Costs and needs of 4.1.1 coverage expansion:
GAML investment case

List of acronyms

A4L	Assessment for Learning
ASER	Annual Status of Education Report
EGMA	Early Grade Mathematics Assessment
EGRA	Early Grade Reading Assessment
EQAP	Educational Quality and Assessment Programme of Pacific Community
ERCE	Estudio Regional Comparativo y Explicativo
GAML	Global Alliance to Monitor Learning
GPE	Global Partnership for Education
IEA	International Association for the Evaluation of Educational Achievement
LA	Learning Assessment
LLECE	Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación
MICS	Multiple Indicator Cluster Surveys
OECD	Organisation for Economic Co-operation and Development
OREALC/UNESCO Santiago	Regional Bureau for Education in Latin America and the Caribbean
PAL	People's Action for Learning
PASEC	Programme d'analyse des systèmes éducatifs de la CONFEMEN
PILNA	Pacific Island Literacy and Numeracy Assessment
PIRLS	Progress in International Reading Literacy Study
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PISA-D	Programme for International Student Assessment for Development
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SDG	Sustainable Development Goal
SEAPLM	Southeast Asia Primary Learning Metrics
SEAMEO	Southeast Asia Ministers of Education Organization
TIMSS	Trends in International Mathematics and Science Study
UIS	UNESCO Institute for Statistics
USD	United States Dollars

1. Background and structure

The United Nations' Sustainable Development Goals (SDGs) aim to end poverty, protect the planet and ensure prosperity for all. SDG 4 calls to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". Specifically, Target 4.1 states that "by 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes." A consensus was reached to use SDG Indicator 4.1.1 (SDG 4.1.1) to measure this target: "Proportion of children and young people: (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex."

The production and dissemination of high quality education statistics is essential for effective planning, as well as for monitoring progress toward national and global education targets. Evidence-based planning reduces system costs by allocating resources more effectively. The added cost of improving data—as long as the data are actually used—is likely much lower than the implicit cost of bad or no information. Planning with bad data inhibits optimal policy implementation, particularly with respect to resource allocation and its equity and efficiency. For example, if input and enrolment data are not clearly traceable to the school level, some schools are apt to have two or three times as many resources per child as other schools. Sometimes this is associated with poverty (e.g., schools for the poor get fewer and worse resources) and sometimes it is simply random. Some studies have found, in some countries, that some districts use up as much as 100 times more of some specific resources (e.g., paper) per pupil than others, without discernible impact on results. This is both inequitable and inefficient.

The paper is organized as follows: section 2 describes the current coverage of learning assessments, section 3 discusses options to implement a national learning assessment, and section 4 examines the costs of investment. Section 5 provides insight into the assistance provided to countries, section 6 looks at the funding needs, and finally, section 7 concludes with a summary model depicting collaboration in order to materialize comparability and expansion.

2. What is the current coverage?

All cross-national assessments – both global and regional – and national assessments could be used to inform Indicator 4.1.1. Naturally, the cross-national assessments (aiming at both global and regional coverage) have been first in line to report to SDG 4.1.1 as they are designed for cross-national comparisons, measure common subject areas or assessment domains (minimum core denominator) and are expressed on a common scale. Unfortunately, many regions do not have a regional assessment, nor are the countries joining any global initiative. This represents a challenge if the options are to be restricted to cross-national assessments.

Table 2.1. Options for reporting for SDG 4.1.1

	In-school based			Population based
	Cross National	National		
Grade 2 or 3	LLECE PASEC TIMSS PIRLS	Yes		MICS6 EGRA/EGMA PAL Network
End of primary education	LLECE PASEC SACMEQ PILNA SEA-PLM TIMSS PIRLS	Yes		PAL Network
End of lower secondary	TIMSS PISA PISA-D	Yes		Young Lives

Source: UIS.

2.1.1. How are global and regional assessments distributed globally?

Figure 2.2 and *Figure 2.3* map the current distribution of assessments by category. In terms of subjects assessed, reading and mathematics are the most common areas of study. All cross-national assessments – both global and regional – and national assessments could be used to inform indicator 4.1.1. As a matter of fact, household-su0rvey based assessments, in general those measuring foundational skills such as Multiple Indicator Cluster Surveys (MICS), Early Grade Reading Assessment (EGRA), and Early Grade Mathematics Assessment (EGMA) can be used as well.[1] According to UIS estimates, 80% of countries have conducted a national learning assessment or participated in a cross-national initiative in the last five years (UIS, 2016). This represents a significant increase in the number of student assessments undertaken globally over the past decade. This increase is largely due to the growing number of countries interested in knowing about their progress in a regional context, leading to a rapid growth of regional assessments during this period. However, due to differences in the measurement constructs and frameworks, these assessments are not always comparable across countries and many technical challenges remain. Thus, it is difficult at this stage to compare countries in terms of learning achievement across regions due to the lack of comparability using the same scale.

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[1] See Treviño and Ordenes (2017).

