which may be used to report against SDG Indicator 4.a.1(d).

Results

Annex 1 lists the 38 countries included in the review.

The review highlighted the dynamic and changing nature of data collection within EMISs. This is not surprising given the new data requirements of the SDGs and the growing possibilities around technology-enhanced data systems, such as online and/or granular[1] systems whereby data are uploaded in real time, can be updated on any day of the year, and can feasibly require more detailed information on students and schools because they do not have to be repeatedly entered each year.

Compared to a review of 40 EMISs conducted in 2015 (UNICEF, 2016), the evidence of requirements for disability data identified in this present review indicate a far higher priority given to the issue. For example, Bhutan is in the process of building in extensive questions on accessibility of infrastructure into their granular EMIS, including access to buildings, toilets, washing facilities, outdoor play areas, routes between classes and buildings, and hostels (WASH and dining facilities) (in addition to very detailed questions to identify children with functional difficulties).

Despite the comparative improvements, there are still many countries that would be unable to report against this indicator, even using proxy data that may vaguely resemble the information required for this indicator.

Question 1

What are the potential data collection approaches in both more and less developed countries in different regions of the world, in relation to measurement of SDG 4.a.1(d) 'proportion of schools with access to adapted infrastructure and materials for students with disabilities'?

Adapted infrastructure

Based on the review of country EMISs and the literature, there is great variation in whether and how ministries of education collect information on infrastructure and on adapted infrastructure for students with disabilities.

A small number of countries reviewed do not collect any infrastructure information in their annual school census survey (e.g. Belize, South Africa, Sri Lanka), however this may be collected through alternative means. In Victoria, Australia, infrastructure data are collected by a separate government agency called the Victorian School Building Authority, rather than the statistics unit of the Department of Education. Similarly, the Cook Islands Investment Corporation manages all government assets including buildings and is responsible for disability-accessible infrastructure including related data. A specific study was undertaken in 2014 which provided baseline data for this indicator[2].

Most countries in this review had at least basic, and many extensive, information on infrastructure in the annual school survey. Approximately 45% of those with infrastructure information have at least some degree of data collection about disability-accessible infrastructure.

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[1] Granular EMISs are systems in which each student has a unique identifier enabling more detailed data about each child, which can be cross-tabulated with learning outcomes, gender, socioeconomic information, etc. This enables disability disaggregation of literacy and numeracy outcomes, which is required for various SDG indicators.

[2] Personal communication from the Cook Islands EMIS office. The report was not cited for this review.

The dominant theme of infrastructure questions related to disability access is **water, sanitation and hygiene (WASH)** questions. These include questions such as: "Are toilets accessible to children with disabilities?" and "Are water facilities accessible to children with disabilities?" Some include general questions such as Jamaica's "Does your school provide access for students with physical disabilities?", while other countries include questions related to ramps or handrails, such as "Does your school have ramps for physically challenged pupils?", "Does your school have rails for visually challenged pupils?" (Ghana).

Some school surveys ask standalone questions such as "Number of CWSN-friendly toilets" (referring to 'Children with Special Needs'), and others incorporate accessibility questions within a matrix, for example with rows listing different types of toilets, and columns representing number of toilets, Male/Female, functioning status and accessibility. For example, in the Solomon Islands, the toilet matrix and the handwashing matrix both included a column headed "Accessible to students with a disability", or in Kiribati "No. of wheelchair accessible toilets".

UNICEF's *Guide for Including Disability in EMISs* (UNICEF, 2016) recommends data collection on reaching the school and on accessing school facilities. Questions related to accessible infrastructure are outlined in Annex 3.

Figure 1. UNESCO OpenEMIS example of accessibility questions within sanitation/toilet data entry screen

Fiji has a new form titled *School Accessibility and Inclusion Assessment* form (see Annex 4) (AQEP, 2017). This is an example of a format for including questions on accessibility of the road leading to the school, main entrance, assembly area, first aid/sick room, library, recreational areas; plus whether students with sensory impairments can navigate safely and independently around the school, and whether students and staff with disabilities are specifically considered in policies and procedures related to emergency situations. The WASH questions cover toilets, hand-washing facilities and drinking water; and the buildings section counts number of classrooms and building storeys that are accessible to students with physical disabilities.

Figure 2. Fiji EMIS - including item accessibility item on each toilet data record

Granular EMISs offer alternative methods for recording accessibility of infrastructure, as shown in Figure 1 below, which is an example of a toilet in a fictitious school in UNESCO's OpenEMIS test site[3]. Figure 2 shows a similar example from Fiji's granular EMIS. Each toilet facility recorded can be separately recorded as being accessible or not, and this information can be updated in real time. A similar question exists on Fiji's Hand Washing data entry page and on the Buildings page. Figure 3 shows an example automated report which can readily be triggered from Fiji's data on Buildings.

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[3] A number of countries are taking up or trialling OpenEMIS, including Jordan, Belize, Maldives, Lesotho, Barbados, Grenada, Malaysia, Turks and Caicos, Uzbekistan and India.

