Improving poverty measurement in Sri Lanka

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Centre for Poverty Analysis

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The CEPA Publication Series currently includes the following categories; Studies, Edited Volumes, Working Papers and Briefing Papers.

Dileni Gunewardena received her Ph.D. in Economics from American University in 1996. She has a B.A. (Honours) in Economics from the University of Peradeniya, where she is a Senior Lecturer. She teaches courses in Gender Economics, Labour Economics, and Research Methods in Economics. Her research interests lie in *Poverty, Inequality* and *Gender Economics*. She was involved in producing poverty profiles for Sri Lanka since 1993, using raw data from the Department of Census and Statistics from 1985/86, 1990/91 and 1995/96. She has taught short courses for the World Bank Institute's South Asia Region Workshops, and participated in the South Asia Regional Consultation on the World Development Report 2000/1 (on poverty). In December 2000, she won the award for Best Research on "Escaping Poverty" at the First Annual Awards Competition, Global Development Network for a paper co-authored with Dominique van de Walle on "Sources of Ethnic Inequality in Viet Nam". She was the Editor of the *Sri Lanka Ecònomic Journal* from 2003 to 2005. She is the author of *Poverty Measurement: Meanings, Methods and Requirements,* an attempt to provide an overview of international best practices in relation to poverty measurement methodology, published by the Centre for Poverty Analysis in 2004.

The **Centre for Poverty Analysis (CEPA)** was established in 2001 as an independent institute providing professional services on poverty related development issues. CEPA provides services in the areas of applied research, advisory services, training and dialogue and exchange to development organisations and professionals. These services are concentrated within the core programme areas that currently include: Poverty Impact Monitoring, Poverty and Youth, Poverty and Conflict, and Poverty Information and Knowledge Management.

The working paper is a continuation of the study "Poverty Measurement: Meanings, Methods and Requirements" published by CEPA in 2004 and sponsored by the German Technical Cooperation. The publication is sponsored by the Asian Development Bank through CEPA's Poverty Assessment & Information Management (PAM) programme.

The **Asian Development Bank (ADB)**, a multilateral development finance institution, promotes economic and social progress by fighting poverty in Asia and the Pacific. Established in 1966, it is owned by 63 members mostly from the region. The ADB helps improve the quality of people's lives by providing loans and technical assistance for a broad range of development activities. The focus is on poverty reduction, emphasising the promotion of pro-poor, sustainable economic growth, social development and good governance. In support of this, the ADB concentrates on the protection of the environment, the promotion of gender and development, private sector development, and regional cooperation. The ADB currently supports the Poverty Assessment & Knowledge Management (PAM) Programme.

The **German Technical Cooperation (GTZ)** is an international cooperation enterprise for sustainable development with operations in over 130 partner countries. The GTZ implements programmes chiefly under commission by the German Federal Government. The four year Poverty and Youth programme (2001-2005) and its activities were sponsored by the special 'Innovation Fund' managed by the GTZ, which supports innovative initiatives for the reduction of poverty.

Abbreviations & Acronyms

ADB	Asian Development Bank
CBMS	Community Based Monitoring System
CBN	Cost-of-Basic-Needs
CBSL	Central Bank of Sri Lanka
CCPI	Colombo Consumer Price Index
CEPA	Centre for Poverty Analysis
CFS	Consumer Finances and Socio-economic Survey
CGIAR	Consultative Group of International Agricultural Research
CIRM	Centre for Information Resources Management
DCI	Direct Calorie Intake
DCS	Department of Census & Statistics
FAO	Food and Agriculture Organization of the United Nations
FEI	Food Energy Intake
FGT	Foster-Greer-Thorbecke
GDP	Gross Domestic Product
GOSL	Government of Sri Lanka
GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
HDI	Human Development Index
HIES	Household Income and Expenditure Survey
HPI	Human Poverty Index
ICMR	Indian Council of Medical Research
IFSP	Integrated Food Security Programme
LFSES	Labour Force and Socio Economic Survey
MDG	Millennium Development Goal
MDI	Millennium Development Indicator
MRI	Medical Research Institute
NEP	North East Province
NEREC	National Education Research and Evaluation Centre
NGO	Non-governmental Organisation
PAC	Poverty Analysis Community
PIMU	Poverty Impact Monitoring Unit
PMTF	Proxy Means Test Formula
PPA	Participatory Poverty Assessment
SLCPI	Sri Lanka Consumer Price Index
SLIS	Sri Lanka Integrated Survey
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
US	United States
VDS	Village Data Sets
VPP	Vulnerability Poverty Profile
WDR	World Development Report
WHO	World Health Organisation

