Poverty and Well-Being in ASEAN Member States

Final Report on the Selection of Indicators

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Executive Summary

The member states of the Association of South East Asian Nations (ASEAN) are seeking to develop a common set of indicators to better gauge national and regional poverty and the characteristics and correlates of poverty and vulnerability among their poorest citizens. A common set will allow cross-country comparison of progress toward poverty reduction goals. In any such comparison the changes in indicator values over time are much more significant than raw values. If an indicator in one member state shows more improvement (percentage change) than in some other states, then that state's strategy for reducing poverty may merit consideration as a model.

Because indicators will be used to guide the development and gauge the success of poverty reduction strategies they must illuminate aspects of poverty in addition to "bottom line" income. For example, some indicators that are part of the UN Millennium Development Goals, such as the proportion of population living on less than $1 (PPP) per day, the poverty gap ratio, and the share of poorest quintile in national consumption, are concerned only with income, not other dimensions of poverty. Indicators recommended for the common set include population level and household level indicators (see below). Other such recommended indicators will provide an in-depth and comprehensive picture of poverty and well-being in ASEAN Member States.

POPULATION LEVEL INDICATORS

- Poverty headcount/ratio
- Poverty gap
- Poverty severity index
- Human development index (HDI)
- Malnutrition rates
- Life expectancy at birth

POPULATION AND/OR HOUSEHOLD LEVEL INDICATORS

- Average household income
- Total households expenditures (consumption)
- Total value of all household assets
- Connectedness to electricity grid
- Access to safe drinking water
- Access to improved sanitation
- Average number of months/year with enough food
- Education level of head of household

Note that "poverty line" is *not* included because it is not truly an indicator; the monetary value of the poverty line in a country is used to determine the values of other, related indicators. It is therefore obvious that a change in the level of any poverty line will have an immediate effect on the values of any indicators that depend on it for their value. Thus, when in May 2009 Ho Chi Minh City (Vietnam) raised the "official" poverty line to VND 12 million (US$667), double its old value, and triple the national level, the number of households considered poor rose to a new level of 13.8% (the old level was not stated) (Reference 157, 2009). Note, however, that changes in the poverty line may not be proportional to the changes in indicators dependent on it. Therefore, doubling the poverty line as Ho Chi Minh City did, does not necessarily imply a doubling of the poverty head count. This is because there may (most likely) be a non-linear relationship between the *poverty line* level and the *poverty head count.*

Most, if not all, member states already use certain broad indicators (e.g., poverty head count, poverty gap ratio, Human Development Index, and three malnutrition rate parameters). Those pertaining to household poverty should be aggregated to the regional level to present an overview of conditions in these areas. Such indicators can provide detailed descriptions of wellbeing, food security, and access to services and infrastructure.

Calculating and assessing these indicators requires first gathering data, primarily through household surveys. Many member states are already collecting much of the data in census, demographic and health surveys (DHS), and/or other surveys. Remaining data could be collected by adding some questions to existing surveys so mounting entirely new surveys seems unnecessary. Final determination on this point will require assessments by the Statistical Offices responsible for surveys in each member state.

Once this report is reviewed and a final set of indicators selected, we recommend identifying current reference materials and data sources to update it and identifying gaps in data available and data needed and ways to fill those gaps. All final results should be presented to the ASEAN Secretariat and a schedule for providing follow-on support for data collection and analysis developed.

Finally, material from a number of references that were obtained and/or received from ASEAN Member States has been incorporated into this revision of this report; these references are listed in a separate section at the end of the earlier list of references (Appendix D). Other material was also provided to the author but not in a format that facilitated its use for this report revision. For example, the Government of Brunei Darussalam has provided a number of reports and sets of statistical data that will be extremely valuable in the next phase of this project, but could not be reviewed for this report revision. Similarly, the Government of Myanmar provided the author with a data CD that requires the installation of software for the data to be accessible; these data are also expected to be very useful in Phase II of this project.

1. Introduction

Most ASEAN Member States have long been assessing poverty independently and characterizing it in terms of various correlates (see References 55-145 in Appendix D). At the same time, ASEAN recognizes the need for "consistent data and clear definition of terms related to rural development and poverty." At the first meeting of ASEAN senior officials to discuss rural development and poverty eradication in 1997, the Secretary General of Malaysia's Rural Development Ministry, Datuk Dr Abdul Aziz Muhamad, said that ASEAN countries "agreed on the need for current information and standard measurements for poverty to improve cooperation," and noted that one member state did not even have a definition of poverty (Reference 5, *New Strait Times.* 2). The need for standard measurements of poverty was still apparent five years later:

> The December 2002 Meeting of the ASEAN Ministers on Rural Development and Poverty Eradication (AMRDPE) called for a review of ASEAN cooperation on rural development and poverty eradication. A challenge in any discussion of poverty is the lack of comparable statistics across Member States. Some indicators, such as poverty incidence based on US$1 and US$2 poverty lines and Gini coefficients, are readily available. Some indicators concerning MDG targets are also available (e.g., literacy rate, net enrollment ratio in primary and secondary schools, prevalence/incidence rate of malaria, TB and HIV/AIDS, proportion of population with access to safe drinking water and improved sanitation). Still other statistical indicators are not available or only sketchily or sporadically in all ASEAN Member States or at the ASEAN Secretariat. *(Activity description for this study)*

PURPOSE

The purpose of this study is to contribute to ASEAN's longstanding objective of having in place standard indicators to facilitate cooperation on common goals. Such indicators should (1) provide a comprehensive picture of poverty and well-being in ASEAN Member States, as well as the vulnerability of the poorest and least well-off of its citizens, and (2) allow for meaningful cross-country comparisons of the relative success of various strategies for reducing poverty.

SCOPE

In this interim report we recommend a set of common indicators based on a multidimensional view of poverty. Indicators under UN Millennium Development Goal (MDG) 1 for eradicating extreme poverty and hunger—proportion of population below $1 (PPP) per day, poverty gap ratio, share of poorest quintile in national consumption—focus narrowly on income-poverty. Since ASEAN Member States intend to use indicators to inform the development and gauge the success of poverty reduction strategies, indicators that illuminate different aspects of poverty will be more useful than those that measure only income-related poverty.

Such indicators include the number (or percentage) of households with access to electricity, safe water, improved sanitation, infrastructure, and services. These indicators describe not only the *fact* of poverty, but also its nature and manifestation to provide insight into specific conditions that need to improve.

A common set of indicators offers advantages to ASEAN as a whole. A common set will allow for assessing and comparing the progress of each member in achieving its poverty reduction goals *vis a vis* each indicator and for suggesting which poverty reduction strategies are most successful. Note that in any cross-country comparison *changes* in values over time are more meaningful than *raw* values. Thus, if one member state shows a greater improvement (percentage change) in the value of one indicator than some other members then some aspects of its poverty reduction strategies might be suitable as a model for other members.

We note that having a set of common indicators for use in all member states does not imply that the *values* of any indicator will be standardized; *each member will determine for itself what the measured values signify about the number or characteristics of the poor in their country*. In addition, recommended indicators will not replace but be in addition to those already used in member states. Replacing current indicators offers no benefit because "when existing measures are discontinued, the comparability of poverty measures over time is lost" (Reference 135).

METHOD

To review the literature on poverty and poverty measurement as well as data from ASEAN Member States we first researched the general topic of poverty and on poverty in relation to each member state. These searches resulted in the references provided in Appendix D. Additional searches were carried out to obtain details on the calculation of statistically defined indicators (e.g., life expectancy, infant mortality rate, Human Development Index). Where possible, references are organized by country and all references have been assigned a number that appears where sources are cited throughout this report. Many reference materials found on the Internet do not have the complete source information.

ISSUES

Data Collection and Indicator Measurement

Calculating and assessing indicators requires first gathering data, primarily through household surveys. Many member states are already collecting much of the data in census, demographic and health surveys (DHS), and/or other surveys.[1] Remaining data could be collected by adding some questions to existing surveys as mounting entirely new surveys seems unnecessary. Final determination on this point will require assessments by the Statistical Offices responsible for surveys in each member state.

The calculations necessary to derive values for any recommended indicator from collected raw data are not onerous and Statistical Offices should be able to handle them with ease. If, however, calculating value for an indicator is not cost-effective then a similar but cost-

[1] Current, periodic surveys conducted by each member state should be reviewed for any data gaps affecting recommended indicators.

effective one should be substituted. Each member state should determine the cost-effectiveness of supporting indicator calculations and inform the ASEAN Secretariat so that any substitutions can be made across all member states to ensure the integrity of the common set.

Indicator Aggregation

This report focuses on common indicators that member states can use to measure poverty and well-being. But there is also interest in defining indicators at an ASEAN-wide level. A highly aggregated indicator could be used to track progress of ASEAN as a whole *over time* and *over the region.*

There are several approaches to aggregation. For example, once an indicator's value in each member state is known, arriving at a population-weighted aggregate involves only a simple calculation. Or one could apply the computational idea inherent in a severity index that emphasizes the gap between member states lagging behind an ASEAN-wide simple average of an indicator; in this method, the effect of member states with indicator values substantially below the ASEAN-wide average would have a disproportionate effect on the aggregate value.

The first approach emphasizes ASEAN as a whole, whereas the second emphasizes the inequalities in the country-specific values of an indicator. Increases in the value of a population-weighted aggregate indicator suggest gains by higher percentages of the ASEAN total population; increases in the value of indicators calculated under the second approach reflect improvements in member states with the lowest values of indicators. Other approaches, such as one analogous to a poverty gap are also possible.

REPORT ORGANIZATION

In Section 2 we present various definitions and measures of poverty and analysis of indicators used to measure poverty and well-being, with emphasis on those that reflect socioeconomic aspects of the lives of the poorest. Section 3 recommends national and household indicators and our rationale for selecting them. Section 4 describes the next steps to move ahead on a set of common indicators. Appendixes A, B, and C provide methods for calculating poverty lines, life expectancy, and food price adjustments. Appendix D presents references cited throughout the report, organized by country and numbered; reference list numbers appear with citations.

2. Defining Poverty

Before ways to *measure* poverty can be discussed one must have a clear understanding of what is being measured. This section addresses the evolution of the concept of *poverty*, the various definitions that have been and are being used, some of the ways that poverty has been measured, and the implications for this study and for the measurement of poverty and its characteristics by ASEAN Member States. We consider the definition of poverty prevalent in international development, some qualifiers of the term poverty, and how we will define poverty in this study.

GENERAL DEFINITIONS

To a large extent the definition of poverty one uses determines what it is that one wishes to reduce or eliminate, the types of strategies and programs for reducing poverty, and the indicators that will be used in monitoring and evaluating poverty reduction programs. Definitions and characterizations of poverty abound in reference materials, on the Internet, and among development agencies, NGOs, and international organizations. Some definitions focus narrowly on income (and perhaps food) while others on broad deprivation (i.e., a lack of resources deemed necessary for "higher quality" life) (see Table 2-1).

Table 2-1. Simple Definitions of Poverty

Definition	Source
1 a: the state of one who lacks a usual or socially acceptable amount of money or material possessions b: renunciation as a member of a religious order of the right as an individual to own property 2: scarcity, dearth. 3 a: debility due to malnutrition b: lack of fertility	http://www.merriam-webster.com/dictionary/poverty
the state of having *little or no money and few or no material possessions*	word-net.princeton.edu/perl/webwn
Poverty (also called penury) is *deprivation of those things that determine the quality of life, including food, clothing, shelter and safe drinking water, but also "intangibles" such as the opportunity to learn and to enjoy the respect of fellow citizens. ...*	en.wikipedia.org/wiki/Poverty
The quality or state of being poor or indigent; *want or scarcity of means of subsistence*; indigence; need; *Any deficiency of elements or resources ...*	en.wiktionary.org/wiki/poverty
Following the Office of Management and Budget's (OMB's) Directive 14, the Census Bureau uses a *set of money income thresholds* that vary by family size and composition to detect who is poor. ...	www.nyskwic.org/u_data/demo_data_terms.cfm
Persons considered to be in poverty are those whose *income is at or below the official poverty guideline* (as defined each year by the Office of Management and Budget, and adjusted by the Secretary (DHHS) in accordance with subsection 673 (2) of the Community Services Block Grant Act (42 USC 9902 ...	www.aoa.gov/prof/agingnet/naps/spr/spr_guidance/definspr.aspx
The condition of being *without adequate food and money* and is officially considered to be very poor and in need of help.	www.cwru.edu/med/epidbio/mphp439/Dictionary.htm

Note: Italics added.

The Copenhagen Declaration of the United Nations Summit on World Development in April 1995 described poverty as "a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information." In other words, when people are unable to eat, go to school, or have any access to health care, they can be considered to be living in poverty regardless of income. While this definition conveys a broad sense of poverty, actually measuring it requires a quantitatively oriented definition.

In 1995, after the World Summit on Social Development in Copenhagen, 117 countries adopted a declaration and program of action that included commitments to eradicate "absolute" and reduce "overall" poverty, defining absolute poverty as "a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services." (Reference 20, slides 3-4). Overall poverty can take various forms, including

> lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments and social discrimination and exclusion. It is also characterized by lack of participation in decision-making and in civil, social and cultural life. It occurs in all countries: as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets. (UN, 1995 as cited in Reference 20)

A June 1998 statement signed by the heads of all UN agencies defines poverty as follows:

> Fundamentally, poverty is a denial of choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and cloth a family, not having a school or clinic to go to, not having the land on which to grow one's food or a job to earn one's living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence, and it often implies living on marginal or fragile environments, without access to clean water or sanitation. (Cited in Reference 20)

In 1999, the Asian Development Bank defined poverty thusly:

> Poverty is a deprivation of essential assets and opportunities to which every human is entitled. Everyone should have access to basic education and primary health services. Poor households have the right to sustain themselves by their labor and be reasonably rewarded, as well as have some protection from external shocks. Beyond income and basic services, individuals and societies are also poor—and tend to remain so—if they are not empowered to participate in making the decisions that shape their lives. (Cited in Reference 116, p. 10)

In a 2006 study of poverty in Indonesia, the Asian Development Bank traced the evolution of definitions of poverty. It was no longer confined to income, but was increasingly defined as "a dynamic, complex phenomenon involving concepts such as vulnerability and powerlessness" (Reference 70, p. 15). In the 1970s,

> The basic needs approach, as introduced by the International Labor Organization (ILO), first recognized that there are non-monetary dimensions that influence

> whether people are poor. The five main basic needs were defined as food, health, water and sanitation, education, and shelter. The late 1970s also saw the development of the Physical Quality of Life Index, based on the basic literacy rate, infant mortality, and life expectancy at age 1. This and other indices evolved out of dissatisfaction with GNP or GDP per capita as useful indicators of welfare, and represented a widening of the definition of poverty. (Reference 70)

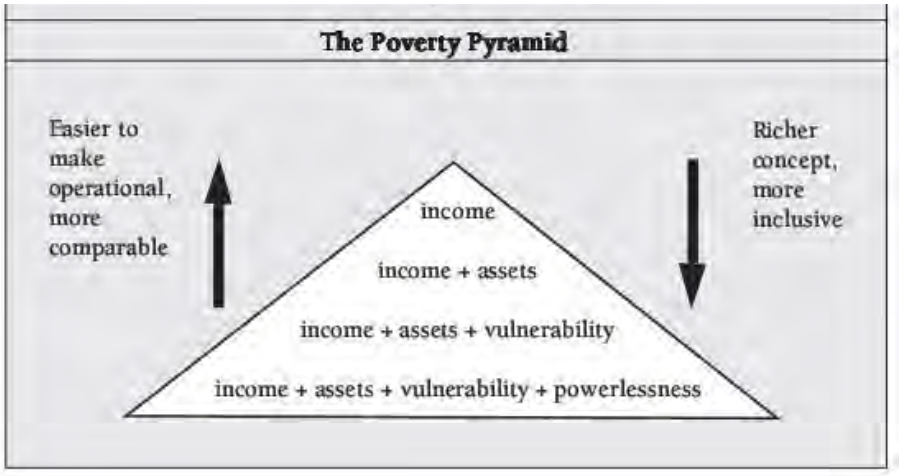
And finally by the late 1980s,

> leading poverty analysts were promoting the capabilities approach first put forward by Amartya Sen, where poverty is a deprivation of the basic capabilities of individuals, and income is only one determinant of an individual's capability and functioning. The capability approach shifted the focus from means (such as having income to buy food) to ends (being well-nourished), recognizing that there are a number of factors at work that determine the ability to turn income into well-being. Based on this approach, the United Nations Development Program (UNDP) adopted the concept of human development. Human development was defined as the process of expanding people's choices, and human poverty was the deprivation of the most essential capabilities of life: to lead a long and healthy life, to be knowledgeable, to have adequate economic provisioning, and to participate fully in one's community. (Reference 70)

Figure 2-1 illustrates this broadening of the definition of poverty by analogy:

> The progressive widening of the definition of poverty can be represented graphically with a pyramid, where income is the sole dimension at the narrow top, gradually expanding to include other dimensions of well-being as one moves down toward the broad base of the triangle. The higher up the pyramid, the easier the concept is to measure and make operational, allowing for reliable comparisons across time and space. The lower down the pyramid (i.e. the more dimensions are added), the richer and more inclusive the concept, but the more difficult it is to measure. The pyramid of poverty illustrates the trade-off between having a broad concept of poverty and having a measurable indicator. The wider the definition of poverty, the more meaningful it is, but the more difficult it is to make operational.(Reference 116, p. 12)

Figure 2-1
Definitions of Poverty



SOURCE: Schelzig, Karin. 2005. Poverty in the Philippines: Income, Assets, and Access. Asian Development Bank. Manila.