Figure 3. Fiji EMIS automated report, showing disability access on all buildings and classrooms

FEMIS Building Condition Report

As of: 14/09/2018 9:12:05 PM

District: Suva School: --All-- School Type: --All--

Site Plan Label	Building Usage	Building Condition	Disability Access	Surveyed When
1112	**AA Muslim College**			
Lot 6 Sangam Rd	Teaching	Good	Yes	12/02/17
Lot 6 Sangam Road	teaching	Good	No	12/03/18
1113	**AA Muslim Primary School**			
	classroom	Good	No	27/02/17
	classroom	Good	No	13/03/18
1114	**AA Methodist Infant School**			
CT 4954 4591	classroom/deaconess office/book room	Good	Yes	4/04/16
CT4954 4591	classrooms	New	Yes	1/01/16
CT4954 4591	LIBRARY/COMPUTER RM	New	Yes	1/01/15
CT 4954 4591	CLASSROOMS	Good	Yes	1/01/15
CT 4954 4591	CLASSRMS	Good	Yes	1/01/15
CT4954 4591	OFFICE/SICK BAY /CLASSROOM	Good	Yes	1/01/15
CT 4954 4591	class rooms	Good	Yes	5/03/16
1115	**AA Primary School**			
N/A	Classroom	Good	Yes	27/02/17
N/A	Classroom	Good	Yes	19/03/18
1831	**AA High School**			
Viti Levu	Main Office, Staff Room & Classrooms	Satisfactory	No	28/02/17
Vanua Levu	Home Ec, Classrooms	Satisfactory	No	28/02/17
Taveuni	Industrial Arts Workshops & Classroom, Agricultural Science & Classrooms	Satisfactory	No	28/02/17

Adapted materials

This review found that questions on adapted materials for students with disabilities are absent in almost all countries' EMISs, which is possibly because this indicator was not present in global monitoring frameworks prior to 2015. A small number of countries have items related to this element of the indicator, from a single question in Burkina Faso, "Is school furniture suitable for students with disabilities?", through to extensive lists of materials and assistive products in India, Fiji and South Africa. India collects data on total numbers of assistive products provided, by gender and grade. Fiji and South Africa collect information on assistive products used by individual students, within granular data systems.

UNICEF's *Guide for Including Disability in EMISs* (UNICEF, 2016) recommends data collection on materials, highlighting the importance of contextualising the recommended questions based on availability of materials in each location. The table recommended in UNICEF's guide is Table 8 in Annex 3.

Many EMIS census forms include detailed matrices recording numbers of text books per subject per class, for example Table 1 below. It would be possible to insert a column within matrices like these, requiring each subject textbook to be recorded as to whether it is available in an accessible format. Whether that is feasible is a point for discussion.

Table 1 - Teaching and Learning Materials matrix from the Malawi annual school census form

Number of Pupils Books in good condition								
Description	Std1	Std2	Std3	Std4	Std5	Std6	Std7	Std8
Kuyamba Sukulu		Do not fill in these cells Do not fill in these cells Do not fill in these cells						
English								
Chichewa								
Mathematics	Do not fill in these							
Numeracy & Mathematics			Do not fill in these cells Do not fill in these cells Do not fill in these cells					
Expressive arts								
Bible Knowledge								
Agriculture	Do not fill in these cells							
Science & Technology	Do not fill in these cells							
Social and Environmental Sciences	Do not fill in these							
Religious Education								
Life Skills	Don't fill							
Total								

Question 2

What are the potential definitions of both 'adapted infrastructure' and 'adapted materials' for students with disabilities?

The review covered a huge breadth of contexts in terms of resourcing, polices and legislation regulating the sector and the point where countries are along the journey towards quality inclusive education.

There is naturally an array of elements within the concepts of both 'adapted infrastructure' and 'adapted materials', which vary widely by country. This ranges from **adapted infrastructure** options such as acoustically-contained areas, withdrawal spaces, and height-adjustable work benches to more generally available options such as accessible toilets, ramps and handrails.

The variation in types of **adapted materials** showed an even greater discrepancy between countries, from standing desks with anti-fatigue floor mats and literacy development apps focused on inclusion, through to more generally available products such as Braille learning materials, large-print learning books and worksheets, hearing aids and modified furniture such as slanting desks.

As noted in the UN Convention on the Rights of Persons with Disabilities General Comment on Article 24, "Accessibility is a dynamic concept and its application requires periodic regulatory and technical adjustments. States parties must ensure that the rapid development of innovations and

new technologies designed to enhance learning are accessible to all students, including those with disabilities" (United Nations, 2016)(p.7). This highlights the challenge in coming up with universal definitions for concepts for which the starting point is enormously varied, and the end point – by 2030 – is likely to be substantively different from the starting point.

The existing Metadata definitions are:

Adapted infrastructure is defined as any built environment related to education facilities that are accessible to all users, including those with different types of disability, to be able to gain access to use and exit from them. Accessibility includes ease of independent approach, entry, evacuation and/or use of a building and its services and facilities (such as water and sanitation), by all of the building's potential users with an assurance of individual health, safety and welfare during the course of those activities.