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My largest debt in relation to understanding the measurement of poverty however, is to Martin Ravallion. Most of what I learnt about "quantitative" poverty measurement I learnt from him and Gaurav Datt in 1993 while working on the Sri Lanka Poverty Profile (World Bank 1995a). That experience and the later opportunity to do research with Dominique van de Walle on poverty and distributional issues in Vietnam put me on the trajectory of poverty related research that eventually led to this study.

My husband, Suresh, and daughter, Lavanya, deserve special thanks for putting up with my general unavailability during the time this study was being written. Suresh also read and commented on an earlier version of the manuscript, in addition to relieving me of household chores and childcare duties for extended periods of time. This study could not have been done without the unstinted support he gave me.

Finally, I am immensely grateful to Azra Jafferjee and Neranjana Gunatilleke and others at CEPA for their patience as the study grew larger and longer.

I alone am responsible for any errors, omissions and inconsistencies that remain.

Dileni Gunewardena

Peradeniya, June 2005.

Background to the study

This technical study was commissioned by the Centre for Poverty Analysis (CEPA) Colombo, Sri Lanka with financial sponsorship by the German Technical Cooperation (GTZ) to facilitate the setting up of a study programme on improving Sri Lanka's poverty measurement methodology and the poverty information system.

Poverty measurement and analysis is needed to identify the poor, the nature and extent of poverty and its determinants, and to assess the impact of policies (and non-policy shocks) and (poverty alleviation and other social welfare) programmes on the poor. Efficient and accurate poverty monitoring enables a nation to evaluate its progress in raising the standard of living of its poor, and provides much needed evidence to guide social development policy formulation and to support policy reform. Strengthening a country's ability to track progress on poverty reduction is desirable from the donor community's point of view and this has obvious benefits for the recipient country. National measures of poverty (and other welfare indicators) also provide the basis for international estimates, which enable the international community to keep track of global poverty trends. This is especially relevant at this point in time, when the international community has agreed on the importance of achieving the eight Millennium Development Goals by the year 2015.[1]

The last two decades have seen considerable analytical effort by research organizations, academics and practitioners worldwide, directed toward (a) deriving good practices in measuring poverty in all its dimensions, and (b) generating the data requirements and improving the statistical capacity necessary for measurement and monitoring.[2] This research has been fruitfully used to inform policy and guide economic reform in some countries.[3]

Sri Lanka has had a long history of data collection and statistical capability and is in many ways a model that other countries could follow in the area of data generation.[4] However, while on the one hand, much of the data collected remains underutilised by researchers and policymakers, on the other hand, little revision of data surveys has been undertaken in order to make the data more useful to researchers. There are large potential gains from greater dialogue between data users (local and international academics, research institutions and practitioners) and data producers (primarily the Department of Census and Statistics and the Statistics Department of the Central Bank of Sri Lanka). This is never truer than in the area of poverty research and monitoring.

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1 The responsibility for collecting national data on several core indicators lies with individual countries. See www.developmentgoals.org for a list of 48 indicators that will help monitor achievement in 18 specific targets under the eight broad Millenium Development Goals (MDGs).

2 Poverty mapping initiatives (CGIAR, UNEP etc. etc), Paris 21, and so on.

3 For example, see Mackinnon and Reinikka (2002).

4 Sri Lanka's Department of Census and Statistics was considered as a possible venue for a study tour by the World Bank Institute in 2001.

Within the last twenty years, poverty measurement exercises have been undertaken for Sri Lanka.[5] These have been characterized by differences in the choice of welfare indicator (income, expenditure and dietary energy) as well as in the method of deriving a poverty line. Until a little over a year ago, an "official" poverty line did not exist, nor was there consensus on the methodology that should be used. Little effort had been directed at conceptualising and measuring non-income measures of poverty.

This study arises out of a need identified during a series of brainstorming sessions organised by CEPA on these issues with experts in the field including data producers and users. The specific issues discussed included the need to reconsider the current definitions of poverty and methods of measuring poverty, on-going initiatives to improve the poverty data-base, methods of improving existing data, and the centralization and dissemination of data.