DEFINITIONS IN ASEAN MEMBER STATES

We note that Brunei Darussalam reports having no poverty and no poverty measurement system (Reference 55) and information about poverty measurement methods in Myanmar was not available for this study. Also, Singapore reports not having a poverty line *per* se but instead, puts their focus on providing social assistance to needy households in the lowest quintile of household income. With the possible exception of the poverty determination approaches used in Lao PDR and Indonesia, the straightforward definitions presented below address most of the commonly perceived aspects of poverty.

Cambodia

A straightforward and simple definition of poverty was used in Cambodia in 2001.[2] The government calculated a poverty line as the sum of the minimum expenditure on food and on nonfood items. The minimum food expenditure was the "food poverty line." The minimum food expenditure is the total amount of the food basket covering daily minimum energy requirements per capita (2,100 kcal). The non-food component of the poverty line was calculated in 1997 and 1999 from the non-food consumption of individuals whose total consumption was within 10% above or below the food poverty line. Any household whose expenditure was below this composite poverty line was defined as poor (Reference 60).

Indonesia

Poverty can also be defined *contextually* such that an individual, a village, or a region can be classified as "poor" on the basis of a small set of measurable criteria, as is made clear in this discussion of the measurement of poverty in Indonesia:

> The Government of Indonesia's Poverty Reduction Strategy Paper (PRSP) defines poverty in terms of 10 basic rights related to food security, health, education, decent work, housing, clean water and sanitation, security of land tenure, clean environment, security, and empowerment. Poverty is measured by the Central Statistical Agency, Badan Pusat Statistik (BPS) based on a consumption bundle which consists of food items (to satisfy 2100 calories) and basic non food items determined by the pattern of consumption of reference households near the poverty line. (Reference 70, p. 20-21).

Indonesia's National Family Planning Board (BKKBN) system classified families into five categories ranging from "pre-prosperous" to Prosperous Level III. If a family answered "no" to any of the following statements, it was rated "pre-prosperous for economic reasons" or keluarga pra-sejahtera, Pra-KS:

- Able to eat two meals a day
- Different set of clothes for home/work
- House floor not made of earth
- Able to use modern medical facility for child's disease or to access contraception

A family was considered to be "minimally prosperous", or keluarga sejahtera tingkat satu (KS-1) if it answered the "yes" to the questions above but then answered "no" to any one of the following:

- Able to eat meat/egg/fish once a week,
- A new set of clothes once a year,

[2] This definition may still be in use, but a more current reference is required to verify this.

- Eight square meters of floor space per person,
- All family members healthy during last three months,
- At least one regular income earner aged 15+ in the family,
- All family members able to read minimally,
- All children between 7 and 15 in school,
- Use of contraception if 2 or more children in the family.

Lao PDR

A contextual definition of poverty has also been proposed in Lao PDR (Reference 87). In this case, the government says that it is necessary to determine "a simple poverty criterion for the use of local authorities…. [to]l allow assessment and monitoring of poverty based on existing data collection through a standard reporting system." The proposal (not yet accepted as of the report date in 2001) of contextual poverty criteria can be summarized as follows:

> With regard to households, it is suggested to include among other poverty criteria "no access to 16 kg of rice per head and per month" (The amount of 16 kg is derived from the research on poverty lines during the 1997/98 household consumption).
>
> At the village level, a poor village could be considered as poor if (i) there are more than 50 percent of poor households in the village (ii) there is no school in the village or nearby and no dispensary or traditional health care, and people have to walk for more than 6 hours to reach a health centre or the district hospital; have no access to clean water; and no road (path) access to the village.
>
> At the district level, a poor district could be considered as poor if (i) there are more than 50 per cent of poor villages in the district; (ii) no access to education (school), healthcare (health centre), or clean water for more than 40 per cent of villages; (iii) more than 70 per cent of villages have no access to electricity; and; (iv) more than 60 percent of the villages have no access to a road (for trucks).

And, finally:

> To assess the national or provincial poverty profiles, two types of information will be collected: 1) information from the districts, villages and households, and 2) additional quantitative as well as qualitative information regarding nutritional and social qualifying indicators such as calorie consumption, life expectancy, housing and clothing, number of primary schools and of qualified teachers in comparison with the total number of teachers, net school enrolment rates for children, and accessibility (to roads, markets, clean water, and electricity), adult literacy, and infant mortality (Indicators similar to those of the HDI of the UNDP).

Malaysia

Malaysia's Poverty Line Income (PLI) is a measurement of absolute poverty, and is based on gross monthly household income required to meet basic needs, including food and nonfood items (Reference 96).[3] Ultimately the poor are defined as households that fail to meet some criterion that is usually, but not always, stated in terms of income or expenditure.

[3] As of 1999. As with Cambodia, a more current "official" reference from the Government of Malaysia is needed to confirm that this is still the case.

Philippines

In the Philippines, poverty statistics are based on income rather than on consumption. Official poverty statistics follow a cost-of-basic-needs approach. The calculation of the poverty line begins with the computation of the food threshold using regional menus priced at the provincial level. One-day menus were determined by the Food and Nutrition Research Institute (FNRI) using low-cost, nutritionally adequate food items satisfying basic food requirements of 2,000 calories, which are 100 percent adequate for the Recommended Energy and Nutrient Intake (RENI) for energy and protein and 80 percent adequate for the RENI for vitamins, minerals and other nutrients. These menus were used to estimate the per capita per day food cost. This is then multiplied by 30.4 (approximate number of days per month) to get the monthly food threshold or by 365 days (30.4 days/month x 12 months) to get the annual per capita food threshold.

The estimation of the poverty threshold completed by calculating the additional income required to purchase a minimum set non-food basic needs. Non-food basic needs include clothing and footwear, fuel, light and water, housing maintenance and other minor repairs, rental or occupied dwelling units, medical care, education, transportation and communications, non-durable furnishing, household operations, and personal care and effects. To compute the poverty threshold, the food threshold is divided by the proportion of the food expenditures (FE) to total basic expenditures (TBE) derived from the latest Family Income and Expenditure Survey. The ratio of FE/TBE used in this calculation is the average ratio for families with food expenditures within +/- ten percent of the food threshold. The resulting estimate is the annual per capita poverty threshold and families with incomes below the poverty line are defined as poor.

Thailand

The following description of Thailand's poverty measurement system is from a report by the Knowledge Management and Poverty Reduction Policy Unit Community Economic Development and Income Distribution Office, Office of the National Economic and Social Development Board. (Reference 129, undated but after 2004):

> Thailand measures poverty incidence at household level by comparing per capita household income against poverty line—which is the income level that is sufficient for an individual to enjoy the society's minimum standards of living. If such individual has income less than respected poverty line, he or she is classified as poor. The official poverty line1 uses an absolute concept, based on cost of basic needs—the sum of food and non-food consumption. The food poverty line is given by calculating the cost of obtaining calorie requirements of food baskets. The non-food poverty line is calculated by using the estimated food to total expenditure ratio, adjusted for regional price differences. Hence, it allows comparison across regions and areas. It has been widely used to analyze the poverty profiles in Thailand. Meanwhile, the country also measures well being at village level by using basic minimum need and selected development indicators.

Vietnam

The following description of Vietnam's poverty measurement is from Reference 141 (Kien, Khac, 2008).

> Vietnam has two national poverty lines. The first, produced by the General Statistics Office (GSO), is defined as the cost of a food consumption basket which

> allows all needed. At 2,100 calories per person per day, plus the cost of a related non-food consumption, the basket that allows for a healthy life. According to this line, poverty levels have fallen from 58 percent of the population in 1993, to 16 percent in 2006. An alternative poverty line produced by the Ministry of Labor, Invalids and Social Assistance (MOLISA) was initially based on per capita rice requirements, but was revised in 2005 to better reflect the 2,100 calorie benchmark used in GSO calculations; with thresholds of VND 300,000 in urban areas and VND 200,000 for rural areas. In light of Vietnam's recent high rates of inflation, however, MOLISA has proposed that the urban poverty line be increased to VND 300,000 for households living in rural areas, and to VND 390,000 for urban residents.

Definition for This Study

In screening and recommending indicators for common use throughout ASEAN Member States, this study takes the holistic view of poverty that encompasses a wide range of tangible and intangible human needs. We turn to a succinct definition, similar to those proposed by the ADB and the UN, to convey how we mean "poverty":

> … poverty exists where some persons fall short of reasonably defined minimum levels of wellbeing such as access to certain consumption or income levels, housing, health and education facilities and certain rights recognized according to standards of human needs and socio economic conditions of the society. (Sri Lanka, *Poverty Indicators*, Department of Census and Statistics, Household Income and Expenditure Survey, 2006/7. March 2008, Colombo)

To apply this definition in a meaningful way, one must specify what precisely is to be measured in assessing whether "reasonably defined standards of wellbeing" are being met.

POVERTY MEASUREMENT CONCEPTS

Predictably, in a field of study as critical as poverty there are a significant number of approaches to measuring it. These approaches represent particular concerns about the nature of poverty, who determines the criteria for poverty, the applicability of the measurement results, and the standards that will be used to assess it. Settling these issues makes it possible to make decisions about indicators. This section summarizes some alternative concepts and defines the choices made for this study.

Global and National Poverty

Perhaps the most basic decision about poverty measurements is whether the desired measurements should be applicable in one country or globally (or, in this case, across all ASEAN Member States). The advantage of global measurements is that their results are comparable across all countries; the disadvantage is that the standards used in measurement may mean different things in different countries.

Perhaps the most common measure of global poverty is the absolute poverty line: poverty is income of $2 a day or less, and extreme poverty is $1 a day. This poverty line was defined in 1990 in the World Bank's *World Development Report*. The Bank had found that most developing countries set their poverty lines at around $1 a day. The $2 mark was created for developing nations with slightly higher income levels than the less developed, for which the $1 a day standard was appropriate. More developed countries may set lines elsewhere. For highly

industrialized countries, such as Britain, Japan, and the United States, the absolute poverty line is usually set higher (e.g., $14.40 per day).[4]

The absolute poverty line illustrates the advantages and disadvantages of global measurements. While all countries can (presumably) determine the percentage of their populations that have a per capita income of less than US$1 per day (or any other amount) and these percentages can be compared to each other, this amount represents very different standards of living in different countries. Consequently the true "standard of living" represented by the chosen amount will differ from one country to another. While this problem of comparability of living standards can be addressed by Purchasing Power Parity (PPP) where such cross-country inequalities are compensated for, global measures are less relevant to the actual needs of the affected populations themselves. Note that the Millennium Development Goal (MDG) for poverty reduction is to reduce by half the number of people living in absolute poverty, measured in the MDG context by using a poverty line of US$1 PPP (Reference 116).

To ensure that ASEAN Member States can determine poverty levels that have demonstrable meaning in terms of a minimally acceptable standard of living in their own countries *this study will measure poverty primarily at the national level*. Some indicators recommended in Section 3 will be defined somewhat differently in each member state and so will not be directly comparable, while others will be measured exactly the same way in all countries. It is less important that member states be able to directly compare poverty rates in their countries using poverty lines and indicators calculated differently in each country, than it is for each to be able to track the *rate of reduction in the poverty rate* and compare *that* rate across all member states.

Because recommended indicators should augment not replace existing measurements and indicators, member states already using global poverty criteria should continue doing so.

Absolute and Relative Poverty

The term "absolute poverty" means setting minimal criteria below which the condition of poverty is said to exist. For example, the *absolute* criterion of US$1 per day is applied without reference to local conditions or communities, or to the relative economic or nutritional status of others. Other absolute criteria discussed in Section 3 include the income and resources required to meet a minimum standard (e.g., a poverty line).

In contrast, "relative poverty" refers to the status of a person or group in comparison to others. It may be defined in terms of a community or national *average* income; note that in this case, a person below the national average (or some other national percentile) would automatically be considered poor. One problem with this approach is that the living standard of a person could remain constant, yet if economic conditions in the *country* were to change (for better or for the worse), then the "poverty status" of the person could change according to whether they were now above or below the national level used to define the poverty line. Another problem with this approach is that, by definition, exactly half of the country (or whatever percentage corresponds to the selected percentile) would *always* be considered poor irrespective of a rise or fall in national incomes.

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[4] Source: http://library.thinkquest.org/05aug/00282/over_whatis.htm.

Relative poverty could be defined thusly: “Relative deprivation is a lack of access to a level of goods and services that are required for meaningful participation in society” (Reference 116, page 12). This ambiguity of “meaningful participation in society” makes this definition unsatisfactory for the purposes of this study. The term seems to suggest a more absolute standard for determining poverty, but still retains some level of ambiguity.

For the purposes of this study poverty will be considered to mean *absolute poverty* and recommended indicators will allow this sense of poverty to be measured. (Of course, if one measures “average income,” then by definition the income of the entire population is being measured, but the overall poverty criteria, themselves indicators, will be *absolute* rather than *relative*).

Objective and Subjective Poverty

Who gets to determine whether or not someone is poor? Who sets the criteria—the people themselves or some external agent? The subjective approach “holds that poverty must be defined by those experiencing it themselves, and that meanings defined from above are disempowering and do not capture the true nature of deprivation. The subjective approach grew out of participatory rural appraisal methodologies and participatory poverty assessments, both of which sought to improve policymaking by incorporating local understanding.” (Reference 116, p. 12) In practice, this means that communities set criteria, which may include such intangibles as status or social networks as well as material possessions, other assets, and income. One obvious problem is that communities in different parts of a country, perhaps in different ethnic groups, may have vastly different cultures with correspondingly different standards for what constitutes poverty. The subjective approach would make determining *national* poverty levels an analytic nightmare and would largely preclude coherent national poverty reduction strategies, perhaps the ultimate goal of all poverty measurements and assessments.

Countries, however, may still make use of subjective poverty assessment: “The Philippines has a long tradition of subjective poverty measurement conducted by Social Weather Stations” (Reference 116, p. 12). Note, however, that the near-universal use of “poverty lines” based on such criteria as minimal income, food baskets, that satisfy basic nutritional requirements, and a minimum set of non-food needs, represent an *objective* definition of poverty.

For this study, poverty will be defined and measured *objectively*, although “all poverty measurement is going to require some more or less arbitrary choices, no matter how objective the tradition.” (Reference 116, p. 12)

Chronic and Transient Poverty

One last issue to be addressed is whether our primary concern is *chronic* poverty that extends over long periods, or *transient* poverty which might be represented by seasonal or short-term changes in the economic status of households. The chronically poor “always live in poverty and have very few assets or opportunities to escape it,” whereas “the transient poor can move out of poverty once the exogenous shock has passed.” (Reference 116, p. 12)

This study is concerned with *chronic* poverty, and the indicators recommended for its measurement will reflect deep-seated and long-term conditions rather than the short-term changes associated with *transient* poverty.