Adapted materials include learning materials and assistive products that enable students and teachers with disabilities/functioning limitations to access learning and to participate fully in the school environment. Accessible learning materials include textbooks, instructional materials, assessments and other materials that are available and provided in appropriate formats such as audio, braille, sign language and simplified formats that can be used by students and teachers with disabilities/functioning limitations.

The suggested new definitions are outlined later in this document.

Question 3

> What types of questions can be used to elicit information from schools on the availability, quality, operational state, and range of adapted infrastructure and materials?

3.a. Possible questions that could be included in EMIS annual census survey forms

Table 2 summarises the most suitable questions derived from the review, from which to determine recommendations. All questions indicate 'availability' of the accessible facility, but very few include a means of determining operational state.

Table 2 – Most suitable questions derived from the review

Theme	Question and *Response categories*	Source*	Operational State	Comment
Adapted Infrastructure				
Water	Are drinking water facilities accessible to children with physical disabilities[4]? *Yes / No*	1		
	Is drinking water accessible to boys and girls with disabilities? *Yes / No*	2		Same as above but includes sex disaggregation
	Can water be accessed by all students without teachers' assistance?	7		The disability accessibility aspect may be overlooked as it is not clearly stated
Sanitation	Are toilets accessible to children with physical disabilities[#]? *Yes / No*	1, 3, 9		Useful to include a definition of disabilities; would be better to replace the term 'physical' with 'all types of disabilities'; assumes there is a definition of accessible toilets
	Are toilets accessible to boys and girls with physical disabilities? (ramp access, hand rails) *Yes / No*	2		Does including some examples in the question increase validity & reliability of responses?
	Number of disability accessible toilets (disaggregated by girls/boys/female staff / male staff; Improved (in use / under construction) and Basic)	5	✓	What number of accessible toilets is enough to say a school meets the indicator?
Hygiene	Are handwashing facilities accessible[5] to children with physical disabilities? *Yes, all facilities are accessible / Some are / None are*	1		
	Are hand-washing facilities accessible for boys and girls with physical disabilities? (taps & soap within reach) *Yes / No*	2		
Movement to and within the school	Is the road leading to the school accessible to a student in a wheelchair, during the school year (whatever the season)? *Yes / No*	3		
	Are there steps leading up to the main entrance? *Yes / No* If yes, is there a proper ramp in good condition usable by a person in a wheelchair? *Yes / No*	3		
	Is the main entrance to the school wide enough for a person in a wheelchair to enter? *Yes / No*	3		

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[4] [#]'Physical disabilities' may be further defined.

[5] Facilities are accessible to children with disabilities if they have access to them and can reach both the soap (or ash) and water.

Theme	Question and *Response categories*	Source*	Operational State	Comment
	What number and proportion of classrooms are accessible to students with disabilities? (alternative wording: What number and proportion of classrooms are wheelchair accessible?) What number and proportion of building floor levels are accessible to students with disabilities, either through ramps or an elevator? What number and proportion of emergency exits are accessible to students with disabilities?	3, 6		'Proportion' requires a decision on what proportion is enough
	Are routes between classes and buildings accessible for students with disabilities?	8		
	Physical access within the school for the differently abled students: Available / Not available	10		
	Number of classrooms with ramps (by grade)	5		
	Have you made adjustments to the existing buildings to accommodate the needs of individual students?	8		Need to specify disability
	Accessibility of specific areas in the school: ICT lab, first aid/sick/medical room, science laboratory, library, assembly area, school cafeteria, dining area, hostels, etc *Yes / No / Not applicable*	2, 3, 8		Some response categories are Yes/Partially/No. The term 'partially' is problematic for the indicator. This needs clear definitions, or find an alternative set of response categories.
Specific to sensory difficulties	Signage (tactile markers, clear signs): Are children with seeing and hearing difficulties able to navigate independently and safely around the schools? *Yes / No*	2		
Adapted materials				
Adapted materials	Are learning materials provided in appropriate formats? (eg. Audio, braille, sign language, screen readers, simplified formats)	4		The binary (Yes/No) nature of this question risks losing important nuance; see next row for potential solution.
	Does your school have a sufficient quantity of these materials for the students who need them? (See table 3 below)	2, 3	✓	This question and table 3 provide important information on different types of assistive products and quality; this would be missed in a binary question that simply asked if a school had accessible materials.
	Is school furniture suitable for students with disabilities? Yes / No	9		
Assistive products	Are assistive products/devices available for all children who need them? (eg. Wheelchairs, hearing aids) *Yes / No*	4		This is useful in that it is a hurdle response rather than proportion; however, this relies on knowledge

Theme	Question and *Response categories*	Source*	Operational State	Comment
				about what products are required for different children

*Source: 1= UNICEF WASH in schools monitoring package (2011); 2= Fiji School Accessibility and Inclusion Form; 3= UNICEF Guide for including disability in EMISs; 4= UNICEF Uzbekistan draft early childhood indicators; 5=Malawi EMIS form; 6=Kiribati EMIS form; 7=Solomon Islands' EMIS form; 8=Bhutan Terms of Reference for inclusive education in EMIS; 9=Burkina Faso EMIS form; 10=Sri Lanka EMIS form.

