LITERACY ASSESSMENT AND MONITORING PROGRAMME
(LAMP)

International Planning Report

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1. Rationale

There is widespread agreement that the effectiveness of public policy in the developing world is seriously hindered by the absence of reliable data on a wide range of topics. The situation is particularly acute with respect to data related to literacy levels of adult populations where decision-makers lack the basic benchmark data to judge the needs for improved literacy and its potential impact on social and economic conditions, the adequacy of current public investments, the situation facing different population subgroups and what reforms might yield better results.

The importance of obtaining literacy data and of using them to formulate policy and monitor their effects is increasingly recognized by both national and international agencies. This has led to the adoption by all countries of the Education For All (EFA) goals (Goal 3 – ensuring that learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes; and Goal 4 – achieving a 50% improvement in levels of adult literacy by 2015, especially for women and providing equitable access to basic and continuing education for all adults). The Millennium Development Goals (MDGs) use literacy data as an indicator in the goal to achieve universal primary education and for promoting gender equality as it has been shown that improved literacy is highly correlated with poverty reduction. UNESCO has declared this coming decade as the UN Literacy Decade in order to stress the importance of literacy.

At present many countries do not have any data on the literacy status of their population. For the few countries that do, the data are often inadequate for policy development because they are based on proxies that have been proven to be poor predictors of literacy, such as: individual self-declaration or years of schooling as reported on censuses/surveys. Such results are often misleading and may result in inappropriate policy interventions. Cross-national analysis is thwarted because the data are not harmonized between countries.

Without access to benchmark data decision-makers find it difficult to judge the adequacy of current programmes and public investments. Without the means to track the evolution of literacy and numeracy profiles reliably over time they are unable to judge if reforms are having the desired effect and if things are, in fact, getting better or worse.

The matter is made all the more pressing due to the profound impact that literacy and numeracy have been shown to have on social cohesion and the preservation of cultural and ethnic minorities, rates of overall economic development, population health and the efficiency of education systems.

If the needs for literacy information in the future are to be met an efficient and effective literacy assessment methodology is required that will produce reliable and comparable data.
2. Background

Recent advances in social survey and educational assessment methods have provided economically advanced countries with some tools to fill their needs for literacy information. Many now have valid, reliable, comparable and interpretable data on the literacy and numeracy skill levels of their adult and youth populations and the ability to benchmark their situation with other countries at similar levels of development.

The UNESCO Institute for Statistics (UIS), aware that a methodology and survey instruments were necessary to provide developing countries with a similar capability to produce and use such policy-relevant data on literacy and numeracy, decided to investigate the feasibility of developing them. A meeting of literacy programme managers and assessment experts was organized in January 2003 by the UIS with financial support from the World Bank to discuss the feasibility of such a development. It was understood that the methodology would have to be readily adaptable to various linguistic and cultural contexts, be able to assess the literacy of individuals over a range of competency, be reasonably inexpensive to administer and be responsive to national needs for literacy data as well as providing cross-nationally comparative indicators. There was agreement at this meeting that the development of such a methodology was needed and that it was feasible. The project was subsequently titled the “Literacy Assessment and Monitoring Programme (LAMP)” and was launched in conjunction with the launching of the UN decade for literacy, March 2003. It was agreed that the programme could and should use the International Adult Literacy Survey (IALS) as a methodological basis for assessing higher-level literacy skills, but that substantial developmental work would be required to ensure greater differentiation of the lower levels of literacy. The IALS methodology of obtaining literacy information through direct assessment of individuals drawn from a national sample of households or family units was deemed necessary to satisfy the information objectives of LAMP.

A technical meeting of experts in linguistics and in literacy assessment was convened by the UIS in April 2003 to develop a methodology for assessing the component skills that individuals must learn to become efficient readers. There was consensus that the following five component skills should be assessed and used to differentiate knowledge at the lower literacy levels: alphanumeric knowledge (symbol/letter/character recognition), word recognition, word knowledge (vocabulary), sentence processing and passage fluency. In all cases both speed and accuracy should be measured.

In June 2003 the UNESCO Institute for Education, the Basic Education Section of UNESCO and the UIS organized a meeting in Paris. As part of this meeting literacy experts from countries were invited to formulate a definition of literacy that would guide developments in literacy assessment, including LAMP, and ensure that it addressed appropriate country issues. The following definition was proposed:

“Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve his or her goals, develop his or
The meeting concluded that it was desirable that numeracy form part of the LAMP assessment, if feasible.

Following these meetings the UIS conducted a review of existing literacy assessment surveys and drafted a questionnaire to collect demographic and background information from LAMP respondents. In addition the UIS worked with a team from the Educational Testing Service (ETS) and Statistics Canada, to prepare the conceptual framework for the project, to provide a draft of the initial assessment instruments and to develop a national planning module for countries to follow. Instruction manuals and training materials were prepared for the creation of nationally specific questions, for adapting and translating common questions in light of national linguistic and cultural contexts, for survey operations and test administration and for scoring, analysing and interpreting the results. Initial workshops to present these materials are being organized.

A Subject Matter Expert Group (SMEG) was formed including national and international specialists in linguistics and test construction. ETS presented initial drafts of assessment questions for their review and subsequently created the initial LAMP assessment instruments. It was agreed at this time that the LAMP assessment should use paper and pencil rather than computer-based tests for pragmatic reasons.

To ensure that the LAMP instruments and methodology satisfied national and international objectives it was necessary to select a few countries with varying demographic and linguistic characteristics to assist in the development of the instruments and to test them. Although many countries expressed a willingness to partner with the UIS in this endeavour, the following countries were asked and agreed to participate: El Salvador, Kenya, Mongolia, Morocco and Niger. India and Trinidad and Tobago are also considering their participation in this initial phase. These countries represent different geographic regions and represent a wide variety of cultural and linguistic contexts that will test all features of LAMP. It is anticipated that managers and literacy professionals in these countries will become LAMP experts and that they will be available for consultation when other countries in the region implement LAMP.

The development work for LAMP to date has been funded from the UIS annual budget with assistance from the UNESCO EFA programme, the Canadian International Development Agency and the World Bank. Additional development costs and in-country expenses for LAMP will be sought from bilateral and multilateral funding agencies.

The Governments of the countries participating in the first round of LAMP and the UIS have agreed to jointly plan and prepare for the LAMP to ensure the methodology is robustly applied and the resulting data are reliable and valid. It is expected that the main LAMP survey will be conducted in countries in 2005 or 2006 with the exact date depending on priorities within each country. Data analysis and interpretation will follow immediately thereafter.
3. The Broad Objectives of LAMP

The LAMP has been designed to achieve the following objectives:

- To develop a methodology for providing quality data on the distribution of the literacy skills of adults and young people in developing countries;

- To obtain high-quality literacy data in participating countries and to promote its effective use in formulating national policy, in monitoring and in designing appropriate programme interventions to improve literacy levels;

- To build national capacities in the measurement of literacy, to develop and use LAMP data and methodologies.

It is also expected that LAMP will contribute to an enhanced understanding of literacy.

The LAMP will meet these high level objectives through the following activities:

3.1 Methodology

LAMP employs a sample survey methodology to select individuals 15 years of age and older who are asked to respond to a number of background questions as well as questions designed to assess literacy levels. The questionnaire measures a spectrum of literacy levels from very basic reading, writing and numeracy to high level literacy skills needed to fully participate in a learning society.

The methodology is designed to achieve comparability both within and among LAMP participating countries as well as IALS/ALL countries.

The over-all methodology is standardised in order to minimise national and international developmental costs and to maximise the utility of data through comparative analysis. It is implemented according to international quality control procedures. The methodology also provides an opportunity for countries to add items that address specific national issues.

A National Team of specialists in cooperation with the UIS will create literacy questions, adapt and translate cross-national questions, prepare and print documentation, hire and train interviewers, conduct a small field test, adjust documents in light of the field test, prepare and print main survey documents, design and select the sample, conduct the survey, score the responses, capture and edit the data and analyse interpret and disseminate the results.
3.2 Provision of Data

LAMP responds to national needs for literacy data by providing valid, reliable, comparable and interpretable profiles of adult literacy and numeracy skill at the national level (and at sub-national levels if desirable and feasible). It will provide the ability to benchmark progress cross-nationally particularly with countries at similar levels of development.

The data resulting from the LAMP will provide a national profile of the literacy levels of national populations. This information can be used to respond to the requirements of the Education For All (EFA) programme and for the Millennium Development Goals (MDGs). Although LAMP does not divide the population into two groups, literates and illiterates, it gives more information by describing the percentage of the population at various levels of literacy and it will provide for the horizontal linkage of proficiency results over time so that users can monitor trends in literacy development. It will also provide a linkage with other methods of literacy estimation, if they exist, including self-declaration as used in most censuses.

