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# Mini-LAMP for Monitoring Progress towards SDG 4.6.1

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## 1. Introduction

The UNESCO Institute for Statistics (UIS) has been given the responsibility for monitoring progress towards Target 4.6 of Sustainable Development Goal 4 (SDG 4) which measures rates of adult literacy and numeracy skills.

The UIS oversaw the development and validation of the Literacy Assessment and Monitoring Programme (LAMP) to better serve the needs of lower- and middle-income countries. The methodology is readily available for Member States to implement if necessary the funding for in-country operational expenses can be secured.

Experience suggests, however, that there is a need for alternatives to a full LAMP assessment **that allow to reduce the operational, technical and financial burden** of fielding LAMP without compromising the ability to compare results across countries and over time.

## 2. Why are data needed

Multilateral and bilateral donors need comparative data to guide their policies and programmes and to monitor progress towards international and national targets, including SDG Target 4.6.

National Adult Literacy Survey (NALS), International Adult Literacy Survey (IALS), Adult Literacy and Lifeskills Survey (ALL), Programme for the International Assessment of Adult Competencies (PIAAC), Literacy Assessment and Monitoring Programme (LAMP) and Skills towards Employability and Productivity (STEP) studies have established a de facto standard of presenting literacy and numeracy assessment results according to theoretically-justified proficiency levels. These assessments include a background questionnaire and a direct assessment.

UNESCO's LAMP assessment was developed to better respond to the needs of less developed countries while maintaining established proficiency scales. More specifically, the LAMP assessment:

- Includes a background questionnaire that has been adapted for use in less economically- and educationally-developed countries;
- Includes a pool of lower-level items that provides more discrimination in the lower regions of the scale; and
- Includes a filter booklet that routes lower-skilled individuals to a less-demanding test and reading components.

## 3. Options

Our analysis identifies **six options** to **reduce the operational, financial and technical burden**:

- i. by reducing the number of **skill domains** assessed;
- ii. by administering a skills assessment to a **purposive sample** of respondents that provides estimates of the probability of being in a proficiency level;

- iii. by administering a skills assessment to a sub-sample of respondents to an **existing survey**;
- iv. by administering a **fully-adaptive web-based** skills assessment
- v. by administering a skills assessment with the sole purpose to **classify adults** above or below a key threshold, e.g. above or below a socially-moderated, defined cut point; and
- vi. by having the assessment centrally managed or decentralised.

In summary, there is a wide range of options available to countries, and below is a list of some considerations that affect the overall assessment costs include:

- **Domains:** literacy and/or numeracy

Countries should have a choice to administer literacy or literacy and numeracy assessments. If they are interested in literacy only, modules would be made available for countries to use. Reducing the **number of assessed skill domains** to one would reduce the collection costs by 66%.

- **Point estimates or synthetic estimates:** estimation or projection

The assessment could be designed to provide **direct point estimates** of skill distributions or to support the generation of **indirect synthetic estimates**. The latter approach would reduce collection costs by 30% to 50%.

- **Implementation:** stand-alone assessment survey or add-on to an existing survey

Depending on their economic development states, countries could have a choice to conduct a stand-alone assessment survey or add the literacy module to an existing household survey. The latter option could reduce the financial burden of fielding an assessment and allows for more efficient sample allocations as the sample could be targeted to individuals with known characteristics. **PIAAC or mini-LAMP are the options.**

- **Mode of delivery:** paper-pencil or computer-based

Based on their capacity, countries should have a choice of administering paper-pencil or computer-based assessments. Computer-based options yields significant reductions in operational, technical and financial costs of fielding an assessment. Collection costs could be reduced by 40%, while yielding individually reliable results across the entire skill distribution.

- **Continued skills or classification by threshold:** Continuum skills estimate or classification above and below benchmarks.

Whether the assessment **places individuals on the proficiency scales** or **classifies above or below** an educational and economical threshold will affect the choice of items and ultimately the cost of the assessment.