Table 3 - Matrix from Fiji form which includes adapted materials and assistive products, including adequacy of quantity as well as condition

SPECIAL MATERIALS OR EQUIPMENT	Yes / No / Not needed	High quality = 1, Average quality = 2, Low quality = 3
Does your school have a sufficient quantity of these materials for the students who need them?		
Braille books		
Audio books (child listens to CD, tape, etc.)		
Hearing loop (for people with hearing aids)		
Modified furniture		
Assistive devices for gripping (e.g. for pencils)		
Computer screen readers		
Large, easy-to-read signage		

3.b. Format of questions to be included in EMIS annual census survey forms

There are essentially two approaches to including the relevant questions in the EMISs and the review indicated that both options will need to be available. Whether a country has a granular, online EMIS or uses an annual census survey form, a choice between these two approaches is necessary. The two approaches are:

1) Inserting questions into relevant existing (separate) sections on the EMIS data collection format, either as:

   a. individual questions (see Burundi example below), or as

   b. accessibility-type columns inserted in existing matrices (see Kiribati example).

2) Inserting a dedicated 'adapted infrastructure and materials' matrix with all relevant questions in a new section on the EMIS data collection format (see Fiji example in Annex 4).

Example of 1.a – shows part of Burundi's annual survey form with new questions added by the author of this report (in italics) incorporated at relevant points throughout the form:

Is the school supplied with electricity?	Yes ❑ No ❑
If YES, does the power system work?	Yes ❑ No ❑
Is the school supplied with drinking water?	Yes ❑ No ❑
If Yes, is the drinking water accessible to students with disabilities?	*Yes ❑ No ❑*
Does the school have latrines / toilets?	Yes ❑ No ❑
If yes, are the latrines / toilets functional?	Yes ❑ No ❑
Number of latrines / toilets: Total I__I__I	
Girls I__I__I	
Number of latrines / toilets in good condition: I__I__I	
Are functional toilets accessible for male and female students with disabilities?	*Yes ❑ No ❑*
Does the school have handwashing facilities?	Yes ❑ No ❑
Number of functional handwashing facilities (*) I__I__I which for girls I__I__I	
Are functional handwashing facilities accessible for male and female students with disabilities?	*Yes ❑ No ❑*
(*Functional means that water and soap are available at the wash point)	

Example of 1.b – shows part of Kiribati's annual survey form; an 'accessibility' column is included within the matrix; this also shows how 'condition' can be incorporated (G=Good, F=Fair, P=Poor).

28. Toilets

Record the details of your schoo'sl toilet facilities for staff and pupils.

Toilet Type	Number		Condition (circle)	No. of Staff Toilets	Condition (circle	No. of Wheelchair accessible toilets	Condition (circle)
	M	F					
Flush			G F P		G F P		G F P
Water Seal			G F P		G F P		G F P
Composting			G F P		G F P		G F P

Relative merits and costs of different approaches

The review identified significant variation in format of existing data collection approaches in EMISs – categorised by two design features:

1) Whether the system is based on:
   a. annual school census survey format, or
   b. granular data system.

2) Layout of the existing data:
   a. Are there relevant sections already existing in which it makes sense to insert individual questions, or
   b. Does it make more sense to insert a new dedicated matrix/section with all relevant questions on adapted infrastructure and materials?

Due to this variation, it is important that the Metadata includes instructions and examples for each type of design, so Ministries of Education can adjust their EMIS data collection using the most suitable option. This variation does not present any substantive cost implication differences and offering the flexibility enables countries to base the decision on contextual factors.

For example, in some settings, an Inclusive Education Focal Point teacher may be tasked with filling in all data related to disability, and therefore it may be simpler to have this contained in a dedicated matrix. In other settings the sections on Infrastructure/Buildings/Assets may be completed by a nominated staff person walking around the school and inspecting; in this case it may be more useful to have questions embedded within relevant sections, e.g. accessibility of toilets within the matrix on toilets.

In some granular systems such as India and Fiji, assistive products are recorded within the individual student files. The decision between using this individual data to determine the answer to the indicator, or simply inserting a new overarching question about access to assistive products at the whole school level, relates to decisions around I.T. programming skills and priorities amongst other data needs. It may be simpler to include a question such as that within Fiji's form, "Does your school have a sufficient

quantity of these materials for the students who need them?" and list the various assistive products. In granular systems, the data would need to be recorded as not only if the student has access to a particular assistive product, but whether the student needs it.

The variability in contexts makes it too difficult to determine at a global level what design option would be best, therefore flexibility and clear instructions are recommended for the Metadata.

Recommendations

The following recommendations outline a common set of definitions for the terms 'adapted infrastructure' and 'adapted materials', provide suggested questions for countries to include in their EMIS and a justification and explanation of the definitions and questions. A proposed work plan is provided to operationalise the recommendations.

Common set of definitions

Adapted infrastructure is defined as any built environment related to education facilities that has been built or modified to enable accessibility by all users, including those with different types of disability. Accessibility enables students with disabilities/functioning limitations to participate at school in the most independent and equal way possible. It refers to pathways, entry, evacuation and/or use of a building and its services and facilities (including at a minimum, educational, recreational, and water, sanitation and hygiene facilities). Examples of adaptations include ramps, hand rails, widened doorways, modified toilets, clear signage, and tactile markers (for visually impaired).

