

An Alternative Measure of Poverty and Human Capability

Introducing the Quality of Life Index

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This article is based on a series of studies done by Action for Economic Reforms (AER) to develop an alternative measure of poverty. The measure, simply referred to by AER as the Quality of Life Index, or QLI, uses a pure capability-based approach in measuring accomplishment in human development. The index is not only a measuring instrument; it also serves as a framework for planning at the national and local levels. It is an effective advocacy tool as it underscores the importance of human development and makes it a priority concern in local development work. AER has applied and generated QLI scores across regions and provinces over time and for municipalities in pilot provinces. In this publication, Social Watch presents the latest Quality of Life Indices for Philippine provinces.

Much of the current data on poverty need to be consolidated into useful knowledge-bases if they are to give deeper insights into the situation of the poor in local areas.

The fight against poverty is often hampered by the lack of information concerning the poverty situation and the particular circumstances of the poor. Such gaps in poverty analysis can easily result in deficient planning and poor targeting. This problem is felt nationally and is even more apparent at the sub-national levels. In reality, there is very little information on the poverty situation from the level of provinces down to municipalities and barangays across the country. One obvious reason for this is the limited capacity of local units to collect and process information on a regular basis. Moreover, existing income and poverty measures may not be applicable or may be too difficult to replicate at the local level.

Official government surveys present the national poverty situation and churn out comparative statistics across regions and provinces. However, the breakdown of income and poverty statistics does not go beyond the level of provinces. Numerous economic and social indicators are collected and compiled by national agencies and local governments. Unfortunately, much of these data are not consolidated into useful knowledge-bases that can provide deeper insights into the situation of the poor in local areas. Without locating and knowing the particular circumstance of the poor, anti-poverty planning easily gives way to political expediency and parochial interests.

There is a clear need for more information to monitor and assess the poverty situation across the country. Indicators provide some answers, but raise more questions and issues and stimulate responses and further inquiries as well. In this sense, indicators can start a process of building knowledge and developing strategies. The articulation of such a need is one major reason for developing the Quality of Life Index (QLI). This article explains

the concept behind the index, its component indicators, and its basic features, and compares the index with other poverty measures, particularly the Human Development Index (HDI).

To provide background, the article will discuss in broad strokes the various concepts and approaches in measuring poverty as applied and practiced in the Philippines. It will present a menu of social indicators and composite indices that are currently being used by both government and nongovernmental institutions. The article will also discuss the need for generating development indicators and their continuing relevance, both at local and national levels.

From economic to social indicators

The development of social indicators is fairly recent. Researches on social indicators sweeping across western nations in the mid-1960s were stimulated largely by the realization that affluence alone does not guarantee improvement in the quality of living. "There was increasing doubt whether more should ever equal better, and it became a public claim to prefer quality to quantity. The concept of 'quality of life' was born as an alternative to the more and more questionable concept of the affluent society and became the new, but also much more complex and multidimensional goal of societal development" (Noll n.d.). Thus, measures apart from income came about, became popular, and are now used extensively to design social programs.

In the Philippines, one such early initiative was the Social Indicators Project that was commissioned by the Development Academy of the Philippines (DAP) in 1973. The project identified nine basic social concerns, after which, variables were derived to measure each concern. These concerns included the following: (1) health and nutrition; (2) learning; (3) income and consumption; (4) employment; (5) non-human productive resources; (6) housing, utilities, and environment; (7) public safety and justice; (8) political values; and (9) social mobility. The project presented new perspectives in the assessment of well-being. Ultimately, it proposed a comprehensive set of 30 major indicators and 16 sub-indicators (Balisacan et al. 1998).

Since 1973, numerous measures and social indicators have been proposed. These fall into two broad categories: (1) income- or expenditure-based measures, and (2) outcome-based measures. The outcome-based approach focuses on the ends of the development process, such as the enhancement of human functioning and capabilities. Still another category is the perception-based poverty measure that has been popularized in the Philippines by the Social Weather Station (SWS).

Starting in 1985, government statistics agencies generated household income and poverty statistics on a triennial basis. The income statistics are derived from the Family Income and Expenditure Survey (FIES) conducted by the National Statistics Office (NSO) in three-year intervals. The National Statistical Coordination Board (NSCB) generates the poverty statistics based on a threshold level. In 1998, the NSO introduced the Annual Poverty Indicators Survey (APIS) that was designed to generate non-income indicators that correlate strongly with the socio-economic profile and poverty situation of families. (See Box 1, "Menu of Poverty Measures," on page 99 for details on the basic features of income and poverty statistics generated by the NSO and the NSCB.)

The introduction of the Human Development Index created tremendous impact on poverty assessment and development analysis.

The introduction of the Human Development Index (HDI) in 1990 created a tremendous impact on poverty assessment and development analysis. The proponents of HDI assert that poverty must be viewed from a human development perspective, stressing that poverty is not simply the lack of income but “the denial of choices and opportunities for a tolerable life ... to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect of others” (UNDP 1997).

Numerous derivatives of HDI have been developed. Among the most popular are the Human Poverty Index (HPI) and the Gender Development Index (GDI). The HDI also influenced the development of similar composite indices to measure various dimensions of development and social progress. In the Philippines, the Human Development Network “localized” the HDI and produced provincial breakdowns for 1991, 1994, and 1997. In developing a conceptual framework for a poverty monitoring system, Balisacan et al. generated the Human Poverty Indices for Philippine provinces for the period 1990-96. This study done by Balisacan et al. in April 1998 computed the Human Poverty Index using the mean value (from 1990 to 1996) of each of the component variables. (See Box 1, “Menu of Poverty Measures,” for details on the component indicators of HPI as applied to Philippine provinces.)

Meanwhile, starting in 1992, the Minimum Basic Needs (MBN) Approach was developed and implemented as a framework for pursuing the government’s Social Reform Agenda. It serves as an integrated and community-based system for social analysis, planning, implementation, monitoring and evaluation. Focusing on poor communities located in fifth- and sixth-class municipalities, the MBN Approach introduced 33 minimum basic needs indicators that cover three major social concerns—survival, security, and enabling factors (LGA-DILG 1995). Starting in 1998, the MBN was given a major boost after it was partly adopted by the NSO for its Annual Poverty Indicators Survey.

To monitor its commitment to the World Summit on Social Development (WSSD), the Philippine government has endorsed for implementation the National Social Development Management Information System (SOMIS). The information system was based on a feasibility study of three countries, commissioned by the Economic and Social Commission for Asia and the Pacific (ESCAP). The SOMIS reflects the three-core social development goals—poverty alleviation, expansion of productive employment, and social integration. The ESCAP study identified 11 major social concerns and listed 53 key indicators. The SOMIS was conceptualized as an institutional mechanism to “serve as a ‘tool’ for social development

Box 1 Menu of Poverty Measures

The Official Poverty Statistics. The National Statistics Coordination Board (NSCB) started calculating the official poverty statistics in 1985 based on income data derived from the Family Income and Expenditure Survey (FIES) conducted by the National Statistics Office (NSO). In 1992, a revised methodology was adopted to improve the estimates of poverty in the country. The new approach excluded “non-food items that were not considered basic, such as alcoholic beverages, tobacco, recreation and durable furniture.” The 1992 methodology was used to generate poverty statistics for 1991, 1994 and 1997. Poverty incidence is computed based on the proportion of the population whose incomes fall below the poverty threshold level. Individuals whose incomes fall below the poverty threshold are said to be poor while those falling below the food poverty threshold are said to be absolutely poor. (Virola et al. 2000a.)

The NSCB has included the poverty gap and income gap measures to have a deeper appraisal of poverty in the country. “The poverty gap ratio measures the income shortfall over the whole population. On the other hand, income gap ratio measures the average income shortfall of those below the threshold” (Virola et al. 2000b).

Annual Poverty Indicators Survey (APIS). The APIS, introduced by NSO in 1998, aims to supplement current poverty statistics by generating non-income indicators during years when the FIES is not conducted. The survey complements the MBN Approach and uses 16 of the MBN indicators to present the profile of families and their living conditions. The APIS provides breakdown of the key indicators up to the provincial level. (Virola et al. 2000b.)