The objectives of this study as identified by CEPA are that:

The study will provide an overview of the issues relevant to Sri Lanka's poverty measurement methodology and the poverty information system, with a focus on the strengths and weaknesses of the current status.

In addition to focusing upon economic dimensions of poverty and quantitative methods of data collection and analysis, the study will reflect upon the role of non-economic measures and qualitative methodologies in defining and measuring poverty.

The study will identify methods to address the issues discussed. It will propose a plan of action that will not be constrained by the existing institutional structure and availability of personnel.

Organisation of the study:

In keeping with the aforesaid objectives, the study, which comprises two parts, focuses on three main questions: *Where do we need to be? Where are we? How do we get to where we need to be?*

Part I: Poverty Measurement: Meanings, Methods and Requirements

Part I focuses on the question, *Where do we need to be?* and attempts to provide an overview of the consensus (and where there is no consensus, an outline of the areas and nature of disagreement) on international best practices in relation to poverty measurement methodology.

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[5] A list of estimates of the Headcount Index from studies conducted in the 1980s and 1990s based on survey data from 1969 until 1991 is given in Table 1 in Tudawe (1999).

The international literature on poverty measurement is a vast area, and somewhat like the proverbial elephant. Typically, social scientists of different disciplines and practitioners of different approaches, like the blind men in the fable, are familiar with their own methodology and only marginally aware of developments in other approaches to measuring poverty (and consequently apt to dismiss them out of hand). A new empirical debate has arisen as to whether poverty has increased or decreased in the developing world in this era of globalization.[6] Additionally, the area of poverty measurement is experiencing a new phase in conceptual advances evident in the last few years, even months. All these factors provide the motivation for presenting a review that attempts to cover a wide variety of approaches, and does so at a somewhat detailed level. *The study is thus a combination of a non-technical review and a manual.*

Part I comprises three main sections: (1) a review of conceptual approaches to poverty measurement, (2) a review of international best practice in relation to poverty measurement and (3) a review of data requirements (and typical sources) for poverty measurement. Part I was published as a book by CEPA in February 2004, under its Study Series titled *"Poverty Measurement: Meanings, Methods and Requirements".*

Part II: Improving Poverty Measurement in Sri Lanka

Part II contained herewith is published by CEPA under its Working Paper Series. It takes the form of a policy paper that focuses on improving Sri Lanka's poverty measurement methodology in the light of the best practices identified in Part I. It summarizes the main issues outlined in Part I in response to the question *Where do we need to be?* and asks the questions *Where are we?* and *How do we get where we need to be?* In response to these questions, it provides an overview of the current status of poverty measurement methodology in Sri Lanka, identifying areas in which Sri Lanka is lagging behind, and outlines a plan of action that identifies (a) priority areas for improvement, (b) key players in the improvement process and (c) steps that need to be taken by the key players.

Contents

Executive Summary

Poverty measurement has made incredible advances in recent times. These are both in terms of (1) consolidation and developing best practice, mainly in relation to monetary and quantitative methods, that took place in the fifteen years from the mid 1980s to the end of the last millennium, and (2) the recent conceptual and methodological advances that have taken place in the first few years of the new millennium. This study examines poverty measurement in Sri Lanka against the backdrop of these advances. The study also evaluates existing sources of data for poverty measurement, and makes recommendations that identify priority actions for improvement in poverty measurement, key players in the improvement process and steps to be taken.

POVERTY MEASUREMENT METHODOLOGY: INTERNATIONAL BEST PRACTICE AND NEW ADVANCES

(1) It is now clearly recognised that *any single indicator of poverty* will not adequately describe or measure the complex phenomenon that is poverty. Multidimensionality of poverty is now firmly accepted, and we are much closer to measuring it than we were a decade ago. (2) It is also evident—although arguably—that any single *approach* to measuring poverty will not suffice. The contribution of the **monetary** approach to poverty measurement is well-known, just as its limitations are evident. The **capability** approach to poverty measurement by focusing on basic deprivation, has contributed much to the conceptual resurgence in this field, and thus provides a good theoretical and conceptual basis for improvements in poverty measurement. In terms of practical application of this approach, many of the educational, health, environmental and empowerment indicators that are currently used can be regarded as indicators of *functionings* in the multiple dimensions of deprivation. However, the **social exclusion** approach has a contribution to make by adding the element of participation or inclusion. In addition the focus on groups, rather than individuals has useful implications for measurement as well as analysis. The **participatory** approach provides the "subjective" or local non-expert based knowledge that is insufficiently emphasized in the other approaches.