Literacy measures from LAMP in conjunction with a core set of demographic characteristics will allow one to define population sub-groups whose skill level appears to limit their personal development and their ability to effectively function in society. They can also be used to assess the relationship between literacy and numeracy and key economic, social, health and educational outcomes. The development of reading and writing skills in individuals with low levels of literacy can be assessed to help prescribe learning needs and assist in the formulation of effective literacy programmes.

Countries will be able to compare their results against international data on literacy obtained from the International Adult Literacy Survey (IALS) and ALL;

3.3 Statistical Capacity Building

The UNESCO Institute for Statistics wants to ensure that following participation to LAMP, countries have all the tools necessary to produce reliable and useful literacy information, redo the survey or re-use the methodology for related purposes.

To achieve this goal it will provide documentation and training as required to improve country’s statistical capacity in measuring literacy and in using resulting literacy data. In particular it will:
Provide participating countries with the LAMP framework and underlying assessment methodology, project documentation, instruments, training programmes and associated training materials.


Instruments include the common items/questions on a Background Questionnaire and on the Assessment Instruments complete with instructions on their administration.

Training programmes include: Item Creation for Nationally Specific Items; Adaptation and Translation Guidelines for Common Items; Sample Design and Selection; Interviewer and Scorer Training; Data Capture and Analysis; Dissemination and Communication Strategies. In addition the UIS will provide participating countries with training, if required, in quality control procedures to be used in survey development and implementation that maximizes the quality of the resultant data while minimizing the risk of serious error and bias.

### 3.4 An Enhanced Understanding of Literacy

An international report is planned that will show the LAMP results for the initial six countries implementing the survey. The report will concentrate on cross-national analysis that describes the distribution of literacy skills and the areas where interventions in literacy education would be most useful. The relationship between literacy and various socio-economic indicators will highlight the importance of literacy and if appropriate the need for improvement to promote better living conditions.

National reports are encouraged and will be supported where possible by the UIS. National reports provide a broad spectrum of users with key study findings and basic technical information about the study. In addition to providing a summary of the LAMP results and reporting on national literacy levels, these reports should respond to local and national issues where literacy plays an important role.
4. How LAMP Results Can Be Used

As with most statistical systems the LAMP programme is designed to serve multiple users and uses at several levels.

Each use places demands on the technical statistical properties of the instruments used for assessment and, in turn, on the how the instruments are implemented.

The following section identifies potential users of LAMP results, the broad uses that will be served and a detailed account of the policy issues upon which the programme is intended to shed light.

4.1 Uses of LAMP Data

At the highest level the use of any data can be divided into two categories:

- Uses that are ‘policy-related’ i.e. the data they produce have no direct bearing on decisions taken about individual units but are used indirectly to formulate national policy, establish priorities, allocate funds and decide on implementation methodologies. These non-administrative uses have little direct bearing on the outcomes of individuals in the short run but may have a profound impact on outcomes in the long run because of their influence on policy, funding or practice.

- Uses that are “administrative” in nature i.e. the data are used to take decisions that have a direct impact on an individual unit – be they a student, a teacher, an administrator, a school or some larger unit. For example, administrative uses involve using assessment data to guide instruction for a particular student or to signal mastery of a particular level, to determine programme eligibility for particular students, or to assign supplemental resources to particular schools.

In its basic form LAMP is designed to provide data for the former, to inform public policy debate, be used to formulate policy and to monitor policy impact. LAMP is not designed to serve administrative uses although the instruments could be applied to separate samples of students to serve these purposes.

Policy-oriented assessment systems can be classified within a framework devised to describe the uses of official statistics in multiple domains (Overgaag and Goddeburre, 1989). This framework proposes the following categories of use:

- for knowledge generation i.e. to understand the casual structure of the domain(s) of interest and their relationship to key covariates;

- to inform policy and programme design i.e. to identify the nature and scope of the problem to be fixed, the relative priority for action, the cost of inaction and key elements of the remedial intervention;
- to monitor indicators of key outcomes with a view to identifying any unanticipated departures from established trends or relationships; and

- to evaluate the impact of specific policy and/or programme interventions undertaken at the macro-level.

LAMP will not be able to assess individual literacy programmes as it is designed to provide the above information for the national population or possibly large sub-populations. With this design individual literacy programmes cannot be assessed because there will not be enough respondents from any one literacy programme in the sample to give reliable results. However, national planners or administrators may wish to use the LAMP instruments for such an assessment by organizing a separate survey of all, or a sample, of participants from a specific literacy programme.

4.2 Users of LAMP Data and Their Technical Competence

As noted above the fitness of any statistical data may be judged only in terms of two criteria:

- the use to which the data will be put; and

- the technical ability of the users.

At the risk of stating the obvious users vary greatly in their interest and ability to understand and apply statistical information in their decision-making.

Statistical products that fail to respect this fact are likely to fail to reach maximum impact.

Similarly, statistical products and services that fail to support the uses foreseen by key users will fail to achieve maximum impact.

The potential users of LAMP data are numerous and extraordinarily diverse in their ability to deal with drawing inferences from complex statistical data. In many cases the same user has a need for a range of products and services to meet a variety of uses of differing technical content.

Key user groups are:

**Citizens** need information to judge whether the education system is meeting its social, educational, health and economic goals and whether it is doing so in an efficient and effective way. Most citizens have limited statistical acumen and little interest in detail and nuance – they want and need a set of stylized facts about the performance of the system.
Educational administrators at several levels need information for multiple purposes:

- **Directors of literacy and non-formal education programmes** need information to reflect upon the performance of teachers in particular domains and on the performance of specific groups of students, to adjust teaching priorities and curricula, to formulate targeted in service training for teachers, to design compensatory programmes and supports, to demonstrate performance to administrators higher up in the system and to argue for additional resources. Directors are generally reasonably comfortable with statistical data but have little time to undertake primary analysis themselves.

- **Subject matter and diagnostic specialists** need information for the same reasons but also to reflect on the relative performance of programmes and to take action to improve same. As a group, they have mixed statistical skills – the specialists generally have advanced analytic skills and an interest and ability to use statistical information.

- **Administrators at the regional, provincial and national level**, including specialists in particular assessment domains and those responsible for accountability measures and reporting, need information for the same reasons. As a group they have access to statistical expertise and the resources to apply them but have a need for stylized facts about the performance of their part of the system. Their key clients are politicians, including the minister(s) responsible for education and learning, teachers and citizens.

- **Community leaders**, including local politicians, need information to assess whether literacy programmes are producing what the community needs to meet their social, cultural and economic goals. Most community leaders have very limited quantitative skills but can usually access what they need in the community.

- **Training institutions** responsible for the training of new teachers require information on the performance of current approaches to teacher training, curricula and instruction. As a rule the staffs have access to statistical expertise required to use assessment data.

- **Non-governmental agencies, research institutes and social advocates** need information to monitor trends in educational outcomes and to argue for structural and policy changes. As a group these agencies have mixed ability to deal with statistical data.

- **Politicians and policy-makers** in a variety of national ministries need information for several purposes:
- **All ministers and ministries** need information to understand the ability of their clients to use print and to adjust their communication strategies and channels accordingly.

**Education ministries** need information for a variety of purposes:

- to understand the performance of the current education system and what factors influence relative success;
- to adjust the level and distribution available funds to achieve maximum return on investment;
- to adjust programme design, curriculum, instructional methods and delivery mechanisms to match learning needs;
- to argue for additional resources; and
- to inform pre-service and in-service training of instructors.

- **Labour ministers** and their policy-makers need information to understand the quality and quantity of literacy and numeracy skills and the labour market needs for these skills.

- **Culture ministers** and their policy-makers need information to understand the relative position of linguistic and cultural minorities either in the official language(s) or minority languages.

- **Health ministers** and their policy-makers need information to understand the relationship of literacy to population health and to design appropriate communication strategies.

- **Tax officials** and their policy-makers need information to understand the literacy levels of the taxpaying public so that they can engineer their reporting systems accordingly.

- **Social development ministers** and their policy-makers need information to understand trends in literacy levels and the role that they play in creating social inequity in economic, educational, social and other outcomes.

- **Agriculture ministers** and their policy-makers need information to understand the connections between literacy level and changes in agricultural practice.

- **Industry ministers** and their policy-makers need information to monitor the supply of literates that are available to the workforce. As a rule ministers and
policy-makers do not have strong quantitative skills nor do they have an interest in doing analysis themselves. They want generally only want stylized facts provided by their own technicians.

- **The media**
  – Print, radio and television – play a central role in disseminating the results of any national assessment system as it is by this means that the main messages first reach many users. Failure to get the media to report on the assessment system in an objective way that encourages users to seek more information can doom even the best assessment systems to obscurity. Similarly, where media are critical of the assessment or create sensational messages that do not reflect the data, national assessment programmes will be threatened. At a minimum national study teams will spend a lot of time “fighting fires”.