Adapted materials include learning materials and assistive products that enable students and teachers with disabilities/functioning limitations to access learning and to participate fully in the school environment. Accessible learning materials include textbooks, instructional materials, assessments and other materials that are available and provided in appropriate formats such as audio, braille, sign language and simplified formats, that can be used by students and teachers with disabilities/functioning limitations. Examples of assistive products include hearing loops, Braille machines, modified furniture, alternative or augmentative communication aids and screen-reading software.

Methodology

Sample questions for countries to include in relevant national surveys such as the Annual Schools census

Adapted infrastructure requires three questions which can be inserted individually at different places in the schools' census survey or incorporated in a matrix together.

1) **Are functional toilets and handwashing facilities accessible to female and male students with disabilities?** (ramp access, hand rails, taps and soap (or ash) within reach, closeable door, water available in the toilet, unbroken seat, working drainage system) *Tick only one response.*

☐ *Yes, <u>all</u> toilet facilities/blocks have at least one functional toilet and handwashing facility accessible for students with disabilities*

☐ *<u>At least one</u> functional toilet and handwashing facility is accessible for female and male students with disabilities*

☐ *No functional toilet and handwashing facility is accessible*

2) **Are classrooms accessible to female and male students with disabilities?** (ramp or elevator access or a flat surface from outside to inside the classroom, i.e. no doorway lip; doorway wide enough for wheelchair; routes between classes and buildings are accessible) *Tick only one response.*

☐ *All female and male students with disabilities can access <u>all</u> classrooms suitable to their age*

☐ *All female and male students with disabilities can access <u>at least one</u> classroom that is suitable to their age*

☐ *No, not all female and male students with disabilities can access a classroom that is suitable to their age.*

3) **Are recreational areas accessible to female and male students with disabilities?** *Tick only one response.*

☐ *All female and male students with disabilities can access <u>all</u> recreational areas suitable to their age*

☐ *All female and male students with disabilities can access <u>at least one</u> recreational area that is suitable to their age*

☐ *No, not all female and male students with disabilities can access a recreational area that is suitable to their age.*

Alternative matrix for questions 1 to 3

Adapted infrastructure	Tick only one response for each question		
1) Are functional toilets and handwashing facilities accessible to female and male students? (ramp access, hand rails, taps and soap (or ash) within reach, closable door, water available in the toilet, unbroken seat, working drainage system)	❑ *Yes, <u>all</u> toilet facilities/blocks have at least one functional toilet and handwashing facility accessible for students with disabilities*	❑ *<u>At least one</u> functional toilet and handwashing facility is accessible for female and male students with disabilities*	❑ *No functional toilet and handwashing facility is accessible*
2) Are classrooms accessible to female and male students with disabilities? (ramp or elevator access or a flat surface from outside to inside the classroom, i.e. no doorway lip; doorway wide enough for wheelchair; routes between classes and buildings are accessible)	❑ *All female and male students with disabilities can access <u>all</u> classrooms suitable to their age*	❑ *All female and male students with disabilities can access <u>at least one</u> classroom that is suitable to their age*	❑ *No, not all female and male students with disabilities can access a classroom that is suitable to their age*
3) Are recreational areas accessible to female and male students with disabilities?	❑ *All female and male students with disabilities can access <u>all</u> recreational areas suitable to their age*	❑ *All female and male students with disabilities can access <u>at least one</u> recreational area that is suitable to their age*	❑ *No, not all female and male students with disabilities can access a recreational area that is suitable to their age*

Whereas questions on accessible infrastructure can be inserted individually at different places in the schools' census survey or incorporated in a matrix together as described above, it is recommended that questions on **adapted materials** be presented within a dedicated matrix. This is to aid clarity and consistency and to enable multiple response categories within a tight format.

Adapted materials and assistive technology	Yes / No / Not needed	High quality = 1 Average quality = 2 Low quality = 3
Does your school have a sufficient quantity of these materials for the students who need them?		
Braille learning materials		
Audio learning materials (child listens to CD, tape, etc.)		
Hearing loop (for people with hearing aids)		
Modified furniture		
Assistive devices for gripping (e.g. for pencils)		
Computer screen readers/ screen-reading software		
Large, easy-to-read signage		
Simplified-format learning materials		
Alternative or augmentative communication aids (low-tech such as communication boards and/or high-tech aids such as speech generating devices)		
Sign language interpreters	**Most of the time / Some of the time / Not available / Not needed**	**Quality: fluent / basic**
Are sign language interpreters available for the students who need them?		

Explanation and rationale for the definitions and questions

There are two purposes for incorporating these questions in EMISs. The data enables Ministries of Education to: (a) track progress against policies and commitments to inclusive education, including reporting against the SDG indicators, Education for All, the Convention on the Rights of Persons with Disabilities, and national legislation and policies and strategies; and (b) undertake planning processes, including budgetary, human resourcing and infrastructure.