Absolute Cost-of-Basic-Needs Approach (Absolute CBN). The Absolute CBN Approach offers an alternative system to the official poverty statistics. Developed and popularized by Arsenio Balisacan, the poverty indicator is based on current consumption rather than on household income. Balisacan argued that consumption is a better measure of current welfare, since welfare level is determined by the life cycle or “permanent” income. This approach also differs from the official poverty statistics as it sets a fixed standard of living used for provincial comparison. Moreover, it is more practical and accurate to generate data on consumption. The fixed-level-of-living approach yielded a lower poverty incidence level and a difference in provincial ranking compared to the official poverty statistics generated by NSCB (Balisacan 1999).

One Dollar a Day (PPP\$) Poverty Line. The World Bank uses the poverty line of \$1 a day for international comparisons of poverty among countries, especially the developing economies. Poverty incidence is simply the “percentage of the population living at those levels of consumption or income at 1985 prices, adjusted for purchasing power parity” (World Bank 1999).

The Human Development Index (HDI). The introduction of the Human Development Index (HDI) by the UNDP in 1990 created a tremendous impact on the Philippines, as it provided a new dimension and a concrete measure in the assessment of people’s well-being. The HDI is based on the unweighted average of three indicators of well-being: longevity, as measured by life expectancy at birth; educational attainment, as measured by a combination of adult literacy (two-thirds weight) and combined primary, secondary and tertiary enrollment ratios (one-third weight); and standard of living, as measured by real GDP per capita (PPPS).

In the Philippines, the Human Development Network “localized” the HDI and generated provincial breakdowns for 1991, 1994 and 1997. The same basic methodology was used in computing the provincial HDIs, although a modified set of indicators was utilized to measure educational attainment and standard of living. The latest HDI provincial breakdown for 1994 and 1997 utilized the following indicators: life expectancy at birth, functional literacy and the combined elementary and high school enrollment ratio; and real income per capita (HDN-UNDP 2000).

The Human Poverty Index (HPI). The HPI is an alternative index introduced by the Human Development Report in 1997 to sharpen the perspective of the HDI by focusing on deprivation of the poorest section of the population. The HPI discarded income in the variable mix and included only “the most basic dimensions of deprivation: a short life, lack of basic education, and lack of access to public and private resources” (Doraid 1997). The HPI is regarded as a more powerful measure of poverty, as it focuses on the situation of the poor and most

deprived population group instead of the progress achieved by the entire community.

In the Philippines, a study team from the UP School of Economics generated the Regional and Provincial HPIs using the mean value (from 1990 to 1996) of each component indicator. The variables included in the composite index are the following: percentage of people expected to die before age 40; functional illiteracy; percentage of households without safe water; percentage of households without access to health services (Balisacan et al. 1998).

The Capability Poverty Measurement (CPM). The CPM is similar to the HPI; both are non-income measures. While the HPI measures deprivation, CPM measures human capabilities and functioning. The CPM is generated based on three basic dimensions of poverty in human capability: malnutrition, measured by the proportion of under-five children who are underweight; unattended births, measured by the proportion of births unattended by trained health personnel; and female illiteracy, measured by the proportion of adult women who are illiterate (SEPED 1997).

Gender-Sensitive Measures. Gender-related human development measures have also evolved following the introduction of the HDI. The two most popular are the Gender-Related Development Index (GDI) and the Gender Empowerment Measure (GEM). Introduced by the Human Development Report 1995, the GDI uses the same component indicators as the HDI and takes note of inequality in the achievement of men and women in the areas of health, education, and income. GEM, on the other hand, evaluates the achievement of women in three areas: political participation and decision-making; economic participation and decision-making; and power over economic resources. Thus, while the GDI measures capacity, GEM is more concerned “with the use of those capabilities to take advantage of the opportunities of life” (Doraid 1997).

Micro Impacts of Macroeconomic Adjustments Policy (MIMAP) Project. This project was designed to assess the impact of structural adjustment programs, focused on the poor and disadvantaged population groups. It designed a community-based monitoring system that generated indicators that best reflect the welfare conditions and potentials of the poor. The project came out with 16 community-based Key Indicators and a supplement set of 13 Support Indicators. These indicators were classified into ten categories: survival, nutrition, health, housing, food adequacy, public services, basic education, income, employment and prices of basic commodities (Balisacan et al. 1998).

Minimum Basic Needs (MBN) Approach. Almost simultaneous with the development of MIMAP, the MBN Approach was developed and implemented starting in 1992 as a framework in pursuing the government’s Social Reform Agenda. It serves as an integrated and community-based system for social analysis, planning, implementation, monitoring and evaluation. It introduced 33 minimum basic needs indicators that covers the following social concerns: survival aspect (food and nutrition, health, water and sanitation, clothing); security (shelter, peace and order/public safety, income and employment); and enabling factors (basic education and literacy, people’s participation, family care/psychological needs). A composite index was derived (index of deprivations) using eight indicators: malnutrition, infant mortality, access to sanitary toilets, access to safe water, subsistence threshold, poverty incidence, cohort survival rates, and adult illiteracy (LGA-DILG 1995; Balisacan et al. 1998).

Social Development Management Information System (SOMIS). The SOMIS was developed by the Economic and Social Commission for Asia and the Pacific (ESCAP) as an institutional mechanism for monitoring achievements made by countries in the regional social development agenda set as part of the preparations for the World Summit on Social Development (WSSD). The SOMIS reflects the three core social development goals—poverty alleviation, expansion of productive employment and social integration. Eleven major social concerns and 53 key indicators were identified based on the experiences of some countries in the region. The SOMIS drew lessons from the Philippine experience in implementing the MBN approach. The 11 major social concerns include the following: poverty alleviation, population, health, education, employment, shelter, environment, disasters, crime, social protection and family (UN 1999).

Strictly speaking, MIMAP, MBN and SOMIS are not simple poverty or welfare indices, but comprehensive monitoring systems that evaluate a set of needs- and outcome-based indicators. MIMAP and MBN were designed especially for the poor and disadvantaged communities.

management in the context of the national and regional social development agenda” (UN 1999).

All departments and agencies of the central government collect data and generate indicators related to their respective areas of concern, such as education, health, employment, social welfare, peace and order, women, children, communication, infrastructure, and agricultural production. These data are generated at least once a year and are available from municipal to national levels. Local government units basically adopt the statistical system of the central government. Very few among them have developed their own social indicators and monitoring system.

One distinguishing feature of the Quality of Life Index is it can be applied at both national and local levels.

The need for an alternative poverty measure

Given the variety of poverty measures available and applied in the Philippines, one wonders if an additional indicator will make a difference. A closer review, however, indicates certain compelling reasons for developing alternative measures. For one, existing poverty measures have operational limitations, particularly their applicability to local poverty monitoring at the provincial level and down to municipalities and barangays. Income-based measures are dependent on the Family Income and Expenditure Survey (FIES) that is conducted only once in three years. Moreover, income and poverty measures generated using FIES data can be disaggregated only by region and by province. Beyond these, no poverty statistics have been generated annually and on a regular basis. This is one distinguishing feature of the Quality of Life Index—it can be applied at both national and local levels. Moreover, the index is based on outcomes rather than means in achieving development goals, and it excludes income variables. Therefore, it complements existing poverty measures that are based solely or partly on income.

The Quality of Life Index is consistent with existing national and international statistical systems and can be computed easily, using indicators that are regularly generated by government agencies. The index has been tested and found to be strongly correlated with other poverty/welfare measures, thus making it a good alternative where no other indicator is available. But apart from the practical considerations, the QLI provides a new perspective and framework in monitoring progress and analyzing development particularly at the sub-national level. Pure income, production statistics and other economic measures cannot adequately capture social development, equity, and the improvement in the quality of life of the poor.

National or even regional income and poverty statistics tend to hide or obscure actual realities, particularly in the poorer

areas of the country. Disaggregating national statistics is therefore a must, especially for countries such as the Philippines that manifests a high level of inequality in terms of income and other social indicators. It will be noted that, among East Asian countries, the Philippines has one of the highest Gini Index, indicating a highly skewed distribution of income. The Gini index measures inequality based on the distribution of income or consumption. A value of 0 represents perfect equality, and a value of 100 perfect inequality. Thus, the higher the Gini index, the greater the inequity in income or consumption distribution (UNDP 2001).

Although the Gini Index for Malaysia is higher than that for the Philippines, the figure for Malaysia was computed using income rather than consumption statistics. The distribution of income typically exhibits greater inequality than the distribution of consumption, since the poor generally consume a greater proportion of their income than do the rich (UNDP 2001). Thus, it is likely that income distribution in the Philippines exhibits greater inequality compared with that in Malaysia.