(3) We are also much better at measuring the *dynamics* of poverty than we were several years ago. The availability of panel data has led to methodological improvement in distinguishing between the transiently and permanently poor and tracking movements in and out of poverty. (4) This has also had important implications for the measurement of *vulnerability.* (5) The measurement of empowerment, or its absence—voicelessness and powerlessness—is still at a somewhat rudimentary stage, but with a growing research agenda.

(6) Recent *empirical* work has focused on comparing results using different approaches (quantitative and qualitative, objective and subjective, monetary and non-monetary, etc.). (7) This has been facilitated by the availability of non-traditional instruments of data collection. Mainly, the household survey design that is most useful is a multi-topic, panel survey, where questionnaires include both standard objective data collection questions, as well as the type of questions on subjective well being that sociologists have been collecting for years.

The fundamental elements of the process of poverty measurement have not changed, however. The problems of identification (who are the poor?) and aggregation (how to add them up into a measure(s) of poverty?) with the attendant choices of indicator, unit of analysis, poverty line and poverty measure are still the basic nuts and bolts of poverty measurement. A country that is looking to improve its poverty measurement methodology needs to pay attention these choices, and devise ways of making them. To a large extent, the process of improving a poverty measurement methodology would consist of (1) determining which dimensions and indicators of poverty are appropriate to that country, using a combination of local knowledge and expert knowledge, (2) assuming that income or monetary poverty measurement is retained as an important though not exhaustive dimension of poverty, improving the measurement of income poverty using the well-established guidelines on which there is a great deal of consensus (3) determining methodologies for the aggregation of indicators into poverty measures. This may include easily constructed composite indices, even though their disadvantages are well-known, as well as more sophisticated methods of statistical analysis such as principal component or factor analysis, latent variable analysis, as well as developments in the use of fuzzy set theory, etc. (4) Finally, this will include establishing priorities in the process of data collection that is required for the purpose of poverty measurement.

Poverty measurement in Sri Lanka: what we have achieved

Poverty measurement in Sri Lanka has evolved considerably, and large strides have been made, especially in the last few years. This study reviews 22 studies that measure poverty in Sri Lanka over the period 1969 to 2002 and finds that current measurement of poverty within the monetary approach is in line with best practice. The establishment of the official poverty line and adoption of the cost of basic needs (CBN) poverty measurement methodology by the Department of Census and Statistics in 2004 is perhaps the most significant improvement in poverty measurement within the "monetary" approach in Sri Lanka. In addition, several applications of recent conceptual and methodological advances are also evident. These may be summarized as follows:

(1) The multidimensionality of poverty is firmly accepted, and the human poverty index (UNDP-Sri Lanka 1998) and multidimensional composite index (Siddhisena and Jayathilaka 2004) are examples of attempts to operationalise it in Sri Lanka.

(2) While there is much room for improvement in operationalising the capabilities and social exclusion approaches to poverty measurement in Sri Lanka, these concepts are now an integral part of the poverty debate, and there is a large literature of descriptive analysis that can inform future work.

(3) We are not much further on in *measuring* the dynamics of poverty, mainly because of the lack of panel data. However, the scope for using existing data to construct pseudo-panels from repeated cross-sections is as yet unexplored. (4) Similarly, little if any *measurement* of vulnerability and (5) empowerment exists, but there is a wealth of information on risk and coping strategies of households that can be obtained from micro-studies.

(6) Empirical work in comparing results using quantitative and qualitative approaches in poverty measurement is also limited, partly due to the lack of instruments to do so. (7) New survey instruments and new methodologies to make better use of traditional instruments have also been developed. These include the Sri Lanka Integrated Survey, and the combining of census and survey data to derive poverty statistics for small areas (poverty maps).

Data for poverty measurement

The *strengths* of data collection in Sri Lanka are that the Department of Census and Statistics (DCS) and the Statistics Department of the Central Bank of Sri Lanka (CBSL) have considerable data generation "capacity" in the sense of experience, large number of surveys, conducted in line with best practice. In addition, a large amount of administrative data is available, some of which is published and easily accessible, some of which is less so. The *weaknesses* are that although the data exists, it needs to be made into an information system. Gaps in data generation include the absence of panel data and a regular, institutionalised integrated (multi-topic) survey.