The definitions and questions strike a balance between:

(1) minimising time and effort for data collection by reducing the number of questions,

(2) capturing a range of rights of people with disabilities (for example including access to recreation spaces, not only to classrooms),

(3) using plain language and examples to increase clarity and reliability, and

(4) providing enough 'stretch' in the definitions and concepts to acknowledge the substantive change in accessibility that is likely by 2030, particularly access to adapted materials and assistive technologies. If we do not take baseline data in relation to items such as screen reading software (which may very possibly be universally available by 2030) the SDG's will lose the opportunity to show interesting and important changes over time.

The wording of the suggested questions aims to increase reliability between respondents, between countries, and over time by avoiding constructs that could be interpreted variously. Simple examples are included in the question, acknowledging that responses may be more valid if instructions are embedded in the question rather than documented elsewhere. Many countries already include questions on accessibility of water, sanitation and hygiene facilities and accessibility of classrooms so the addition of recreational areas and adapted materials and assistive technology only requires one additional question and one additional matrix.

Measuring access to adapted infrastructure within one single question would reduce the usefulness of the data excessively. It would be impossible to distinguish which accessible facilities schools were providing, or failing to provide – classrooms, wash facilities or recreation facilities.

Table 4 provides background information to further explain some of the issues considered in this review and how these considerations informed the recommended set of questions.

Table 4 - Key questions considered in the review, which informed recommended set of questions for the indicator

Question	Response / Recommendation
What is the minimum level of adapted infrastructure and materials to classify as a 'school with access to adapted infrastructure and materials for students with disabilities'?	Possibly - Both male and female with disabilities must be able to access at least one fully functioning toilet Alternatively, could rate the level of adaptation as 'minimum inclusion' being that both boys and girls with disabilities can access at least one fully functioning toilet; and 'full inclusion' being that all sanitation blocks have at least one accessible toilet for boys and for girls with disabilities. Alternatively, could recommend that MoE's have published minimum standards against which the schools self-report their status
Can EMIS administrators work with a proxy level of adapted infrastructure such as ramps and handrails?	Could measure this at two levels - 'Minimum inclusion' being where ramps/elevators allow access to first floor of school; full inclusion being where ramps/elevators allow access to all floors.
What if the school has ramps and handrails, but no adapted materials? Or vice versa?	Report on facilities and materials separately
What if 10% of classrooms are accessible? Is that enough?	'Minimum inclusion' being all students with disabilities can access at least one classroom that is suitable to their age; 'full inclusion' being all students with disabilities can access all classrooms suitable to their age.
What are the priorities for reporting by sex disaggregated access to facilities?	Toilets may be the most relevant for sex disaggregated data.
How to build in issues of Quality and Operational State?	One way of dealing with this, is if the school system had agreed upon accessibility standards as a matter of policy. Then a school could be graded on whether they fully met those standards – Instead of having one grade it could be divided: instructional areas, WASH, recreational areas, etc. so that the indicator wasn't binary – and they could get some credit for doing some things if not everything. And those accessibility standards could be to some extent context specific – and change over time as the country developed.
The definitions used by UNICEF for sanitation[6] are useful, but EMIS	

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[6] Operational state of toilets – definitions recommended by UNICEF:

Functional: *The toilet facilities are not physically broken and can be used.*
Partially Functional: *The toilets can be used, but there are at least some problems with the physical infrastructure (e.g. some deterioration in concrete, doors/locks coming loose, roof deteriorating, etc.) and some repair is necessary.*
Not Functional *The toilets exist, but are so badly damaged or deteriorated it is no longer reasonably possible to use them (e.g. squatting plate broken, door missing, roof has holes, etc.)*

Question	Response / Recommendation
administrators would then need to include data collection and reporting by levels of operational state of the facility.	
If EMIS administrators see macro trends towards increasing numbers of accessible classrooms and toilets – irrespective of operational state – at the level of the SDGs, is that useful enough?	Operational state is important; need to incorporate this into wording of the data collection

Proposed work plan for the operationalization of the recommended approach

Given the nature of the suggested questions and response categories, which are written in plain language, operationalisation of the approach is unlikely to require complex or labour-intensive inputs. It is expected that most countries would simply copy and paste questions and/or matrices into their school survey form and undertake standard procedures for translation and cognitive testing of the content. For countries with a granular EMIS, they will need to consider the most relevant place within the system for these questions and write relevant programming to enable analysis.

Additional support options may further support operationalisation:

- development of a brief instructional video (3 to 4 minutes) accessible through UNESCO and SDG websites;
- UNESCO regional offices participate in a short webinar to view the instructional video and ask any questions;
- UNESCO regional offices provide direct support to ministries of education to determine the best approach for embedding the questions/matrices in their EMIS;
- additional ad hoc, individualised support is available via email and Skype from the UNESCO Institute for Statistics and/or a consultant.

India's definition of functional toilet: water available in the toilet, minimal odour, unbroken seat, regularly cleaned with working drainage system, accessible to users, closable door.