MEASURING POVERTY

How poverty is measured will also determine which indicators are selected; the method of measurement can strongly influence the levels of poverty determined to exist. For example,

> despite a long tradition of poverty measurement in the Philippines, trends in income poverty are not as straightforward as one might hope. The most important issue is that there have been two major methodology changes since the poverty incidence was first estimated for 1985. The first major change occurred in 1992, and the second in 2003. In essence, there are three different poverty series in existence for the Philippines. (Reference 116)

The official poverty measurements (Poverty headcount/ratio) for the different years using the different methodologies are presented in Table 2-2 (Reference 158). Table 2-2 shows that for the years when any two poverty measurements were made, the poverty levels determined by the two methods were quite different. Therefore, great care must be taken in deciding *how* poverty is measured, by which indicators, and how these indicators are defined.

Table 2-2.Different Measurements of Poverty in the Philippines

Methodology	1985	1988	1991	1994	1997	2000	2003	2006
1985	58.5%	55.2%	55.8%					
1992	44.2%	40.2%	39.9%	35.5%	31.8%	33.7%		
2003					28.1%	27.5%	24.4%	26.9%

Source: National Statistics Coordination Board (NSCB)

Concrete and Abstract Measurements

Should poverty levels be assessed via *concrete* or *abstract* measurements? Examples of concrete measurements include income or minimum food baskets. Examples of abstract measurements include poverty indices calculated from linear regressions on a number of poverty correlates (the independent variables), or from the use of the mathematical technique of Principal Component Analysis (PCA). Such indices mathematically combine various indicators measuring different aspects of poverty into a single composite index; the values of the independent variables for one person or household are then used to calculate the value of the composite index for that person or household. Since the indicators represent different aspects of poverty, their mathematical combination, by whatever means achieved, is necessarily an abstraction not a measure of a tangible aspect of poverty. In a sense, these techniques combine the proverbial apples and oranges. The merit of such indices lies in the relative ranking of persons or households according to their "score" or index value. Such methods, especially PCA, also offer insight on the nature of and relationship among poverty indicators and the degree of their correlation with other indicators and measures. However, much of this insight is gained in *creating* a PCA index *not* from the values of the index for the persons or households assessed.

This study will focus on concrete measurements. This choice reflects the needs of the study and in no way impugns the value of abstract measurements.

Income and Expenditure Measurements

One set of indicators that will be recommended here is related to poverty lines. More generally, this study recommends the use of three of the family of measures known as the Foster-Greer-Thorbecke Decomposable Income Measures. These measures were originally described in the May 1984 issue of *Econometrica* (Vol. 52, No. 3), by J. Foster, J. Greer, and Erik Thorbecke, who proposed "a class of decomposable poverty measures," of which poverty head counts using poverty lines were one example. The precise meaning and calculation of these indicators will be discussed in Section 3, but for now one aspect must be discussed.

When one creates poverty lines as binary cutoff thresholds for assessing poverty, how the threshold is defined—whether it is defined by a person's or household's *income* or *expenditures/consumption*—is important.[5] Whether one is measuring absolute or relative, chronic or transient, or objective or subjective poverty,

> Expenditure, or consumption, is theoretically preferable to income for a number of reasons. Expenditure tends to fluctuate less than income does. Incomes are often varied, particularly for workers in the informal sector, and fluctuate not only from year to year but also from month to month. Seasonality of incomes is a particular issue for workers in the agriculture and tourism sectors. As a result of income fluctuation, people tend to save in abundant times and draw on savings (or borrow) in lean times. Thus, income often does not match the level of welfare indicated by expenditure. However, it is also generally acknowledged that it is very difficult to obtain reliable data on personal consumption (expenditure) habits. Income data is somewhat easier to collect (though not without its own problems). (Reference 116, p. 13)

Official poverty statistics in the Philippines are based on income. Malaysia also uses income rather than consumption/expenditure. (Reference 93)

Another example of the differences and distinction between measuring income and measuring expenditures is that

> Income refers to the amount of money someone makes, while consumption refers to the monetary value of the goods that person actually consumes. If you earn $4 a day, but are able, through other means, to consume *$5* a day, then your yearly income would be $1,440, but your yearly consumption would only be $1,860. The differences can be significant, because depending on their situation poor people may be able to get goods for less. While it might appear at first glance that income and consumption are the same, closer examination reveals that income is just one factor, albeit a large one, which determines consumption amounts. (http://library.thinkquest.org/05aug/00282/over_whatis.htm)

Engvall summarizes the differences between the two approaches as follows:

> Income and poverty can be measured in different ways. It involves basic choices between income and consumption-based indicators of well-being. Income, together with assets, measures the potential claims of a person or household, whereas consumption captures realized living standards. One reason for preferring consumption to income as an indicator of living standards is variability. In a mostly agricultural economy, people receive income only infrequently, and the amounts differ across seasons. Households often have consumption-smoothing

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[5] In this paper the terms "expenditures" and "consumption" refer to household outlays of money to meet various needs and are used interchangeably.

> opportunities through savings and community-based risk sharing. This is confirmed by empirical evidence suggesting that households in low-income agricultural societies manage to smooth consumption in spite of highly volatile income receipts. Thus, current consumption is likely to be a better indicator of present well-being than current income; and consumption may be a better indicator of longer-term welfare, because it reveals information about incomes at other points in time. (Reference 58, p. 5)

While it might be appealing to choose *income* or *consumption*, we make no recommendation in this regard as some ASEAN Member States use both. Again, it is not the *comparability of poverty rates* across member states that is of primary importance, but *comparison in the rates of change*. For those reasons, the poverty lines and related parameters recommended will be based on whichever approach each member state already uses.

Quantitative and Qualitative Measurements

Poverty measurements may also be *quantitative* or *qualitative*. Hauser states that

> "the (quantitative) one is the conventional approach, which concentrates on measurable figures and is primarily based on national household surveys which represent the total population…… Examples for this approach are the well known poverty lines." (Reference 138, p. 4)

Typically, statistical methods, using such software as SPSS, can be used to analyze these data. Hauser also notes that

> Contrary to (quantitative methods), the qualitative approach concentrates on subjective data, by collecting people's judgments, attitudes, preferences, priorities, and/or perceptions by using purposive sampling and with the help of semi-structured or interactive interviews, as well as structured exercises…..Analysis is normally done by using sociological or anthropological techniques….Usually the geographic coverage is much smaller than for the quantitative approach.

This last point is critical; the intent here is to be able to characterize poverty and the wellbeing of the poor at the national and sub-national (regional) levels. This will necessitate larger sample sizes than can feasibly be accommodated with qualitative means. Therefore, although these qualitative means can be used to gain more insight into the details of wellbeing and livelihood systems and livelihood security, they cannot meet the principal needs of this study. Therefore, this study will focus on *quantitative* methods, perhaps augmenting them with *qualitative* ones.

3. Poverty Indicators

In this section we present criteria and other considerations for indicators to be recommended for use by the ASEAN Member States, a comprehensive list of potential indicators, and recommended indicators with a rationale for their selection. We also discuss data sources that might be used in collecting data needed to calculate indicator values.

CRITERIA FOR CONSIDERATION OF INDICATORS

The uses to which indicators will be put determine the criteria for selecting them. According to the Terms of Reference the purpose here is "to develop a proposed set of approximately 20 indicators of the wellbeing of the least well off citizens of ASEAN." Therefore, indicators must reflect either national or regional levels or descriptors of poverty or some aspect of wellbeing. In addition, ASEAN Member States should be able to use changes in indicator values to assess changes in wellbeing that might result from a poverty reduction program or serious economic disruption. In short, indicators should help measure *conditions that the ASEAN Member States want to see change.*

Indicators that describe conditions that characterize or help to identify the poor and can be used in targeting programs are distinct from those that describe aspects of the poor that cannot be changed by programs. For example, the gender of the head of the household may be correlated statistically with poverty, but cannot be changed. Similarly, ethnic minorities are often among the least well-off, and knowing ethnicity may help to identify likely pockets of poverty, but ethnicity will not change over time and so cannot reflect the success of a poverty reduction strategy. Neither gender nor ethnicity, however correlated statistically with poverty, are suitable for recommendation here.

In contrast, *education* is as a primary indicator and correlate of poverty, as is reflected in the common use of *adult literacy rates, primary school enrollment rates, education levels of the heads of households* or other such indicators in discussions or reports for ASEAN Member States.[6] Poverty reduction strategies and programs can change levels of education and literacy so these are valid indicators. Similarly, some poverty reduction and/or nutrition enhancement or supplemental feeding programs can change malnutrition measurements (stunting, wasting, and underweight).

Therefore, a primary criterion is that indicators not only reflect or characterize the lives of the poor but also change over time in response to poverty reduction programs. Another criterion

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[6] See References 58 (Cambodia, Engvall), 70 (Indonesia, ADB), 83 (Lao PDR, Andersson), 101 (Malaysia, UNDP), and 108 (Myanmar, UNDP). One such report (Reference 133, p. xi) suggests that raising the level of education in an area may *directly* reduce poverty by giving people the ability to move elsewhere for better jobs for which education qualifies them.

is the comparability of the recommended indicators across member states. Ideally, all indicators would mean exactly the same thing in all member states—but this will not be so for some of the indicators nor is it critically important. What *is* important is seeing the values of these indicators improve in each country, and not necessarily the cross-country comparisons. Some indicators will lack comparability because different member states use different methods of calculation. This is especially true for *poverty head count*, the number or percentage of the population estimated to be below the national poverty line, and the indicators derived from head count (e.g., *poverty gap* and *poverty severity*). Different member states use different methods to determine their "national poverty line." For example, Philippines uses income to determine the poverty line (Reference 116, p. 13), while most of the other member states use consumption or expenditures. Further, the minimum "food baskets" on which the food components of poverty lines are based are not identical. Note also that

> the term "national" does not necessarily mean official, but rather that it is consistent with its national consumption or income pattern. The headcount ratio (if properly computed)…..is indicative of the scale of poverty in each country. However, owing to different definitions of necessities requirements, statistical collection methods, inflation rate and its adjustments and so on, the national poverty lines cannot be compared across countries. (Reference 28, p. 83)

Of course, most indicators mean exactly the same thing in the member states, but, again, measuring progress depends on the *change* in values and the *direction* of change not the static value of the indicator per se.

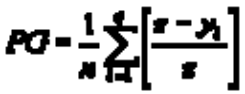
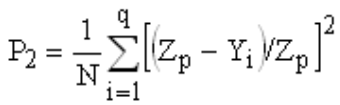
POTENTIAL INDICATORS

We have identified a substantial set of poverty indicators on the basis of a brief review of publications and web pages listed as references in Appendix D. Some referenced items discuss individual indicators in depth; others merely mention them. Many indicators are used by national governments of ASEAN Member States in their own work or are analyzed and/or used in poverty studies and assessments by other organizations and/or researchers. Publications that discuss poverty assessment methods in any particular country are likely to at least mention the indicators the country uses or that are universally used. A number of indicators mentioned in various references are analyzed therein for significance as a descriptor of conditions of the poor or as correlates of poverty.

Table 3-1 summarizes candidate indicators and lists the references that at least mentioned them, and some of the salient points and constraints or issues regarding each indicator.

Table 3-1. Candidate Indicators of Poverty and Well-Being for ASEAN Member States

Number	Indicator	References	Comments	Potential Issues and Constraints
OVERALL POPULATION LEVEL MEASURES OF POVERTY				
1	Number of people below a defined poverty line (i.e., the headcount ratio)	1, 9*, 19, 21, 25, 28, 29, 33*, 38, 40-42, 46*, 48, 50, 52*, 54 C—57, 60, 61, 63, 64, 65* I—69, 70, 72-75, 77 L—83, 85, 87, 88, 91 MA—92-94, 96, 98-100 MY—103, 107 P—113-116, 119 S—120, 121 T—124, 126-130, 132-135 V—136-139, 141-143, 145	Standard indicator used globally With use of US $1 or US $2 per capita per day and PPP, indicator can be considered "universal" or "global" Poverty line can instead be defined as cost to get food that has a minimum number of calories Non-food component of poverty line sometimes computed only for people within + 10% of poverty line Would need to use WB standards of US$1 or US$2 per day per capita for comparability across countries All authors prefer consumption rather than income as basis for poverty line Refs 92 (1999), 96, 98 (1992), and 99 (MA) and Ref 113(P) use income NOT consumption Refs 113, 116(P), and 128(T), also use $1/day and/or $2/day per capita or some other amount to enable international comparisons US$1 PPP/day is used internationally for MDG 1 Ref 134(T) uses $1.50/day in 1993 PPP Ref 137(V) uses $3/day adjusted for area/time FGT(0) see ref 121, page 7 (S) for FGT definition Ref 126(T) p 7 for more sophisticated calculation of non-food poverty lines	US$1 may have different values in different countries – should use PPP Ref 49—WB wants to use US $1.25, ADB US$ 1.35, would need to reconcile and then select value Different types of poverty lines, see ref 9 Different ways to define poverty line Count just food or non-food also as part of poverty line determination Need to be based on either income or expenditure (consumption). See 133(T) Different member states use different poverty line concepts, different standards for minimum needs, etc National poverty lines in member states may not be directly comparable

Number	Indicator	References	Comments	Potential Issues and Constraints
2	The intensity of poverty: the extent to which the income of the poor lies below the poverty line as measured by the average differences between the two i.e. the poverty gap Poverty Gap Ratio  where z is the poverty line, yi is the income of individual i, q is the number of poor people and n is the is the size of the population	2, 4, 16, 17, 19, 20, 21, 29, 40 C—57, 61, 65, I—70, 74, 75, 77 L—88, 91 MA—94, 100 P—112-114, 119 S—120 T—132, 133, 135 V—143, 145	Standard indicator used globally Provides an estimate of per capita "shortfall" to bring all of the poor up to poverty line FGT(1)	Defining the applicable poverty line in each member state Results not comparable across member states
3	Poverty index  where Zp is the poverty line, Yi the expenditure or income of the i-th poor household (or individual), N the total number of households and q the number of households whose expenditures or incomes are below the poverty line. For non-poor household i, consider Zp = Yi. Poverty severity index	2, 19, 29, 40, C—61, I—70, 74, 75, 77 L—88 MA—100 P—113, 114, 119 S—120 T—133, 135 V—143	Larger differences between the income of the poor and the poverty line (i.e., poorer in terms of income) lead to larger values of index, so index exaggerates the impact of poor on the parameter, so better reflects the depth of poverty FGT(2)	Non-linear and abstract, so harder for non statisticians to interpret and understand
4	Gini Index (coefficient)	14, 28, 29, 40, 46, 48 C—60, 57, 65 I—70, 77	Widely used to assess income equality in a country Many government officials are familiar with the index	Single, national value Value calculated over the entire country, so not focused on poor

Number	Indicator	References	Comments	Potential Issues and Constraints
		L—83, 87 MA—94 MY—103,106 P—114, 116, 119 T—128, 132, 135 V—143, 145		Measure of income distribution, not poverty per se Gives no information about individual person or household Shrinking coefficient may be due to increase in income of poor or a decrease in income of well-off
5	Proportion/percentage of population whose caloric consumption is less than standard for minimum	20, 21, 40 I—70, 75 MY—104	Gives percent of population with inadequate diets and food security	Requires caloric intake survey Caloric minimums vary with age, physical demands, making one-size-fits-all minimum level problematic
6	Stunting rate Wasting rate Underweight rate Mid upper arm circumference (MUAC)	1, IFAD RIMS, 12, 20, 21, 24, 29, 41, 53 I—70, 73, 75, 79, 80 MY—103, 104, 106-108 P—112, 117 T—125, 128, 132 V—136	Standard indicators of poverty; many countries already measure these so data are available MUAC a good proxy for nutritional status of children and does not require special equipment Disaggregate by gender Underweight rate is a good indicator of malnutrition in general population Most cited references use only underweight Some countries have data at government health centers (e.g., Indonesia, in village health posts - *Posyandus*)	Taking anthropometric measurements requires special training and equipment Special data processing and software needed to calculate malnutrition rates from raw anthropometric data
7	Demographic and Health Survey (DHS) Wealth Index	14	Similar to International Fund for Agriculture Development (IFAD) Results and Impact Monitoring System (RIMS)	Largely standardized assets/conditions considered – little country uniqueness Highly abstract index involving complex mathematical calculations Relative index, no absolute result