Other issues that need to be addressed creatively are the lack of representative survey data for the North and the East for the last twenty years, and the very apparent need for highly disaggregated (small area) data to meet the needs of donors who wish to fine-tune their targeting. Ongoing work in the Department of Census and Statistics with World Bank assistance is addressing this last issue.

The *causes* for the weaknesses probably arise from the lack of domestic demand and regular input of users for data. Statistical capacity in the country as a whole is low, even among academics and other analysts of the data. Statistical capacity building is important in order to make use of the data.

Poverty measurement, data generation and poverty information dissemination in Sri Lanka: What do we need to do?

Proposals to improve poverty measurement in Sri Lanka include identifying user needs, developing appropriate equivalence scales which can be used to assign household expenditure to individuals, deriving relative and subjective poverty lines, constructing baseline datasets for the North and East, and combining qualitative and quantitative methods of poverty analysis.

Proposals relating to data generation and improving poverty information include making surveys consistent and comparable across time and survey instruments (eg. HIES and CFS), adding questions to existing surveys that will bring them closer to the status of multi-topic surveys, generating panel data, and combining qualitative and quantitative methods of data collection.

Proposals relating to the dissemination of poverty information include the regular publication of consistent and comparable poverty statistics, the maintenance of an internet site with information on data for monitoring poverty, as well as information on methodology used to construct poverty measures for Sri Lanka, the construction and availability of *public use data files* from the Census and relevant household surveys (HIES, CFS and DHS).

1. Introduction

As poverty reduction moves to the forefront of the development agenda, developing mechanisms to monitor poverty becomes a priority for policy makers. The successful monitoring of poverty depends on measuring poverty accurately. The accuracy of poverty measurement depends on having as comprehensive a definition of poverty as is operationally possible, along with a methodology that yields as representative a measure as possible.

The last two decades have seen considerable analytical effort by research organizations, academics and practitioners worldwide, directed toward (a) deriving good practices in measuring poverty in all its dimensions, and (b) generating the data requirements and improving the statistical capacity necessary for measurement and monitoring. These efforts have been described in Part 1 of this study, *Poverty Measurement: Meanings, Methods and Requirements*.[7] In this paper, I highlight the issues arising out of that study that need to be addressed in devising an appropriate poverty measurement methodology for Sri Lanka. I then undertake a brief review of poverty measurement in Sri Lanka in the last fifty years, including insights provided, and issues and problems raised by researchers and practitioners in this area. This is followed by an evaluation of the existing sources of data for poverty measurement. I end with a plan of action that identifies (a) priority areas for improvement, (b) key players in the improvement process and (c) steps that need to be taken by the key players.

2. Overview of Issues Relating to Poverty Measurement Methodology

In this section, I briefly review the conceptual issues relating to defining and measuring poverty, how they are resolved (or not) in the major approaches to measuring poverty and the best practices identified therein. In this section I also identify the potential and limitations of each approach and best practices in combining the different approaches to and dimensions of poverty. This leads to an outline of the relative roles of the different approaches in developing a comprehensive methodology of measuring poverty.

Any attempt to measure poverty needs to address the problems of (1) identification and (2) aggregation. In order to *identify* the poor, a society needs to have a clear definition of what it means by poverty; including the *dimensions* it includes, whether it is *absolute or relative*, *"objective" or subjective*, and the *time horizon* over which it is to be identified.

[7] See Gunewardena (2004a) in the reference list. A summary of the issues and practices in the major approaches to poverty measurement is also found in Gunewardena (2004b).

Measurement choices that affect identification include the (i) *choice of indicator*, and the (ii) *choice of a poverty line* or "threshold". Choices that affect *aggregation* include the (iii) *choice of unit* over which poverty is to be defined, (iv) *the choice of measure*,[8] and (v) *the choice of weights* when multiple dimensions are combined.

How these issues are addressed and choices made depend on the approach to understanding and measuring poverty that is used.