As noted above assessment systems have the potential to create winners and losers. As a result different groups of users will be predisposed to support, or to argue against, assessment depending on what they perceive it to be in their interest. Viewed from a communication standpoint, the goal of the national project team is:

- to maintain the support of users who are initially supportive;
- to win the support of additional users who may be neutral or mildly opposed; and
- to address the concerns of opponents in a balanced and neutral way in all publications and related analyses.

**4.3 The Issues That LAMP Can Address**

Having identified the general uses to which LAMP data will be put and the likely users it is important to set out the issues of public policy upon which LAMP has been designed to shed empirical light.

These issues are important in the first instance because they provide the rationale for participating countries to invest scarce resources in implementing the study.

They are also important because they provide a starting point for planning an analysis programme that will produce products and services that match the needs and technical competence of key users and dissemination and communication programmes that will ensure that these products and services reach the intended audience.

As currently designed LAMP can inform seven issues that are of central importance to policy development in all countries. These issues include:
4.3.1 Understanding the learning needs of adults at various levels of literacy and numeracy skills and determining perceived barriers to improved literacy levels

4.3.2 Literacy's relationship to social and cultural characteristics

4.3.3 Impact of formal education on literacy levels

4.3.4 The achievements of adult learning systems

4.3.5 Literacy as a barrier to achieving high rates of macro-economic growth

4.3.6 Literacy's relationship to inequalities in economic outcomes at the individual level

4.3.7 The relationship between self-declared literacy and individual literacy skills

What follows is a detailed overview of the policy questions and how data from LAMP can be applied to gain some empirical purchase on the issue.

4.3.1 **Understanding the Skill Gaps of Adults at Various Levels of Literacy and Numeracy Skills**

The LAMP design is such that it will provide data that can be used to serve educational ends.

Specifically the LAMP will allow users to explore questions such as:

- What is the distribution of component reading skills in the adult population?

- How are component reading skills related to the emergence of fluency as defined in the literacy and numeracy measures?

- What do these patterns imply for the design of curricula, instruction and delivery?

- Can one identify particular population subgroups that share patterns of need? If so, what do these patterns imply for curriculum, instruction, delivery and funding allocations?

- What patterns of weakness are displayed in the higher level proficiency?

- Can one identify population sub-groups that share patterns of weakness? If so, what do these patterns imply for curriculum, instruction, programme design and funding allocation?
- What barriers do individuals perceive are preventing them from improving their literacy level?

Validity at the national level will be established by linking the assessment of skill in each domain to a theory that explains a significant proportion of the variation in relative difficulty among heterogeneous language groups. LAMP will also identify the characteristics of text and task that underlie the relative difficulty of fluent reading.

4.3.2 Literacy’s Relationship to Inequalities in Social and Cultural Outcomes

National and international policy-makers are concerned about the level of social and cultural development achieved by their citizens.

Analysis of existing data suggests that literacy as measured by LAMP plays a role in an adult’s level of engagement in the broader society and in their own culture.

The design of LAMP will allow users to explore questions such as:

- To what extent do individuals with low skills appear to be less engaged in the broader society (community service, social and cultural activities)?

- How do individuals with low skill levels cope with their everyday reading and numeracy demands? To what extent do these coping mechanisms make these individuals reliant on others?

- To what extent does the engagement of linguistic, ethnic or cultural minorities appear to be inhibited by their lack of skill in the language of the test?

4.3.3 The Quality of Initial Education Provided by the Formal System

LAMP provides data for the entire adult population, including estimates of literacy and numeracy skill for individuals aged 16 –25 who may have recently left the formal education system. These data provide some insight into trends in the quality of recent educational output, allowing users to explore questions such as:

- What is the relative quality of current educational output, denominated in literacy and numeracy, benchmarked against other countries?

- Does the quality of education appear to be rising?

- Are there population sub-groups who appear to be underserved by the current system?
Analysis of data from the IALS study demonstrates that directly tested literacy levels are far more variable across countries than suggested by differences in national profiles of educational attainment. This suggests far more variability in the quality of initial education than generally assumed, a fact that has been confirmed by international comparative assessments of students such as the OECD PISA study, IEA’s TIMSS and PIRLS studies and UNESCO OREALC’s mathematics and reading assessments.

The comparative dimension of the LAMP study will also allow users to explore, through statistical analysis the influence of various background questions on literacy, where policy might have the most impact.

4.3.4 The Adequacy of Adult Learning Systems

Many countries are investing public resources to support higher levels of formal, non-formal and informal adult learning. These investments are motivated by a perceived need to compensate for low educational participation and educational quality in earlier periods, for skill loss and to meet rising skill demands. By profiling the level and context of participation in non-formal adult learning the LAMP will allow users to explore questions such as:

- Who is participating in adult learning of various types? In adult literacy classes?

- Quality of adult education with respect to literacy skills outcomes?

- Is the volume of adult learning sufficient to meet expected levels of literacy demand?

- To what extend are particular population sub-groups excluded from adult learning systems?

[Note: this assumes that there will be enough people in the sample who are participating in adult education programmes. This will have an impact on sample size and as a result may not be appropriate to all countries.]

4.3.5 Literacy as a Barrier to Achieving High Rates of Macro-Economic Growth

The LAMP will provide data to shed light on a number of critical macro-economic policy issues such as the following:

- Are literacy and numeracy levels high enough to support the national economic objectives?

- To what extent are overall levels of macro-economic growth being constrained by the level of literacy and numeracy skill available to the economy?
- Could overall levels of economic growth be improved by increasing the level of public investment in social institutions that create literacy and numeracy skill?

- If so, where would such investments have the largest impact?

It is accepted fact that education is fundamental to economic and social development and, further, that reading literacy and numeracy are two of the key outcomes expected of the education system that lead to economic growth.

The importance of literacy and numeracy at the international level are reflected in their inclusion in highly visible political statements such as the Millennium Development Goals and the Education For All targets.

This importance is confirmed by the place that reading literacy and numeracy hold in national educational curricula, performance expectations and proportion of public resources that are devoted to the basic education of children and adults.

4.3.6 Literacy’s Relationship to Social Inequality in Economic Outcomes at Individual Level

Macroeconomic evidence suggests that literacy and numeracy skill are important elements of human capital and that literacy and numeracy play a significant role in securing economic development.

Policy-makers in all countries are concerned about the distribution of the wealth generated by economic activity.

The LAMP will allow them to ask policy questions such as:

- To what extent are literacy skills related to social inequity in economic outcomes such as employment rates?

- Do the literacy levels of specific groups place them at particular risk?

Viewed from the individual level literacy and numeracy skill can be viewed as productive assets that individuals bring to the labour market. It follows from labour market theory that skill will play a role in creating social inequality in economic outcomes. Current work organizations and technologies of production impose a set of skill demands, employers recruit and reward employees based according to their skill levels. In labour markets where one sees large differences in skill among individuals and different population sub-groups workers with high skill get stable, well paid employment and workers with lower skills will be excluded from employment or will be relegated to intermittent employment and lower wages.
4.3.7 The relationship between self-declared literacy and individual literacy skills

Some countries have attempted to collect information about the literacy of their populations by asking survey or census respondents whether or not they are literate (self assessment). Unfortunately there is little evidence that personal responses to such questions provide reliable results. LAMP will ask respondents this question as well as administering a literacy assessment. The correlation between self-assessment and true assessment will be determined which will help countries decide whether such self-assessment questions on future surveys have any predictive value (are worth the investment).

4.4 Other Uses of LAMP

Aside from direct use of the data the LAMP programme can be used for:

- increasing understanding of the concept of literacy;
- ownership of assessment and survey methodology, reusing it for related exercises (Strengthened capacity); and
- spurring debate and action at community level. For example through the awareness campaign, or, following the survey, using the survey tools (with or without data results) to generate discussion, reflection and interest in programmes.

5. The LAMP Conceptual Framework

5.1 Defining Literacy

The following definition of literacy was proposed by an Expert's meeting at UNESCO in the summer of 2003:

Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning enabling an individual to achieve his or her goals, develop his or her knowledge and potentials, and to participate fully in the community and wider society.

This definition provides the structure for LAMP development. LAMP will concentrate on measuring individual ability to use printed and written materials. It will use the assessment results to determine where an individual falls on a continuum of literacy ability that ranges from very low levels of literacy to the very high.

In LAMP, literacy incorporates written numeracy.
5.2 Measuring Literacy

LAMP is designed to measure functional literacy. In other words it will determine an individual’s literacy level by employing a series of questions designed to demonstrate the use of their literacy skills.

LAMP will measure the proficiency of respondents on three continuous literacy scales - prose, document and numeracy. In addition it will collect information on ‘component skills.’ Component skills are thought to be the building blocks upon which the emergence of reading fluency is based. Information on component skills will be collected from people at the lower end of the ‘literacy scale’ only.