Figure 2.2. In-school based assessment
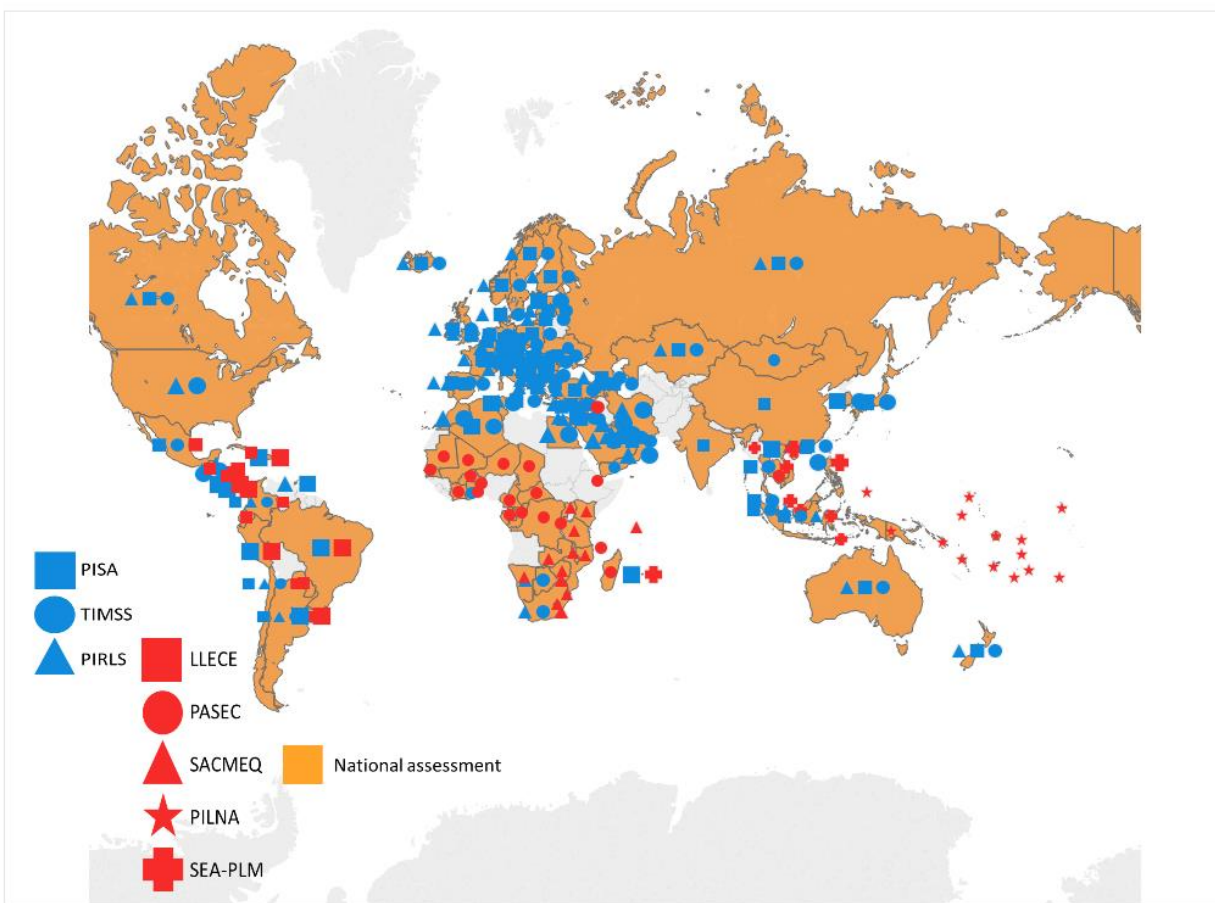
Note: Areas shaded in orange correspond to the existence of national assessments.

Source: UIS

Figure 2.3. Foundational skills assessments—countries implementing household-based assessments in basic education

Source: UIS

Knowing the learning assessments currently being implemented in countries is important for charting a way forward for SDG 4.1.1, and finding a feasible, cost-effective way of reporting. Indicator 4.1.1.a – that is, for early grades – is classified in Tier III, while Indicators 4.1.1.b and c – that is, primary and lower secondary levels – are classified in Tier II. Expanding the linking and reporting options could be the way forward to upgrading the sections of the indicator in Tiers II and III.[2]

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[2] Tier 2**:** Indicator is conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries.
Tier 3**:** No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested.

3. What are the options to implement a national assessment?

Assessing learning outcomes has never been as dynamic as today. A profusion of assessments exists at international, regional and national levels, research articles are flourishing, and media attention is all eyes and ears when new results from an international survey are published. League tables stir debate in every country and opposition to these exercises is fierce in many of them.

The number of countries that participate in national and cross-national assessments varies by region. The percentage of conducting national assessments is high among Asian, North American and European countries. Compared to national assessments, there are less countries participating in regional assessment where it exist. However, in Sub-Saharan Africa there are as many countries conducting national assessments (63%) and participating in regional assessments (56%). Compared to national assessments there are even less countries in the South participating in international assessments. Therefore, if we could explore the opportunity to link across existing national and regional assessments, we could produce a good base of initial monitoring.

As shown in *Figure 3.1*, if a country decides to conduct a national assessment, it could follow different strategies. One strategy is to develop a brand new assessment. This strategy is most common and has the advantage of greater ownership by stakeholders. A new assessment usually ensures better alignment with the national curriculum, which is important when reporting if students are reaching the curriculum objectives.

Another strategy is to adapt a national assessment already being used in another country. For instance, Mozambique put in place its national assessment by adapting an assessment programme from Brazil (Provinha Brasil) to measure reading in the first cycle of primary education. This South-South collaboration saved Mozambique time and resources, while not having to "reinvent the wheel".
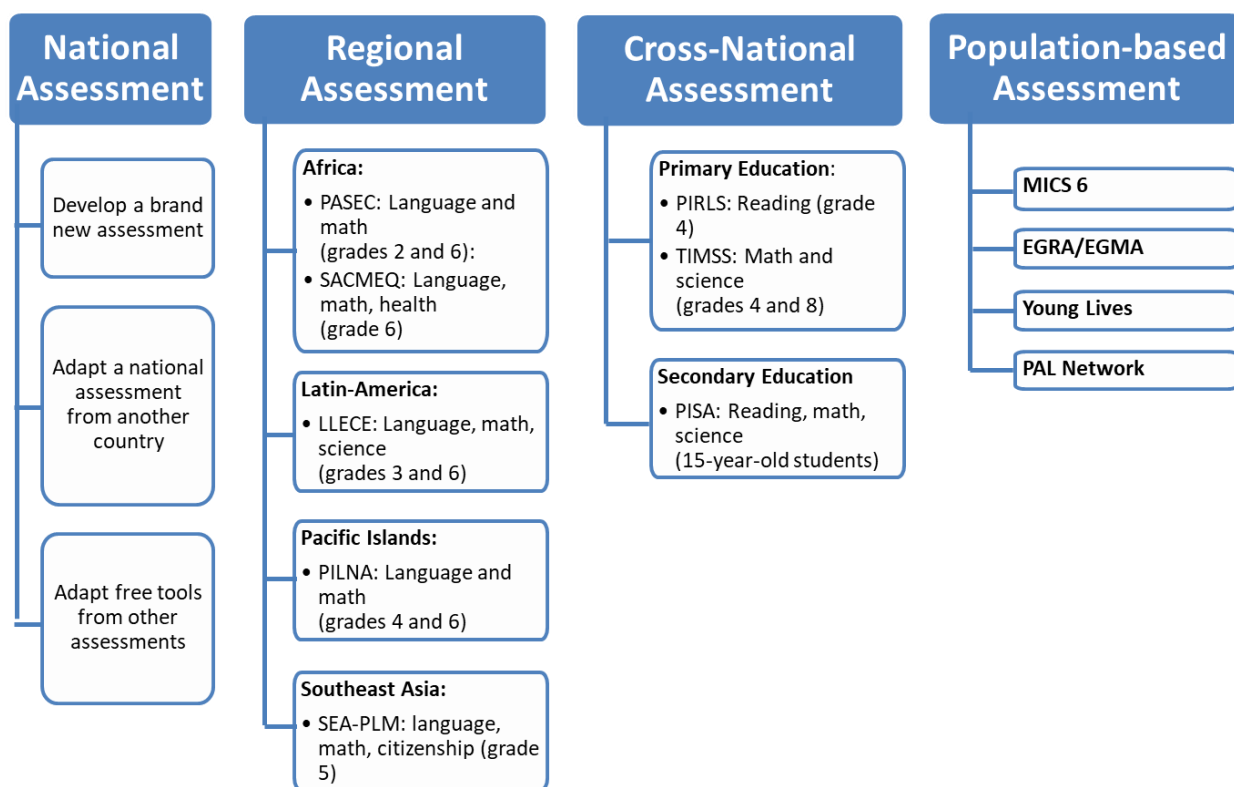
A third strategy that countries should consider for implementing a national assessment is to adapt learning assessments that are freely available online, i.e. that are part of the public domain. Instruments and procedures from assessment programmes such as EGRA and EGMA, ASER, and UWEZO can be used to monitor learning in mathematics/numeracy and language/literacy, and are available in different languages. For example, Gambia has been administering its own local adaptation of EGRA/EGMA to nationally representative samples of students. Pakistan has been administering its refined version of the household test ASER annually to nationally representative samples of children and youth. This approach has the advantage of offering free and ready-made tools for measuring learning. The disadvantage is less ownership by stakeholders, and less flexibility to address national curriculum considerations. One possible disadvantage of simply borrowing downloaded tools is the loss of the technical assistance and quality assurance that accompanies such tools. However, this kind of assistance can be obtained cheaply or for free through bilateral or multilateral development agencies.