2.1 A comparison of major approaches to poverty measurement

Traditionally, poverty measurement has been dominated by the quantitative-objective approach, which dates back to the late 19th century. However, this method has been criticised, among other things, for its apparent neglect of non-income dimensions of poverty, its alleged emphasis on static or snapshot profiles of poverty, and its heavy data and analytical requirements. Practitioners within the quantitative approach acknowledge the lack of contextual information in the associated data collection and analysis process as a shortcoming.

Several alternative approaches to analysing poverty have developed in the last few decades, in various contexts and in response to various needs. Recent discourse has focussed on the relative roles and tasks of these various approaches, particularly in relation to defining, measuring and monitoring poverty.[9] In this paper I follow the four-fold classification followed in recent reviews[10]: (1) the *quantitative-objective* or "*monetary*" approach, (2) the *capabilities* approach, (3) the *social exclusion* approach and (4) the *participatory* approach. While there is much debate over what constitutes qualitative and quantitative (see Kanbur 2001a, Kanbur 2003), for the purpose of this paper, I will term the "monetary" approach, quantitative; and the other three approaches, qualitative.[11] Table A1 in the annexes compares the four approaches.

2.1.1 Quantitative-objective approach

Conceptually, the *quantitative-objective approach* is utilitarian and the poverty line in this approach is "the minimum cost of the poverty level of utility at prevailing prices and household characteristics" (Ravallion 1998). In practice, however, no methodology has been developed to identify this level of utility. Instead, this approach "typically leads to measures based on goods and services consumed by a household and the household's size and demographic composition" (Ravallion 1994). According to this approach poverty would be *not having* or *not being able to afford* certain minimum necessities.[12]

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8 i.e., poverty measures such as the headcount index, poverty gap and squared poverty gap are constructed by aggregating the poor, and the depth and severity of their poverty.

9 The best-known attempt is probably the "Q-squared" conference in held in Cornell in 2001 (Kanbur 2001a, Kanbur 2003). Several papers reviewing these approaches have also come out of Queen Elizabeth House in 2003 (see Ruggeri Laderchi et al. 2003 for an overview).

10 Ruggeri Laderchi, Saith and Stewart (2003).

11 In reality, these approaches lie along a continuum from quantitative to qualitative.

12 The monetary approach could use absolute or relative poverty lines. This definition applies to absolute poverty lines.

The *poverty line* in this approach is typically based on a minimum nutritional requirement which is usually defined in terms of a calorie norm. This is converted to a monetary measure using actual data on household expenditure, and then scaled up to include a non-food component, also using household level consumption data (rather than a minimum cost approach).[13] The *best practice indicator* is equivalised household consumption expenditures which have been appropriately scaled for regional price variation. *Poverty measures* that are now widely used in this approach, (but which can be used in other approaches as well) are the Foster-Greer-Thorbecke (FGT) measures of poverty (P_0, P_1, and P_2) which measure the magnitude, depth and severity of poverty respectively (Foster *et al.* 1984).[14]

2.1.2 Capabilities approach

The *capabilities approach*, on the other hand, defines poverty as not being able to *do* certain things; lacking capabilities to function or lacking "the substantive freedoms [a person] enjoys to lead the kind of life he or she values" (Sen 1999).[15]

Figure 1 shows the link between goods, capabilities, functionings and utilities. Starting from the top row extreme right hand, goods (eg. food) are first transformed into material characteristics (eg. aspects of nutrition such as calories and proteins). These characteristics are then transformed into capabilities and finally into actual functionings (achievements). At each step of transformation, other factors come into play (the lower row). Thus, it is not goods only, but a person's environment (eg. climate and public goods such as clean air) that determine the amounts of material characteristics that can be achieved. Conversion of these material characteristics into capabilities will vary according to personal characteristics, and the final achievements will depend also on the person's psychic state, which also influences the utility the person derives from his/her functionings.[16] The task of poverty analysis and measurement under this approach is to identify what these capabilities are in specific societies and who fails to reach them. In practice, the capability approach tends to measure functionings, rather than capabilties.[17] These functionings might include being well nourished, being adequately

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13 This approach is known as the Cost-of-Basic-Needs (CBN) method (Ravallion 1994) and is superior to other methods such as the Food Energy Intake Method (FEI) and Direct Calorie Intake Method (DCI). A detailed discussion of the different approaches is found in Gunewardena (2004a), section 2.1.3

14 Transformations of these measures (their expected values) are also used to measure vulnerability (Ravallion 1998, Chaudhuri et al. 2001).