5.2.1 Prose, Document and Numeracy Scales

Each of the three scales has been constructed to range from 0 to 500. A brief description of the tasks and skills underlying each of the three scales is presented below.

Prose literacy – the knowledge and skills needed to understand and use information from texts that include editorials, news stories, poems, and fiction; for example, finding a piece of information in a newspaper article, interpreting instructions from a health brochure, inferring a theme from a poem, or contrasting views expressed in an editorial.

Document literacy – the knowledge and skills required to locate and use information contained in materials that include job applications, transportation schedules, maps, tables and graphs; for example, locating a particular intersection on a street map, using a schedule to choose the appropriate bus, or entering information on an application form.

Numeracy – the knowledge and skills required to apply arithmetic operations, either alone or sequentially, using numbers embedded in printed materials; for example, totalling the cost of two or more purchases, working with fractions and decimals, completing an order form, or determining the gain or loss on an investment.

Scores on each of the three scales will be characterised in terms of levels, with Level 1 representing the lowest level of proficiency. Respondents scoring in Level 1 can best be characterised as possessing very limited literacy skill. While few of the adults at this level would be considered “illiterate” in the historical meaning of that term, few will have the literacy skills necessary to read in the language of the test and therefore to avail themselves of these forms of communication and to personally benefit from this activity. However individuals falling in level 1 may still demonstrate a wide range of ability in terms of the development of reading skills and LAMP will assess these abilities to determine barriers to their improvement and to identify training requirements. This LAMP information will prove useful to those designing adult education programmes.
5.2.2 Component Skills

“Component skills” are thought to be the building blocks upon which the emergence of reading fluency is based. Having information on the distribution of component skills in adult populations, and their relationship to background variables will allow researchers to assess the level of resources needed to raise skill levels and to devise efficient curricula for different population sub-groups. In designing these measures in English, the simple view of reading was adopted. As described by Hoover & Tunmer (1993): “the simple view makes two claims: first, that reading consists of word recognition and linguistic comprehension; and second, that while each of these components is necessary for reading, neither being sufficient in itself.” (p.3) Word recognition is a stronger predictor of reading level in the early years of reading development. As word recognition becomes more fluent and automatized, listening comprehension becomes a stronger predictor of reading ability, though word recognition continues to contribute significant variance even in skilled readers (Gough & Walsh, 1991; Cunningham, Stanovich, & Wilson, 1991; McCormick, 1994).

Countries using LAMP to measure literacy in languages other than English will have to determine the building blocks for reading in their language and then create suitable items to measure them.

LAMP will assess five components in English that are indicative of reading acquisition levels and integrated reading ability:

a) alphanumeric perceptual knowledge and familiarity;

It has been shown that adult learners who undergo training in letter recognition do perform better than others. This appears to be the case whether or not letters and numbers were the starting point in learning literacy.

b) word recognition;

c) word knowledge (vocabulary);

Vocabulary tests are included in part because in developing countries literacy is (still) often coupled with second language learning.

d) sentence processing; and

The main point about including sentence is to make the bridge with paragraphs and longer texts. The sentences help to gradually test the memory capabilities that are so important in reading.

e) passage fluency.

In skilled reading, these components are integrated to support literacy performance. During acquisition, they may be measured separately, with different profiles having
implications for the acquisition sequence and time requirements of learning and instruction. The former two (a,b) are primarily associated with word recognition and word learning. The latter three (c,d & e) are measured with word meanings, sentences, and passages and are linguistic or language processing tasks.

Ehri (1991) describes a course of development for word recognition ability in which orthographic knowledge is built upon a phonological foundation of sight-sound correspondences as the learner generalises common spelling patterns from her or his limited size vocabulary. The orthographic knowledge acquired is used to assist in the decoding of unfamiliar words, to build access routes in memory to words, and to speed up the process of accessing words by sight. This helps explain how individuals may come to acquire and integrate orthographic and phonological codes in a developmental sequence that provides a foundation for the rapid, fluent word recognition of normal adult readers.

Verbal efficiency theory (Perfetti, 1985) and the interactive-compensatory model (Stanovich, 1980) both suggest that limitations in local processes affect reading comprehension. They argued that whenever an individual is performing processes that strain the limits of working memory either he or she will forget part of the stored items or he or she will limit the scope of executive processes applied to the data or both. Poor readers are likely to be using valuable resources already in compensatory processes to assist in word recognition and comprehension (Stanovich, 1980).

It should be noted that component skills are not levels. For example, in English it cannot be assumed that letters come before words in terms of difficulty and therefore it is impossible to pre-define levels. LAMP results will provide information to show where reading difficulty is incurred for low-skilled people and levels may be able to be developed as a result.

5.3 Contextualisation and Comparability

The key to measuring literacy skills comparably (whether over time, across languages or across countries) resides in the adherence to a framework, the use of common items, and the application of rules for translation and adaptation.

Some literacy (and numeracy) tasks in LAMP originate from the IALS/ALL pool and some will be developed by the participating countries. All items are adapted to the cultural context. The creation of new items also ensure that each country integrates the framework, as well as broaden the cultural perspectives that are represented in the item pool.

The data obtained in the components assessment however cannot be used to compare skills for groups with different languages for all elements.

Some of the component tasks are invariant across language, including number recognition, sentence processing and passage fluency.
The letter recognition and decoding tasks are language specific i.e. they must be redeveloped for each new target language.

The word recognition test is designed to be standard but countries are allowed to substitute frequent words for English, French or Spanish words that appear on the master list but that are low frequency words in the target language.

Thus each participating country will be required to adapt the component measures to reflect the idiosyncratic aspects of their language(s). It will be possible to compare not the skills themselves but the relationships between mastery of the component skills and proficiency in literacy.

In addition, LAMP will provide some information on other types of literacy, such as computer literacy, through questions on the “Background questionnaire.”

5.4 The Measurement Method

5.4.1 IRT Scaling

Item response theory (IRT) is utilized to estimate performance on the LAMP prose, document and numeracy scales. Since each respondent answers only a subset of the assessment tasks, the analysis takes into account responses to background questions along with achievement tasks to make estimates of performance (a technique known as “conditioning”).

5.4.2 Checks of Validity and Comparability

An important data analysis task is to check the validity of the results both within and across participating countries. A number of techniques are used. Traditional item statistics are used to identify initial problems in comparability, especially those that might occur due to printing or translation errors. Factor analysis is used to check for the unidimensionality of proposed scales. Within each country, IRT scaling is compared with across-country scaling in order to check that measures are comparable among countries or language groups. Differential item functioning (DIF) techniques are used to see if any questions are operating differently (e.g., they are unusually hard or easy, compared to other items) across participating countries. Tasks that are not operating in the same way in all participating countries are not included in summary statistics.

5.4.3 Performance Levels

Additional data analysis techniques will be applied to describe the nature of the results both across and within participating countries. A number of methods are available for
defining and reporting performance levels; most make use of a combination of expert
decision and statistical analysis of results. Readers wishing to review an example of
the process by which such levels are derived are referred to the NALS Technical
Report.

It is important to remember that the components are not levels.

6. The LAMP Design

The following section of the report provides a summary of key LAMP design elements.

6.1 Overview of the LAMP Design

The LAMP combines the methods of household survey research with those of
educational assessment to yield valid, reliable, comparable and interpretable estimates
of the literacy and numeracy skill of adults in multiple languages and cultures that can
be related to a set of background variables.

In order to achieve its goals LAMP is implemented in six major phases:

- the development and approval of a national implementation plan;
- the development and certification of the content and design of survey
documents in national language(s);
- the conduct of a field test to establish the psychometric and measurement
properties of the survey instruments and to confirm key aspects of survey cost
and quality;
- processing and analysis of the field test results and subsequent revision of the
survey instruments and procedures to reflect the results of the field test;
- administration of the final instruments to a probability sample of the adult
population; and
- processing, analysis and reporting of the main assessment results.

The UIS and National Project Teams (NPTs) share responsibility for implementation
including a broad range of activities designed to assure the quality of the survey results.

6.2 The LAMP Sample Design

6.2.1 Sample design for the field test
The field test requires an equal distribution of the sample with respect to characteristics that are thought to be highly related to literacy. This includes level of schooling (no schooling, incomplete primary, completed primary, incomplete secondary, secondary, tertiary). It may also include age, gender, and poverty.

In order to achieve this, the sample for the field test may be selected purposively. However, it is possible to also use the field test as a rehearsal of the sampling for the main data collection, by implementing the same methodology for selecting a fraction of the field test sample.

6.2.2 Sample design for the main data collection

The sample must be a probability sample. The target population is the whole population of adults (aged 15 and over) currently living in the country. It is acceptable to exclude people residing in institutions or in inaccessible areas provided that this represents a small percentage of the total population.