– **Centrality of administration**

Whether an international organization should coordinate the administration or a country could administer with well-developed guidelines.

## 4. Programme implementation

All of the options detailed above would require roughly the same standardized process to implement. Key inputs in this process are available in LAMP with needed modifications depending on the options chosen:

- i. **Cognitive modules.** Cognitive items currently exist through LAMP and PIAAC. While PIAAC modules target a population of a developed economy, LAMP modules target populations of lower- and middle-income countries. LAMP items have been field tested in ten countries<sup>1</sup> and are fully operational in five countries.<sup>2</sup> LAMP cognitive items are translated into Arabic, Dari, French, Lao, Mongolian, Pashto, Spanish, Vietnamese, and five African languages: Fulfulde, Hausa, Kanuri, Tamasheq and Zarma.
- ii. **Literacy-relevant background questions.** Questions available in LAMP background questionnaires collect information on respondent characteristics and social and economic aspects of literacy and numeracy use. However, if relevant questions exist in a household survey to which the literacy module is attached, the number of these background questions could be substantially reduced.
- iii. **Administration guide** provides detailed specifications on how the assessment needs to be administered. The specified activities would depend on the collection mode – paper-pencil or computer-based. The latter process is far less operationally- and technically-demanding at country level.
- iv. **Translation and adaptation guide** for test items and reading components in additional languages. Procedures for item translation are well established. Research shows that reading components vary significantly from language to language, so these need to be carefully developed by linguists for each new language.
- v. **Sampling guide** that reflects whether the assessment is to be conducted as a stand-alone survey, as an add-on to an existing survey or an addition to an existing sample.
- vi. **Data capture and processing guide.** In the case of computer-based options, this will be limited to the processes needed to code and capture open-ended or other specific responses and to weight the data.

<sup>1</sup> The ten countries that have conducted LAMP field tests are: Afghanistan, El Salvador, Jordan, Lao PDR, Mongolia, Morocco, Niger, Paraguay, Palestine and Viet Nam.

<sup>2</sup> The five countries that have conducted LAMP main surveys are: Jordan, Lao PDR, Mongolia, Paraguay and Palestine.

- vii. **Data analytical guide** is a package of tools and steps to produce the results for national reporting.
- viii. **National Planning Report (NPR)** to establish the **country's assessment preference and intention** regarding use of assessment outcomes. In it, the country could specify whether it:
  - wants to have literacy or literacy and numeracy results;
  - wants to estimate or is willing to project skills;
  - is able to conduct a stand-alone assessment survey or has an existing national or international household survey that it could attach the assessment module to;
  - is willing to conduct a paper-pencil or computer-based assessment; and
  - wants to have continuum skills or just a classification at-and-above the defined threshold.

With the intention clearly specified, the country will be directed to the appropriate path with relevant documents and procedures.

### Quality assurance

Experience with IALS, ALL, PIAAC, STEP and LAMP suggests a need for quality assurance and support throughout implementation. Without this process, countries face a significant risk of introducing uncorrectable bias into the estimates that would preclude comparison.

The quality assurance regime includes **six** distinct elements:

- i. **Clear specifications** for all activities;
- ii. **Explicit standards** to be met;
- iii. Preparation of a **National Planning Report** that details national implementation plans;
- iv. **Training for key activities** including translation/adaptation, collection, data processing and analysis;
- v. **Analysis of compliance evidence** by the international team; and
- vi. **Third party observation** of data collection.

The LAMP assessment has a full set of documentation for a paper and pencil implementation. A full set of documentation for a computer-based implementation was produced for CARICOM. In both cases, these sets of documentation could be easily adapted to support any combination of the proposed options.

## Legal framework

Experience with IALS, ALL, PIAAC, STEP and LAMP suggests a need for **two sets of undertakings**:

- i. An MOU with implementing agencies, such as the World Bank, UNICEF, regional development banks, bilateral donors, etc., that sets out roles, responsibilities and expectations of the stakeholders; and
- ii. An MOU with participating countries that specifies roles, responsibilities and expectations, including access to micro-data and the publication of results.