Performance statistics in basic health and education also reveal wide disparities across provinces and between rural and urban areas. For example, the affluent areas of the country are characterized by almost universal access to education and nearly 90 percent completion rate at the elementary level. On the other hand, the poorest areas in Mindanao have a completion rate of only 30 percent. Thus, when indicators are not disaggregated, poverty in specific localities tend to be glossed over, and consequently the poorer ones get even more marginalized. This is another compelling reason for developing effective measures of poverty and well-being at sub-national levels.

Most social and economic indicators would rank the Philippines among the upper middle-performing countries. This may be neither accurate nor truthful, especially if one considers that about one-third of the population live under conditions similar to those in poor and low-performing countries. The UNDP's

Table 1

	HDI and Inequality Measure							
	Life Expectancy Index	Education Index	GDP Index	HDI Value	Share in Income or Consumption		Richest 10% to Poorest 10%*	Gini Index
					Poorest 10%	Richest 10%		
Cambodia	0.52	0.66	0.44	0.541				
China	0.75	0.80	0.60	0.718	2.9	33.8	11.6	40.4
Korea, Rep. Of	0.83	0.95	0.84	0.875	2.4	30.4	12.7	40.3
Indonesia	0.68	0.79	0.56	0.677	4.0	26.7	6.6	31.7
Lao PDR	0.47	0.51	0.45	0.476	3.2	30.6	9.7	37.0
Malaysia	0.79	0.80	0.74	0.774	1.7	38.4	22.1	49.2
Philippines	0.73	0.91	0.61	0.749	2.3	36.6	16.1	46.2
Singapore	0.87	0.87	0.89	0.876	2.9	24.3	8.4	31.6
Thailand	0.75	0.84	0.69	0.757	3.6	29.9	8.4	36.1
Viet Nam	0.71	0.84	0.49	0.682	2.8	32.4	11.6	41.4

The values for this column represent the disparity in income share between the richest 10% and the poorest 10%. Thus, the higher the value, the greater the inequality in income distribution. The corresponding value for this column is derived by dividing the figure in the previous column (Richest 10%) by the figure in the column on Poorest 10%.

Source: UNDP Human Development Report (2001).

Human Development Index, for example, tends to overrate the Philippines. For 1999, the country was above the median performer, with an HDI value of .749, and was ranked 70th out of 162 countries (UNDP 2001). What really pulled up the country's HDI ranking was its exceptional "accomplishment" in education, which is, however, highly questionable. With an Education Index of .91 for year 1999, the Philippines ranked much higher in education performance than Singapore, Hong Kong, Taiwan and the rest of the developing world. In terms of education, it appeared to be in the same league as Greece, Switzerland, and Japan. Yet, numerous studies and reports have noted the poor performance of the Philippines in education compared with East Asian and other developing countries. An international achievement test administered in 1995, for example, ranked the Philippines third to the last in elementary math out of 42 countries that voluntarily participated. Similarly, secondary pupils ranked fourth to the last in math and second to the last in science (HDN 2000). The Philippines also performed the lowest among 16 countries in a science achievement test given to 10-14 year olds in 1998 (Chua 1999).

Such statistical distortion underscores two things. First, there is a need to look behind the national averages and understand the variation in performance across areas and population groups. Secondly, there is a need to consider other measures for a more cautious and balanced appraisal of the situation.

For all the arguments cited above, the use of an alternative poverty index seems relevant and warranted.

The use and effectiveness of composite indices have been criticized, particularly because of the tendency to overstate their meaning and implications. Of late, the use of indices to represent a variety of situations and accomplishments has become so fashionable that nearly every other outfit wants to have its own signature index.

Poverty, quality of life, and well-being are very broad concepts. It is almost impossible to capture in a single numerical representation the complexity and dynamics of a particular situation. To be sure, there are limits to what a composite index can tell about people and their situation. Nonetheless, it remains a valid and useful monitoring and assessment tool. A well-designed index can serve as an effective tool in locating the poor, in target-setting, in monitoring accomplishments, and in evaluating strategies.

There is a need to establish clear indicators for monitoring progress in social development over a period of time. While indicators cannot substitute for a comprehensive social analysis, they can serve as starting point and useful input in evaluating situations and in designing programs. Moreover, using different measuring instruments or statistics facilitates comparison and affords a more circumspect appraisal of the situation.

Generating the Quality of Life Index (QLI)

The Quality of Life Index, as developed by Action for Economic Reforms (AER), is a derivative of the UNDP's Capability Poverty Measure (CPM) that was proposed by Professor Amartya Sen and popularized by the Human Development Report. The CPM, however, has "remained mostly a conceptual

one, and very little progress has been made in operationalizing it” (Boltvinik). The QLI, therefore, may be seen as an attempt to operationalize a pure capability-based measure, as conceptualized by Professor Sen. The index is considered a pure capability-based measure since all the component indicators in the composite index are based on *outcomes* and not simply the *means* to achieve such development goals. Income and other *means* indicators are excluded in the variable mix that generates the index.

The Quality of Life Index assigns equal weights to three basic capabilities: (1) the capability to be well-nourished; (2) the capability for healthy and safe reproduction; (3) and the capability to be educated and be knowledgeable. Based on studies and statistical tests done by AER at the level of households, municipalities, and provinces, the following indicators were selected and utilized to generate the Quality of Life Index: (1) attended births; (2) under-five nutrition; and (3) elementary cohort survival rate. (See Box 2.)

These indicators serve as proxy measures of basic human capabilities. They have been tested and found to be sensitive indicators that summarize the overall health status, literacy level, and education performance of specific population groups.

Box 2

Capabilities	Measuring Indicators
1. Capability to be well-nourished	⇒ Under-five nutrition status
2. Capability for healthy reproduction	⇒ Births attended by trained health personnel
3. Capability to be educated and be knowledgeable	⇒ Elementary cohort survival rate

Information on nutrition is based on the National Nutrition Survey conducted at regular intervals by the Food and Nutrition Research Institute (FNRI). The indicator measures the proportion of severely and moderately underweight children under five years old. Underweight children are those whose weights fall into two standard deviations from the median weight for the age of the reference population. The FNRI statistics follows internationally accepted standards. It is comparable to the U.S. National Center for Health Statistics and the World Health Organization (WHO) standards for the weight-for-age index.

Attended births refer to deliveries attended by trained health professionals—specifically, doctors, nurses, and midwives. The statistics are generated using data compiled annually by the Field Health Service Information System (FHSIS) of the Department of Health (DOH).

Elementary cohort survival rate (CSR) measures the proportion of enrollees in Grade 1 who reached Grade 6 after the required six years of schooling. The data are compiled annually—by school, by municipality, and by school division. The Department of Education computes the CSR based on statistics received from the field. For 1999, the CSR figures were taken from the website of the Philippine Institute for Development Studies (PIDS), citing the Department of Education as the source of basic data.

Under-five nutrition status is correlated with such indicators as infant mortality, immunization coverage, and access to safe water and sanitary facilities. But it is not significantly associated with the other health indicators such as life expectancy and health services. The rate of attended births, on the other hand, manifests strong correlation with most health indicators, including infant mortality rate, access to safe water and sanitary facilities, maternal deaths, safe motherhood, and life expectancy. Moreover, the rate of attended births is associated with the degree of access to basic health services and the presence of health facilities and personnel in specific local areas.

Elementary CSR shows strong correlation with most of the education performance indicators—participation rate, functional literacy, achievements test rating, repetition rate, and so on. In fact, the CSR stands out as the most sensitive variable that reflects achievements and performance in education.

Selection of the three indicators that comprise the Quality of Life Index also considered as criterion the availability of data at the national and local levels. This was done not only for practical purposes, but also to ensure consistency with national and international measuring standards and to facilitate comparison and interfacing with existing welfare and development indicators.

Thus, under-five nutrition, attended births, and cohort survival rate are all part of the existing indicators of the Philippine statistical system. Data for these indicators are regularly monitored and generated at the national level and down to municipal and barangay levels. Finally, consistency with international standards was also considered in the selection of indicators. Thus, the Quality of Life Index made use of the nutrition statistics generated by FNRI, which follows the international standard for computing under-five nutrition status.

Changes were introduced by AER in the specific indicator to measure educational capability. In earlier studies done by AER, adult female literacy rate was used as the third indicator in the variable mix. However, this indicator was eventually dropped and replaced for several reasons.