From a psychometric point of view, in order to establish the statistical parameters of the test items, 750 completed cases are needed for each of the three possible tests being administered (the three possibilities are: filter and module A; filter and booklet 1 of module B; filter and booklet 2 of module B). This constraint may, in some countries, be best met through oversampling of highly skilled individuals.

6.2.3 Estimation for sub-national domains

Most national policy-makers and other data users are often keen to have figures for sub-national domains such as regions, provinces, districts, or even lower geographical levels. In the context of millennium development goals (MDGs) or EFA, such data help target the areas where improvement will be most beneficial. They are also very useful in the context of Poverty Reduction Strategies (PRSP).

A survey of just a few thousand respondents cannot provide data for low levels of disaggregation through the usual design-based estimation procedures. However, it is possible to do so through model-based estimation, depending on a few conditions about data availability and sampling strategies. Most of the requirements for model-based estimation rejoin the requirements of over-sampling methods. Similar techniques will make it possible to provide estimates in years when no literacy survey is conducted.

6.3 The LAMP Instruments

LAMP involves the development and administration of four distinct modules of instruments:

- a “filter” test designed to divide adults into a high skilled and a low skilled group;

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- a test designed to establish reading literacy and numeracy proficiency of the high skilled group over a broad range of skill – Module B;

- a test designed to establish the reading literacy and numeracy skill of the low skilled group and to relate their results to the proficiency scales developed for the high skilled group – Module A (Locator and Components); and

- a Background Questionnaire to collect a broad range of variables for use in analyzing the proficiency data.

The structure of the LAMP assessment is illustrated below:

The interview begins by an interviewer completing a household roster designed to identify respondents that are eligible for interview.

One household member is then selected at random to complete the background questionnaire and the filter test – a test made up of relatively simple reading and numeracy tasks.
Respondents passing the filter test are asked to complete a prose literacy, document literacy and numeracy test made up of items that will be used to link the LAMP proficiency data to existing international scales and items that have been developed by developing countries.

Low skilled respondents who fail the filter test are asked to complete the locator test – a short test with sufficient low difficulty prose, document and numeracy tasks to place them on the LAMP proficiency scales, and the components test in the target language.

Countries with particularly low levels of educational attainment or a specific policy interest in the skills and characteristics of the low skilled may chose to implement a reduced form of the LAMP design known as LAMP-Lite. As illustrated below the LAMP-Lite design eliminates the right hand high-skill side of the LAMP design. The LAMP-Lite design reduces the sample size, cost and operational complexity of the assessment. Countries implementing the full design will be able to derive separate estimates of the percentages of the population at each proficiency level i.e. Levels 1, 2, 3, 4 and 5 on each scale. Countries choosing to implement the Lite design loose the ability to generate separate estimates for Levels 3, 4 and 5 i.e. for reporting purposes these will be combined.

The LAMP-Lite Design

![Diagram of the LAMP-Lite Design](image-url)
6.3.1 The Background Questionnaire

The LAMP design includes the development and administration of a background questionnaire. It serves several purposes in the study.

The first and most obvious purpose for administering a background questionnaire is that it provides the information to:

- identify population sub-groups whose literacy level places them at risk;
- understand the relationship between individual characteristics and observed levels of skill, whether good or bad; and
- establish the impact that literacy has on a handful of key economic, social, educational and health outcomes.

The second purpose served by the background questionnaire is that it provides the information that allows one to compensate for bias in the proficiency estimates. To guarantee the comparability of proficiency estimates - a fundamental goal of LAMP- one can impute skill levels for those individuals who do not provide sufficient cognitive data to estimate their skill level directly. LAMP will employ well established statistical methods to derive skill scores using characteristics provided by the background questionnaire.

The Background Questionnaire also is used to check that test items were not unfair to any particular group of people. In addition it is used to make the link with other surveys.

Finally, the background questionnaire provides interviewers with a way to engage respondents in the interview process that is much less demanding than the cognitive test. Thus, the questionnaire serves to increase the proportion of individuals who are willing to provide cognitive data.

The background questionnaire is subject to a time constraint since both the background questionnaire and the filter-test are limited to a total of approximately 30 minutes.

The background questionnaire collects information such as family background and characteristics (parental education and language), individual attributes (age, gender, language, educational attainment and employment status), participation in education and training, and literacy activities including the use of information and communication technology and other literacy practices. In addition, variables on human and social capital, quality of life and a series of questions specific to the domains being measured by the assessment may be incorporated.

In addition to the required core questions, a participating country may opt to include country-specific questions in the Background Questionnaire. The total combined
duration of all such additional country-specific questions will not exceed 5 minutes on average.

6.3.2 The Filter-Test

The filter-test will use a carefully selected subset of items drawn from IALS and from LAMP common items to assign individuals to a low skilled or a high skilled group.

As illustrated below individuals in the high skilled group will be administered a test that combines cross-national (IALS and LAMP) items with a selection of nationally specific items. This will allow the generation of estimates of average skill level, and proportions of the population at various skill levels on LAMP literacy and numeracy scales.

Individuals in the low skilled group will be administered a test that combines a selection of low difficulty items (IALS and LAMP) with a series of instruments designed to assess components of reading. The low difficulty items will allow for the placement of individuals on the LAMP prose, document and literacy scales whereas the components measures will allow for the identification of population subgroups that share common patterns of performance on the components, information that is crucial to establishing the level of need for remedial instruction, the content of remedial instruction and for targeting resources where they might have the greatest impact.

In both cases individuals are first administered a background questionnaire that collects a broad range of demographic and socio-economic characteristics for the respondent and his or her household.

6.3.3 The Assessment for Individuals with Lower Literacy Skills – Module A

The assessment for individuals with low literacy skills consists of two separate tasks:

- Locator assessment; and
- Components assessment

6.3.3.1 Locator Assessment

Low skilled individuals will be administered a small number of low difficulty items selected from the IALS/LAMP common item pools. These items will allow individuals to be placed on the LAMP proficiency scales and the component results to be linked to these scales.
6.3.3.2 Components Assessment

LAMP will assess six components that are indicative of reading acquisition levels and integrated reading ability:

a) alphanumeric perceptual knowledge and familiarity; (digits naming, rapid digit naming, lower case letter naming, upper case letter naming, rapid letter naming)

b) word recognition; (word recognition and rapid word recognition)

c) decoding (decoding and rapid decoding)

d) vocabulary;

d) sentence processing; and

e) passage fluency.

The decoding tests are optional.

The data obtained in the Components assessment cannot be used to compare between countries or groups with different languages as the language learning process may also differ.

a) Alphanumeric perceptual knowledge and familiarity

Rapid naming of alphanumeric lists can be used as basic reading measures and as covariates for better understanding profiles or eliminating extraneous variance from inferences we might wish to make about subgroups. The main types of information provided:

- Index of basic to high familiarity with basic perceptual codes in English (numbers and letters should be overlearned symbol systems and frequent exposure to them should result in efficient perceptual identification).

- Index of baseline pronunciation rates (absent other oral speech samples). (Individuals speak at different rates).

- Screener for Rapid Automatized Naming deficit. A small subset of individuals have been found with unexpectedly slow naming rates for numbers and letters and this deficit has been found to predict reading impairment. These individuals should be a very small subgroup (less than 1%) and way at the tails of the speed distribution [include references to work with adults in developing countries: eg Abadzi's work on recognition of letters in Burkina Faso, which showed that adults who undertook special training in this improved their fluency].

Real Word Lists
b) Word recognition (List Reading)

In the intermediate and low level ranges, the information value of the word and alphanumeric lists should have maximal impact so they are included in LAMP as the basic units that should be measured.

The real word lists are sequenced to increase in (visual) word (in) frequency and complexity (i.e., letter and syllable length). As noted above, a hallmark attribute of skilled reading is the effortless identification of words from spellings without the supporting information of context. A skilled reader can identify most familiar (frequent) spelled words that are in their speaking lexicon with little effort. The most infrequent words in the real word lists are highly familiar in the general public’s listening/speaking vocabulary.