Drafts of both documents were developed for LAMP and could be adapted for current use.

In summary, the country will be provided a legal framework, an implementation package, quality assurance and an analytical package.

## 5. Next steps

Mini-LAMP will provide an alternative to meet the needs of low-income countries. Based on the information above, the cost options as well as technical feasibility and needs, the UIS proposes the following recommendations:

- Adapt the existing LAMP item pool, background and cognitive tools, administration and implementation guides, and quality assurance package that are targeted to low-income countries.
- Create short modules for both literacy and numeracy domains.
- Use computer-based platforms that have been fully validated and tested to host short modules.
- Explore existing items that could be mapped to the content framework to expand the item pool, field testing them while administering these items in the first group of countries.
- Produce an implementation package so that administration is not centrally managed but decentralised to country level and managed by a regional implementation agency, with the proper sets of quality assurance set in place.
- Reduce sample size and produce synthetic estimates unless there is a reason to produce point estimates.
- Take advantage of the existing implementation platforms within household surveys (such as Demographic Household Survey (DHS), Multiple Indicator Cluster Survey (MICS) and Living Standards Measurement Survey (LSMS) and national household surveys) and attaching a short literacy module to it.
- Negotiate with implementing agencies on collaboration and support for: field administration of assessments, observed interviews and data processing.

## 6. Timeline for each activity

Each of the activities requires sufficient time, and depending on the option chosen (whether computer-based or pencil-paper), the full cycle could last from 11 to 24 months.

This requires a set of actions in the implementation process to be put in place. Given that development has taken place and building on existing materials, costs (excluding country data collection costs) should run approximately USD 230,000.

**Table 1. Estimated timeline for each activity: Development and implementation**

Activity	Estimated time required	Action required	Estimated costs
<b>Development</b>			
Paper-pencil cognitive module/booklet design	One to two months based on available materials	<ul style="list-style-type: none"> <li>- Decide on option: shorter module, literacy only, or shorter literacy and numeracy module</li> <li>- Decide on module/booklet design: two-stage adaptive, length of test, number of items, order of items, etc.</li> <li>- Modify based on options chosen</li> </ul>	USD 20,000 to develop two options: short literacy and short literacy/numeracy modules
Guidelines for implementation	One to two months based on available materials	<ul style="list-style-type: none"> <li>- Decide on option: purposive sample, attached to existing household survey or stand-alone</li> <li>- Modify to manuals and guidelines base on option chosen</li> </ul>	USD 20,000 to modify existing and develop different options
Adapt re-design tools to computer environment	Two to three months	<ul style="list-style-type: none"> <li>- Explore existing computer platforms, like TOWES, and see if it could be modified for current use</li> <li>- Negotiate with platform developing agency</li> <li>- Work with platform developing agency providing the cognitive module/booklet to incorporate into platform base on option chosen</li> </ul>	USD 50,000 for development, including platform to host the two-stage adaptive cognitive modules and immediate data capture
Translation and adaptation of updated materials	Two to three months	<ul style="list-style-type: none"> <li>- Ensure cognitive modules, manuals and guidelines are finalised</li> <li>- Translate all material into French and Spanish</li> <li>- Ensure translation are understandable by countries through field testing in a few select countries</li> </ul>	USD 40,000 for two languages