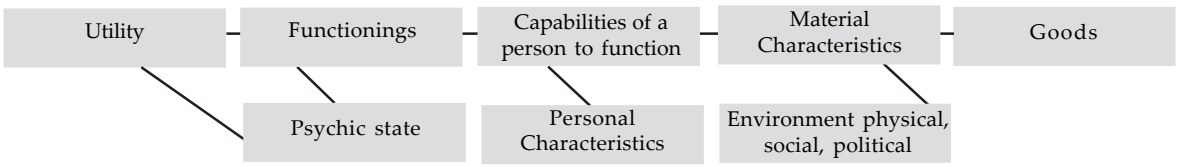
15 This approach has gained acceptance in the last decade, and it has become the dominant approach used by the UNDP since the UNDP-based Human Development Report on poverty (UNDP 1997). The most recent World Bank-based World Development Report on poverty also accepts this approach as being a better characterisation of the experience of poverty and increasing our understanding of its causes (World Bank, 2001).

16 Personal income could be included in this figure to the right of goods, and a corresponding box in the lower row would include prices (income, together with prevailing prices, determine the amount of commodities that can be consumed).

17 A functioning is an achievement whereas a capability is an ability to achieve (Sen 1987, p.36).

clothed and sheltered and avoiding preventable morbidity, being informed and knowledgeable, being capable of reproduction, enjoying personal security and being able to participate freely and actively in society (Falkingham and Namazie 2002).[18]

Figure 1: Utility, functionings, capabilities and their sources



Source: Adapted from Muellbauer 1987

2.1.3 Social Exclusion

Social exclusion is a term describing an aspect of poverty which originated in developed countries, and which fits in well with a capabilities-based definition of poverty.[19] However, the two concepts are distinct. Atkinson (1998) has identified three main characteristics of social exclusion (a) *relativity* (exclusion relative to a specific society) (b) *agency* (excluded as a result of the action of an agent or agents) and (c) *dynamics* (future prospects are as or more important than current conditions). It is also multidimensional, involves major discontinuities, and has a neighbourhood dimension (Room 1999). It differs from the capability and utility approaches in that it is socially defined and is often a characteristic of groups (the aged, handicapped, racial or ethnic categories) rather than pertaining to individuals (Ruggeri-Laderchi *et al.* 2003).[20] The agency aspect of social exclusion emphasizes distributional conflict and social institutions.[21]

2.1.4 Participatory approach

The critical feature distinguishing the *participatory approach* from the others is that in this approach the people themselves participate in assessing their own poverty and are able to "share, enhance, and analyse their knowledge of life and conditions, to plan and to act" (Chambers 1994). Participatory poverty assessments (PPAs) are "designed to learn how individuals from various social groups assess their own poverty and existing poverty reduction strategies, how various survival strategies operate, which government poverty reduction strategies people prefer, and which they are prepared to support. The findings are meant to refocus, elaborate or validate conclusions from conventional poverty assessments" (Salmen 1995, cited in Kanbur and Squire 2001).

"Participatory assessments pay special attention to process, with the aim of engaging a range of stakeholders, generating involvement, maximizing local ownership, and building commitment to change" (Kanbur and Squire 2001).

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18 The capabilities approach regards poverty as absolute deprivation, but the list of minimum capabilities will be different in different contexts (Sen 1999).

19 For eg. the EU defines social exclusion as the "process through which individuals or groups are wholly or partially excluded from full participation in the society in which they live".

20 It is also by definition, a relative rather than absolute concept.

21 Whereas the utility and capability approaches imply that poverty can be reduced through growth alone, this approach focuses on the importance of redistribution (Ruggeri Laderchi *et.al.* 2003).