A less skilled reader may have to sound out, that is, create a phonological/pronunciation representation and match that to known words in their oral lexicon. That should slow down their processing. This indicates either inadequate/impaired decoding ability, or less exposure to familiar words in text forms (hence, low levels of orthographic knowledge), or both.

c) Word knowledge (Vocabulary)

Very simply, a barrier to reading text would be not knowing the meaning of the words in one’s listening or oral vocabulary. One can infer meanings of unknown words from the context (while reading or listening), but this typically produces provisional, uncertain, and incomplete words and text – the understanding of which must be separately verified. Systematically varying the difficulty of words, visually or written, helps identify the contribution of this component as a barrier to reading acquisition.

d) Sentence Processing

A variety of psychological studies of reading show that the sentence is a natural breakpoint in the reading of continuous text. A skilled reader will generally pause at the end of each sentence. A variety of operations are typically performed including encoding the propositions of the sentence, making anaphoric inferences, relating meaning units to background knowledge and ongoing models of the passage model, and deciding which meaning elements to hold in working memory. Thus, each sentence requires some syntactic and semantic processing. By controlling the difficulty of the vocabulary in a sentence (easy or words known that the individual can recognise and knows the meaning of), but varying the syntactic complexity, one can get an indicator of
the individual’s proficiency at syntactic, grammatical, (and semantic) processing of prose at different levels of complexity.

e) Passage reading fluency

Skilled reading is fluent (silent or aloud), but fluency is more an observable property that emerges from skilled reading. Fluency is indicating that visual word identification processes are efficiently feeding language processing systems (e.g. working memory) to produce outputs. The outputs do not necessarily imply the construction of meaning or comprehension as we commonly imagine it. For example, meaningless decodable visual word representations in a grammatically familiar text pattern can provide sufficient information to drive phonological and syntactic representations, resulting in fluently read gibberish – (an assessment technique that could be used). However, fluency, defined, as a relatively error free reading of a simple passage at a normal speaking rate, is a solid indicator of the integration of some basic component skills. On the other hand, breakdowns in accuracy, rate, or both, suggest difficulties in other subcomponents. The LAMP tasks help identify a profile of one or more components that may be in need of further development via learning and instruction and hence are included as part of the component skills measure.

6.3.4 The Assessment for Respondents With Higher Literacy Skills – Module B

The test to be administered to high skilled individuals includes two item sets:

- A set of common items (IALS and LAMP) that will be used to relate national literacy and numeracy proficiency to LAMP scales. This design feature satisfies the objective of benchmarking national results to international standards.

- A set of nationally-specific items developed by NPTs that serve to:
  - relate the proficiency on national items to the LAMP scale;
  - increase the representation of items with national contexts; and
  - provide NPTs with an in-depth understanding of how the test items relate to the underlying theory and the process of item development.

6.4 Implementation Process

The UIS will provide a draft copy of the following instruments accompanied by adaptation and translation guidelines:
- background questionnaire with a rationale for each question and associated coding instructions;

- filter-test (designed to reliably distinguish between high skilled and low skilled individuals) and scoring guide;

- module A – locator test and components assessment – with scoring guides; and

- module B and scoring guide.

NPTs will be required to review these drafts with a view to:

- identifying questions and items that will prove problematic in their cultural context (The UIS and the NPT will negotiate and agree to an acceptable solution to identified problems);

- rating country-specific items for the assessments and questions for the Background Questionnaire that they propose adding to the survey instruments; and

- identifying response categories for the Background Questionnaire that make sense in the country and that can be mapped into international categories.

The UIS will hold a training session where the frameworks will be presented and explained and NPTs will be provided with training in item development and in the adaptation and translation of the instruments.

The UIS will provide NPTs with detailed specifications identifying the number of items to be developed in each module and their distribution by difficulty level.

The components measures must be re-developed for each language.

NPTs will assemble a national team of experts including an experienced linguist that will:

- study the technical documentation;

- collect examples of reading and numeracy stimuli that might serve as a basis for test items;

- develop nationally-specific test items and associated scoring rubrics;

- develop appropriate component measures, scoring rubrics and an associated rationale;
- develop nationally specific questions for the Background Questionnaire including coding instructions; and

- translate and adapt original common test items.

NPTs will submit (in specified formats) the nationally specific test items, national component measures, nationally specific background questions and the translated/adapted original common items to the UIS for review. This submission will include scoring rubrics, coding instructions and adaptation/translation decisions where applicable.

The UIS will provide a template for NPTs to record the translation and adaptation of items and scoring rubrics and to ensure that all reporting is in a standard format and can be communicated electronically.

The UIS will review the submissions to ensure adherence to LAMP standards and will inform the NPT of any problematic issues. The NPT and the UIS will discuss how to resolve any problems. Once agreement has been reached, revised versions will be incorporated.

The UIS will select a sub-set of the test items developed by countries for inclusion as LAMP common items and recommend which should be included as nationally specific.

The newly selected LAMP common items along with adaptation and translation guidelines will be returned to NPTs for approval and for translation and adaptation. The translated/adapted versions will be returned to the UIS (in specified format) for approval.

The UIS will identify where the items and questions will be placed in the instruments.

NPTs will compose the instruments and supporting documentation following the format provided by the UIS and will submit the final versions to the UIS for review.

Instruments and survey methodology will be tested in a field test (pilot) and following a review of the field test results, the UIS and NPT will adjust the instruments if necessary.

The UIS will, upon receipt of a duly modified instruments, issue an "approval to print" order for the printing of documents for the main LAMP survey.

7. Country Participation in LAMP

7.1 Memorandum of Understanding
The first step in LAMP participation is for a country and the UIS to sign an agreement, a Memorandum Of Understanding (MOU), to ensure that both parties understand their respective responsibilities and accountabilities for LAMP participation.

If external funding is required to implement LAMP activities, the UNESCO Institute for Statistics will assist national authorities to obtain the requisite support.

7.2 Recruitment of a National Project Team (NPT)

The next step in implementing the LAMP is for countries to recruit a National Project Team (NPT) and a National Project Leader (NPL). Combining as it does elements of household survey methods with educational assessment the LAMP requires participating countries to assemble a team with a diverse range of expertise and experience, expertise that is rarely found in a single institution.

Key team members include:

- a National Project Leader with experience managing the implementation of a large household survey data collection;
- literacy specialists;
- a survey statistician familiar with available sample frames and experienced in sample design, selection, estimation and variance estimation;
- a data collection manager with experience in the recruitment, training, supervision and compensation of a geographically dispersed group of interviewers;
- a survey processing specialist experienced in the mechanics of computer systems needed to support data collection and with post-collection processing, including editing, coding and scoring;
- a linguist capable of managing the process of development of the component reading skills and new literacy and numeracy items and translation and adaptation of the IALS items; and
- a data analyst experienced in the analysis of household survey data.

7.3 National Planning Reports (NPRs)

The next step in the implementation of LAMP is for countries to draft a National Planning Report. The NPR provides a preliminary indication of the sample design and implementation strategy for LAMP.
NPRs serve three purposes:

- they provide a context within which countries can consider the merits of certain options against the cost and operational and technical requirements;

- they provide the UNESCO Institute of Statistics with a means of assessing if the proposed design and approach to implementation meets the technical requirements set out for the study; and

- they provide a mechanism to negotiate modifications to adjustments and additions to the standard methodology to better serve national needs and realities and to understand the impact that such changes will have on the validity, reliability, comparability and interpretability of study results.

7.3.1 The Language or Languages of the Assessment

Each country must decide on the language or languages that they will use to test the literacy levels of their population. This is the most important decision that each country will have to make prior to beginning their work on LAMP because it will have a direct bearing on the results produced by LAMP. These results in turn may have significant political and social ramifications.

It may be quite different to describe how literate individuals are in their local language rather than in their national language or languages. An individual may be able to read and write a local language but be totally illiterate when trying to read or write a document in a national language. In such a case, literacy levels will be lower if LAMP is administered only in the national language. However, this may provide very valuable information concerning how governments and civil society communicate with their populations.

Thus the purpose of the survey and the intended use of the results have to be ascertained. The key question is ‘What do we want to answer?’

- That x % of the population has literacy skills of level y in Official Language L?
- Or, that x % of the population has literacy skills of level y in any language?
- Or, that x % of the population has literacy skills of level y in the language of the community in which they live?

These are usually not compatible aims. This is partly due to the difficulty of assessing a person in two languages, but also because the questions lead to different sampling strategies. Hence it is essential to be clear about what is the most desirable information.

If the ideal is to provide assessment results for more than one or two languages, the operational constraints should be considered very carefully. A full assessment in too many languages could be so complex and costly that it jeopardises the whole survey. Complexity quickly builds up with additional languages as more translation and
adaptation is required, the number of individuals in the sample must be increased with the resulting added costs of interviewers, scorers and administrators.

7.4 Item Creation, Adaptation and Translation of Instruments and Documentation

7.4.1 Creation of Assessment Items and Background Questions

Participating countries will create assessment items by choosing stimuli and formulating questions of different levels of difficulty. Some of these items may be selected as LAMP common items to be used by all countries whereas others will remain as nationally specific.

Countries using LAMP to measure literacy in languages other than English will have to adjust the specification of the components test to their language and then create suitable component items to measure them in individuals with low levels of literacy skill.

Countries may choose to add nationally specific questions to the Background Questionnaire to ensure they obtain information on individual and family characteristics that may be needed to address unique national issues.

All nationally specific items must be submitted to the UIS for approval. These items must be submitted in one of the reference languages (English, French, Spanish) and in the original language if not one of the reference languages. Countries are responsible for this translation if necessary.