Different assessments can complement each other. For example, a country may administer a national assessment in Grade 3 and a cross-national assessment in Grade 6. However, given scare resources,

countries may have to opt for one or the other. To economise, the country may use a much more informal assessment, still capable of producing useful information but not of the accuracy of the Grade 6 assessment, at Grade 3 level. (However, minimum levels of reliability and validity need to be assured.)

Figure 3.1 shows the options a country may consider when deciding what type of learning assessment to implement. The first decision concerns whether to conduct a national, regional or cross-national assessment. There are pros and cons for each of these assessment types and countries should weigh them according to their own local context.

Figure 3.1 Options to consider when deciding what type of learning assessment to implement

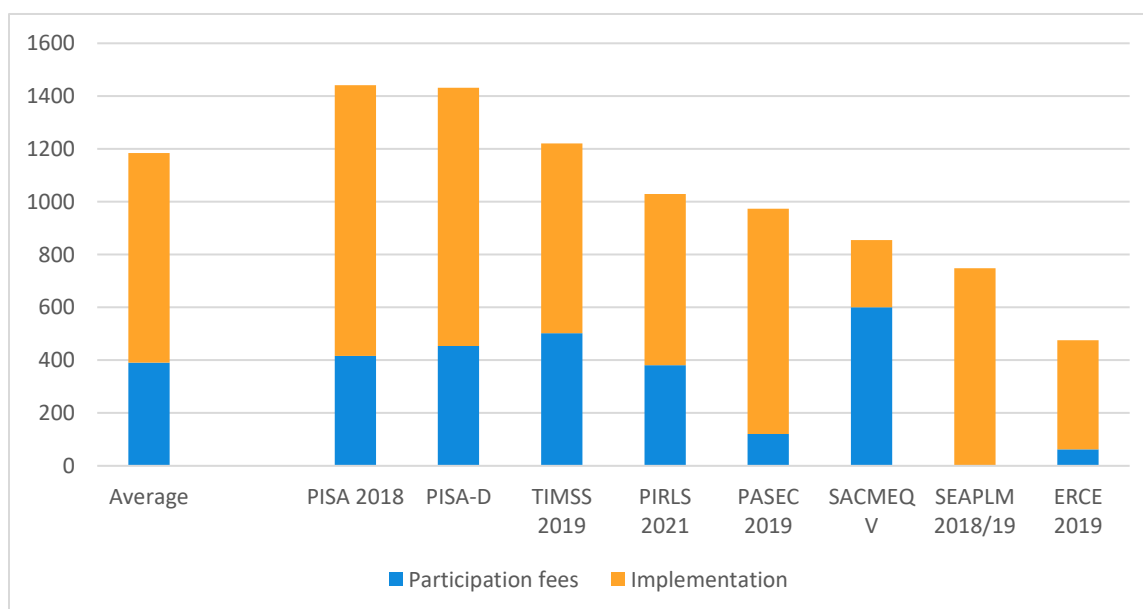| **National Assessment**	**Regional Assessment**	**Cross-National Assessment**	**Population-based Assessment**
Develop a brand new assessment	**Africa:** • PASEC: Language and math (grades 2 and 6): • SACMEQ: Language, math, health (grade 6)	**Primary Education:** • PIRLS: Reading (grade 4) • TIMSS: Math and science (grades 4 and 8)	MICS 6 EGRA/EGMA Young Lives PAL Network
Adapt a national assessment from another country	**Latin-America:** • LLECE: Language, math, science (grades 3 and 6)	**Secondary Education** • PISA: Reading, math, science (15-year-old students)	
Adapt free tools from other assessments	**Pacific Islands:** • PILNA: Language and math (grades 4 and 6)		
	Southeast Asia: • SEA-PLM: language, math, citizenship (grade 5)		

Source: Ramirez, 2018.

4. How much do assessments cost?

The first concerns related to learning assessments are costs and resources. Large-scale representative assessments at the country level have more costs associated to them than just producing the test. Related activities to launch the assessment include planning, fundraising, sampling design and reporting of the project in the country. Not only personnel but also material resources are needed and in all phases. Setting up the infrastructure for testing **could demand up to 4 or 5 million** according to some estimates recently published by the Global Partnership for Education (GPE).