Data processing software	One to two months for development	<ul style="list-style-type: none"> <li>- Develop data capture software base on module/booklet design</li> </ul>	USD 20,000 for software development
Quality assurance	One month	<ul style="list-style-type: none"> <li>- Build on existing materials</li> <li>- Depending on options, paper-pencil or computer-based, modify accordingly</li> <li>- Training regional implementation agencies</li> </ul>	USD 60,000 development cost for different options
Legal Framework with implementing partners	Three months	<ul style="list-style-type: none"> <li>- Negotiate with implementing agencies</li> <li>- Develop protocol</li> <li>- Sign MOU</li> </ul>	USD 20,000
<b>Implementation</b>			
National report	Three months	<ul style="list-style-type: none"> <li>- Provide template</li> <li>- Work with country on the report</li> </ul>	Cost covers within country cost
Data collection	Four months for paper-pencil	<ul style="list-style-type: none"> <li>- Depending on option: number of domains, stand-alone or existing household survey</li> <li>- Sign MOU with country</li> <li>- Negotiate with implementing agencies on role</li> <li>- Provide procedures and quality assurance package</li> <li>- Train interviewers</li> <li>- Observe data collection</li> </ul>	Varies by options and country, local cost could range from USD 253,000 to USD 972,000 as shown in Table 2
	One to two months for computed based	<ul style="list-style-type: none"> <li>- Depend on option: number of domain, stand-alone or existing household survey</li> <li>- Ensure computer platform has been tested and ready to go</li> <li>- Train interviewers</li> <li>- Observe data collection</li> </ul>	Varies by options and country, local cost could range from USD 158,000 to USD 637,000 as shown in Table 2
Data processing	Four month for processing paper-pencil	<ul style="list-style-type: none"> <li>- Train implementing agencies on software</li> <li>- Guidelines to implementing agencies to prepare data for analyses</li> <li>- Processing data</li> </ul>	Data processing cost covered within country cost
	One month for processing on computed based	<ul style="list-style-type: none"> <li>- Train implementing agencies on use of computer/tablet features</li> <li>- Guidelines to implementing agencies to prepare data for analyses</li> <li>- Processing data</li> </ul>	Development cost covered under computer platform listed above Data processing cost covered within country cost
'Big data' estimates (produce Synthetic estimates)	One month	<ul style="list-style-type: none"> <li>- Ensure submitted data are completed and cleaned</li> <li>- Process data with relevant background information from household based survey</li> </ul>	Data analysis cost covered within country cost



For computer-based options, it is recommended to monitor the first 200 cases to ensure that the test is working as expected.

## 7. Cost of administration

Experience suggests that data collection and processing costs vary significantly by country and are difficult to predict. The only way to get accurate cost estimates is to have the country produce a National Planning Report and associated cost estimates.

**Table 2** provides indicative cost estimates for the proposed options, sample size by delivery mode. Computer-based (CB) options are systematically less expensive than paper-pencil (PP) options and are more efficient because it shifts expenditures from collection to analysis of results.

**Table 2. Indicative costs for paper-pencil and computer-based data collection**

Cost in USD	sample size=1500		sample size=3000		sample size=5000	
	Low-cost country	High-cost country	Low-cost country	High-cost country	Low-cost country	High-cost country
<b>Computer-based</b>						
National data collection cost	79,100	167,300	158,200	334,600	242,100	526,300
National fixed cost	40,250	72,450	40,250	72,450	40,250	72,450
<b>Total national cost</b>	<b>119,350</b>	<b>239,750</b>	<b>198,450</b>	<b>407,050</b>	<b>282,350</b>	<b>598,750</b>
International fixed cost (assume 50 countries share cost)	18,200	18,200	18,200	18,200	18,200	18,200
International variable cost	20,000	20,000	20,000	20,000	20,000	20,000
<b>Total international cost</b>	<b>38,200</b>	<b>38,200</b>	<b>38,200</b>	<b>38,200</b>	<b>38,200</b>	<b>38,200</b>
<b>Total cost for computer-based</b>	<b>157,550</b>	<b>277,950</b>	<b>236,650</b>	<b>445,250</b>	<b>320,550</b>	<b>636,950</b>
<b>Paper-pencil</b>						
National data collection cost	135,308	401,364	303,180	789,540		
National fixed cost	80,500	144,900	80,500	144,900		
<b>Total national cost</b>	<b>215,808</b>	<b>546,264</b>	<b>383,680</b>	<b>934,440</b>		
International fixed cost (assume 50 countries share cost)	17,200	17,200	17,200	17,200		
International variable cost	20,000	20,000	20,000	20,000		
<b>Total international cost</b>	<b>37,200</b>	<b>37,200</b>	<b>37,200</b>	<b>37,200</b>		
<b>Total cost for paper-pencil</b>	<b>252,528</b>	<b>582,984</b>	<b>420,880</b>	<b>971,640</b>		