7.4.2 Adaptation and Translation of Instruments and Documentation

Adaptation and Translation of the LAMP instruments is crucial to the comparability of the LAMP results. Experience with previous international surveys which contain a cognitive testing component has demonstrated a need for clearly elaborated guidelines and procedures to be used during the translation and adaptation of both test materials and the background questionnaire. The following document outlines the proposed procedures which should be followed for the LAMP project.

Before beginning, it is important to note that, despite the most carefully written guidelines, the end product is only as good as the translator used. Choosing a translator to do the work should be done with the greatest care. Not only must the individual have the skills required to properly translate the text from the reference language to the target language or languages, but the ideal translator should also have some notion of the particular challenges posed by the process. The translator(s) should likewise be familiar with the concepts surrounding the background questionnaire. All of these qualifications are sometimes difficult to find in a single individual. Thus, it is important that the
translator chosen to do the work is available to attend NPT meetings. These meetings will help the translator recognize the difference between semantic translation and cultural adaptation.

All LAMP common items (Assessment Instruments and Background Questionnaire) will be provided in the reference language of choice (English, French, Spanish). The reference documents may need to be translated to the language or languages of the survey and they will have to be adapted to the national context. Nationally specific items and questions will also require translation and adaptation if the LAMP is to be conducted in more than one language.

The first step in the adaptation and translation process is to review the LAMP translation and adaptation guidelines for common items and questions. These guidelines identify all of the factors in both the stimulus and the questions which drive the difficulty of the item. For instance, the guidelines should identify the presence of keywords in the question and stimulus and, if applicable, the presence of distractors. The translator should use these guidelines in order to convey not only the meaning of the stimulus and question, not only the level of complexity of the language used (technical versus mundane), but also to maintain the psychometric properties of the items. The stimulus should appear as close to the reference version regardless of the language used. Size of graphic, font size, typeface of written material and general layout of materials should be maintained.

If LAMP is to be administered in more than one language, NPTs must develop translation and adaptation guidelines for nationally specific assessment items and background questions.

There is little doubt that collection methodology differs from country to country. As such, it is important to be certain that the manner of collecting a particular variable maintains the integrity of the concept which should be captured by that variable. Once the translator has completed the translation and adaptation, all material should be sent to UIS for a review and approval. A report arising from the review may include questions, clarifications and, when appropriate, suggestions for change.

The report produced by the UIS will be sent to the NPL who is responsible to incorporate the proposed changes or in the event of some disagreement, discuss with the UIS possible alternatives. Both parties must agree on a solution.

Following approval of the translation and adaptation by both parties the documents should be ready for printing. While it is always possible to find errors after this agreement, any changes made to the documents after the sign-off should be carefully discussed and documented with a copy sent to the UIS.

7.5 Pre-Test

All participating countries should conduct a pre-test. Assessment items and background questions whether common to LAMP or nationally-specific should be pre-tested on a
few (30-40) volunteer individuals. The objective of the pre-test is to identify questions that may be culturally sensitive or that lack clarity in instruction and to check that the questions yield the desired information. It is not an attempt to collect test results or to check on the survey methodology. As such, the individuals need to undertake and review the assessment items and the background questions. Volunteers are asked how they reached the answer and to comment on whether the questions are clear and whether they are in any way culturally sensitive.

7.6 The LAMP Field Test

All participating countries are required to conduct a field test. It serves to:

- establish the measurement properties of the instruments;
- provide participants with first hand experience with the operational and logistical complexities of mounting a household survey-based skill assessment;
- ascertain how well the assessment items and background questions work;
- ascertain the effectiveness of training and survey procedures; and
- ascertain the appropriateness of survey procedures
- confirm key aspects of survey cost and quality.

The overall goal of the field test is to increase the probability that the main study will yield the intended high quality results. It will assess the psychometric qualities of LAMP measurement instruments and validate the construct to be measured and the administration protocol for testing and scoring. Additionally it enables an evaluation of the difficulties inherent in administering LAMP on different segments of the population.

To achieve this goal, participants will conduct a dress rehearsal of the main assessment in which they administer the assessment to a relatively small convenience sample of individuals selected to cover a wide range of proficiency. As much as practically possible, the field test should be a dress rehearsal for the main LAMP Survey. The Survey Manager should ensure that the design and implementation of the field test adheres to the same standards that are expected in the main survey.

The LAMP field test involves the administration of the entire battery of survey instruments to a carefully selected sample of roughly 500 adults in each test language. The sample need not be a probability sample but rather is meant to include adults of all abilities. Thus it can be geographically clustered in order to reduce collection costs but must include a mix of adults of differing backgrounds.

7.6.1 Implementing the Field Test
This section provides detail on how the LAMP field test will be implemented, including a description of all quality assurance procedures that will be put in place and specific roles and responsibilities. The LAMP field test is implemented in steps:

7.6.1.1 Specification and selection of the field trial sample
7.6.1.2 Printing of sufficient quantities of collection materials
7.6.1.3 Recruitment and training of interviewers
7.6.1.4 Collection of the field test data
7.6.1.5 Scoring of the assessment data
7.6.1.6 Capture of the assessment data
7.6.1.7 Submission of a data file in a standard format
7.6.1.8 Preparation of an operations report on the field test
7.6.1.9 Analysis of the field test data
7.6.1.10 Revision of materials and national planning report and submission to ICC for final vetting

7.6.1.1 Specification and Selection of the Field Test Sample

The field test sample need not be a random sample. Rather it should be a sample selected for the purpose of ensuring some high level and low level literates are included. 500 completed questionnaires are needed. Therefore over 500 individuals should be selected for each language of the assessment with each responding to the Background Questionnaire and the filter. Regardless of the results of the filter test, 80 of the higher level literates should be given module A and 170 module B. For low level literates 80 should be given module B and 170 module A. Responses to the filter should not be used to determine who responds to either Module A or Module B. This must be pre-determined.

See also section 6.2.1

7.6.1.2 Printing of Sufficient Quantities of Collection Materials

The field test requires 500 completed questionnaires. Therefore it will require LAMP instruments for more than 500 respondents in each language. However a print run of more is needed to allow for the training of interviewers, for spoilage during the field test and for the need for subsequent review and filing. Interviewer instructions will be needed for all interviewers as well as some extra’s for filing and subsequent use. Survey procedures manuals and related documentation are required.

If possible, a printing firm that will eventually print materials for the main survey should be chosen as there may be efficiency gains in using field test materials.

Survey materials must be bundled so that interviewers can access the documents at the appropriate time and are able to record the requisite LAMP information and assessment results.
7.6.1.3 Recruitment and Training of Interviewers and Scorers

Training is an important component to ensure LAMP provides quality data. The UIS will provide a standard training agenda for all countries to follow and will participate in the interviewer training programme. All interviewers in one country should be trained together. However if this is not possible the same training agenda should be followed.

Each country should employ 20 to 30 interviewers so that the maximum assignment size for an interviewer in the field test is between 16 and 25 completed assessments during the data collection period. This should allow the field test to be completed in one or two weeks.

Training of the scorers (coders) will begin with a training session organized by the UIS and should be attended by the Chief Scorer from each country. Countries must appoint a Chief Scorer who will coordinate the scoring activity and resolve difficulties by communicating with the UIS if necessary. Following the UIS training, the Chief Scorer will conduct training sessions for the National Scoring Team that will consist of practice cases and alternate scenarios. Each item will be detailed and scorers are expected to attain a level of internal consistency (intra-country reliability) and international consistency (inter-country reliability). The chief scorer will monitor internal consistency (through a re-score procedure) and resolve any problems either through arbitration of problem scores or replacement/re-training of scorers.

A. Interviewer/Scorer Remuneration

The basis for remunerating interviewers and scorers for their work must be independent of the number of completed interviews or scored documents. In other words, they are not to be remunerated on a piece-meal basis.

B. Interviewers and Scorers will receive the following minimum training:

i) 4 hours – Home Study training

ii) 2 days of in-class training

C. The supervision of interviews will include the following:

iii) Verification of an interviewer's visit for a sample of 5% of selected households/individuals in each interviewer assignment.

iv) On-going monitoring of each interviewer's work to assess factors such as the quality of the completed interviews, the number of completed interviews, the response rate, the average interview duration, and interviewer costs.

v) Interviewer progress meetings with a supervisor.
7.6.1.4 Collection of the Field Test Data

In-person interviews must be used to screen in appropriate respondents and to complete the Background Questionnaire, Filter and Module A or B. A 'paper and pencil' method must be employed in the completion of the LAMP documents. Proxy responses are not acceptable for the completion of the assessment task booklets.