Participation in a cross-national assessment demands even more resources to ensure country support and continuity in the project. The international implementing organization requests countries to follow precise guidelines that are needed to assure comparability. In many cases, there is also a need to provide potential cognitive items for the assessment survey, background questions that are relevant to country context, and adapt and translate the existing instruments. The review process includes the test and framework alignment, test specifications, survey items, assessment tasks, data analysis and reports. The effort should also include data analytics and data dissemination capacity building and sharing, and publishing national and international reports.

What are the total costs and what is the structure of these costs by category? **Figure 4.1** provides examples of international assessments and the distribution of their costs. It shows that test fees of some well-known international assessments account for only one-third of the budget needed by a country. This costing (based on current observed costs) is also most likely underestimating the costs for data analytics, dissemination and use of information that are still not developed enough in most cases.

Figure 4.1 Estimated cost to participate in a cross-national assessment (in thousands of USD)

While the map in **figure 2.1** shows the geographical distribution of cross-national assessments, **figure 4.1** gives us a deeper insight into the profiles/characteristics of the countries implementing them, since it provides information on affordability. For example, it comes as no surprise that international assessments are the most expensive, and hence, have a high degree of participation from the developed world. This is in contrast with regional assessments, which are more affordable, and therefore, are common in less developed countries. This analysis is further justified by the data presented in **figure 4.2**. As shown, participation in international assessments is mainly dominated by high income countries, whereas middle income countries mainly participate in regional assessments.

Figure 4.2 Number of countries by income level and participation in a cross-national assessment
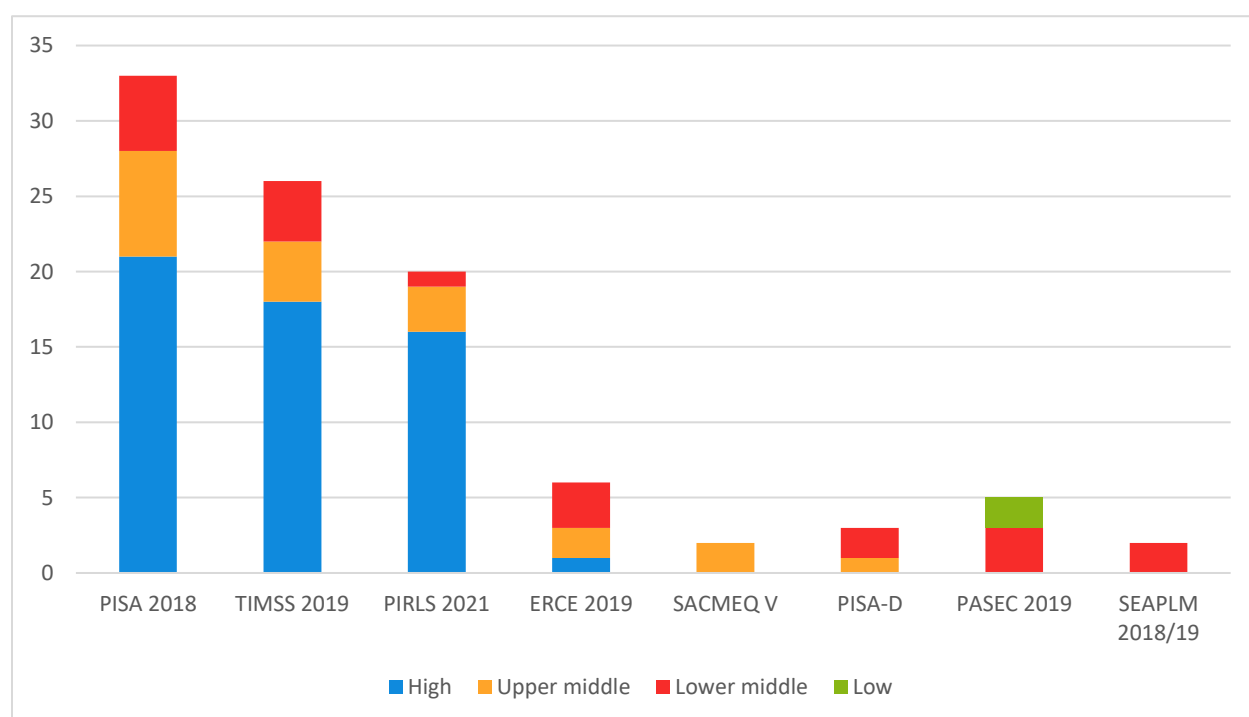
A second aspect inherent to cost is the source of funding. **Figure 4.3** shows how each of the cross-national assessments is funded. We can see that PILNA is fully funded by the budget of the national government, and this probably explains the high levels of participation depicted in **figure 2.1** in their respective regions. We can also see that SEA-PLM is mainly funded by international donations, which might be an indication why only very few countries will be participating in the next round.

Figure 4.4 is an illustration of sources of funding by country income level. As expected, we can see that as country income increases, the proportion of national government budget financing learning assessments also increases – simply put, because the country has funds to support measuring learning outcomes. On the other side of the spectrum, it comes as no surprise, that low income

countries finance their learning assessments through loans and credits to international entities, since they do not have a budget for this.
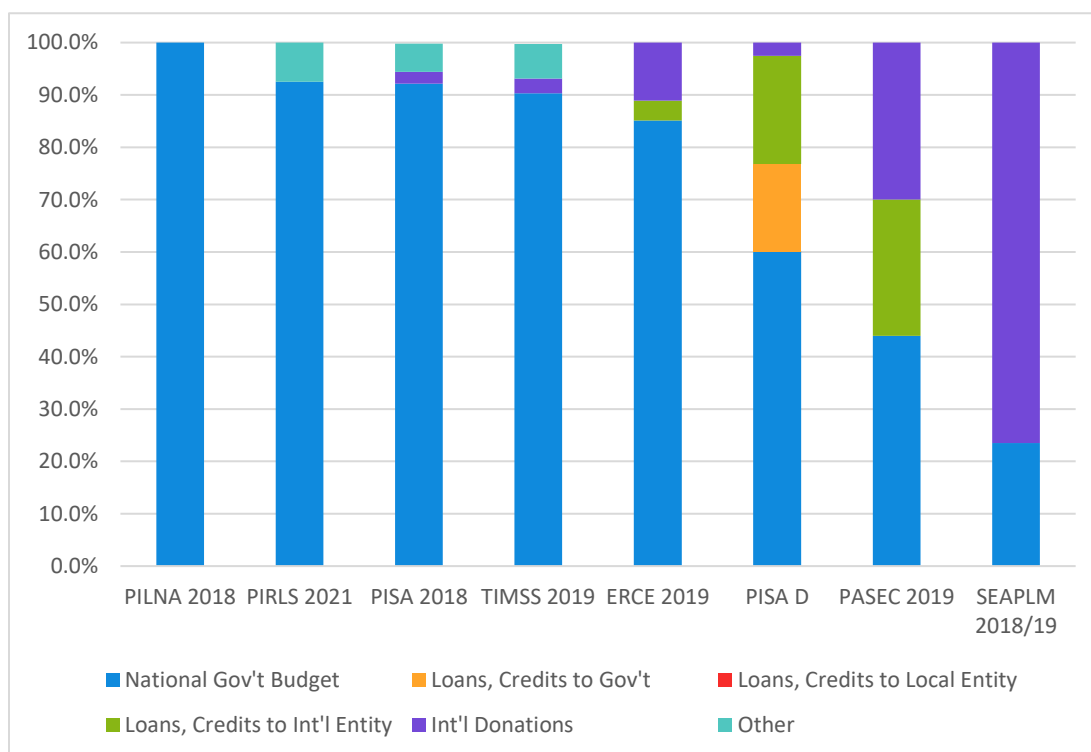
Figure 4.3 Sources of funding by cross-national assessment