First, statistical tests failed to establish a consistent association between literacy test results and education-related and other development indicators. Second, the administration of functional literacy tests to adult females in particular households slows down the survey process and, consequently, the generation of the QLI. More importantly, functional literacy has not been regularly monitored and updated. The last national survey that generated this indicator was done in 1994.

Disaggregating national statistics is a must to reveal actual realities especially in the poorer areas of the country.

At the level of households, mean years of schooling was used as the third indicator in computing the QLI. For municipalities, provinces, and regions, elementary cohort survival rate serves as the third indicator in the variable mix. Other indicators were tried and tested but were all discarded. Participation rate, for example, tends to overrate education performance. Participation rate measures the proportion of children who are attending school to the total number of children in the relevant age bracket. It shows weak sensitivity in differentiating performance across years and across areas and population groups.

The use of the cohort survival rate in computing the QLI may be contentious because it measures changes in school attendance over a long period of time. Thus, school closures or mass transfers of pupils to another school located in a neighboring town may distort the indicator. Nonetheless, the cohort survival rate appears to be the most sensitive measure of overall education achievement and performance.

Edita Tan, a noted education economist, used a similar variable (survival rate to Grade 5) in computing the education poverty index (Tan 1999). Moreover, the use of longitudinal measures does not necessarily diminish the effectiveness nor distort the values in a composite index that includes the specific variable.

Provincial QLIs

The Quality of Life Indices for Philippine provinces were generated for 1999 based on the most recent available statistics that have provincial breakdowns. To facilitate comparison and monitor the progress over time, provincial QLIs were also generated for 1991, 1994, and 1997. These specific years were selected on purpose to allow comparison with household income and poverty statistics as well as the Human Development Index for Philippine provinces. These statistics are generated based on the Family and Expenditure Survey (FIES) conducted by the National Statistics Office every three years.

Corresponding indices for the three component indicators are first obtained. Then the Quality of Life Index is generated by computing the simple average of the component indicators. Table 2 shows the range of QLI values for the country's 78 provinces for year 1999. The national average represents the mean of the corresponding provincial figures, while the range indicates the lowest and the highest provincial ratings.

Provincial QLI scores for 1999 range from a low of .479 to a high of .908. In terms of the component indicators, nutrition figures range from .48 (Southern Leyte) to .88 (Benguet), with a national mean of .673. The corresponding figures for safe reproduction is .31 (Mindoro Occidental) to .97 (Batanes). For elementary cohort survival rate (CSR), the data showed that the province of Lanao del Sur had the lowest survival rate at .26 while Batanes again was highest at .92. For consistency and homogeneity, the breakdown by provinces excluded the National Capital Region and highly urbanized cities. Most of the discussion in this section is based on the latest data for provincial-level statistics.

Table 2
Component Indicators and QLI Scores for 1999

Component Indicators	Range	National Average*
1. Under-Five Nutrition	.48 to .88	0.673
2. Safe Reproduction	.31 to .97	0.612
3. Elementary Cohort Survival Rate	.26 to .92	0.676
Quality of Life Index or QLI	.479 to .908	0.654

* The national averages are computed as unweighted means, which exclude the National Capital Region and highly urbanized cities (such as Baguio, Olongapo, Cebu, Tacloban, Bacolod, Davao, Cotabato, etc.) in the computation.

Table 3 presents the provinces having the highest QLI scores for year 1999. As expected, Luzon dominated the list of high-performing provinces. Surprisingly, relatively remote Batanes topped the list, while two other island provinces (Siquijor and Camiguin) joined the list of top performers, surpassing most of the income-rich provinces of Luzon. Batanes topped the list in nearly all categories and has been consistently in the number-one slot since 1991. It is also significant to note that the QLI rankings of provinces such as Rizal, Batangas, Laguna, and Ilocos Sur were lower than their rankings in real per capita income.

On the other hand, the income-poor provinces of Mindanao, along with the poor provinces of Eastern and Western Visayas and Southern Luzon, registered the lowest QLI scores. The poor scores were largely accounted for by the low performance in safe reproduction and cohort survival rates. Some provinces in the bottom 15, such as Davao Oriental, Sarangani, and Bukidnon, had above-average nutrition ratings.

Box 3
Computing the Aggregate QLI for the Philippines

The Quality of Life Index and its component indicators for the Philippines is shown in the table below. The table also presents the index using the unweighted average across provinces that excluded the National Capital Region (NCR) and highly urbanized cities in the computation. It will be noted that for the period 1991 to 1999, the QLI increased only marginally from .671 to .689. The index actually slid back in 1994 before experiencing a modest increase in 1997. The index was virtually stagnant from 1997 to 1999. Over time, attended births showed a gradual steady improvement while elementary cohort survival rate remained stagnant. The improvement in attended births, however, was partially offset by the consistent deterioration of the nutrition status of under-five children.

Quality of Life Index (QLI) – Philippines				
	1991	1994	1997	1999
Quality of Life Index – Philippines (1)	0.671	0.659	0.687	0.689
Attended Births	0.593	0.610	0.682	0.695
Under-Five Nutrition	0.722	0.704	0.692	0.680
Elementary Cohort Survival Rate	0.697	0.664	0.686	0.693
Quality of Life Index – Philippines (2) (Excluding NCR and Highly Urbanized Cities; unweighted across provinces)	0.614	0.613	0.652	0.654
Human Development Index (HDI)*	0.716 (1990)	0.733 (1995)	-	0.749

* The Human Development Report 2001 presented the latest time series computation of HDI for 1990, 1995, and 1999. The values differ from previous years due to differences in computation.

Box 4
QLI Application for Municipalities
Province of Cavite

The Province of Cavite, situated just south of Metro Manila or the NCR, is one of the richest areas in the country. In 1997, the province ranked second in terms of household income and the Human Development Index (HDI). Average family income (based on 1994 prices) has been increasing over the years—from P97,842 in 1991 to P126,672 in 1997 and P127,699 by 2000. Excluding the capital city, the province of Cavite comprises three cities and 20 municipalities with a total of 635 barangays. The province is classified as predominantly urban, with almost 80 percent of the population concentrated in the urban areas. In 1998, the population was estimated at nearly 2 million and is projected to reach 2.5 million by year 2002. Population distribution is highly skewed with the lowland and urbanized towns of Rosario, Bacoor, GMA and the Cities of Cavite and Noveleta being the most densely populated areas. On the other hand, the sparsely populated towns of Maragondon, Magallanes, Gen. Aguinaldo, Ternate and Tagaytay are situated mostly in the southern and mountainous portion of the province.

The Quality of Life Indices were generated for the 22 cities and municipalities of Cavite for 1995 to 1999. The table below presents the average QLI and rate of increase for the 5-year period. During the 5-year period, the indices for the different municipalities showed some degree of consistency. There was very little change in ranking especially among the top and bottom performers. There is also a general upward trend in QLI from 1995 to 1999, although the rate of increase varies greatly from nil to as high as 50% increment.

The top performers in QLI are not necessarily the urbanized and income-rich areas of the province. Thus, highly urbanized and developed municipalities of Bacoor and GMA are in the bottom half of the list, indicating that income alone does not guarantee a high level of human capabilities. On the other hand, the bottom performers are usually the remote, rural and sparsely populated municipalities of Cavite.

Average QLIs for Cavite Municipalities (1995-99)

<u>Municipality</u>	<u>QLI 5-Year Average</u>	<u>Rate of Increase 95-99</u>	<u>Municipality</u>	<u>QLI 5-Year Average</u>	<u>Rate of Increase 95-99</u>
1 Imus	.937	4.4%	12 Gen. Trias	.809	7.7%
2 Gen. Aguinaldo	.932	6.3%	13 Rosario	.802	13.8%
3 Amadeo	.931	2.1%	14 Maragondon	.801	9.6%
4 Alfonso	.925	2.5%	15 Bacoor	.791	1.6%
5 Noveleta	.921	14.5%	16 Silang	.789	13.9%
6 Tanza	.863	6.1%	17 GMA	.774	6.9%
7 Dasmarinas	.852	6.3%	18 Ternate	.761	5.5%
8 Mendez	.852	24.2%	19 Magallanes	.692	-1.8%
9 Indang	.843	16.4%	20 Naic	.687	8.1%
10 Kawit	.835	3.5%	21 Bulihan	.649	50.3%
11 Carmona	.817	5.0%	22 DBB	.633	2.9%

* The List excludes the highly urbanized cities of Cavite and Tagaytay.