7.6.1.5 Scoring of the Assessment Data and Coding of the Background Questionnaire

The LAMP employs open ended assessment items in order to maximize the information yield of each item and to better reflect the unstructured nature of authentic adult reading and numeracy tasks. Open ended items require manual scoring, a time consuming and costly activity. The statistical procedures used in LAMP to derive item difficulties and to summarize proficiency are based upon the strong assumption that scoring is of equivalent quality within and among countries. The LAMP design incorporates several elements to ensure that the study achieves scoring reliabilities that sustain this assumption.

Standardised scoring rubrics will be provided for all LAMP common items to inform the scoring process. These scoring rubrics must be translated if necessary for use by the scorers. Scoring rubrics must be created by each NPT for nationally specific items. By rendering all elements of scoring explicit these rubrics will serve to minimise the amount of variance between individual scorers. The reliability of scoring will be checked by having a second scorer re-score all field test booklets. The goal of the re-score is to improve scoring to the point where inter-scorer agreement approaches 100%. It is important to note, however, that it is not a requirement to reconcile individual cases. As an additional quality control check, a random sample of roughly 10% of test booklets will be selected and submitted to independent scoring. The objective of this re-score is to detect and correct systematic variation in the application of the standard scoring rubrics.

Where possible, the response categories for questions on the Background Questionnaire will be pre-coded (i.e., the numeric codes should be included next to each response category) to facilitate the capture of the questionnaire responses. However, the Background Questionnaire may have some information from respondents that must be categorized through the coding process. A coding manual will be prepared prior to the field test to guide scorers through the coding process. The following codebooks will be used to code education data from the Background Questionnaire - ‘1997 International Standard Classification of Education (ISCED).”

The scoring rubrics and coding manual will be revised after the field test to reflect what has been learned.
7.6.1.6 Capture of the Assessment Data and of the Background Questionnaire

LAMP countries are required to capture scores for each test item and responses to background questions along with an identification number that allows them to be linked for the same individual. In order to test for keying errors, it is recommended that the data be captured twice by different operators (100% data verification) and any discrepancies noted and resolved.

Ideally the NPTs should use a computer software that will:

- check the record identification numbers for uniqueness and integrity to ensure that there is only one record per respondent on the file, and to ensure that the record identification number is unique and in the specified format;

- incorporate range checks for each item as specified in the scoring rubrics and the coding manual;

- check question flows (each of the respondents must be accounted for in each question - either by having a valid response or by being coded as a "valid skip" for those questions not applicable to them);

- check consistency between questions;

- allow for 100% verification and resolution of keying errors;

- include an identification number that allows the assessment data to be linked to the background questionnaire data; and

- have a codebook that identifies the variable name and position for each data field.

Errors identified by the editing system should be corrected if a correct value can be logically determined from the respondent's record. In cases where a respondent does not provide a response, i.e., item non-response or complete non-response, imputation methods must not be used to furnish a response.

7.6.1.7 Submission of a Data File in a Standard Format

LAMP countries will be obliged to submit a clean field test data file in a standard format to the UIS.
The data file provided to the UIS at the end of the data processing phase will be used in subsequent steps such as weighting and estimation. It is imperative that the data file has been properly edited so that a ‘clean’ dataset is available for subsequent processing.

7.6.1.8 Preparation of an Operations Report on the Field Test

7.6.1.9 Analysis of the Field Test Data

The analysis will link the background questionnaire variables with the assessment data with a view to identifying non-performing test items. Where a cause for non-performance can be identified items will be adjusted.

7.6.1.10 Revision of Materials for the Main LAMP Survey and Preparation of the National Planning Report for the Main Survey

See section 7.7.1

- 7.7.1 submission of a revised national planning report and instruments for approval;

- 7.7.2 20% rescore instead of 100% for the field test and 10% recapture instead of 100% in the field test;

- 7.7.3 weighting and variance estimation;

- 7.7.4 psychometric Scaling of Proficiency data;

- 7.7.5 the development and implementation of an analysis, dissemination and communication plan at the international and national level; and

- 7.7.6 providing for secondary analysis.

A detailed outline of each of these activities follows.

7.7 The LAMP Main Survey

Following analysis of the field test results and consequent adjustment to the documentation and instruments LAMP participants will implement the main LAMP survey.
The implementation of the main assessment follows roughly the same pattern as the field test with the following adjustments:

7.7.1 Submission of a Revised National Planning Report and Instruments for Approval

LAMP participants are required to submit a revised National Planning Report in advance of fielding the main assessment. This document should reflect any modifications made to incorporate what was learned through implementation of the field trial and should be based upon the final sample plan. The UIS will review this plan for adherence to international standards. After any outstanding issues have been resolved the UIS will issue an “approval to field the main assessment” order.

In order to ensure individuals at all levels of literacy ability are represented in the main survey sample, oversampling will likely be required in most countries. The minimum number of completed questionnaires from the main survey is 2250 in each language, 750 for module A, 750 for module B booklet 1 and 750 for module B booklet 2.

For more information on the National Planning Report, see section 7.3.

7.7.2 20% Rescore Instead of 100% for the Field Test and 10% Recapture Instead of 100% in the Field Test

7.7.3 Weighting and Variance Estimation

It is unlikely that national survey designs will use simple random samples because of their interest in specific sub-national groups that will have to be over sampled. As a result, samples selected for this study will not be representative of the national population until the appropriate sample weights are applied. Users are cautioned against releasing any unweighted tables or any analysis based on unweighted survey results. Users should also be aware that analysis techniques such as regression often assume simple random sampling. Caution should be exercised when using such techniques for data from a complex survey design.

7.7.4 Psychometric Scaling of Proficiency Data

See Section 5.4

7.7.5 Development and Implementation of an Analysis, Dissemination and Communication Plan at the National and International Level

See Section 9
7.7.6 Providing for Secondary Analysis

In addition to reporting achievement levels for selected demographics and background characteristics, relational data will be presented as simple cross tabulations of results, for example, the performance levels of males and females by educational level. Multivariate methods of analysis, which require hypotheses to be carefully delineated and tested against the database, are employed for secondary analysis.

Since all results are derived from statistical samples and are, therefore, subject to sampling error, appropriate standard errors of estimates will be computed for all statistics. Likewise, the comparison of results between subgroups within a country or across countries is subject to sampling error, so statistical tests of significance will be applied to all comparisons.

8. Analysis, Dissemination and Communication

The intrinsic value of the LAMP assessment can only be unlocked through the analysis, interpretation and dissemination of the data. Analysis is a necessary but not sufficient condition to achieve a maximum return on the LAMP investment. Maximum returns will only be realized if National Project Teams and the UIS undertake three additional activities:

- the results of analysis are bundled into statistical products and services that reflect the information needs and level of technical competence of key user groups;

- the conception and implementation of a dissemination strategy designed to alert key user groups to the availability of LAMP products and services and to afford them access; and

- the conception and implementation of a communication strategy that ensures that the messages flowing out of LAMP are clear and consistent.

The UIS will provide a number of international products and services that can be incorporated into national analysis, dissemination and communication strategies. The UIS will also provide LAMP participants with a methodology and related training for devising a national analysis, dissemination and communication strategy. This method will focus on the identification of uses to which the data will be put and key user groups and their technical competence and the documentation of information assets that are available. This information will be used to propose products and services that have a high probability of widespread use and that reduce the possibility of the data being misused.

At a minimum National Project Teams will be encouraged to produce the following products and to offer the following services:
National Report
National reports provide a broad spectrum of users with key study findings and basic technical information about the study. Viewed from a dissemination standpoint national reports serve an advertising function, declaring that the data exist and that they are interesting. Viewed from a communication function national reports serve to establish key messages and thus serve to reduce the probability of misinterpretation by secondary users.

National Technical Report
Secondary users have a need for more technical documentation that can reasonably be included in their national report. National technical reports also help, by preserving knowledge, to overcome the problems created by staff turnover.

National Microdata Set
Much secondary analysis depends upon access to individual microdata rather than aggregate tabulations. National Project Teams should produce a national microdata file and associated documentation and ensure that access mechanisms are put in place to provide access. The actual content of the files and the access mechanism will vary from country to country depending on their privacy and confidentiality practice and level of technical infrastructure.

The UIS will work with the National Project Teams to produce an international analytical report, an international technical report, a microdata file in a standard international format.
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<th>Acronym</th>
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<tr>
<td>ALL</td>
<td>Adult Literacy and Life Skills Survey</td>
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<td>EFA</td>
<td>Education For All</td>
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<td>ETS</td>
<td>Educational Testing Service</td>
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<td>IAEP</td>
<td>International Assessment of Educational Progress</td>
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<td>IALS</td>
<td>International Adult Literacy Survey</td>
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<td>IEA</td>
<td>International Association for the Evaluation of Educational Achievement</td>
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<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>OREALC</td>
<td>UNESCO Regional Office for Education in Latin America and the Caribbean</td>
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<td>PIRLS</td>
<td>Progress in International Reading Literacy Study</td>
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