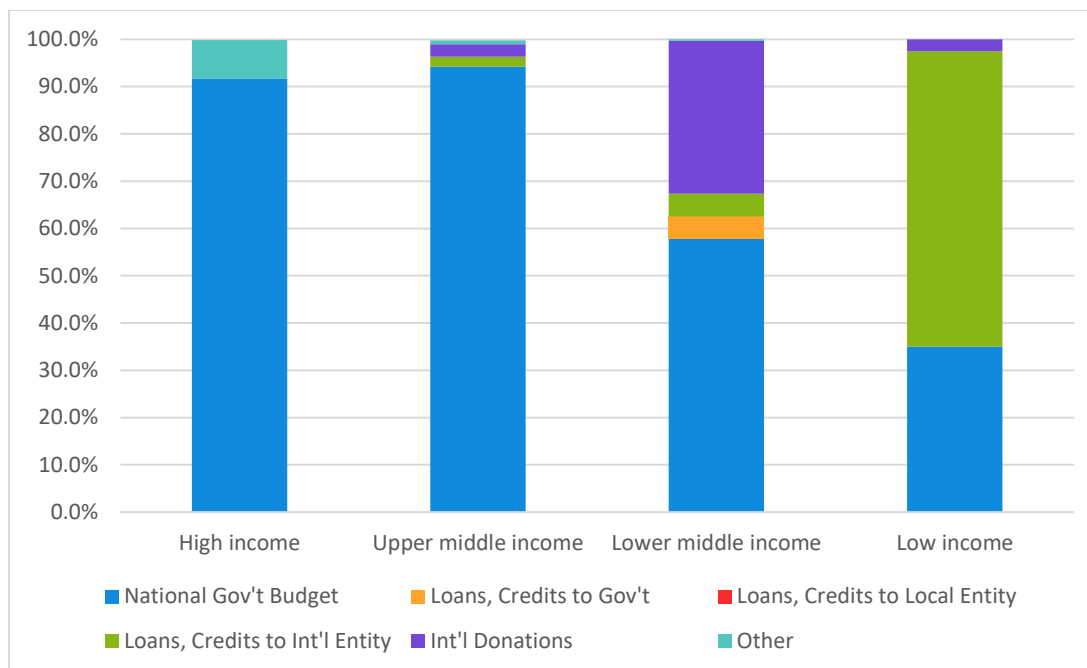**Figure 4.4 Sources of funding by country income**

Figure 4.5 shows what portion of financing is already secured for each of the cross-national assessments. We can see that PILNA, SEA-PLM, and SACMEQ have full financing secured.

Figure 4.5 Percentage of funding secured by countries for assessment, by cross-national assessment

Legend:
- Full financing secured
- 75%-99% secured
- 50%-74% secured
- 25%-49% secured
- 1%-24% secured
- No financing secured
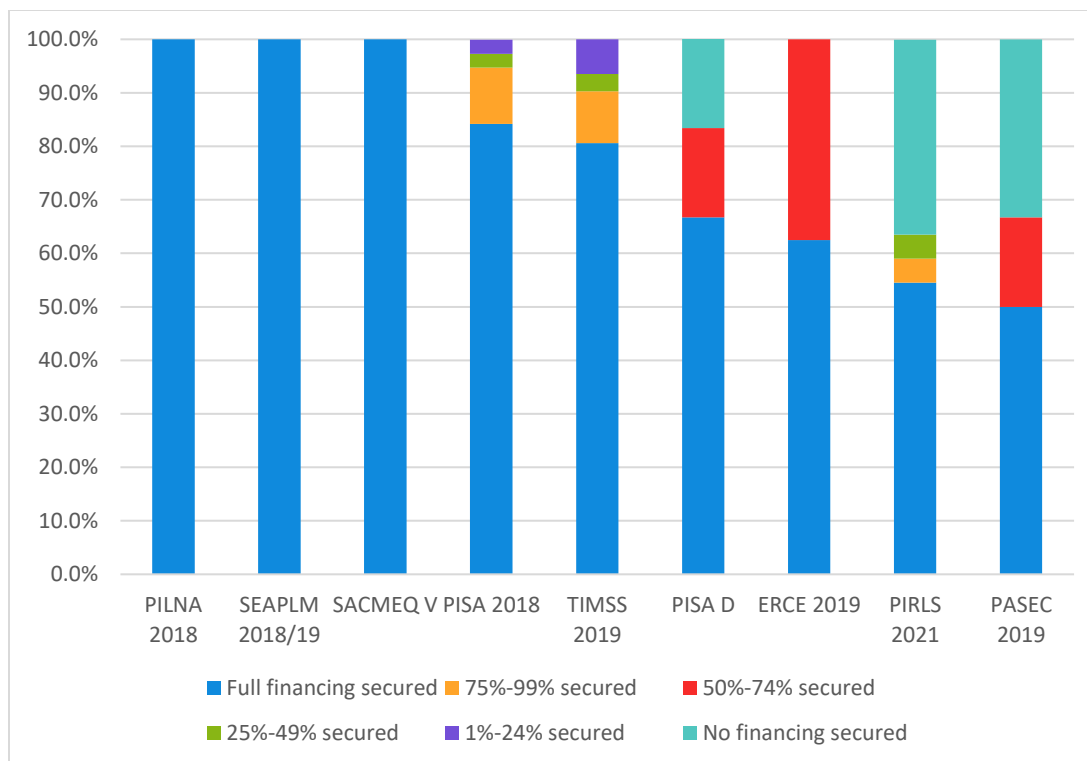
5. How do agencies help countries implement cross-national learning assessments?