Overall, the province of Cavite performed very well in the education and health sectors. Even the lowest performing municipalities were still doing better than the national average. In 1999, the elementary cohort survival rates for the different municipalities ranged from a low of 68% to a high of 98%. In the same year, the index for safe reproduction (or the percentage of births attended by trained health professionals) ranged from 54.0% to 99.4%. In terms of nutrition status, the entire province of Cavite performed generally well. In 1998, half of the municipalities registered malnutrition rates below 10% while the national average (using international standards) stood at about 28%.

Statistical tests done in previous studies reveal that the Quality of Life Index is strongly influenced by both income and access to basic services. The implication of this is that even poor individuals can have better quality of life by improving access to critical services such as health, education, livelihood support, and transportation. On the other hand, income does not guarantee improvement in the quality of life. The following variables were found to be significant determinants of well-being, as measured by the QLI: access to roads,

Table 3
Top 15 Provinces in QLI Rating, 1999

Province	QLI	Under-Five Nutrition	Safe Reproduction	Elem. Cohort Survival Ratio
1. Batanes	0.908	0.831	0.970	0.923
2. Bataan	0.862	0.744	0.952	0.891
3. Siquijor	0.855	0.746	0.945	0.875
4. Cavite	0.844	0.853	0.810	0.869
5. Ilocos Norte	0.828	0.701	0.961	0.821
6. Pampanga	0.823	0.749	0.925	0.796
7. Bulacan	0.820	0.782	0.820	0.859
8. Benguet	0.810	0.884	0.773	0.772
9. Nueva Ecija	0.803	0.731	0.886	0.791
10. Batangas	0.802	0.770	0.791	0.846
11. Laguna	0.793	0.762	0.799	0.819
12. Ilocos Sur	0.784	0.737	0.847	0.767
13. Camiguin	0.783	0.729	0.868	0.754
14. Pangasinan	0.774	0.607	0.877	0.837
15. Rizal	0.771	0.653	0.799	0.863

transportation services, farms, and electricity; access to housing, water, and sanitary facilities; proximity to schools and health facilities; and the number of health personnel, hospital beds, health stations, teachers, and classrooms in relation to population.

Using rank correlation test, the Quality of Life Index also showed strong association with the indicators used in the 1999 Annual Poverty Indicators Survey (APIS). The following variables showed significant correlation with the QLI: access to family planning services; practice of family planning; receipt of iron supplement; access to safe drinking water and sanitary toilets; possession of housing units; housing durability; and attendance of school-age children in corresponding elementary and secondary school.

Comparing QLI, Income and HDI

Quality of Life is strongly associated with income, as shown by the high correlation ($r= 0.6837$) between QLI and income (real per capita income). For 1999, the richest 20 percent of the provinces (or the top 15 provinces) had an average QLI score of 0.802, while the poorest 20 percent had an average QLI of .601. Significantly, the QLI scores of the first four quintiles fall within a narrow

Table 4
Bottom 15 Provinces in QLI Rating, 1999

Province	QLI	Under-Five Nutrition	Safe Reproduction	Elem. Cohort Survival Ratio
64. Davao del Sur	0.566	0.660	0.375	0.663
65. Davao Oriental	0.563	0.699	0.454	0.535
66. Aurora	0.560	0.606	0.364	0.709
67. Antique	0.556	0.523	0.410	0.725
68. Negros Occidental	0.550	0.592	0.468	0.591
69. Biliran	0.549	0.618	0.332	0.696
70. Bukidnon	0.543	0.697	0.350	0.581
71. North Cotabato	0.541	0.635	0.399	0.588
72. Masbate	0.523	0.572	0.511	0.512
73. Northern Samar	0.530	0.623	0.433	0.535
74. Occidental Mindoro	0.522	0.649	0.306	0.612
75. Basilan	0.514	0.604	0.509	0.428
76. Sarangani	0.506	0.682	0.317	0.519
77. Sulu	0.493	0.672	0.418	0.388
78. Maguindanao	0.479	0.674	0.420	0.343

range. On the other hand, the richest 20 percent of provinces in terms of income have QLI scores that are way above the rest of the provinces.

The Quality of Life Index measures well-being purely in terms of capability. It differs from the Human Development Index (HDI) that combines income with basic capabilities. The 1997 HDI values for Philippine provinces use life expectancy at birth, functional literacy and gross enrollment ratio, and real per capita income, or its One Dollar a Day (PPPS) equivalent. In this section, the comparison between QLI and HDI was done for year 1997, the most recent year with HDI breakdown for provinces. To be consistent with the international statistics, the comparison will be based on HDI-II (which factored the PPPS equivalent as the third variable in the index).

Comparing the two indices, it will be noted that the unweighted mean (excluding the National Capital Region or NCR) of the two measures across provinces for 1997 are nearly the same at .652 and .658, respectively. Nonetheless, the corresponding ranges of the two measures differ, with the QLI scores having a wider range compared with HDI. The wider range of QLI is explained by the high scores achieved by the top performing provinces, which did consistently well in all the component indicators of the QLI. In comparison, the indexing system applied for computing the provincial HDI has the effect of moderating the final index values. In computing the Provincial HDIs, the income index value is generally low and tends to pull down the final index. This is countered by the relatively high education index that tends to pull up the HDI.

Table 5
QLI and HDI by Income Group

Income Bracket	Ave. QLI 1999	Ave. QLI 1997	Ave. HDI-II 1997	Ave. Real per Capita Income 1997
First Quintile (Poorest 20% of Provinces)	0.601	0.606	0.592	10,340
Second Quintile	0.610	0.599	0.641	12,622
Third Quintile	0.628	0.615	0.641	14,078
Fourth Quintile	0.637	0.640	0.671	16,448
Fifth Quintile (Richest 20%)	0.802	0.802	0.716	23,532

Table 7 below shows the correlation coefficients of QLI and HDI and their corresponding components, indicating a strong relationship between the two measures ($r = .7162$). This correlation is partly explained by the strong association of QLI and income as discussed earlier in this section. Moreover, QLI and the components of HDI show strong and fairly consistent correlation, ranging from .4917 to .6837. Decomposing QLI into its component parts also reveals relatively high correlation values between cohort survival ratio and HDI components, while attended births show fairly high correlation as well. Except for income, however, nutrition status shows little correlation with the HDI components.

While the association among QLI, HDI, and income is fairly strong, variations are noted when top and bottom provinces for these poverty measures are compared. (See Table 8.)

Twelve provinces are in both lists of the 15 top raters in terms of QLI and HDI. However, ranking differences can be noted. The province of Siquijor, for example, ranked fifth in QLI but is nowhere on the list of top HDI. (It ranked 52nd in the 1997 Provincial HDI.) The high QLI score is largely accounted for by Siquijor's remarkable performance in public health and education despite its low income. In fact, the province had one of the lowest (fourth from the bottom) real per capita income for 1997. Similarly, Cebu province did relatively well in QLI (ranking 18th), although it belongs to the country's poorest 20 provinces.

Provinces were then ranked in terms of family income (real per capita income). Batanes topped all provinces in terms of income, with Bataan and Cavite following closely in second and third positions. The list includes 13 provinces that also landed among the top 15 in QLI scores (reflected in Table 8 on the left) with the asterisk sign). Similarly, 12 among the richest 15 provinces are also on the list of top HDI raters. Finally, the ranking pattern between income and HDI showed similarities,

Table 6
Provincial QLI
and HDI Comparison for 1997

Index	Range	Un-weighted Average
Quality of Life Index (QLI)	.479 to .908	.652
Human Development Index (HDI-II)	.451 to .752	.658

Table 7
Provincial QLI and HDI Correlation Matrix

	HDI 1997	Life expectancy at birth	Functional literacy rate (%) 1994	Primary and high school enrollment rate 1997	Real per capita income (pesos at 1994 prices) 1997
QLI	0.7162**	0.4917**	0.5115**	0.5185**	0.6837**
Under-Five Nutrition	0.3010**	0.0952	0.0741	0.1334	0.4119**
Safe Reproduction (Attended Births)	0.4525**	0.2638*	0.2755*	0.3665**	0.4983**
Elem. Cohort Survival Ratio	0.8931**	0.7403**	0.7830**	0.6434**	0.6920**

A single asterisk (*) means the correlation is significant. A double-asterisk (**) indicates that the correlation is highly significant. Values without asterisks mean that correlation is not significant.