Number	Indicator	References	Comments	Potential Issues and Constraints
				Requires repeat visits to same households to see change
8	Share of lowest quintile of population in total national consumption	21, 28, 29, 40 I—75, L—87, MA—94, MY—104	Provides sense of relative poverty; could use with income data s well; deciles used in Malaysia—see Ref 94 (2001)	Need consumption/expenditure survey
9	Human Poverty Index HPI-1, 2	33, 47 MY—108 (also MA, L, C) T—125	Overall measure of poverty in a country developed by UN HPI-1 – less developed countries, HPI-2 –more developed countries	One measure for whole country so does not identify the poor
10	Physical Quality of Life Index (PQLI)	47	Combines life expectancy, infant mortality, literacy rates	Only one value for country, doesn't reflect lives or well-being of poor How to calculate life expectancy for areas/regions
11	Human Development Index	47, 117(P), 125(T), others	Combines life expectancy, literacy/yrs of school, GDP	Only one value for country, doesn't reflect lives or well-being of poor How to calculate life expectancy for areas/regions?
12	Abstract Relative Poverty index	IFAD RIMS, 131(T), others	Can be calculated via Principal Components Analysis (PCA) on set of selected indicators or by linear regression or other regression technique Relative, NOT absolute measure poverty	Difficult to calculate Abstraction of resulting index makes results hard to understand and interpret
13	Life expectancy, at birth	13, 19, 41, 53 I—80, MA—101, MY—103, 104, 106, 108, P—116, 117, T—125, 128	Overall, fundamental measure of well-being	May be difficult to measure in remote areas where this will be lowest How will this be calculated anywhere? Will it be possible to disaggregate data by region?
14	The prevalence of poverty as measured by the fraction (percentage) in	All ASEAN Member States	Standard indicator used globally. All countries that use a poverty line use this measure to report	Defining applicable poverty line in each member

Number	Indicator	References	Comments	Potential Issues and Constraints
	the total population living below the poverty line		results.	state "Poverty" line is usually defined as amount needed to buy basic goods – which goods to include and how much to purchase
15	Adult literacy rate (adults 15-24 years old)	29, 41 C—58, 65; I—70, 73, 75, 80; L—83, 85; MA—101; MY—103, 108; P— 117; T—125, 128, 129, 132; V—136	Adult literacy is associated with higher income, lower fertility rates, lower infant mortality rates, and improved nutrition Illiteracy precludes some economic growth by persons Disaggregate by gender	How to determine literacy in a field survey? Ask respondent if household members can read and write?
16	Female-to-male literacy rate (over 15 years old)	14, IFAD RIMS, 70(I)	Can calculate at household level and average	
INCOME/EXPENDITURE/CONSUMPTION				
17	Household income	6, 46 I—60 P—112, 116 T—130, 132	Routinely measured in household surveys – the basic poverty assessment tool Ref 112 p 92 cites study that uses 40% income bracket as poverty cutoff line Can also disaggregate income by source: agriculture, wages/salaries, trading, paid labor, remittances Can be averaged across population and changes tracked	Only monthly or short term income usually asked about ; too much variation over months or seasons to give stable estimate Recall over annual periods may not be accurate Household may have seasonal workers with fluctuating income Would require repeated surveys, too costly, not feasible Must be able to deal with sharecropping which may have no "formal" income Notoriously difficult to measure accurately
18	Total household expenditures	6, 32, 46*, 52, 54 MY—107, T— 126, 130	Good proxy for long-term income Same as consumption	Requires higher level of recall depending on period over which it is to be measured

Number	Indicator	References	Comments	Potential Issues and Constraints
			Related to indicators 41-45 in this list Necessary when calculating whether a household falls below a consumption based poverty line	Which types of expenditures to use? Use of expenditure versus income leads to higher poverty counts Food expenditures depend on local diets etc, different foods have different caloric benefits, etc Seasonality of prices and, therefore, consumption – need price adjustment for seasons, region, time differences How to calculate minimum non-food needs?
19	Value of all household assets	12, IFAD RIMS, 41 T—130, 131 V—136	Excellent proxy for wealth Define appropriate set of liquid, productive, and land/house assets for each country Changes in total asset value correlate to changes in economic status Can disaggregate into two indicators: productive and liquid assets Ref 131(T) used productive assets only Can be averaged to give general measure of poverty	Which assets to include in "basket" How to value assets (new/used) Intra-national variation in which assets to use, values of assets
20	Value of own produced food consumed	32 T—131	Can count toward income	Seasonality, regional differences in which crops to include, and intra-national price variation Lengthy recall periods are problematic
21	Annual clothing/footwear expenditure for all household members	21, T—126, 130		
22	Secure land tenure (land title)	C—57, 58, P—112, 116, T—128, 130	Value of land increases when household has title (ref: CBRDP) Also, "access to land," maybe not "title" as in	How to define "access"

Number	Indicator	References	Comments	Potential Issues and Constraints
			Cambodia	
23	Type and number of livestock	21, IFAD RIMS C—57, 59, 61, L—83, 87, V—137	IFAD RIMS considers poultry as well	Different values may apply in different parts of the country and during different seasons
24	Ownership and value of transportation-related assets	21, IFAD RIMS P—113, T— 131, V— 137, 145	IFAD RIMS considers multiple indicators: cars/ trucks, motorcycles (motorbikes), bicycles/ rickshaws/oxcarts Ref 113 (P) enumerated several specific assets – same as RIMS	How to determine value – new/used?
25	Ownership and value of electric appliances	21, IFAD RIMS P—113, V—136, 137, 142, 143, 145	IFAD RIMS considers TV, radio, DVD/CD players, tape players, mobile phones Ref 113 (P) enumerated several specific assets – same as RIMS	How to determine value – new/used?
26	Amount of land owned by household	1, 21 C—60, 61; I—72 ; L—83, 85; MY—107; T—127, 129-131; V—137, 139	In Asia landless are usually among the poorest WB (1995) showed this to be a determinant of household welfare in rural areas of Malawi Ref 21, 61 consider land amount and value Ref 72 shows that land may be associated with poor when they are in agriculture sector (I, T)	Is land a good correlate of poverty in member states? Urban versus rural?
27	Expenditures on education	32, T—126, 130, V—139	May be included in poverty line calculations	Intra-national price variation
28	Expenditures on health	32, T—126, 130	May be included in poverty line calculations	Seasonality of prices; intra-national price variation
29	Expenditures on lodging (rent , utilities)	32, T—126	May be included in poverty line calculations	Intra-national price variation
30	Expenditures on food	32, T—126, 130 All member states use a	Also may be included as part of poverty line calculations	Seasonality of prices; intra-national price variation

Number	Indicator	References	Comments	Potential Issues and Constraints
		poverty line, and food needs are always a or the component		
31	Transfers paid out	32	May be included in poverty line calculations	Seasonality of prices; intra-national price variation
		HOUSING		
32	Measure of "remoteness" – (distance from all-weather road, markets, schools, health services etc?)	1 C—57, 58, I—70 L—83, 88 P—116 V— 142, 143, 145	Poorest live in remote areas–no opportunities, so need to understand why, and then measure remoteness looking for change (build roads, markets, etc) Remote areas have less access to roads, markets, schools, health facilities. Access to roads/markets has strong economic implications	Surveys to count/estimate these people Ability to measure "remoteness" in surveys
33	Access to electricity in home	1, IFAD RIMS, 21, C—60, 64 I —70, 75, 77 L—83, 88 P—111, 116 T—128, 129 V—136, 139, 142, 143, 145	Composite indicator of development Measures "connectedness" Ref 21 distinguishes between types of connections Some refer to "electrification" (grid connection), which may be better than "access to electricity" as it avoids the "car battery" issue	In some countries (Cambodia for sure, maybe Lao PDR, Viet Nam) , poor buy car batteries as source of electricity for light TV and recharge as necessary –not what the indicator is intended to measure
34	Percent of population with access to safe drinking water	4, IFAD RIMS, 21, 52 C—59, 60, 64, I—70, 73, 77, 79, 80 MA—101 MY—103, 108 P—111, 113, 116, 117	Common indicator Probably collected via census, DHS surveys in most countries Ref 21 considers source of drinking water	Need to define "safe" water and sources of it in different member states

Number	Indicator	References	Comments	Potential Issues and Constraints
		T— 125, 129, 128, 132, V—136, 137, 139, 142, 143, 145		
35	Percent of population with access to improved sanitation	4, IFAD Rims, 12, 53 C—59 I —70, 77, 79 MY—103 P— 111- 113, 116 T—128 V—136, 137, 139, 142, 143	Common indicator often collected via census, DHS surveys Implications for disease (diarrhea, etc)	Usually count any kind of latrine for this indicator
36	Number of rooms in dwelling	21, IFAD RIMS	Occasionally number of sleeping rooms used	Which rooms count? Inside storeroom? Rooms for animals (e.g., N India)?
37	Type of dwelling roofing material	21 I—77; P— 111, 113, 116; V—137	Ref 137(V) classes homes as permanent or semi-permanent, so wall, roof material indicator implied by that	How to use this as stated as indicator of poverty?
38	Type of material for exterior walls	21 I—77, P—111, 113, V—137	Ref 137(V) classes homes as permanent or semi-permanent, so wall, roof material indicator implied by that	How to use this as stated as indicator of poverty?
39	Percent households with dirt floor in house	I—75, V—137	Ref 137(V) uses presence of dirt floor	
40	Type of cooking fuel used	21, IFAD RIMS C—59, V—137	Reflects environmental issues as well	How to use this as stated as indicator of poverty?
FOOD				
41	Average per capita caloric input	1, T—128	Measure of hunger, inability to access food (poverty)	Complicated surveys needed to estimate caloric intake

Number	Indicator	References	Comments	Potential Issues and Constraints
42	Number of meals consumed per day	12	Good proxy for caloric consumption Good indicator of food security, which is a key correlate and component of poverty	What constitutes a "meal?" Is this based on everyone in household eating? Seasonality effects
43	Average number of months/year when households have sufficient food for everyone in household	12	Change in indicator shows change in food security/poverty Fundamental indicator of wellbeing, food security	Each household applies subjective definition of "enough food" If household has to sell productive assets to buy food, months of food bought thusly should not be counted, as it indicates threat to livelihood/extreme circumstances, not routine coping
44	Percentage of household expenditure/ consumption devoted to food	41 MY—107, T—126	Households with consumption on food over 60% (or some similar %) considered poor As income goes up, a higher proportion can be spent on non-food needs	Possible difficulty in getting consumption data First expenditure and consumption survey in Lao PDR funded by UNDP in 1992-1993 – are these surveys continuing?
45	Amount of food stock (number of months supply) of staple food in dwelling (or in on-property granary)	21	Similar to indicator on months of food a household can provide for itself (months of self-sufficiency)	
HEALTH				
46	Prevalence of diarrhea	12	Proxy for sanitation and access to clean water, lack of which are related to poverty Can use number of incidents of diarrhea in household in last 30 days or simple yes/no if anyone in household had it in last 30 days	What recall period to use Possible seasonal effects (rainy versus dry season)
47	Mortality Rate of under-5-year olds	13, 19, 29, 41, 53 C—65, I—70, MY—106, P—116, T—128, 132	Measure per 1000 live births	May be tough to measure in more remote areas where this indicator would be highest. How would this be measured at all?
48	Access to health care	L—88, P—116, V—136,		In some countries (e.g., Indonesia) government

Number	Indicator	References	Comments	Potential Issues and Constraints
		139, 145		clinics provide access for all
49	Infant mortality rate	41 C—60, I —70, 73, MY—103, 106, P—116, T—128, 132, V—136	Similar to but distinct from mortality for under 5 year olds	Does this refer only to childbirth deaths? If not, up to what infant age is counted?
50	Percent of population without access to health services	I—73	Will vary according to costs of health services, whether provided by governments, etc	
51	Maternal mortality rates (death during childbirth)	I—79, MY—103, P—116, T—132	Measure of access to lack prenatal care and births are not attended by trained medical person Worse in remote areas	Can this be measured as part of existing surveys?
52	Level of education (years of school or similar)	1, 19, 21 C—57, 60, 65*, 66 I—70, 72 L—83, 85, 88 MA—97 P—113, 115, 116, 117 S—120 T—129-131, 133 V—139, 142, 143, 145	Poorest usually have very little education Primary school attendance rates can also be used With education other livelihood options can open up, reduce poverty Many of the references use education of the head of household and not education of other household members Ref 113(P) looked at education of all household members Ref 116(P) used head of household, kids, Some refs (e.g., 130(T) used just children Ref (129T): education of head of household should be dominant in determining household welfare and poverty Ref 133(T) p 5 – Household where head of household has at most primary education experienced a larger increase in poverty when hard	Will increase in education reduce poverty level – causality question?

Number	Indicator	References	Comments	Potential Issues and Constraints
			times came – i.e., are more vulnerable	
MISCELLANEOUS				
53	Occupation (category) of adult household members or head of household	21 C—65 I—72, 75 P—112, 113, 115 T—131, 133 V—137, 142, 143	Can group some occupations (e.g., rural agriculture workers) into "poverty-related" categories See Reference 65 I, pages 25, 27, 28 etc for categories, analysis re: poverty See OPMS (WFP Indonesia) survey questionnaire for suggested categories Ref 72 (I) has some categories (p 30) Ref 112(P), pp 92, 94, has some occupation categories May be limited to households in "informal" or other specified occupation sector See Ref 129(T), p 8 for categories	How to define occupation groupings that will be applicable in all member states Need to distinguish between rural and urban occupation categories
54	Access to irrigation	C—57	Rural, agricultural relevance	Not an indicator of urban poverty
55	Reliance on common property resources (forest, etc)	C—57, 59 I—70	Higher % of income from common property resources associated with poorest households Common property used for grazing, collecting fruits, firewood, non-timber forest products, etc	How to decide poor/not-poor cutoff for dependence on common property resources
56	Household size	P—112, 113	112 (p. 96) relates % poverty to household size	
57	Access to credit	P—116, V—136, 139, others		
****	ASEAN MS and large scale surveys they do (as of 1999)	43 (p 5), S—120, T—124	Can help to determine how to collect data - available sources Census data also useful for this work	List of sources may not be current May be difficult/impossible to modify these surveys to include new questions needed for some indica-

Number	Indicator	References	Comments	Potential Issues and Constraints
			Government data obtained when administering poverty reduction programs might also help	tors Data from multiple sources might have to be combined; introduces scale, sampling, and area differences
****	Various indicators and/or wealth rankings determined by participatory means, e.g., participatory wealth ranking, Participatory Rural Appraisal (PRA)	42, 44*, others	Correspond to people's own perceptions Can include intangibles in community – support network, status, etc	Require in-depth interviews Varies intra-nationally and internationally, so no uniform indicators likely to emerge Might require customized questionnaires in different areas of one country to ask relevant questions

Notes: Numbers in the third column are references in Appendix D; * denotes a key reference.

IFAD RIMS is the UN International Fund for Agricultural Development (IFAD) Results and Impact Management System (RIMS)

B—Brunei Darussalam, C—Cambodia, I—Indonesia, L—Lao PDR, MA—Malaysia, MY—Myanmar, P—Philippines, S—Singapore, T—Thailand, V—Viet Nam.

RECOMMENDED INDICATORS

Here we present criteria used in screening candidate indicators for final recommendation.