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Annex 1 – countries included in the review

Afghanistan	Mali
Belize	Marshall Islands
Bhutan	Mauritania
Burkina Faso	Morocco
Burundi	Myanmar
China	Namibia
Cook Islands	Niger
Cote d'Ivoire	Palestine
Fiji	Samoa
Ghana	Senegal
Guatemala	Solomon Islands
India	South Africa
Indonesia	Sri Lanka
Jamaica	Sudan
Jordan	Togo
Kenya	Tokelau
Kiribati	Uzbekistan
Laos	Vanuatu
Malawi	

Annex 2 – countries already reporting against this indicator
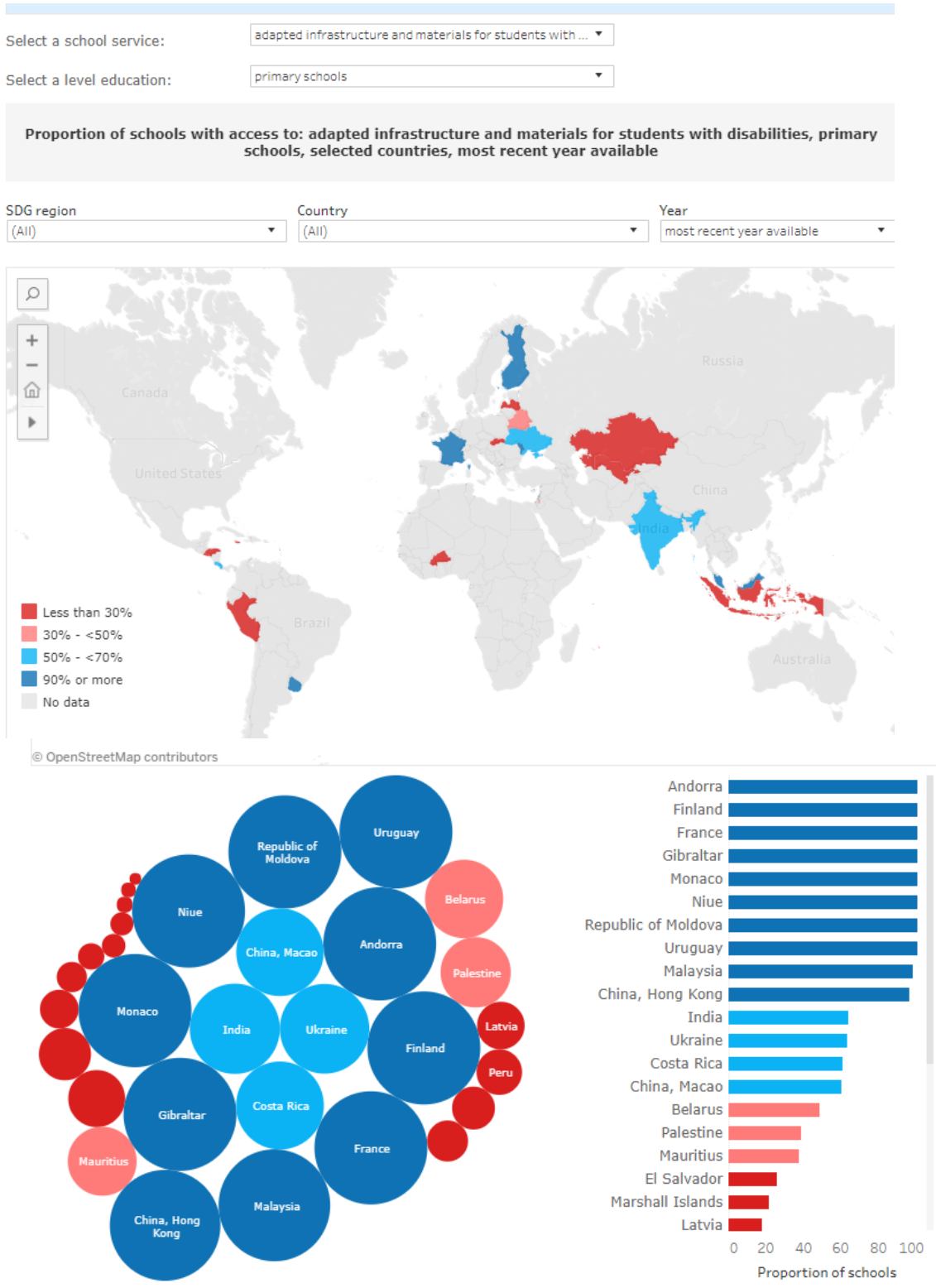
Source: http://sdg4monitoring.uis.unesco.org/sdg_4_a_new.php

Annex 3 – UNICEF's Guide for Including Disability in EMISs - excerpts

The Guide includes various suggested tables on infrastructure (table numbering unchanged from original document):

Table 4: Question on access into the school	
	Yes =1, No=2
Is the road leading to the school accessible to a student in wheelchair, including during the rainy season?	
Are there steps leading up to the main entrance?	
If yes, is there a proper ramp in good condition usable by a person in a wheelchair?	
Is the main entrance to the school wide enough for a person in a wheelchair to enter?	