Table 8
Comparison of QLI
and HDI-II Ratings
(Top Provinces), 1997

QLI Rank	Provinces	QLI 1997
1	<i>Batanes*</i>	0.901
2	<i>Bulacan*</i>	0.866
3	<i>Bataan*</i>	0.861
4	<i>Ilocos Norte*</i>	0.858
5	Siquijor	0.829
6	<i>Pangasinan</i>	0.828
7	<i>Batangas*</i>	0.822
8	<i>Pampanga*</i>	0.819
9	<i>La Union*</i>	0.801
10	<i>Rizal*</i>	0.799
11	<i>Laguna*</i>	0.790
12	<i>Cavite*</i>	0.782
13	<i>Tarlac*</i>	0.779
14	Zambales*	0.758
15	Ilocos Sur*	0.755

HDI-2 Rank	Provinces	HDI (II) 1997
1	<i>Cavite*</i>	0.752
2	<i>Bulacan*</i>	0.745
3	<i>Batangas*</i>	0.744
4	<i>Rizal*</i>	0.738
5	<i>Bataan*</i>	0.736
6	<i>Laguna*</i>	0.726
7	<i>Batanes*</i>	0.723
8	Nueva Ecija	0.714
9	<i>Pampanga*</i>	0.713
10	<i>Ilocos Norte*</i>	0.712
11	<i>La Union*</i>	0.711
12	<i>Pangasinan</i>	0.708
13	Benguet*	0.700
14	Isabela	0.697
15	<i>Tarlac*</i>	0.695

Provinces in bold italics are common to both QLI and HDI listing of top raters. Those with asterisks (*) are included also in the top 15 provinces in terms of income (average real per capita income).

though this does not hold true for income and QLI. This may be easily explained by the fact that income was factored in—and strongly influenced provincial HDIs.

Among the bottom performers, eight provinces (West Samar, North Samar, Davao Oriental, Masbate, Agusan del Sur, Maguindanao, Sulu, and Basilan) are in both QLI and HDI rosters. Again, the ranking variation can be explained by the differences in scores achieved in the various components factored into the computation of the two indices. Maguindanao, Northern Samar, Sulu, and Basilan had low QLI scores because of the poor rating in terms of cohort survival and attended births. On the other hand, North Cotabato, Occidental Mindoro, Sarangani, Davao del Sur, Bukidnon, and Biliran scored particularly low in terms of attended births.

QLI also showed strong association with the Human Poverty Index (HPI). A comparison of the 1997 QLI bottom performers with the 15 priority provinces identified by using HPI for years 1990-96 shows eight provinces that are common to both listings: Basilan, Maguindanao, Capiz, Agusan Sur, Masbate, Sulu, North Samar, and Davao Oriental (Balisacan et al. 1998).

For the 15 poorest provinces in terms of income, only six are in the QLI list of bottom performers and eight in the HDI list (indicated in Table 9 with the asterisk sign). Provinces such as Romblon, Bohol, Agusan del Norte, East Samar, Negros Oriental and Siquijor are neither in the HDI nor in the QLI roster. This implies that, while these provinces had low income, they performed relatively better in the health and education sectors.

It will be noted that the top performers in terms of income, HDI, and QLI are similar. This is consistent with earlier findings that there appears to be a strong propensity for income-rich areas to have higher levels of capabilities as well. While this observation is generally true, there are some income-rich provinces such as Rizal, Pangasinan, and Oriental Mindoro that showed lower capability ratings, scoring poorly especially in nutrition and other basic health concerns.

In comparison, only five provinces were listed among the bottom performers in all three poverty measures—income, HDI, and QLI. These provinces (Davao Oriental, North Samar, Maguindanao, Masbate, and Sulu) can be classified as the poorest in terms of income and capabilities. They are therefore the ones that need immediate attention. The comparative listing for the bottom performers also indicates that income-poor provinces can still have relatively higher levels of capacities. The implication is that cost-effective intervention in health and education can improve quality of life even for low-income areas and population groups. Because resources are extremely limited, however, these areas or provinces can seriously address only one sector or a few sectors at a given time.

The QLI advantage and potentials for application

The application of the Quality of Life Index for provinces and municipalities as presented in this article validates the use of a capability-based approach to measuring poverty and well-being. The index proved to be a sensitive measure, as it correlates strongly with income and poverty statistics, the MBN indicators and human development measures such as the HDI and the HPI. The QLI provides a good overview of the poverty situation and level of human capabilities in local areas across the country. This will prove effective in identifying priority areas for development work and human capital investment.

As has been pointed out, the QLI is not designed to replace existing measures of poverty and well-being that are being used in the Philippines. Each measure has its own comparative advantage and carry distinct features that highlight particular dimensions of poverty and well-being. A combination of different measures will facilitate a more comprehensive analysis of the situation.

The comparative advantage of using QLI lies in the convenience of generating the index and its applicability even at the local level. The index is a cost-effective indicator. It can be generated without resorting to household surveys that are often too costly and well beyond the capacity of local government units to undertake on a regular basis. Time-series analysis can easily be presented using the index to facilitate a longer term monitoring of the poverty situation. The indicators used in computing the Quality of Life Index—nutrition, safe reproduction, and cohort survival rate—are monitored regularly and are available even at the barangay and municipal levels. In comparison, the Human Development Index, for example, uses life expectancy at birth, adult literacy, combined enrollment ratios, and real GDP per capita, indicators that use relatively complex computational designs and are usually generated by expensive surveys. Finally, the Quality of Life Index serves as an effective advocacy tool to promote human development as a priority concern in local planning and resource allocation.

Admittedly, there are still areas for improving the concept and computational design of the Quality of Life Index. In this sense, the QLI may be considered as a work-in-progress.

First, certain component indicators of the QLI can be modified to improve its sensitivity in measuring well-being. In particular, under-five malnutrition can be replaced by Infant Mortality Rate (IMR), which has proven to be a better indicator for measuring overall health status. Currently, there exist limitations in using IMR, as the generation of statistics for both national and local levels has been quite irregular. In addition, the index for safe reproduction can likewise be improved by considering the well-trained traditional birth attendants (village midwives or *hilots*) in the computation of the index.

Second, derivatives of the QLI can be developed. Along this line, two possible derivatives are being explored. One is the gender-based approach to generate the QLI specifically for women (WQLI), which could facilitate comparisons with indices computed for the entire population. The other possible derivative is the Life-Cycle approach in

Table 9
Comparison of QLI
and HDI-II Ratings
(Bottom Provinces), 1997

QLI Rank	Provinces	QLI 1997
63	Samar	0.558
64	<i>Davao Oriental*</i>	0.558
65	North Cotabato	0.554
66	Occ. Mindoro	0.550
67	Sarangani*	0.544
68	Masbate*	0.541
69	Davao Del Sur	0.540
70	Agusan Del Sur	0.538
71	Bukidnon	0.530
72	Capiz	0.525
73	Maguindanao*	0.497
Northern		
74	Samar*	0.487
75	Biliran	0.480
76	Sulu*	0.478
77	Basilan	0.455

HDI-2 Rank	Provinces	HDI (II) 1997
63	South Cotabato	0.624
64	Kalinga	0.623
	Zamboanga Del	
65	Norte	0.620
66	Davao Oriental*	0.620
67	Masbate*	0.618
68	Samar	0.608
Northern		
69	Samar*	0.603
70	Agusan Del Sur	0.596
71	Lanao Del Norte*	0.592
72	Ifugao	0.560
73	Basilan	0.551
74	Maguindanao*	0.527
75	Tawi-Tawi*	0.516
76	Sulu*	0.468
77	Lanao Del Sur *	0.451

Provinces in bold italics are common to both QLI and HDI listing of bottom performers. Those with asterisks (*) are included also in the 15 poorest provinces in terms of income (average real per capita income).

generating the QLI. Thus, separate indices can be generated for children, the youth, the middle-aged, and senior citizens. Such an approach is based on the growing realization that needs and requirements for quality living do vary for different age groups.

Finally, there is a need to improve the collection, accuracy, and consistency of data used in generating key social development indicators, including the component indicators of the QLI. Such data gaps represent a continuing problem in poverty monitoring and targeting. The Quality of Life Index was designed precisely to fill in critical information gaps, and thus help in poverty analysis, policy development, and programming.