The information presented in this paper comes from the 2017 Survey of Cross National Assessments, which is a joint endeavor with the Global Partnership for Education (GPE) and aimed to collect data on the financial and technical assistance of cross-national assessments. The information collected from this survey helps facilitate the dialogue among institutions, assessment agencies, and countries, for example, by matching institutions willing to provide support countries that need extra support.

This survey is composed of three questionnaires:

- *The UIS Questionnaire on Country Participation in Cross-National Assessments,*

- *The UIS Questionnaire on Institutions Supporting Country Participation in Cross-National Assessments, and*

- *The UIS Questionnaire on Cross-National Assessment agencies*

The *UIS Questionnaire on Cross-National Assessment agencies* asks agencies implementing cross-national assessments to indicate:

- The planned years and estimated number of participating countries for the next rounds of the assessment,

- Whether there are plans to expand the assessment to other grades, age groups, or domains, in the next ten years, and the types of expansion,

- The needs and challenges that are faced in implementing the expansion plans of the agency,

- How the international community can help in implementing the expansion plans,

- Whether the agency provides technical assistance to countries participating in cross-national assessments,

- The kind of technical assistance that is provided to countries,

- Whether the agency provides financial assistance to countries participating in cross-national assessments,

- The kind of financial assistance that is provided to countries,

- The criteria that the countries have to meet in order to be eligible for assistance,

- How the countries know about the agency's willingness to provide assistance, and finally,

- The minimum, average, and maximum assistance that is provided to countries.

Seven agencies have completed the questionnaire. These are the Annual Status of Education Report (ASER), the Organisation for Economic Co-operation and Development (OECD), PASEC, the Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ), , the Educational Quality and Assessment Programme of Pacific Community (EQAP), the International Association for the Evaluation of Educational Achievement (IEA), and the Regional Bureau for Education in Latin America and the Caribbean (OREALC/UNESCO Santiago).

Figure 5.1 shows that all agencies which responded to the questionnaire provide capacity building training on sampling, item writing, field operations, and data processing. The results in general are very good, as depicted, and show that a wide range of technical assistance is being offered by supporting agencies.

Figure 5.2 shows that 6 out of the 7 agencies which responded provide financial assistance, which is again a very positive indication. This funding is either direct, or indirect by helping countries seek funding from donor agencies. It is clear that the assessments have criteria for financial assistance, and a very positive point is that the status of funding is a topic being put on the table for discussion with countries.

Figure 5.1 Number of agencies providing technical assistance, by type
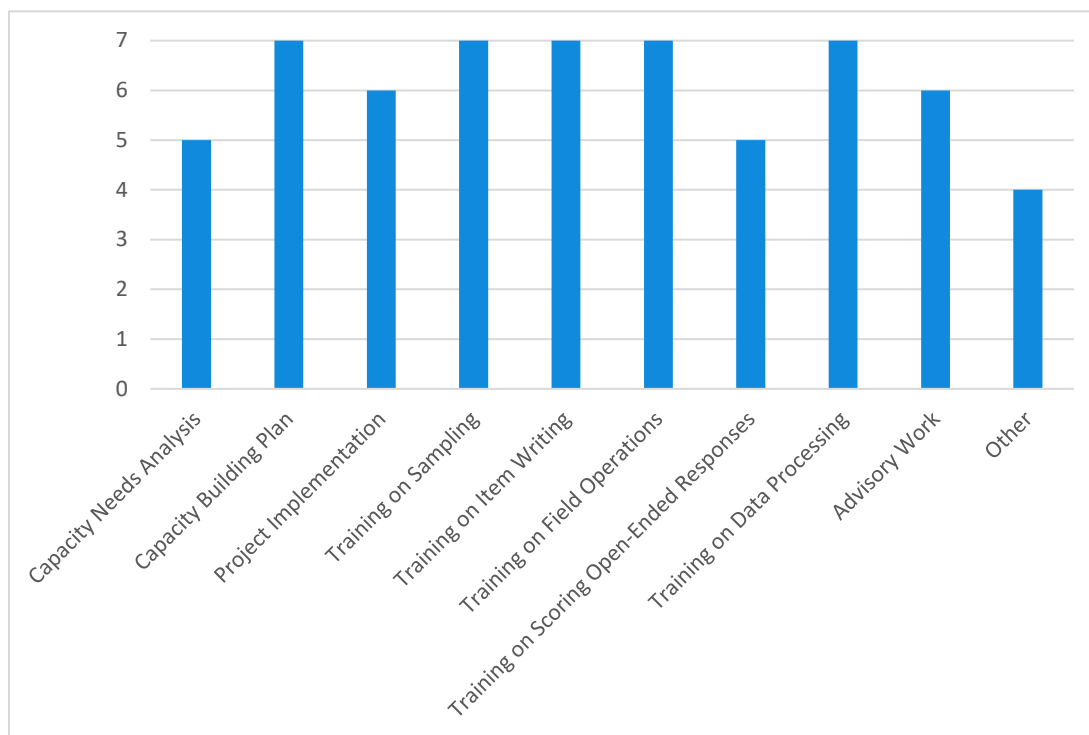
Figure 5.2 Number of agencies providing financial assistance, by type
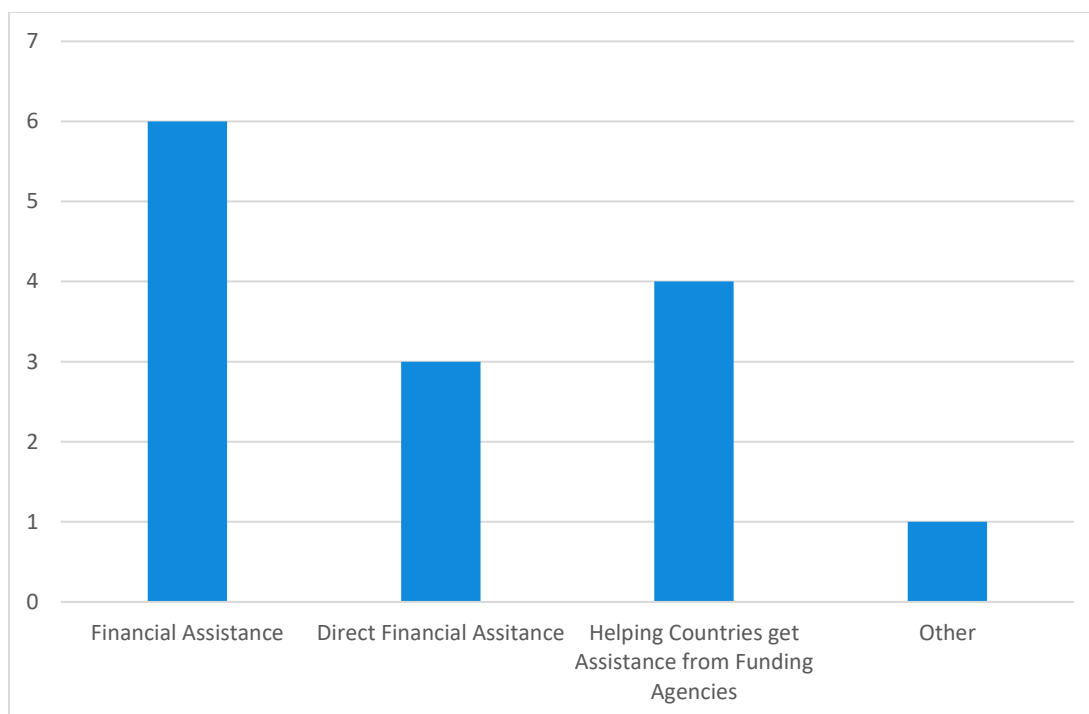
6. Where are the funding needs?