Criteria

1. The indicator must provide an assessment or descriptor of poverty or of some characteristic of poverty or of the lives of the poorest that can be changed by poverty reduction strategies or other actions of ASEAN Member States. Recall that some descriptors do not provide a basis for policy or poverty reduction strategies other than targeting in poverty reduction programs. Although such descriptors will not be recommended as poverty indicators they will be recommended as variables by which the datasets can be disaggregated into meaningful subsets.
2. The set of selected indicators should address all salient and critical characteristics of poverty that should be considered when governments devise poverty reduction strategies.
3. Each indicator alone and when taken together should reflect changes in values over time that allow member states to determine the affect of a strategy or program and the extent and nature of changes in the wellbeing of the poorest of their citizens.
4. The indicators must be defined unambiguously. Simply listing “education” as an indicator is not helpful as there are several common education indicators, depending on whether the head of the household or children is the focus.
5. The raw data needed to calculate the value of the indicator must be readily available and, ideally, already collected by member states in a survey. Where the different elements of these data are collected in different surveys, it must be possible to merge survey data in a statistically valid manner. In some cases, questions may have to be added to survey instruments to collect all needed data; the frequency and impact of this on surveys cannot be ascertained without analysis of the survey instruments. Note that some surveys may collect the data but not frequently enough for monitoring or evaluating poverty reduction programs. In such cases, the member states will have to evaluate the tradeoffs between adequate assessments and the costs and effort required to mount very large surveys more frequently.
6. Indicators should be amenable to disaggregation. Ideally, one should be able to disaggregate an indicator by gender of head of household, rural vs. urban, geographical areas, ethnicity, etc. Disaggregation can better support the detailed analyses necessary to develop and implement poverty reduction strategies programs and target them to the neediest.
7. As much as possible indicators should already be in common use among member states. Requiring member states to take on additional data collection activities could be counterproductive. The prospect of further burdening an already heavy workload and could lead member states to reject an indicator. When several potentially useful indicators from Table 3-1 all measure more or less the same general aspect of poverty or wellbeing, *the indicator most common among ASEAN Member States* (as determined on the basis of the listed references) *or deemed easiest to measure, is selected.*

Exhibit 3-1
Poverty Lines

One assessment of poverty common to member states is the *poverty line,* a threshold usually measured by household consumption or income. Households whose consumption or income falls below this line are *defined* as poor. Sometimes the line is defined by "tests"; households that do not meet all test criteria are considered poor. Although a "contextual" poverty line is distinct from the more common "monetary" line it can be used in the same way and just as effectively.

The poverty line is not a poverty indicator *per se,* but a variable in defining and calculating indicators such as the *headcount ratio* (the percentage of a population below the poverty line), *poverty gap*—the average difference between the consumption or income of (only) the poor and the poverty line (or, sometimes, the total amount of money that would be required to bring all of the poor up to the poverty line)—and the *poverty severity index,* an abstract index that emphasizes bigger differences between the poverty line and poor people's consumption or income (i.e., it disproportionately reflects the income or consumption of the very poorest of those surveyed).

Because the concept of poverty line is fundamental to any discussion of indicators, the basic facts about lines used by the ASEAN Member States are presented in Table 3-2. The data in this table were assembled from references from mostly unofficial sources as "official" reports and statistics were not provided for this study. Therefore, the data in Table 3-2 may not reflect the latest practices. For the most part, the material in this table consists of direct quotes from the cited references.

Note that for some member states either no data were available or references provided conflicting information. These problems cannot be resolved easily without "official" information or documents from member states. In Phase 2, more current information about poverty assessment and monitoring will be available, and Table 3-2 will be updated as needed.

The data in Table 3-2 reveal significant variation in how poverty lines are constructed so lines are not directly comparable. But again, what it is important to compare are the rates of change in the percentages of populations below the poverty lines, and this can be done with no problem. The rest of this report assumes that all ASEAN Member States determine a national poverty line by some means and that these lines can be used to calculate the applicable recommended indicators. An example of how a poverty line can be constructed is provided at Appendix A. Although the poverty line described is based on income not consumption, the basic process is the same: the per capita minimum number of calories needed to remain healthy is determined, the costs of obtaining these calories from commonly consumed foods are determined, and then the costs to meet a minimum set of non-food needs are estimated based on the food costs.

Note: no information of any poverty line in Brunei Darussalam was available for this report. In discussions with Government of Brunei staff at the May 2009 conference in Ha Noi, Vietnam, the author was informed that presently no poverty line is defined for Brunei Darussalam.

Table 3-2. ASEAN Member States Poverty Lines

Country	Basis for Determining Poverty Line and Value	Comments	References
Brunei Darussalam	---	No available information	N/A
Cambodia	Expenditures on food and non-food items The recent poverty line per person per day based on the 1999 Cambodia Socio-Economic Survey are as follows: 2,470 Riel in Phnom Penh, 2,093 Riel in other urban areas (provincial capitals except Phnom Penh) and 1,777 Riel in rural areas,	This minimum food expenditure is defined as the "food poverty line" Minimum food expenditure is the total amount of the food basket covering daily minimum food energy requirements per capita - 2,100 kcal. This minimum food energy requirement in Cambodia is within the range of the WHO/FAO definition of the daily minimal energy per capita in developing countries For the minimum non-food expenditure, the survey data used for food items did not show unit values for non-food items, A regression approach was used to calculate the allowance for non-food items of households on the food poverty line. In 1997 and 1999, the non-food poverty line was calculated from the non-food consumption of individuals whose total consumption was within 10% above or below the value of the food poverty line.	60 (Japan Bank for International Cooperation, 2004, p 1)
Indonesia	Since income data are unreliable in Indonesia, the Central Statistical Agency, Badan Pusat Statistik (BPS) uses expenditure data as a proxy of income for defining a poverty line Measured by BPS based on a consumption bundle that consists of food items (to satisfy 2100 calories) and basic non food items.	"Basic needs" approach based on consumption Consumption is measured in Rupiahs of basic essentials contained in a food bundle (52 items) and non-food bundle (46 items) as typically consumed by a group of people whose expenditures lie just above the "expected poverty" line, i.e., previous poverty line deflated by inflation rate Non food items determined by the pattern of consumption of reference households near the poverty line Poverty lines are established at the national and provincial level for urban and rural households. The bundles comprise 52 food items and 47 non food items Relative weights of items varies across Indonesia 2004 the average national poverty line was 122,775 rupiah per person per month (approximately $13.73), and 16.7% of the population was considered to be poor.	71 (Draft) (ADB, 2006, p 19) 74 (Maksum, 2005, p 1)
Lao PDR	Consumption based, using food and non-food amounts	Therefore, the food poverty line was constructed on the basis of the consumption pattern of poor households. 31 food items were selected for the reference food bundle and the average prices of 5 cities (Vientiane Mu-	87 (Lao PDR, 2001, p 11)

Country	Basis for Determining Poverty Line and Value	Comments	References
		nicipality, Louang Prabang, Khammouane, Savannankhet and Champasack), Amount for non-food items calculated from food consumption amount Two expenditure and consumption surveys (LECS of 92/93 and 1997/98) provided a complete set of databases. Analysis of poverty situation in Lao PDR was (as of 2001) facing problems such as setting the level of calories for the poverty line, habits of food consumption and price data The average calories requirement per person per day is 2100 kcal per person per day The line was constructed from the actual average food consumption in all households spending between 70-80 % of their total consumption on food. There are no official poverty lines applied to Lao official statistics.	91 (Xaovanna, (undated), 2)
Malaysia	Some confusion here. Reference 93 says that poverty line based on income, but Reference 97 says that official line is based on consumption	Two household surveys form the main source of primary data: the Household Income Survey (HIS) and the Household Expenditure Survey (HES). The definition of income as used in the HIS covers both money income and income in kind and also receipts which are of a recurring nature and regularly accrue to the household	93 (Internet, 2005, 1) 94 (Hasan 2001, 4-5) 97 (Mok, 2007, 190) 100 (Roslan, 2004, 27)
Myanmar	Expenditure (consumption) based	No detailed data were available	107 (Shein and Daw, 2001, 3)
Philippines	Income based poverty lines	The official poverty estimation determines the minimum income needed to satisfy both food and non-food needs. The non-food needs are determined by reference to the cost of meeting food needs of households. Official poverty statistics in the Philippines follow a cost-of-basic-needs (CBN) approach Poverty lines are calculated to represent the monetary resources required to meet the basic needs of the members of a household, including an allowance for non-food consumption. First a food poverty line is established, being the amount necessary to meet basic food requirements. Then a non-food allowance is added by reference to the food allowance. The specific method is described in Reference 154 as: "The basic food requirement/threshold is estimated using a regional menu valued at provincial prices and the non-food threshold is measured indirectly by dividing the food threshold with the ratio of the food expenditure to the total basic expenditure of families in the $\pm$ 10% of the subsistence incidence or food	113 (Haslett and Jones, 2005, 3) 114 (Internet, 2003, 1) 106 (Schelzig, 2005, 14) 154 (Philippine Government)

Country	Basis for Determining Poverty Line and Value	Comments	References
		poor." A more complete discussion of the official poverty estimation methodology used by The Philippines can be found at: http://www.nscb.gov.ph/technotes/poverty_tech.asp Before 2000, the income gap, poverty gap, and the severity of poverty index were not part of the official poverty statistics. The and annual food and poverty thresholds have been part of the official poverty statistics since 1985. Food and poverty thresholds are estimated annually Other official poverty statistics are estimated every three years after the results of the Family Income and Expenditures Survey (FIES) of the National Statistics Office (NSO) have become available	
Singapore	Reference 122 states that there is no *official* poverty line but Reference 121 lays out purely conceptual approaches to measuring poverty. None of the approaches presented in Reference 121 should be viewed as the "official" approach In 1991, the Population Planning Unit calculated the number of households falling below the Minimum Household Expenditure (MHE) of S$510 for a four-person household living in a one room flat, but this MHE has not been accepted as an official poverty line.	As noted, Singapore does not define a poverty line *per se*. Singapore's focus is on social assistance for needy households in the lowest quintile of household income. Households with income levels below minimum expenditure level are considered poor In Singapore, the absolute poverty line is first derived for a reference four-person household. The poverty lines for households of other sizes are derived using equivalence scales	120 (Lee, 2001, 60) 121 (Long, Undated, 3) 122 (Teng, Yap Mui, 2004) 156 (Government of Singapore, 2009) 159 (Government of Singapore, 2009)
Thailand	Income-based approach As results of proposed changes, Thailand's poverty line, averaged for the whole kingdom, in 2002 shifted from 922 baht/person/month	Three revisions to official poverty line underway: First is to update spatial price index which used to adjust for regional price differences from 1992 price to 2002 price. Second is to fine-tune food and non-food ratio, using utility concept. Calculation of non-food poverty	124 (Boonperm, Internet, page 2) 126 (Internet, 2004 or later, 1)

Country	Basis for Determining Poverty Line and Value	Comments	References
	to 1,163 baht/person/month.	line will be based on nine basic items, i.e., clothing and footwear, shelter, fuel and light, household goods, medical, personal care, transport, communication, and education. Third., update consumption pattern and recommended dietary allowance, reflecting post crisis and current dietary practice of Thai population. Methodology for calculating the official poverty line was developed in 1998. The official poverty line is considered an absolute concept, based on cost of basic needs, which is the sum of food and non-food items. A household is classified as poor if its per capita income is less than the household specific poverty line. The non-food poverty line is calculated by using the estimated food to total expenditure ratio. Food consumption is assumed to account for 60 % of total consumption at the poverty lines, and then adjusted for regional price differences.	
Viet Nam	Viet Nam has two national "poverty lines," both based on consumption.	The first poverty line, produced by the General Statistics Office (GSO), is defined as the cost of a food consumption basket that allows for a healthy life with 2,100 calories per person per day, plus the cost of a related non-food consumption, An alternative poverty line, produced by the Ministry of Labor, Invalids and Social Assistance (MOLISA), was initially based on per capita rice requirements, but was revised in 2005 to better reflect the 2,100 calorie benchmark used in GSO calculations; with thresholds of VND 300,000 in urban areas and VND 200,000 for rural areas	138 (Hauser, 2005, 5) 141 (Kien, 2008, 1-2)

A more systematic approach to describing criteria for poverty indicators (or, for that matter, with a few changes, almost *any* indicators) used in a poverty assessment tool is presented in Reference 2 (Henry *et al*, 2003, Annex 2). These criteria and their use in ranking the different indicators are as follows:

> A score is attributed to each indicator according to the following criteria:
>
> **M:** Statistically determinant in some statistical models
> **N:** Nationally valid (can be used in different local contexts, urban versus rural)
> **O:** Not too sensitive a question (can be asked openly)
> **P:** Practical (can be observed as well as asked)
> **Q:** High-quality (indicator is sensitive in discriminating poverty levels)
> **R:** Reliable (low risk of falsification or error; also possible to verify)
> **S:** Simple (direct answer versus computed information)
> **T:** Time-efficient (can be answered rapidly)
> **U:** Universal (can be used in different countries)
>
> When an indicator fulfills one of the above criteria, it is marked by an upper case letter. When the indicator fails to fulfill the criteria, it is marked by a lower case letter. The score of an indicator is the total of upper case letters; it ranges from 0 to 9.

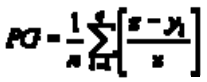
While this appears at first to be an objective method for assessing and ranking indicators, it is subjective at heart, since the evaluation of an indicator against each criterion is itself a subjective judgment.

The seven criteria described above were applied to the indicators in Table 3-1 to arrive at the recommended indicators presented in Table 3-3, which data needed to calculate each indicator's value, the sources of data, the applicable formulas(if any), and justification for selection. Table 3-3 provides more than the 20 indicators called for in the Activity Description. Note that for some general indicators (e.g., education, access to safe water) two or more specific indicators are defined. Why? While averages or percentages may reflect conditions of wellbeing and the socioeconomic status of an entire population, the same indicator at the household level may provide similar information specific to a household, and thus can be correlated with the various poverty measures and used as a basis for defining and targeting poverty reduction strategies and programs. In other cases, separate indicators that consider different aspects of one generalized indicator can shed light on different correlates of poverty, and so are all included here.

Table 3-3 presents two broad categories of indicators. The first are overall indicators such as the *Human Development Index*, for which only one value exists for a region or country; that is, values of these indicators are not calculated or meaningful at the household level. The second category are those that can be calculated and are meaningful at the household level. For example, *household income* or *access to sanitation* can be given as an average over a region or country, but these indicators are also meaningful and have uses at the individual household level. Note that for some indicators both the aggregate and the household levels are recommended as these serve different purposes and can both be useful.

Recall that these recommended indicators are intended to *add to* the set of indicators already measured by the ASEAN Member States, and are not intended to *replace* them.