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Annex 1
Quality of Life Index 1999

QLI Rank	Provinces	Elementary Cohort Survival Index	Under-Five Nutrition Index	Births Attended by Trained Health Personnel Index	Quality of Life Index
1	BATANES	0.923	0.831	0.970	0.908
2	BATAAN	0.891	0.744	0.952	0.862
3	SIQUIJOR	0.875	0.746	0.945	0.855
4	CAVITE	0.869	0.853	0.810	0.844
5	ILOCOS NORTE	0.821	0.701	0.961	0.828
6	PAMPANGA	0.796	0.749	0.925	0.823
7	BULACAN	0.859	0.782	0.820	0.820
8	BENGUET	0.772	0.884	0.773	0.810
9	NUEVA ECIJA	0.791	0.731	0.886	0.803
10	BATANGAS	0.846	0.770	0.791	0.802
11	LAGUNA	0.819	0.762	0.799	0.793
12	ILOCOS SUR	0.767	0.737	0.847	0.784
13	CAMIGUIN	0.754	0.729	0.868	0.783
14	PANGASINAN	0.837	0.607	0.877	0.774
15	RIZAL	0.863	0.653	0.799	0.771
16	LA UNION	0.793	0.620	0.874	0.762
17	TARLAC	0.831	0.605	0.843	0.760
18	ZAMBALES	0.796	0.667	0.787	0.750
19	CEBU	0.745	0.663	0.837	0.748
20	ISABELA	0.743	0.706	0.781	0.743
21	ABRA	0.741	0.652	0.785	0.726
22	LANAO DEL NORTE	0.596	0.731	0.822	0.716
23	MISAMIS ORIENTAL	0.788	0.703	0.652	0.714
24	BOHOL	0.730	0.681	0.725	0.712
25	NUEVA VIZCAYA	0.657	0.754	0.709	0.707
26	MOUNTAIN PROVINCE	0.639	0.812	0.621	0.691
27	CAGAYAN	0.756	0.625	0.688	0.690
28	MISAMIS OCCIDENTAL	0.662	0.725	0.617	0.668
29	AKLAN	0.666	0.648	0.659	0.658
30	LEYTE	0.587	0.641	0.743	0.657
31	IFUGAO	0.581	0.723	0.662	0.655
32	ILOILO	0.764	0.607	0.585	0.652
33	CATANDUANES	0.738	0.641	0.548	0.642
34	CAMARINES NORTE	0.754	0.625	0.543	0.641
35	SOUTHERN LEYTE	0.754	0.477	0.689	0.640
36	AGUSAN DEL NORTE	0.671	0.680	0.559	0.637
37	ROMBLON	0.713	0.658	0.520	0.630
38	ALBAY	0.762	0.648	0.476	0.629
39	EASTERN SAMAR	0.602	0.725	0.557	0.628
40	ZAMBOANGA DEL NORTE	0.559	0.659	0.665	0.628

QLI Rank	Provinces	Elementary Cohort Survival Index	Under-Five Nutrition Index	Births Attended by Trained Health Personnel Index	Quality of Life Index
41	DAVAO DEL NORTE	0.698	0.648	0.526	0.624
42	QUEZON	0.726	0.666	0.476	0.623
43	QUIRINO	0.602	0.678	0.585	0.621
44	GUIMARAS	0.799	0.620	0.444	0.621
45	APAYAO	0.605	0.697	0.506	0.603
46	SORSOGON	0.730	0.611	0.466	0.602
47	SOUTH COTABATO	0.695	0.624	0.485	0.601
48	MARINDUQUE	0.726	0.645	0.431	0.601
49	SURIGAO DEL SUR	0.612	0.659	0.524	0.598
50	ZAMBOANGA DEL SUR	0.564	0.650	0.577	0.597
51	CAPIZ	0.638	0.634	0.520	0.597
52	ORIENTAL MINDORO	0.691	0.720	0.371	0.594
53	AGUSAN DEL SUR	0.528	0.724	0.517	0.590
54	KALINGA	0.566	0.531	0.668	0.588
55	TAWI-TAWI	0.455	0.673	0.627	0.585
56	CAMARINES SUR	0.713	0.673	0.364	0.583
57	LANAO DEL SUR	0.262	0.786	0.701	0.583
58	COMPOSTELA VALLEY	0.601	0.682	0.462	0.582
59	SULTAN KUDARAT	0.609	0.647	0.472	0.576
60	SURIGAO DEL NORTE	0.682	0.592	0.452	0.575
61	SAMAR	0.532	0.602	0.585	0.573
62	NEGROS ORIENTAL	0.519	0.639	0.552	0.570
63	PALAWAN	0.667	0.657	0.380	0.568
64	DAVAO DEL SUR	0.663	0.660	0.375	0.566
65	DAVAO ORIENTAL	0.535	0.699	0.454	0.563
66	AURORA	0.709	0.606	0.364	0.560
67	ANTIQUE	0.725	0.532	0.410	0.556
68	NEGROS OCCIDENTAL	0.591	0.592	0.468	0.550
69	BILIRAN	0.696	0.618	0.332	0.549
70	BUKIDNON	0.581	0.697	0.350	0.543
71	NORTH COTABATO	0.588	0.635	0.399	0.541
72	MASBATE	0.512	0.572	0.511	0.532
73	NORTHERN SAMAR	0.535	0.623	0.433	0.530
74	OCCIDENTAL MINDORO	0.612	0.649	0.306	0.522
75	BASILAN	0.428	0.604	0.509	0.514
76	SARANGANI	0.519	0.682	0.317	0.506
77	SULU	0.388	0.672	0.418	0.493
78	MAGUINDANAO	0.343	0.674	0.420	0.479

Annex 2
Quality of Life Index Time Series

Province	1991		1994		1997		1999	
	QLI	RANK	QLI	RANK	QLI	RANK	QLI	RANK
CAR								
Abra	0.661	23	0.672	21	0.691	24	0.726	21
Benguet	0.732	13	0.702	16	0.751	17	0.810	8
Ifugao	0.579	39	0.609	34	0.725	20	0.655	31
Mountain Province	0.673	20	0.674	20	0.680	28	0.691	26
Apayao					0.597	48	0.603	45
Kalinga					0.611	43	0.588	54
Kalinga Apayao	0.576	40	0.583	43				
Region I								
Ilocos Norte	0.775	8	0.849	5	0.858	4	0.828	5
Ilocos Sur	0.685	18	0.682	17	0.755	15	0.784	12
La Union	0.759	10	0.713	15	0.801	9	0.762	16
Pangasinan	0.724	14	0.717	14	0.828	6	0.774	14
Region II								
Batanes	0.902	1	0.886	1	0.901	1	0.908	1
Cagayan	0.613	30	0.572	47	0.681	26	0.690	27
Isabela	0.626	27	0.627	27	0.720	21	0.743	20
Nueva Vizcaya	0.621	28	0.619	29	0.684	25	0.707	25
Quirino	0.564	49	0.618	30	0.610	44	0.621	43
Region III								
Bataan	0.831	5	0.859	3	0.861	3	0.862	2
Bulacan	0.836	4	0.830	6	0.866	2	0.820	7
Nueva Ecija	0.713	17	0.749	11	0.731	19	0.803	9
Pampanga	0.837	3	0.851	4	0.819	8	0.823	6
Tarlac	0.767	9	0.792	7	0.779	13	0.760	17
Zambales	0.753	11	0.677	19	0.758	14	0.750	18
Region IV								
Aurora	0.566	48	0.545	52	0.595	50	0.560	66
Batangas	0.717	16	0.735	12	0.822	7	0.802	10
Cavite	0.785	6	0.766	10	0.782	12	0.844	4
Laguna	0.753	12	0.785	8	0.790	11	0.793	11
Marinduque	0.570	43	0.604	35	0.626	39	0.601	48
Occidental Mindoro	0.518	62	0.534	57	0.550	66	0.522	74
Oriental Mindoro	0.489	69	0.534	56	0.592	53	0.594	52
Palawan	0.500	65	0.499	64	0.588	60	0.568	63
Quezon	0.553	50	0.565	49	0.612	42	0.623	42
Rizal	0.782	7	0.776	9	0.799	10	0.771	15
Romblon	0.591	35	0.644	24	0.665	30	0.630	37
Region V								
Albay	0.548	52	0.596	37	0.605	45	0.629	38
Camarines Norte	0.602	31	0.599	36	0.599	46	0.641	34
Camarines Sur	0.500	66	0.628	26	0.593	52	0.583	56
Catanduanes	0.584	37	0.616	32	0.622	40	0.642	33
Masbate	0.483	71	0.463	73	0.541	68	0.532	72
Sorsogon	0.574	41	0.524	61	0.590	56	0.602	46