Table 5: Minimum questions on toilets for inclusion in the EMIS		
Does the school have any toilet facilities? (Yes=1, No=2)		
If yes…		
How many toilet compartments are there in the school for children?		
	Functional	Not Functional
Exclusively for girls		
Exclusively for boys		
For boys or girls (communal toilet compartments anyone can use)		
Are toilets accessible to children with physical disabilities? (Yes=1, No=2)		
Do teachers have their own toilet facilities separate from children? (Yes=1, No=2)		
If yes, are the teacher's facilities accessible to a person with physical disabilities? (Yes=1, No=2)		

Table 6: Adapted Table from India EMIS Form with Additional Column for Accessibility		
Particulars	Availability (0=Not applicable, Yes=1, No=2)	Accessible to Students with Disabilities (0=Not applicable, Yes=1, No=2)
Separate room for Asst. Head Master/ Vice-Principal		
Auditorium		

Separate common room for girls		
Staffroom for teachers		
ICT Lab		
Computer Room		
Room for indoor games		
Co-Curricular/activity room		
NCC/NSS/Scout and Guide room		
First aid/sick/medical room		
Staff quarters		
Integrated science laboratory		
Library		

Table 7: Additional questions on physical accessibility	
How many classrooms are there?	
How many classrooms are accessible to students with disabilities?	
How many floor levels are in the building?	
How many floor levels are accessible to students in with disabilities, either through ramps or an elevator?	
How many rooms have emergency exits?	
How many emergency exits are accessible to students with disabilities?	
Does the school have an evacuation plan for students with disabilities?	

Table 8: Sample Questions on Materials for Students with Disabilities		
General Material or Equipment Does your school have …	Yes=1, No=2	Accessible (Yes=1, No=2)
Recreational equipment		
Water cooler		
Computers		
Blackboard		
Special Materials or Equipment Does your school have …	Yes=1, No=2	High quality =1 Average quality=2 Low quality=3
Braille books		

Audio books		
Hearing Loop		
Modified furniture		
Assistive devices for gripping (e.g., for pencils)		
Handrails		
Computer screen readers		
Large, easy to read signage		

Annex 4 - Fiji's School Accessibility and Inclusion Assessment form - excerpts

The form should be completed by the School Management Committee with the Head Teacher, and where possible with the involvement of students with disabilities and their parents. Participation by representatives from a Disabled Persons Organisation may be helpful to conduct the School Accessibility Assessment. You can look up Fiji Disabled Persons Federation on Facebook for contact details of your nearest group.

School: _____

Form completed by: _____ Date: _____

Accessibility of infrastructure and transport

GENERAL	Yes or No	If not, what plans are there to increase accessibility?
Is the road leading to the school accessible to a student in a wheelchair, including during the rainy season?		
Are there steps leading up to the main entrance?		
If yes, is there a proper ramp in good condition usable by a person in a wheelchair?		
Is the main entrance to the school wide enough for a person in a wheelchair to enter?		
Is the main assembly area accessible to students with disabilities?		
Is the first aid / sick room accessible to students with disabilities?		
Is the library accessible to students with disabilities?		
Are recreational areas accessible to students with disabilities?		
Signage (tactile markers, clear signs): Are children with seeing and hearing difficulties able to navigate independently and safely around the school?		

Emergency situations: In the school policy and procedures, are students and staff with disabilities specifically considered?		
WATER, SANITATION AND HYGIENE		
Are toilets accessible to boys and girls with physical disabilities? (ramp access, hand rails)		
Are hand-washing facilities accessible for boys and girls with physical disabilities? (taps & soap within reach)		
Is drinking water accessible to boys and girls with disabilities?		
BUILDINGS	**Number**	
1st Building – site plan label: _____		
Number of storeys		
Number of storeys that are accessible to students with physical disabilities (ramps or elevators)		
Number of classrooms		
Number of classrooms accessible to students with physical disabilities		
2nd Building – site plan label: _____		
Number of storeys		
Number of storeys that are accessible to students with physical disabilities (ramps or elevators)		
Number of classrooms		
Number of classrooms accessible to students with physical disabilities		
3rd Building – site plan label: _____		
Number of storeys		
Number of storeys that are accessible to students with physical disabilities (ramps or elevators)		

Number of classrooms		
Number of classrooms accessible to students with physical disabilities		
4th Building – site plan label: _____		
Number of storeys		
Number of storeys that are accessible to students with physical disabilities (ramps or elevators)		
Number of classrooms		
Number of classrooms accessible to students with physical disabilities		
TRANSPORT		
Please tick and/or describe how children with physical or sensory disabilities get to and from school?	☐ School bus is adapted and accessible ☐ School bus is not adapted, but physical assistance is provided by other people ☐ Private vehicle or taxi ☐ Other: _____	
SPECIAL MATERIALS OR EQUIPMENT	**Yes / No / Not needed**	**High quality = 1, Average quality = 2, Low quality = 3**
Does your school have a sufficient quantity of these materials for the students who need them?		
Braille books		
Audio books (child listens to CD, tape, etc.)		
Hearing loop (for people with hearing aids)		
Modified furniture		
Assistive devices for gripping (e.g. for pencils)		
Computer screen readers		
Large, easy-to-read signage		