Most of the countries, which currently do not have data on learning outcomes, are low- and low-middle-income countries.

We need to enable a global monitoring system and strategy to produce the data that enables producing SDG 4 data in a valid, reliable and timely way in all countries. This system should build (and expand) on existing efforts. Additional coordination and harmonization is needed to support the expansion in coverage and comparability with special emphasis on learning assessment data. In this context, the following is needed:

- Understanding the demand of countries needs **a quick assessment on country's capacity development** needs.

- Understanding financial assistance :

    ✓ What are donors policy regarding aid to education statistics including their vision

    ✓ Existing tools

- **Dissemination clearinghouse**

    ✓ Core set of indicators

✓ **Standards and methodologies classified as fit for purpose**

✓ **Guidelines for investment for** both countries and donors on how to incorporate data

- **Coordinated work of the international community and reduction in transaction costs**

The challenge is that no global and comparable information exists that can be used to compute SDG 4.1.1.

In a recent study by UIS[3], it has been estimated that the total annual cost of data collection is US$2.8 billion with an annualised cost of US$280 million for all countries and US$14 million per country over the ten-year period: thus US$1.4 million per year on average. Global indicators consume two-thirds of the investment, while the remaining one-third goes to thematic indicators.

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[3] UNESCO Institute for Statistics (UIS) (2018). "The Investment Case for SDG 4 Data". Technical Cooperation Group on SDG 4-Education 2030 Indicators. Montreal: UIS.

Table 6.1 Estimate of Learning Assessments Skills Survey data collection (in USD) over a ten years period

	Total	Global	Thematic
Household-based assessment (early childhood development and adults skills)	743,675	743,675	-
Application of learning assessments	1,466,042	995,542	470,500
Global and Regional Support	60,512	47,628	12,884
Total	**2,270,229**	**1,786,845**	**483,384**

Source: UNESCO Institute for Statistics

Table 6.1 shows that most of the costs are related to country implementation. There are two alternative ways of looking at the costing; costs that are self-funded and those coming from aid (see **Figure 6.2**). *).* In the simulation, it was assumed that in low-and lower-middle-income countries resources come from aid, while upper-middle- and high-income countries use their national resources.

**Figure 6.2. Cost of data collection by source of funding in millions of US$ dollars per year**
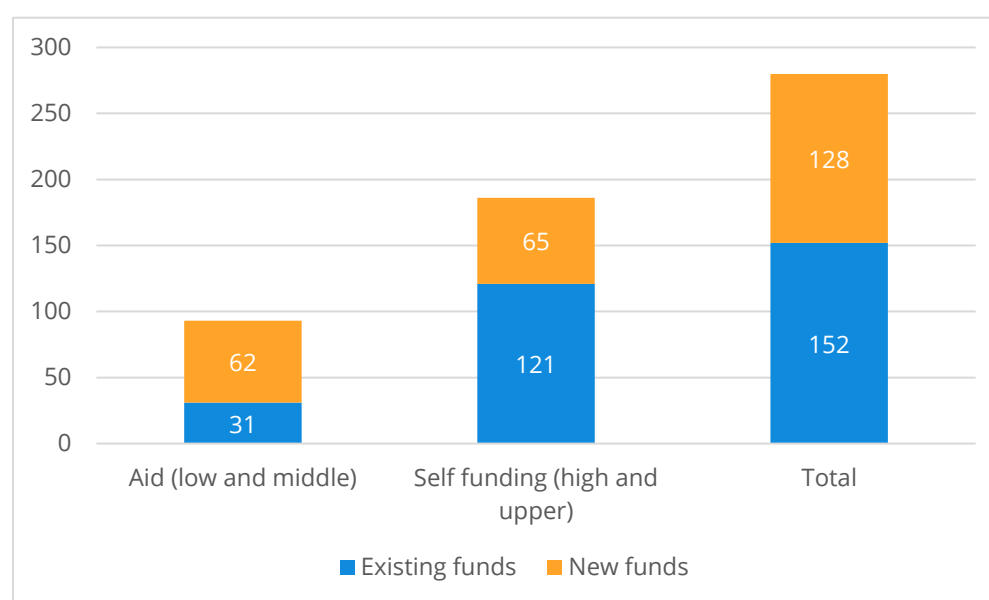
Source: UNESCO Institute for Statistics

7. How to collaborate to make expansion and comparability materialize?

The success of this approach hinges on a collaborative effort, including governments, focused on the common goal of better data on learning assessments and who will contribute financial and other resources to the overall expansion of cross-national assessments worldwide. The UIS will operate as a broker, enabling dialogue between the different partners, including regional and international assessment organizations, development partners and countries. Development partners will set up systems, which will incrementally attract donor funding and increase national funding, resulting in a sustainable transition to the governments. Figure below describes one potential model.