## Assumptions

- The national variable cost (that vary by sample size) includes training of interviewers, travel, data collection, scoring, data capture and editing.
- The national fixed cost (that does not depend on sample size) includes salary of in- country team, translation and adaptation of documents, and data analyses.
- The international variable cost (will vary by country depending on the number of languages used in the assessment and the sample selected) includes the costs of an independent institute to conduct quality assurance of translation adaptation and sample selection and weights. The assumption of this cost is based on the implementation of one language and three basic demographic variables: sex, location and age group.
- The international fixed cost includes cost-sharing among 50 countries on development costs (mainly updating existing documentation and computer platform development), team conducting psychometric analysis and data analysis.
- The international fixed cost will be high initially as there is a need to set-up a sustainable reporting scale or make appropriate psychometric adjustments to add data to the existing scale. However, the cost will be smaller through economy of scale by working with a group of countries. Therefore, this cost will vary depending on the number of countries involved. The start-up cost for this will likely be in the range of USD 150,000 to USD 260,000.

## 8. Conclusions

In summary, the UIS considers that paper-pencil options could be launched rapidly, as administration and implementation guidelines (i.e. interviewer training materials, procedures manuals); tools (i.e. background questionnaires and assessments); a quality assurance package and a legal framework template for countries (i.e. National Planning Report) are currently available for paper-pencil data collection option. A legal framework with the regional technical partners will need to be drawn and it could take up to two months in negotiations through various channels.

If we are to provide two different administration platform options for countries, having both paper-pencil and computer-based options and three implementation platform options, purposive sample, attached to existing household survey and stand-alone options, the development cost will need to be considered for the computer-based and purposive and sub-sample within the household survey. Furthermore, the decentralise management feature will require the establishment of a legal framework with regional technical partners to be developed. With these additional cost, the development time framework will need to be considered.

The UIS will develop manuals for different options, the computer platform, negotiate and work with implementing partners to ensure the implementation platform is ready and with technical partners to ensure that quality assurance procedure is in place.

Based on previous experience, countries need time to produce a National Planning Report with a clear intention and definitive set of cost estimates. Countries will also require time to translate, adapt and validate

background questionnaire and assessment, as needed. Other activities (e.g. training and data collection whether paper-pencil or computer-based) will depend on the schedule of implementing agencies.

Depending on the funding situation and number of options to produce, some or all of the activities could start immediately and some might be able to proceed concurrently. Setting up mini-LAMP will take up to 6 months. The implementation will be approximately 7 months for countries which choose a computer-based option and 12 months for paper-pencil implementation. Please see for the approximate timeframe.

**Table 3. Approximate timeline for development and implementation**

Activity	Estimated time required	Number of months											
		1	2	3	4	5	6	7	8	9	10	11	12
<b>Development/updating existing materials</b>													
Paper-pencil cognitive module/booklet redesign	One to two months based on available tools	■	■										
Guidelines for implementation	One to two months based on available materials	■	■										
Adapt re-design tools to computer environment	Two to three months			■	■	■							
Translation and adaptation of updated materials	Two to three months			■	■	■							
Data processing software	One to two months development for paper-pencil			■	■								
Quality Assurance package	One month						■						
Legal Framework	Three months	■	■	■									
<b>Implementation</b>													
National report	Three months	■	■	■									
Data Collection	Four months for paper-pencil				■	■	■	■					
	One to two months for computed based				■	■							
Data processing	Four months for processing paper-pencil								■	■	■	■	
	One month for processing on computed based							■					
'Big data' (synthetic) estimates	One month								CB				PP