Table 3-3. Recommended Indicators of Poverty and Well-Being

	Indicator	Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
	AGGREGATED INDICATORS OF POVERTY OR WELLBEING			
1	Number or percentage of people below a defined poverty line (i.e., head-count ratio)	Number of people or households whose income (or consumption) was below the poverty line (in the sample) Total population size (of the sample)	Headcount = Number of Poor people (P) in the sample adjusted for total population Headcount Ratio = HR = The number of poor people divided by Total population (T) HR = P / T	This is the most fundamental indicator already in use by all and for which information was available, and must be included on any list of indicators Typically, both the number of poor and total population size will refer to the sample, so headcount number will need to be adjusted proportionately Need to be based on either income or expenditure (consumption). See ref 133(T) p Different member states use different poverty line concepts, different standards for minimum needs, etc "National" poverty lines in different member states may not be directly comparable Non-food component of poverty line sometimes computed for just people within + 10% of poverty line Most authors prefer consumption, rather than income as basis for poverty line Philippines uses income and NOT consumption to define poverty line US$1 PPP/day is what is used internationally for MDG 1 Ref 126(T) p 7 for more sophisticated calculation of non-food poverty lines
2	Poverty Gap The extent to which the income of the poor lies below the poverty line, as measured by the average differences between the two	Value of poverty line, in terms of income or consumption Income or consumption (depending on which is needed) for each person below the poverty line The number of poor people Total population size	Poverty Gap Ratio  Where: Zp is the poverty line, yi is the income of individual i, q is the number of poor people and n is the is the size of the population	This indicator can be calculated directly once data to measure the poverty headcount is available This indicator provides critical insight into how far below the poverty line the poor are on average rather than just the number/percentage of people below it. Results not comparable across member states Provides an estimate of per capita "shortfall" to bring all of poor up to poverty line Typically, both the number of poor and total population size will refer to the sample, so Poverty Gap number will need to be adjusted proportion-

	Indicator	Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
				ately Can also measure the total amount of money needed to bring all poor up to the poverty line instead of the average amount per person
3	Poverty Severity Index An abstract index that emphasizes bigger gaps between a person's income or consumption and the poverty line; i.e., poorer people disproportionately affect the index value	Value of the poverty line, in terms of income or consumption Income or consumption (depending on which is needed) for each person below the poverty line The number of poor people Total population size	Poverty Severity Index = P2 $P_2 = \frac{1}{N}\sum_{i=1}^{q}\left[(Z_p - Y_i)/Z_p\right]^2$ where Zp denotes the poverty line, Yi the expenditure or income of the i-th poor household (or individual), N the total number of households and q the number of households whose expenditures or incomes are below the poverty line. For non-poor household i, consider Zp = Yi.	Non-linear, less easy for non-statisticians to interpret and understand This indicator gives insight into severity by emphasizing larger gaps between the income/expenditures of the poor and the poverty line More abstract so again, less easy to interpret Larger differences between the income of the poor and the poverty line (i.e., poorer in terms of income or consumption) lead to larger values in the index, so the index exaggerates the impact of poor on the parameter, so better reflects the depth of poverty Once the poverty headcount is measured, the same data can be used to measure this indicator, so no extra work is required.
4	Human Development Index (HDI)	Life expectancy (years) of the population Literacy rate Gross enrollment rate for primary, secondary and tertiary schools GDPpc: GDP per capita at PPP in USD	HDI is the average of three general indices: HDI = (LEI + EI + GDP) / 3 Where: (1) LEI = Life Expectancy Index LEI = (LE -25) /(85-25) (2) EI = Education Index EI = 2/3 (ALI) + 1/3 (GEI) ALI = Adult Literacy Index ALI = ALR/100 GEI = Gross Enrollment Index GEI = CGER/100 (3) GDP = GDP Index GDP Index =	Calculations taken from Internet at: http://en.wikipedia.org/wiki/Human_Development_Index Widely used indicator; updated yearly by UNDP HDI is used to rank countries on "human development", which implies determining whether a country is a developed, developing, or underdeveloped country. Focuses on wider aspects of development than the physical quality of life, per-capita income or consumption Strong component of this index focuses on education, in contrast to the PQLI (see below) that is more concerned with life itself. Changes in the value of this indicator in a single country over time present a sense of the country's development in terms of issues and correlates of poverty

Indicator		Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
			(log (GDPpc) – log 10) /log (40000)-log 100 LE: Life expectancy at birth ALR: Adult literacy rate (ages 15 and older) CGER: Combined gross enrollment ratio for primary, secondary and tertiary schools GDPpc: GDP per capita at PPP in USD	
5	Physical Quality of Life Index (PQLI)	Percentage of population that is literate (literacy rate). Infant mortality rate (out of 1000 births) Life expectancy	PQLI = Physical Quality of Life Index PQLI = ((Literacy Rate + INDEXED Infant Mortality Rate + INDEXED Life Expectancy))/3 Where INDEXED Infant Mortality Rate = (166 – infant mortality) × 0.625 INDEXED Life Expectancy = (Life expectancy – 42) × 2.7	The PQLI attempts to measure quality of life or well-being and is analogous to the HDI, but focuses more on physical aspects. The value is the average of three statistics: basic literacy rate, infant mortality, and life expectancy at age one, all equally weighted on a 0 to 100 scale. Only one value for country, doesn't reflect lives or well-being of individual poor households or persons
6 6.1 6.2 6.3	Malnutrition rates "Moderate" plus "Severe" Stunting rate Wasting rate Underweight rate	Age of child in months Weight of child in kg (accurate to 0.1 kg Height of child in cm (accurate to 0.1 cm)	Requires special software with internal references to standardized tables to determine if a particular child is malnourished with respect to any of the three types of malnutrition. Once the malnutrition status of every measured child is determined for all three types of malnutrition, the rate I for each type of malnutrition is calculated separately for boys and for girls as: Ri = Mi /Ti Where: Ri = malnutrition rate for gender i, i = 1, 2 Mi = Number of malnourished children of gender i Ti = Total number of children of gender I that were measured	Only measured for children under 5 Standard indicators of malnutrition which is closely linked to poverty, Requires special training and equipment to do anthropometric measurements Special data processing and software needed to calculate malnutrition rates from the raw anthropometric data All three malnutrition parameters calculated from age, weight, and height Many countries already measure these so data are available Disaggregate by gender of child Underweight rate is a good indicator of malnutrition in general population Most of the references cited here use only underweight Some countries have these data at government health centers (e.g., Indonesia, in *Posyandus*)
7	Life expectancy, at birth	See Appendix B	See Appendix B	Fundamental indicator of quality of life and poverty

	Indicator	Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
	(Urban plus rural, males and females combined)			May be difficult to measure in critical remote areas It is possible to disaggregate the data by region, although it would take more work. This would support poverty reduction targeting Overall, fundamental measure of well-being
8	Adult literacy rate	Number of adults (15-24 years) that can read and write (RW) Total number of adults (15-24 years) (A)	Literacy Rate = LR LR = RW/A	Literacy directly correlated with poverty; illiterate persons often cannot get better jobs or rise out of poverty Adult literacy is associated with higher income, lower fertility rates, lower infant mortality rates, and improved nutrition Illiteracy precludes some economic growth by persons Consider all persons 15+ years To determine literacy in a field survey ask respondent if household members can read and write Disaggregate by gender
9	Mortality rate of under-5-year olds	Government health records on childhood mortality	Calculated as the probability of death derived from a life table and expressed as rate per 1000 live births (WHO). See Appendix B	Fundamental indicator of access to healthcare, government services, and poverty Probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period. (WHO) Probability of death derived from a life table and expressed as rate per 1000 live births
	INDIVIDUAL HOUSEHOLD INDICATORS OF POVERTY AND WELLBEING			
10	Average household income	Household income of every surveyed household (over the specified period) from all sources considered (TI) Number of households surveyed (N)	HHI = Average Household Income HHI = $\Sigma(TIi)/N$ Where: TIi = Total income of household i N = Total number of households surveyed	Basic indicator required in all countries that use income to define poverty line Fluctuation or intra-national variations can indicate changing economic situation for entire population or region Only monthly or short-term income usually asked about – too much variation over months or seasons to give stable estimate Recall over annual periods may not be accurate Households may have seasonal workers with fluctuating income Notoriously difficult to measure accurately

Indicator		Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
				Routinely measured in household surveys – a basic poverty assessment tool Can also disaggregate income by source: agriculture, wages/salaries, trading, paid labor, remittances
11	Income share of lowest quintile of income distribution	National income distribution	ISQ1 = (TIQ1/TI) x 100 Where: ISQ1 = Income share of lowest quintile in income distribution (Quintile 1) TI – Total national income	Measures share of total national income earned by all households in lowest quintile of income distribution Expressed as a percentage of total national income Change in value over time reflects extent of pro-poor nature of growth in overall incomes
12	Total household expenditures/consumption (Per household) (HHE)	Amounts of money spent on needs and other items over the specified recall period	HHE = Total Household Expenditures HHE = Σ(Ei)for i=1, N Where: Ei = Total expenditures of type I over the specified period N = total number of different types of expenditures	Required in all countries that use consumption/expenditures to define poverty line Data collection for this indicator immediately provides value of Recommended Indicator 20 in this table Requires better recall depending on period over which it is to be measured Types of expenditures to use must be a country-specific detailed list of "typical" expenditures Some types of expenditures may be originally specified for different recall periods (e.g., school expenditures per year and food expenditures per month); these will have to be scaled so that the data are compatible Food expenditures depend on local diets etc, different foods have different caloric benefits, etc Seasonality of prices and, therefore, consumption – need price adjustment for seasons, region, time differences (See Appendix C) Can calculate minimum non-food needs as a percentage of food needs, or by reference to expenditures of the near-poor (Poverty line + 10%)? Good proxy for longer term income
13	Total value of all household assets (TV)	List of all assets to be included (Ai) productive assets liquid assets	TV = Total Value of All Household Assets TV = Σ(Ai x Vi)for i=1, N Where: Ai = Number of assets of type i owned by the	An excellent proxy for wealth, and changes in socioeconomic status Include country specific "typical" assets to in the overall "basket" - appropriate set of liquid, productive, and land/house assets for each country To value assets (that will all be considered to be used), limited surveys

Indicator		Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
		livestock poultry house and land values for each specific type of asset (Vi)	household Vi = Value of asset type i N = number of different assets included	of markets in sample sites can provide prices that can then be averaged to get values used in calculations Intra-national variation in which assets to use, values of assets Ref 131(T) used productive assets only Can be averaged over all surveyed households to give overall measure of poverty Can be used at the household level to identify the poor, and use for targeting Change in the sale/purchase of productive assets (farm tools, other assets used to produce income) can indicate economic status and trends in same for the households – productive assets typically only sold when households are more desperate
14	Amount of land owned by Household (m2 or ha) (L)	Amount of all land owned by the household, converted from local units to m2or ha, as applicable	L = Value of all land owned by household L = Σ(Li)for i=1, N Where: Li = amount of land parcel i N = number of different parcels of land owned by the household	Primarily applicable to rural areas where in many places the amount of land owned by the household is a constraint on the household's ability to grow enough food. This would limit any chance of income from sale of crops, reinforcing poverty Restrict this indicator to use in rural areas only In all parts of Asia, landless are usually among the poorest, so size of landholding can be used to identify, target the poor Ref 21, 61 consider land amount and value Ref 72 shows that land may be associated with poor when they are in agriculture sector (I, T) May need to ask question of households in local units for land –which may vary within a single country- and then standardize to m2 or ha. This indicator may need to be modified to the amount of all land to which the household has access to allow for rental, sharecropping, or situations in which all land is owned by the government and private parties only have the use of the land but not ownership
15	Measure of "remoteness" 15.1 Average "remoteness Index" 15.2 Remoteness index for each surveyed house-	For each surveyed home, time to travel to and distance from nearest government services—school, market, health clinic, all-weather road	Indicator 15.1 values are the mathematical average of all the times and all of distances over all surveyed households Indicator 15.2 values are for each specific surveyed households	Measure of remoteness – time to travel to different types infrastructure such as markets, schools, health services, government services etc Poorest live in remote areas – no opportunities, so need to understand why, and then measure remoteness looking for change (build roads, markets, etc)

Indicator		Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
	hold 15.3 Percentage of population with access to an all weather road		Indicator 15.3 can also be assessed for each household	Remote areas have less access to infrastructure – roads, markets, schools, health facilities. Less access to roads/markets has strong economic implications due to farmers having to sell to traders that come to villages but pay much lower "farm gate" prices than farmers could get at market Distance from all-weather road can also be considered as an indicator of remoteness since in rainy season, some rural dirt roads may be impassable, creating seasonal access problems Use of Indicator 15.2 to identify poor with lack of access, and to inform poverty reduction programs and targeting Indicator 15.3 used by ADB *Key Indicators for Asia and The Pacific 2008* (Reference 146) Indicator 15.3 can be a proxy for "remoteness," but in turn requires what "access" to an all weather road means (i.e., how far away, how much time f to reach from the home)
16	Access to electricity in home 16.1 Percentage of population that has is connected to electricity grid 16.2 Is (each) household connected to electricity grid?	Is (each surveyed) household connected to an electricity grid (Yes/No)?	Indicator 15.1 value is the mathematical percentage of all surveyed households that are connected to an electricity grid Indicator 15.2 values are the answers for each specific surveyed households	Composite indicator of development In some countries (Cambodia for sure, maybe Lao PDR, Viet Nam) , poor buy car batteries as source of electricity for light TV and recharge as necessary –not what the indicator is intended to measure Ref 21 distinguishes between types of electricity connections Some papers refer to "electrification," i.e., connected to an electricity grid – this may be better than simply "access to electricity" as it avoids the "car battery" issue Indicator 16.1 is a measure of "connectedness" of country and access to utilities Indicator 16.2 is a measure of household poverty and, in some countries that are not fully electrified, "remoteness"
17	Access to safe drinking water 17.1 Percentage of population with access to safe drinking water 17.2 Does e(each) household have access to safe	Does (each surveyed) household use drinking water from a safe source (Yes/No)? List of (country or region specific) safe sources of water	Indicator 16.1 value is the mathematical percentage of all surveyed households that use drinking water from a safe source Indicator 16.2 values are the answers for each specific surveyed household	Commonly used indicator Need to define "safe" water and sources of it in different ASEAN Member States Often collected via Census, DHS surveys Ref 21 considers source of drinking water Indicator 17.1 is a measure of "connectedness" of country and access to

	Indicator	Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
	drinking water			utilities Indicator 17.2 is a measure of household poverty and, in some countries, "remoteness" from safe water
18	Access to improved sanitation 18.1 Percent of population with access to improved sanitation 18.2 Does (each) household have access to improved sanitation	Does (each surveyed) household have access to some form of improved sanitation (Yes/No)? List of types of sanitation considered to be "improved"	Indicator 18.1 value is the mathematical percentage of all surveyed households that have access to improved sanitation Indicator 18.2 values are the answers for each specific surveyed household	"Improved sanitation" is usually taken to mean any kind of latrine or toilet facility, i.e., not just using the bush for these functions Can be useful in targeting poverty reduction and health enhancement programs Usually count any kind of latrine for this indicator Often collected via Census, DHS surveys Implications for disease (diarrhea, etc)
19	Prevalence of diarrhea	Ask surveyed households if anyone in the household has had an incidence of diarrhea within the last 30 days	Calculate the indicator as the percentage of households that report at least one incidence of diarrhea within the last 30 days	Incidence of diarrhea is strongly correlated with poor sanitation and unsafe sources of drinking water, themselves correlates of poverty Calculated values of this indicator may also vary with the season (dry, rainy) in which the survey is performed, as different sources of drinking water and different sanitation issues may apply
20	Type of dwelling roofing material 20.1 percentage of homes with improved roofs 20.2 Does (each) household have an improved roof on their home	Type of roof (material used) for each surveyed household List of (country or region specific) roof types considered to be "acceptable" and those indicative of poverty	Indicator 20.1 value is the mathematical percentage of all surveyed households that have a roof made of "acceptable" or improved materials, i.e., not thatch or collected natural materials Indicator 20.2 values are the answers for each specific surveyed household	"Improved roof material" is usually taken to mean some man-made material such as shingles, metal, or tiles, but NOT just thatch or other naturally occurring material collected from the bush This indicator may be problematic, but seems to be used by many of the references in Section 6. How to use this as stated as indicator of poverty? Ref 137(V) classes homes as permanent or semi-permanent, so wall, roof material indicator implied by that Maybe only applicable in rural areas since in urban areas many households live in apartments or communal buildings that they don't own
21	Average number of months/year when households have sufficient food for everyone in the household	Number of months in the last 12 months that each surveyed household felt that they had enough food	Indicator 21.1 value is the mathematical average of the number of months in the last 12 months that each surveyed household had sufficient food for everyone Indicator 21.2 values are the answers for each specific surveyed household	Each household applies subjective definition of "enough food" If a household has to sell productive assets to buy food, this indicates threat to livelihood/extreme circumstances, not routine coping strategy Fundamental indicator of wellbeing, food security