Figure 7.1. Collaboration for expansion and comparability
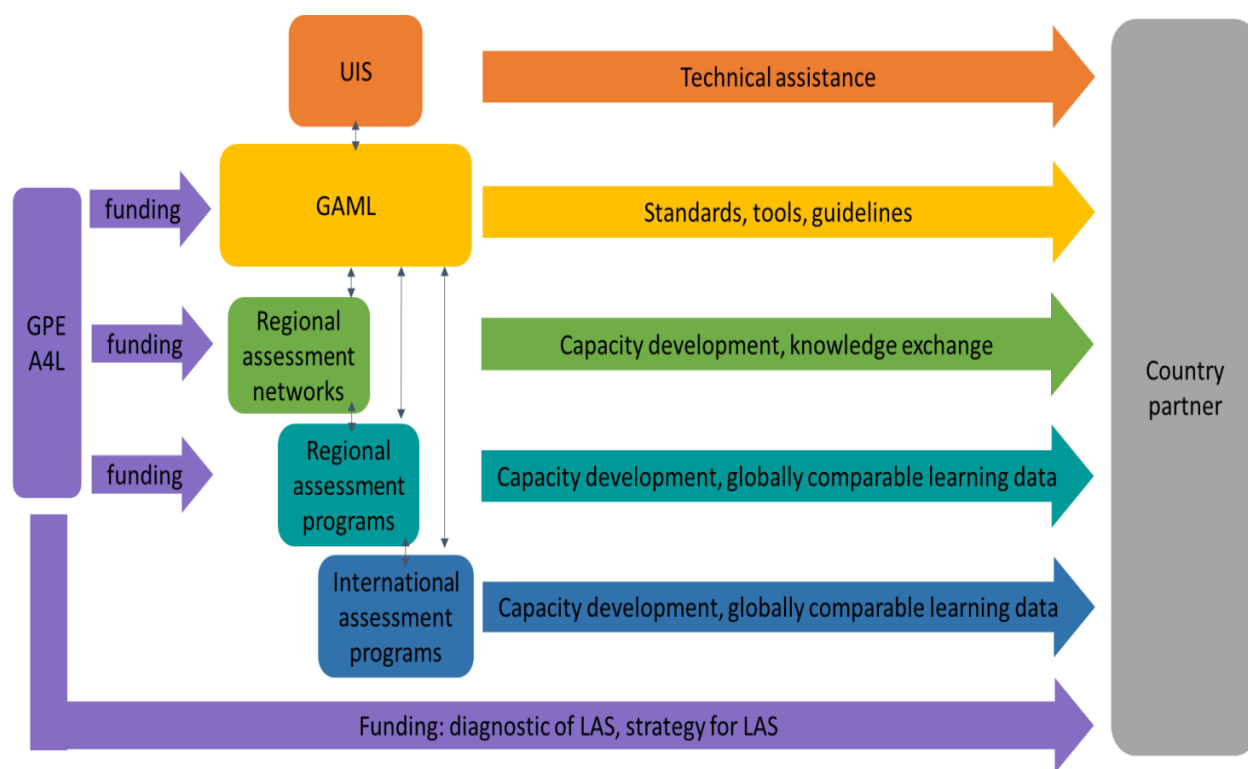
References

Ramirez, M.J. (2018a), "How can countries monitor learning at the national level?". Background Paper for the 2018 Ed Digest.

Treviño, E. and M. Ordenes (2017). "Exploring Commonalities and Differences in Regional and International Assessments". Information Paper No. 48. Montreal: UIS.

UNESCO Institute for Statistics (UIS) (2018). "The Investment Case for SDG 4 Data". Technical Cooperation Group on SDG 4-Education 2030 Indicators. Montreal: UIS.

Annex: The 2017 Survey of Cross National Assessments

In 2017, the UIS launched the Survey of Cross National Assessments, which is a joint endeavor with the Global Partnership for Education (GPE) and aims to collect data on the financial and technical assistance of cross-national assessments. The information collected from this survey helps facilitate the dialogue among institutions, assessment agencies, and countries, for example, by matching institutions willing to provide support countries that need extra support.

This survey is composed of three questionnaires:

- *The UIS Questionnaire on Country Participation in Cross-National Assessments,*

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- *The UIS Questionnaire on Cross-National Assessment agencies*

The UIS Questionnaire on Country Participation in Cross-National Assessments starts with a general section about the plans to participate in a cross-national assessment. Then, the questionnaire is divided by cross-national assessment, where for each assessment, the country is asked to indicate:

- The participating grades and dates

- Characteristics of the sample and target population

- Whether there is an institution responsible for implementing the assessment,

- The cost of participating in the assessment and the the sources of funding,

- Whether financing is secured for the assessment,

- Whether the country is considering non-governmental financial assistance for the assessment,

- The aspects of the assessment the country is planning to fund with non-governmental assistance,

- The non-governmental institutions approached for funding, and

- Whether the country needs technical assistance, and the areas.

The UIS Questionnaire on Cross-National Assessment agencies asks agencies implementing cross-national assessments to indicate:

- The planned years and estimated number of participating countries for the next rounds of the assessment,

- Whether there are plans to expand the assessment to other grades, age groups, or domains, in the next ten years, and the types of expansion,

- The needs and challenges that are faced in implementing the expansion plans of the agency,

- How the international community can help in implementing the expansion plans,
- Whether the agency provides technical assistance to countries participating in cross-national assessments,
- The kind of technical assistance that is provided to countries,
- Whether the agency provides financial assistance to countries participating in cross-national assessments,
- The kind of financial assistance that is provided to countries,
- The criteria that the countries have to meet in order to be eligible for assistance,
- How the countries know about the agency's willingness to provide assistance, and finally,
- The minimum, average, and maximum assistance that is provided to countries.

The UIS Questionnaire on Institutions Supporting Country Participation in Cross-National Assessments inquires about previous assistance and future assistance. It askes the institution to indicate:

- Whether it has or plans to provide technical or financial assistance to countries,
- The mechanisms that are offered to provide assistance,
- The criteria that the countries have to meet in order to be eligible for assistance,
- How the countries know about the institution's willingness to provide assistance,
- The minimum, average, and maximum assistance that is provided,
- The kind of financial assistance that is provided to countries, and finally,
- The kind of technical assistance that is provided to countries.