Province	1991		1994		1997		1999	
	QLI	RANK	QLI	RANK	QLI	RANK	QLI	RANK
Region VI								
Aklan	0.568	46	0.594	38	0.648	35	0.658	29
Antique	0.552	51	0.582	44	0.592	54	0.556	67
Capiz	0.506	63	0.469	72	0.525	72	0.597	51
Guimaras	ND		0.617	31	0.591	55	0.621	44
Iloilo	0.585	36	0.664	23	0.652	33	0.652	32
Negros Occidental	0.535	54	0.545	53	0.562	62	0.550	68
Region VII								
Bohol	0.670	22	0.671	22	0.708	22	0.712	24
Cebu	0.681	19	0.735	13	0.739	18	0.748	19
Negros Oriental	0.530	56	0.551	51	0.590	57	0.570	62
Siquijor	0.842	2	0.865	2	0.829	5	0.855	3
Region VIII								
Biliran	0.628	26	0.473	70	0.480	75	0.549	69
Eastern Samar	0.570	44	0.592	39	0.630	37	0.628	39
Leyte	0.568	47	0.574	46	0.660	31	0.657	30
Northern Samar	0.453	73	0.470	71	0.487	74	0.530	73
Southern Leyte	0.617	29	0.629	25	0.697	23	0.640	35
Samar (Western Samar)	0.467	72	0.499	65	0.558	63	0.573	61
Region IX								
Basilan	0.544	53	0.413	76	0.455	77	0.514	75
Zamboanga del Norte	0.527	57	0.545	54	0.618	41	0.628	40
Zamboanga del Sur	0.499	67	0.516	63	0.599	47	0.597	50
Region X								
Bukidnon	0.522	59	0.436	75	0.530	71	0.543	70
Camiguin	0.721	15	0.681	18	0.751	16	0.783	13
Misamis Occidental	0.569	45	0.587	42	0.648	34	0.668	28
Misamis Oriental	0.600	32	0.590	41	0.680	27	0.714	23
Region XI								
Compostela Valley							0.582	58
Davao del Norte	0.579	38	0.570	48	0.629	38	0.624	41
Davao del Sur	0.571	42	0.557	50	0.540	69	0.566	64
Davao Oriental	0.523	58	0.518	62	0.558	64	0.563	65
Sarangani			0.538	55	0.544	67	0.506	76
South Cotabato	0.598	34	0.613	33	0.594	51	0.601	47
Sultan Kudarat	0.634	25	0.526	59	0.576	61	0.576	59
Region XII								
Lanao del Norte	0.671	21	0.621	28	0.647	36	0.716	22
North Cotabato	0.521	60	0.494	67	0.554	65	0.541	71
ARMM								
Lanao del Sur	0.533	55	0.492	69	0.589	59	0.583	57
Maguindanao	0.487	70	0.525	60	0.497	73	0.479	78
Sulu	0.437	74	0.453	74	0.478	76	0.493	77
Tawi-Tawi	0.642	24	0.574	45	0.659	32	0.585	55
CARAGA								
Agusan del Norte	0.598	33	0.591	40	0.671	29	0.637	36
Agusan del Sur	0.505	64	0.496	66	0.538	70	0.590	53
Surigao del Norte	0.498	68	0.492	68	0.589	58	0.575	60
Surigao del Sur	0.518	61	0.529	58	0.596	49	0.598	49

Technical Notes (Quality of Life Index)

Computing the provincial Quality of Life Indices

The Provincial QLIs in this report were computed using the “unweighted” average of the actual values of the three component indicators: under-five nutrition; attended births; and elementary cohort survival rate. For simplicity, the three indicators were assigned equal weights in the computation of the QLIs. The actual reported values of the under-five nutrition rate and cohort survival ratio for provinces were used without transforming or standardizing the values since both indicators are already part of the Philippine Statistical System.

Thus, the corresponding indices for under-five nutrition and elementary cohort survival ratio are represented as:

Nutrition Index is $I_1 = (1 - M)$, where M is the proportion of severely and moderately underweight children under five years old

Education Index is I_2 , where I_2 is the elementary cohort survival rate or the proportion of Grade One enrollees who reached Grade Six after the required number of years.

The other indicator in the composite index (attended births) is not part of the existing statistical system although data on deliveries is regularly monitored and reported by the Department of Health. Attended births is computed based on the following formula:

$$I_3 = \frac{T(a,b,c)}{\text{Totalbirths} - \text{unknown}}$$

$$\text{Or } I_3 = \frac{a + b + c}{x - y}$$

Where,

a = number of births attended by medical doctors

b = number of births attended by nurses

c = number of births attended by midwives

x = number of Total births/Livebirths

y = number of births with unknown attendant

The Quality of Life Index for a particular province is then obtained by taking the simple average of the three component indices:

$$QLI = \frac{1}{3} (I_1 + I_2 + I_3) \quad (4)$$

To facilitate comparison and obtain data consistency, the QLI and its component indices excluded key cities. Where no disaggregation was available to allow for exclusion of key cities in computing specific indicators or for specific years, ranking tests were done to ensure that the inclusion of key cities did not distort computation of the QLI.

Generating the time-series provincial QLIs

The QLI time-series (1991, 1994, 1997, 1999) computations made an effort to use a consistent set of data to facilitate comparison across provinces and over time. In cases where data was missing or incomplete, data from either preceding or succeeding year, whichever was available, was substituted. Otherwise, averages were computed. Specifically for the year 1994, some of the data substituted were the averages of the years 1990/1991 and 1996/1997. In extreme cases where data was not available even for possible substitutes, QLI was computed using only two of the three component indicators.

Under-five nutrition data for QLI 1999 and 1997 used the National Center for Health Statistics (NCHS)/World Health Organization (WHO) Standards. To be consistent with international measuring standards, the corresponding nutrition data for QLI 1994 and 1991 have been adjusted to approximate the level of NCHS standards.

Elementary cohort survival rates for school years 1994-1995 and 1996-1997 used for the computation of QLI 1994 and 1997, respectively, were supplied by the Research and Statistics Division of the Department of Education, Culture and Sports (now Department of Education). Elementary cohort figures for school year 1990-1991 used for QLI 1991 were taken from CPD and PCHRD [1994]. Cohort figures for 1999 were taken from the website of the Philippine Institute for Development Studies, citing DECs as the source of data.

Data on deliveries attended by doctors, nurses and midwives for the year 1999 were supplied by the Public Health Surveillance Unit of the Department of Health in Manila. While data for years 1990, 1991, 1995, 1996, 1997 were taken from the Philippine Health Statistics and the Field Health Service Information System Annual Reports of the Department of Health.

Regarding the data on under-five nutrition status, the Food and Nutrition Research Institute (FNRI) supplied the figures (national to provincial level) on the *Prevalence of underweight children, 0-5 years old, using NCHS standards* for years 1998 and 1996 and these were used to compute for QLI 1999 and QLI 1997 respectively.

To facilitate data consistency and time-series comparisons, under-five nutrition figures for 1994 and 1991 were based on FNRI nutrition surveys and transposed to NCHS levels. However, several adjustments have been made in the absence of provincial level data for the FNRI nutrition surveys and also in the process of converting to NCHS levels.

Specifically for 1994, the under-five nutrition data at the national and regional levels were sourced from the FNRI nutrition survey of 1993 while the provincial level data was taken from the under-five clinic report for 1994 of the Department of Health. For 1991, under-five nutrition data at the national and regional levels were derived from the FNRI nutrition surveys of 1993 and 1987 using the straight-line method, while provincial level data was taken from the CPD and PCHRD (1994), which contained the number of severely and moderately malnourished for year 1991.

Adjusting these under-five nutrition figures of 1994 and 1991 (on three levels of data—national, regional and provincial levels) to approximate NCHS standards necessitated a series of data extrapolation using straight-line method, ratios and proportions.

The first in the series plotted under-five nutrition NCHS figures at the national level for 1994 and 1991, based on the 1998 and 1996 NCHS nutrition data using straight-line method. The data obtained was then used to generate the ratio and subsequent proportions to plot NCHS figures at the regional level for 1991 and 1994. Finally, based on the NCHS adjusted regional level data, a ratio was derived for each region to generate proportions for the corresponding provincial level data.