Indicator		Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
22	Percentage of household expenditure/consumption devoted to food (FC)	Amount of money spent on food in the last month (F) Total amount of money spent on all needs in the last month (T)	FC = Percentage of Consumption Used for Food FC = (F/T) * 100	Identifies those households that have very low incomes and so spend a disproportionate amount of money on food; indicator of poverty. Many of the poor do not have access to enough land to grow enough food for their households and have few if any animals to provide a source of food, and so are forced to spend most of what little income they get on food This indicator can be used for targeting by identifying those households with very low levels of discretionary income for non-food items Consumption/expenditure data used to determine poverty headcount or total household expenditures can be used to calculate this indicator at no extra work Households with consumption on food over 60% (or some similar %) may be considered poor As income goes up, a higher proportion can be spent on non-food needs
23	Education level 23.1 Level of education (years of school or similar)) of head of household 23.2 Percentage of heads of household that completed primary school 23.3 Percentage of primary school age children that are enrolled in primary school	Number of years of school of head of household Did each head of household complete primary school (Yes/No)? Number of children in each surveyed household of primary school age Number of children in each surveyed household of primary school age that are enrolled in primary school	Calculated as averages over all surveyed households and can also be used at the household level as indicators of poverty and for defining and targeting poverty reduction programs	Considered a primary indicator and correlate of poverty. Also, these indicators (especially 22.1) often have a causal relationship to poverty With education other livelihood options can open up, reduce poverty Poorest usually have very low education levels Primary school attendance rates can also be used Many of the references use education of the head of household and not education of other household members Ref 113(P) looked at education of all household members Ref 116(P) used Head of Household, kids, Some refs (e.g., 130(T) used just children) Ref (129T): education of Head of Household should be dominant factor in determining household welfare and poverty Ref 133(T) p 5 – Household where head of household has at most primary education experienced a larger increase in poverty when hard times came – i.e., are more vulnerable
24	Occupation (category) of adult household members or head of household	Occupation of the head of household as asked in household survey May also want occupations of all	Calculated as percentage of households whose primary occupations fall into each of a number of specified categories or specific occupations	How to define occupation groupings that will be applicable in all member states References to the correlation between poverty and household head occu-

Indicator		Data Needed to Calculate Value and Data Sources	Formulas	Comments/Justification
		adults in the household		pation for Cambodia, Indonesia, Philippines, Thailand, and Viet Nam Need to distinguish between rural and urban occupation categories Many household surveys may include this information Can group some occupations (e.g., rural agriculture workers) into "poverty-related" categories See OPMS (WFP Indonesia) survey questionnaire for suggested categories May be limited to households in the "informal" or other specified occupation sector
25	Age Dependency Ratio	Population aged 0-14 years (P_{014}) Population aged 65 years and over (P_{65}) Population aged 15-64 years (P_{1564})	$((P_{014} + P_{65}) \times 100) / (P_{1564})$	Indicator presented in ADB *Key Indicators for Asia and The Pacific 2008* (Reference 146) Gives insight into the percentage of the people in the country that are being supported by the (assumed) working population. Can be calculated at the household level, and suggests extent of difficulty of household in improving their economic status (higher dependency ratio suggests more difficulty)

Notes:

The data in this column is mostly compiled from unofficial sources and so may not be current and/or correct

Member state abbreviations: B—Brunei Darussalam, C—Cambodia, I—Indonesia, L—Lao PDR, MA—Malaysia, MY—Myanmar, P—Philippines, S—Singapore, T—Thailand, V—Viet Nam.

Applicability of Recommended Indicators

One key issue is the applicability or *scope* of the recommended indicators. Typically, indicator values are calculated for large populations, not just the poor. This is true for census surveys, demographic and health surveys (DHS), as well as most other surveys carried out by ASEAN Member States. Therefore, parameters like those describing malnutrition rates are typically *national or regional* in scope, and are not calculated for or applied exclusively to the poor. However, they *may* implicitly reflect on only the poor.

Changes in the national or regional level values of many of these parameters are actually indicative of changes in the lives of the poor. For example, when malnutrition rates drop, it is unlikely that better nutritional intake among elites caused the drop. The value of a parameter at a point in time may not be specific to the poor—or indicate how many poor there are or where they are—but changes in the values *over time* often reflect changes in their wellbeing, which is the ultimate objective of these indicators.

Of course, depending on the identifier variables and other data in the source surveys used to collect data it may be possible to determine the values of indicators for only the poor more directly. This follows from the use of a poverty line, in which the percentage of households that fall below the line is determined; whether the line is defined in terms of food and other necessity "baskets" and based on income or consumption, or whether some fixed per capita income level is used, each household in the surveys can be classified as poor or non-poor.

Once the poor are directly identified as such within a dataset, it is an easy matter to disaggregate the calculated values of the household level indicators by this classification (or by gender, ethnicity, geographical region, etc). Therefore, applying this approach to a series of surveys can provide a more direct measurement in changes in the lives of the poor. Note, however, that it may be more difficult to disaggregate some of the national indicators such as *human development index* or *life expectancy* to subsets of the population because of the way in which they are calculated.

Therefore, the recommended poverty indicators do not have to be *limited* to the poor; they simply have to be subject to interpretation regarding their implications about the poor by one or both of the methods just noted.

Data Sources

Most data required to calculate the indicators will come from household surveys and most data are probably already being collected. Surveys likely to include these data include household expenditure surveys, DHS, population census, national service delivery surveys, ministry information systems (Reference 4, slide 22). Table 3-4 provides information on surveys existing as of 1999 that could provide data for constructing poverty lines and other analyses (Reference 44, p. 5). Not all countries have information listed in the table, and the information may be out of date—but it does suggest the kinds of studies that may provide the needed data, if those studies are not already being conducted.

Table 3-4. Sample Household Surveys with Data for Constructing Poverty Lines

Country	Title of Survey	Agency
Brunei Darussalam	Population Census Household Expenditure Survey	Department of Statistics, Department of Economic Planning and Development, Prime Minister's Office Department of Statistics, Department of Economic Planning and Development, Prime Minister's Office
Cambodia	Socio-Economic Survey of Cambodia (SESC)	National Institute of Statistics, Ministry of Planning
Indonesia	National Socio-Economic Survey (SUSENAS)	Central Bureau of Statistics
Lao PDR	Expenditure and Consumption Survey (LECS)	National Statistical Centre, State Planning Committee
Malaysia (Peninsular)	Household Income and Expenditure Survey	Department of Statistics
Myanmar	Integrated Household Living Conditions Assessment (IHLCA)	Planning Department, Ministry of National Planning and Economic Development
Philippines	Family Income and Expenditure Survey (FIES) Annual Poverty Indicator Survey (APIS)	National Census and Statistics Office Demographic and Social Statistics Division National Statistics Office
Singapore	Population Census General Household Survey Household Expenditure Survey	Department of Statistics
Thailand	Socio-Economic Survey (SES)	National Statistics Office
Viet Nam	Survey of Wealth and Poverty	General Statistics Office

Some of the problems with trying to analyze the situation in one country by using just one of these surveys or by attempting to combine the data from more than one of them to address the needs of poverty analyses are also noted in this reference:

> Although these surveys may be nationally representative, the samples are generally not large enough to provide reliable and detailed inputs in respect of small regions and population groups. The small size of the sub-samples do little to shed light on the characteristics of the families/households who live below the poverty line.
>
> In most cases there is also a need to combine information from one survey with information from another survey to obtain a more comprehensive picture of the poverty syndrome. While income and consumption expenditure data used for constructing the poverty line are usually provided by family budget surveys, information needed for compiling poverty profiles and social indicators come from other surveys such as labor-force surveys, socio-economic surveys, demographic or health surveys.
>
> The different surveys may be conducted at different times by different agencies and cover different samples of the population and therefore may not be strictly comparable. (Reference 44, p. 5)

Of course, defining and implementing one comprehensive survey with a suitably large sample size can solve all problems associated with trying to combine data from various surveys; however, the cost and manpower required to do this on a periodic basis is significant so drawing on existing surveys to the greatest extent possible is preferred. It is likely that surveys in ASEAN Member States are not conducted frequently enough to provide timely updates for poverty analysis. Each member state must decide whether it is worthwhile to conduct surveys

more frequently. Some data might not be available in any surveys, and obtaining such data will require adding questions to surveys or mounting new surveys. A comprehensive analysis of existing, relevant surveys in the ASEAN Member States should be undertaken to address this issue.

Finally, many recommended indicators are already officially in use in the member states. Table 3-5 contains the most current data available (August 2009), but will be updated when member states can provide information for the final version of this report. Note that the different statistics from the different member states are often from different years; in order to keep table 3-5 more easily readable, the year for each particular statistic is *not* presented in the table.

Note in Table 3-5 that where a particular indicator is not applicable or relevant to a particular country, the table denotes this by "N/A" (Not Applicable). Where a particular country has reported that they will provide any specific indicator value at a later time or will need to determine its availability, Table 3-5 denotes this by "TBD" (To Be Determined).

Table 3-5. Recommended Indicators of Poverty and Well-Being Currently in Use by ASEAN Member States

Candidate Indicators		Brunei Darussalam[7]	Myanmar[8]	Cambodia[9]	Indonesia[10]	Lao PDR[11]	Malaysia[12]	Philippines[13]	Singapore[14]	Thailand[15]	Viet Nam[16]
1	Poverty headcount/ratio[17]	N/A	32.0%	36.9%	24.1%	53.6%	--	32.9%	N/A	0.0%	16%
2	Poverty Gap	N/A	0.07%					7.7%	N/A		
3	Poverty Severity Index	N/A	0.02%					3.1%[18]	N/A		

[7] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146) and Government of Brunei Darussalam, *Brunei Darussalam Key Indicators 2008.* (Reference 147)

[8] Data from: Government of Myanmar, *Myanmar Update for Table 4 and Table 5.* (Reference 151)

[9] Data from: Government of Cambodia, *Cambodia Indicator Values.* (Reference 150) and *Key Indicators for Asia and the Pacific 2008* (Reference 146)

[10] Data from: Asian Development Bank, *Key Indicators for Asia and the Pacific 2008* (Reference 146)

[11] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146)

[12] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146)

[13] Data from: Government of The Philippines, *Comments on "Poverty and Well-Being for ASEAN Member Countries* (Reference 154), Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146) , and the Annual Poverty Statistics Survey (APIS) 2004 (Preliminary results). Demographic and Social Statistics Division, National Statistics Office (Internet at: http://www.census.gov.ph/data/pressrelease/2005/ap2004ptx.html) . Also, additional submitted data from: Government of The Philippines, *Comments/Inputs/Suggestions on Poverty and Well-being for ASEAN Member Countries,* Reference years 2003-2007. (Reference 158) Sources referenced by the document within the Government of the Philippines include NSCB, National Nutrition Survey (NNS), National Statistics Office (NSO), National Nutrition Survey (NNS) National Demographic and Health Survey (NDHS), Annual Poverty Indicator Survey (APIS), Family Income and expenditure Survey (FIES), 2000 Census of Population and Housing

[14] Data from: Government of Singapore, *Aggregated Indicators of Poverty or Wellbeing (Singapore),* (Reference 156) and Government of Singapore, *Comments from Singapore for Poverty Indicator Report* (Reference 157). Note: all entries not marked "Not Applicable" ("N/A") will be provided by the Government of Singapore. Note that a revised version of Reference 156 has also been provided (Reference 160).

[15] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146)

[16] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146)

[17] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146, page 32) using the Asian Poverty Line of $1.35 per day using the Poverty-Specific (PS) Purchasing Power Parity (PPP)

Candidate Indicators		Brunei Darussalam[7]	Myanmar[8]	Cambodia[9]	Indonesia[10]	Lao PDR[11]	Malaysia[12]	Philippines[13]	Singapore[14]	Thailand[15]	Viet Nam[16]
4	Human Development Index[18]	.894	Not available	.598	.728	.601	.811	.614[18]	.922	.781	.733
5	Physical Quality of Life Index (PQLI)		Not available						100.3		
6.1	(Malnutrition) Stunting rate ("Moderate" plus "Severe")		46.2%					29.9%	Not available		
6.2	(Malnutrition) Wasting rate ("Moderate" plus "Severe")		10.3%					5.3%	Not available		
6.3	(Malnutrition) Underweight rate ("Moderate" plus "Severe")		39.2%					26.9%	Not available		
7	Life expectancy, at birth (years)[19] (Urban plus rural, males and females combined)	76.4	61.6	58.9	68.2	63.9	74.0	71.4	80.9	70.2	70.8
8	Adult literacy rate (Measured for persons 15 years and older)[20]	93.7%	94.9%	76.3%	91.4%	73.4%	91.9%	93.4%	96.3	94.1%	90.3%
9	Mortality rate of under-5-year olds	9.5%	6.6%					42%	TBD		
10	Average household income		Not available					PhP173,000	S$6,826 per month		
11	Total household expenditures/ consumption (per household)		232,504 Kyats						S$3,764 per month		
12	Total value of all household assets		Not available						Not available		

[18] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146, page 129)

[19] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146, page 130, data for 2007)

[20] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146, page 132, data from2007 except Myanmar data from 2000, Vietnam data from 1999)

Candidate Indicators		Brunei Darussalam[7]	Myanmar[8]	Cambodia[9]	Indonesia[10]	Lao PDR[11]	Malaysia[12]	Philippines[13]	Singapore[14]	Thailand[15]	Viet Nam[16]
13	Amount of land owned by household (m2 or ha)		Not available						N/A		
14.1	Average "remoteness index"		Not available						N/A		
14.2	Remoteness index for each surveyed household		Not available						N/A		
14.3	Percentage of population with access to all-weather roads[21]	Not available	Not available	87.0%	94.0%	59.0%	Not available	Not available	N/A	Not available	76.0%
15.1	Percentage of population that has is connected to electricity grid	99.7%	Not available					84%	100%		
15.2	Is (each) household connected to electricity grid?	99.7%	Not available						Yes		
16.1	Percentage of population with access to safe drinking water	99.9%	79%	58.6%				90%	100%		
16.2	Does e(each) household have access to safe drinking water								Yes		
17.1	Percent of population with access to improved sanitation		80.02%	33.3%				86%	100%		
17.2	Does (each) household have access to improved sanitation							88.4%	Yes		
18	Type of dwelling roofing material								N/A		
18.1	Percentage of homes with improved roofs		41.9%					73.2%	N/A		
18.2	Does (each) household have an improved roof on their home								N/A		
19	Average number of months/year when households have sufficient food for everyone in the household								Not Available		

[21] Data from: Asian Development Bank , *Key Indicators for Asia and the Pacific 2008* (Reference 146, page 214, although "access" is not explicitly defined here)

Candidate Indicators		Brunei Darussalam[7]	Myanmar[8]	Cambodia[9]	Indonesia[10]	Lao PDR[11]	Malaysia[12]	Philippines[13]	Singapore[14]	Thailand[15]	Viet Nam[16]
20	Percentage of household expenditure/ consumption devoted to food		73%					41.4%	21.6%		
21.1	Level of education (years of school or similar)) of head of household								9.9		
21.2	Percentage of heads of household that completed primary school		68.3%						81.4		
21.3	Percentage of primary school age children that are enrolled in primary school		85.3%					83.1%	97.1		
22	Age Dependency Ratio[16]	47.9%	47.8%	66.4%	50.7%	73.8%	54.8%	73%	63.5%	41.6%	52.5%

4. Next Steps

This report is the first in a series of steps necessary to develop a set of poverty indicators that will be accepted and used by all ASEAN Member States. To advance the process, the activities described below are recommended for action. A specific schedule for these activities will depend on defining realistic review cycles for the ASEAN Secretariat and ASEAN member states; an indicative schedule was proposed at the Hanoi conference and will be the basis for determining a schedule that will be accepted by ASEAN and the individual member states.

1. Review of this Report

All of the ASEAN Member States have attended the presentation of the first draft of this report at the Preparatory Senior Officials Meeting of the Sixth ASEAN Ministers Meeting on Rural Development and Poverty Eradication (PrepSOM of the 6th AMRDPE) held on 25-26 May 2009 in Ha Noi, Viet Nam. The report was then partly revised and presented again at the meeting at the Impact Of The Global Economic Slowdown On Poverty And Sustainable Development In Asia And The Pacific conference held 28-30 September in Hanoi, Vietnam.

Subsequent to that meeting, a number of the member states provided comments, suggestions, and country-specific values for some of the recommended indicators. These comments have been included in this final report.

The next step for the member states in supporting this initiative should be that they review this final report to determine which of the proposed indicators are applicable to their country, and which of these are currently measured or assessed in their country through periodic surveys such as those concerned with the census, household consumption and/or expenditures, or demographic and health surveys (DHS), etc.

For example, the Government of Singapore has pointed out that it does not have an official poverty line and so indicators such as the *poverty head count*, *poverty gap ratio,* and *poverty severity index* that are defined in terms of a poverty line are not applicable to Singapore. Additionally, the Government has noted that because Singapore is largely urban, many of the indicators that are measures of rural poverty are also not applicable to Singapore (Reference 156). Similar cases may exist for the other member states and should be identified at the earliest opportunity.

2. Member States Decide on Participation in This Initiative

Each of the ASEAN Member States should internally determine the extent to which they want to participate in this initiative. This decision will include the determination of whether or not external support is desired by the member state to support this initiative. This support could, depending on their specific needs, enhance their capacity to collect the data needed to meas-

ure each of the recommended indicators, and/or to do the analysis necessary to perform the indicator assessment. This external support might entail an onsite visit by an external consultant to the National Statistics Office of the participating member states to collaboratively perform a detailed review of existing survey so as to determine what data are currently collected, and how these existing surveys can be augmented to collect the data needed for the poverty indicators. A Data Collection/Analysis Plan might also be developed for each participating member state as part of this external support. It should be noted here that the extent of this participation is entirely voluntary, and the decision regarding what level of participation is appropriate and what external support might be needed will be made solely by each member state.

3. Provide Current Materials and Data Sources

Table 3-3 identifies the specific types of data needed and individual parameters for calculating indicator values. Member states that elect to participate further in this initiative should make available all material that addresses these data types and specific pieces of data identified in Table 3-3. In addition, all pertinent surveys and other data collection activities, such as those listed in Table 3-4, should be identified and English versions of the relevant questionnaires or other data collection forms made available for review prior to any onsite support visit from an external source. After an external support person reviews the materials provided by the participating member states, a trip by that external support person to most or all of the member states requesting such support should occur. This will provide the opportunity for each member state to work together with the external support person on this initiative.

4. Identify Data Gaps and Ways to Address Them

Existing survey questionnaires and data collection forms from other relevant data collection activities should be reviewed by the National Statistics Office staff of each participating member state to ascertain any gaps between the specific data needed and those data that are currently available. Note that most if not all household surveys should routinely include questions/variables that will permit disaggregation of data by gender, geographic region or area, ethnicity, etc. If such variables are not already in the surveys, they should be added. Disaggregation of data by gender is especially important given the socio-economic disadvantages of female-headed households that exist in many different countries and the need for poverty reduction strategies to target these households and to measure their relative gains *vis a vis* their male-headed counterparts.

If some data gaps turn out to be too difficult or costly to fill, the member state(s) should identify such gaps so the list of recommended indicators can be collectively or individually modified as needed. Member states should also communicate their concerns or need for additional external support with data collection and/or data analysis to the Secretariat so that possible sources of assistance can be identified.

5. Present Final Results and Status to ASEAN Secretariat

The results of the preceding steps will be collated by the ASEAN Secretariat and consolidated in a follow-up report. This report will cover the set of indicators accepted/rejected by each member state; indicators that apply to all member states; constraints on accepting certain, if any, problematic indicators; agreements on future actions; and the external support (if any) that members states will need in collecting data and calculating and tracking indicators.

6. Develop Support Schedule

A plan for seeking additional support to this initiative will then be developed. The plan will also address any further revisions to any reports and any other activities that must take place as revealed by implementation of the preceding steps.

Appendix A. Example Estimation of a Poverty Line

Extracted and quoted directly, with only minor clarifications to the English, from Thailand's Official Poverty Lines, *published by the National Economic and Social Development Board of Thailand. The publication is undated, but internal references suggest it was written no earlier than 2004. In the interests of brevity, some sections have been omitted here; the original section numbers are retained. Note that here the total minimum number of required calories is based on the age/gender of each household member; these figures are used to develop an average minimum household level calorie total and cost that are used here, although the details of this step are omitted from the text.*

ESTIMATING THAILAND'S OFFICIAL POVERTY LINES

The methodology for calculating the official poverty line was developed by Kakwani and Krongkeaw (Kakwani, Nanak and Medhi Krongkaew, 1998, "Poverty in Thailand: Defining, Measuring and Analyzing," Working Paper No. 4, Development Evaluation Division, office of the National Economic and Social Development Board.).

The official poverty line is considered an absolute concept, based on the cost of basic needs, which is the sum of food and non-food items. A household is classified as poor if its per capita income is less than the household specific poverty line.

1.1 Defining Food Poverty Lines

The food poverty line is derived from an estimation cost of food baskets used to meet calorie requirements of individual household. To which, the per capita household calorie requirement is defined by aggregating a required calories-per-day of each household member with respect to their age and sex. This household calorie requirement is then converted into monetary terms, i.e., the amount of calories that can be bought with one baht.

Step 1: $CAL_h = \sum \left(CAL_i \right)$ for all household members "i" in the household

Step 2: $CALBHT_i = \left(\sum \left(cq_s / E_{rs} \right) \right) / 5$

Where:

c is the conversion vector used to translate the amount of each food item consumed into calorie numbers;

qs is the quantity vector of food (non-food) basket in region s; and, Ers is thus food (non-food) total expenditure in region s using price of region r.

- The cost of calories was constructed, using food baskets and spatial price indices in 1992. It is noted that the spatial price indices were constructed for the year 1992. Updating for other years is done using the food and non-food CPI. (Consumer Price Index)
- The cost of calories was based on average food baskets in different regions (since the regional baskets are more cost efficient than the municipal baskets).
- The cost of calories for other years is updated using the food price indices.

These will yield the food poverty line (FPL): Food Poverty line = [calorie requirement (from step 1) * 30days] /calories obtained per Baht (from Step 2)

Step 3: $FPL_h = : CAL_h / CALBHT_r$

1.2 Calculating Non-Food Poverty Lines

Engle's Ratio is applied for calculating non-food poverty line. The non-food poverty line is calculated by using the estimated food to total expenditure ratio assuming that food consumption accounts for 60 % of total consumption at the poverty lines. This is then adjusted for regional price differences.

1.3 Calculate the Total Poverty Lines

Household specific poverty line is sum of food and non-food poverty line. To which, non-food poverty line is two-third of food poverty line.

Step 4: $PL_h = FPL_h + NFPL_h = FPL_h * \left(1 + (2/3) * (SPInf_r) / SPIf_r)\right)$

Where, $NFPL_h$ is non-food poverty line for household h, $SPInf_r$ is non-food spatial price index for region/area r, and $SPIf_r$ is food spatial price index for region/area "r".

SOME CONSIDERATIONS ON CURRENT THAILAND'S OFFICIAL POVERTY LINES.TECHNIQUE USED

There were criticisms regarding technique used in calculating the official poverty line. Jitsuchon and Plangpraphan (Jitsuchon, Somchai and Jiraporn Planpraphan, 2001, "An Inquiry into the Proper Measurement of Poverty in Thailand", paper presented at the 2001 Annual Conference of the Federation of ASEAN Economics Associations, Bangkok, Thailand.) argued that the current method with the assumption that the ratio of food consumption is 60 percent of total expenditure does not allow for the adjustment in consumption behavior especially in the case of the aftermath of the 1997 economic crisis where the relative price of food to non-food changes substantially. Some suggestions were to use the actual share of food expenditure of the poorest 20 percent of population to calculate poverty line instead of the current method (with the assumption that the ratio of food consumption is 60 percent of total expenditure). Other suggests using the actual expenditure data. Other debates such as the use of proper baskets as representing the least cost consumption pattern and the use of income versus consumption deprivation as a measurement of poverty still remain.

REVISING OFFICIAL POVERTY LINES[22]

Recently, a country has revised methodology in developing new poverty line with technical assistance from UNDP and Thailand Development Research Institute. Though, both the current poverty line and the proposed new poverty line apply common concept of absolute poverty, based on cost of basic needs—the sum of food and non-food consumption. However, poverty incidence will be measured both household income

3.1 CALCULATING FOOD POVERTY LINE

3.1.1 Change in Nutritional Requirement

However, in 2003, Nutrition Division, Department of Health, updated a recommended nutritional requirement per day for Thais, as shown in Table 3. Thus, poverty line should capture this change whether to update the whole series, or, to begin in 2002, as to reflect this change in dietary practice of the Thais.

Table 3. Comparing Recommended Dietary Allowance 1988 and 2003

Old Thai Recommended Dietary Allowance			New Thai Recommended Dietary Allowance		
Age Group (years)	Male	Female	Age Group (years)	Male	Female
			Less than 1	800	800
1-3	1200	1200	1-3	1000	1000
4-6	1450	1450	4-5	1300	1300
7-9	1600	1600	6-8	1400	1400
10-12	1850	1700	9-12	1700	1600
13-15	2300	2000	13-15	2100	1800
16-19	2400	1850	16-18	1300	1850
20-29	2787	2017	19-30	2150	1750
30-59	2767	2075	31-50	2100	1750
60+	1969	1747	51-70	2100	1750
			71+	1750	1550

SOURCE: Nutrition Division, Health Department, Ministry of Public Health, 2003.

3.1.2 Change in Spatial Price Index

The current poverty line used consumption pattern and price of commodities in 1992 as base year, with which ten years differences may be inappropriate to reflect consumption, life style, and living standard of this new millennium. Therefore, consumption pattern and commodities price of 2002 was employed, using the consumption pattern of 1st income quintile as reference.[23]

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[22] Proposed new methodology developed by Dr. Somchai Jitsuchon, Director of Macroeconomic Policy Program, Thailand Development Research Institute, in closed consultation with Prof. Nanak Kakwani, Director, Institute of Poverty Studies, UNDP.

[23] Details of the calculations for this were not legible..

3.3 CHANGE TECHNIQUE IN CALCULATING NON-FOOD POVERTY LINE

The current method applies Engel's law by using fixed ratio of food poverty line and non-food poverty line. The proposed new poverty line adopts a utility approach in calculating non-food poverty line. (Using this approach) the calculation of non-food poverty line will be based on nine basic items, i.e., clothing and footwear, shelter, fuel and light, household goods, medical, personal care, transport, communication, and education. To which, the cost of consumption of these nine items would yield the same utility as obtained from food poverty line. [24]

3.4 TOTAL POVERTY LINE

The total poverty line is sum of food and non-food poverty line.

[24] Details of the calculations for this were not legible.

Appendix B. Calculation of Life Expectancy

CALCULATING EXPECTANCY[25]

The starting point for calculating life expectancies is the age-specific death rates of the population members. For example, if 10% of a group of people alive at their 90th birthday die before their 91st birthday, then the age-specific death rate at age 90 would be 10%.

These values are then used to calculate a life table (see below), from which one can calculate the probability of surviving to each age. In actuarial notation the probability of surviving from age x to age x+n is denoted ${}_np_x$ and the probability of dying during age x (i.e. between ages x and x+1) is denoted q_x.

The life expectancy at age x, denoted e_x , is then calculated by adding up the probabilities to survive to every age. This is the expected number of complete years lived (one may think of it as the number of birthdays they celebrate).

$$e_x = \sum_{t=1}^{\infty} {}_tp_x = \sum_{t=0}^{\infty} t\,{}_tp_x q_{x+t}$$

Because age is rounded down to the last birthday, on average people live half a year beyond their final birthday, so half a year is added to the life expectancy to calculate the full life expectancy.

An average age for death expectancy is very close life expectancy (and exactly same for the exponential growth of death rate with increasing age).

$$e_x = \frac{\sum_{t=x}^{\infty} t q_t l_t}{\sum_{t=x}^{\infty} q_t l_t},$$

CALCULATING LIFE TABLES[26]

In actuarial science, a **life table** (also called a **mortality table** or **actuarial table**) is a table which shows, for a person at each age, what the probability is that they die before their next birthday. From this starting point, a number of statistics can be derived and thus also included in the table:

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[25] Quoted directly from http://en.wikipedia.org/wiki/Life_expectancy

[26] Quoted directly from http://en.wikipedia.org/wiki/Life_table

- the probability of surviving any particular year of age
- remaining life expectancy for people at different ages
- the proportion of the original birth cohort still alive
- estimates of a cohort's longevity characteristics.

Life tables are usually constructed separately for men and for women because of their substantially different mortality rates. Other characteristics can also be used to distinguish different risks, such as smoking-status, occupation, socio-economic class, and others.

THE MATHEMATICS

To give an indication of how life tables are used, here are a few sample calculations. These samples may not be obvious to someone who has never studied probability theory, but are intended to introduce new ideas to people who have some understanding of discrete probability theory.

q_x: the probability that someone aged exactly x will die before reaching age $(x+1)$.

p_x: the probability that someone aged exactly x will survive to age $(x+1)$.

$$p_x = 1 - q_x$$

l_x: the number of people who survive to age x

note that this is based on a starting point of l_0 lives, typically 100,000

$$l_{x+1} = l_x \cdot (1 - q_x) = l_x \cdot p_x$$

$$\frac{l_{x+1}}{l_x} = p_x$$

d_x: the number of people who die aged x

$$d_x = l_x - l_{x+1} = l_x \cdot (1 - p_x) = l_x \cdot q_x$$

${}_tp_x$: the probability that someone aged exactly x will survive for t more years, i.e. live up to at least age $x + t$ years

$${}_tp_x = \frac{l_{x+t}}{l_x}$$

${}_{t|k}q_x$: the probability that someone aged exactly x will survive for t more years, then die within the next k years

$${}_{t|k}q_x = {}_tp_x \cdot {}_kq_{x+t} = \frac{l_{x+t} - l_{x+t+k}}{l_x}$$

${}_tm_x$: the mortality rate between exact age x and exact age $x + t$

$${}_tm_x = ln(1 - {}_t\,q_x) \cdot \frac{-1}{t}$$

Appendix C. Adjustment of Food Prices[27]

In seeking to compare consumption between households, and use the comparison to assess poverty and inequality, it is important to take account of two additional points.

- First, households face different prices depending on the time of year when they are reporting their consumption (for example whether it is before or after the harvest periods); and also depending on where they live in the country (for example, households in the City of Kigali generally face higher prices for food than households in many rural areas). These differences in prices need to be taken into account, and this is done so here by calculating a price deflator.
- Second, households differ in the number of members they have and in the age of these members, so that larger households or those with a higher proportion of prime age adults are likely to have higher consumption needs. This is done here by means of an adult equivalent scale, which allows household size to be measured in terms of "adult equivalents", recognising that the consumption needs of younger children for instance will be less than those of prime age adults.

ADJUSTING FOR DIFFERENCES IN PRICES FACED BY HOUSEHOLDS

In using the household consumption aggregates computed above it is important to express all consumption values in a common set of prices, taking account of differences in commodity prices over space and time. There are three dimensions to this:

(i) there are significant differences in price levels between different areas of the country, reflecting levels of transport costs as well as other factors including local production patterns, and where imported commodities arrive into the country;

(ii) there are significant differences in prices of food commodities in particular across different seasons of the year (as well as inflation over the year), and the valuations provided by respondents are likely to reflect prevailing prices at the time of interview;

(iii) in comparing poverty between (two different times) it is essential to take account of inflation over the period between the surveys.

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[27] This appendix is quoted almost entirely from References 28 (89-92) and 32 (5).

Adjustments have been made for this by means of a Laspeyres price index, considering food and non- food commodities separately. This index is computed as follows:

$$P_{r,t} = \sum_{i=1}^{m} w_{i,0,0} \left(P_{i,r,t} / P_{i,0,0} \right)$$

where i (i=1, …,m) indicates the commodity, Pr,t is the price index for location r in time period t; Pi,r,t is the price of commodity i in location r in time period t; pi,0,0 is the price of commodity i in the reference location (r=0) and time period (t=0); and wi,0,0 is the budget share of commodity i in the reference location (r=0) and time period (t=0).

These budget shares are computed to include values of consumption of own production as well as purchases; this is appropriate because it is used to deflate a welfare measure which includes autoconsommation as well as purchases.

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