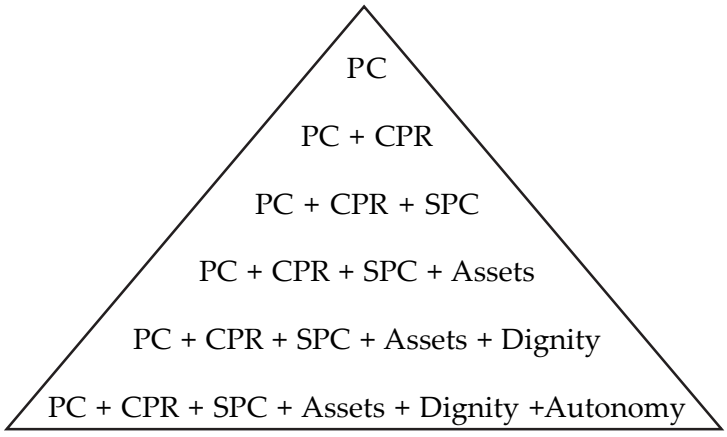
A difficulty with using this approach in poverty measurement is that it does not lend itself easily to systematic sampling. Results are therefore indicative, not representative. In addition, the public nature of the assessments may make it difficult to get honest assessments, and may involve participants in some risk; it is also very unlikely that the socially excluded and marginalised will be included in the group, or that if they are, their "voices" will be heard.[22] These weaknesses are likely to condone and reinforce existing social relations (Ruggeri Laderchi *et al.* 2003).

2.2 Multi-dimensionality

The notion that poverty is deprivation that is experienced in multiple dimensions is not in dispute. Conceptions of *what* these dimensions might be have evolved over time from the purely *economic* to including *education* and *health* (*social* indicators, or indicators of *human poverty*) to much broader ideas that include *social inclusion*, empowerment of the powerless and voiceless (*political*) and *vulnerability*.

Chambers (1992) suggests that at a minimum, there are three dimensions of poverty: *survival, security* and *self-respect*. Baulch (1996) expands this conceptualisation of poverty in a "pyramid of poverty concepts" as shown in Figure 2. Line 3 provides the conception of poverty as economic survival, which is broader than (private) income (or consumption) alone, including common property resources and state provided commodities. The inclusion of assets recognises the role of assets in reducing vulnerability or increasing security, while dignity and autonomy, ingredients of self-respect, are important aspects of functioning, the lack of which is manifest in voicelessness and powerlessness. Thus, the last line is considerably broad and closer to Sen's understanding of poverty as capability deprivation.

Figure 2: A pyramid of poverty concepts



Source: Baulch, 1996
Note: PC=private consumption; CPR=common property resources; SPC=state provided commodities

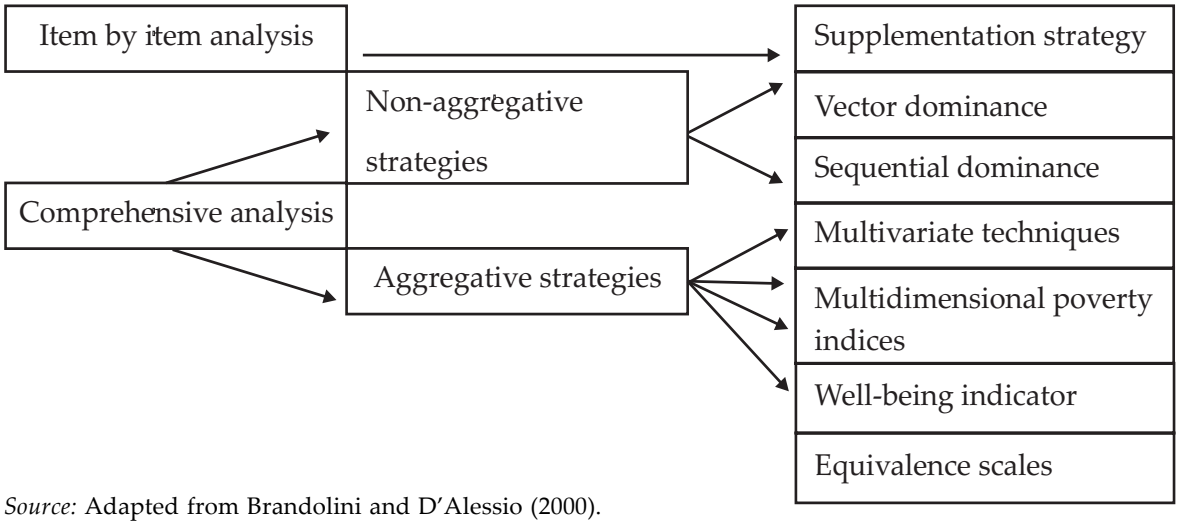
How one moves from these broad dimensions to choosing specific indicators, and how these indicators are measured (including the type of data that is used to measure them), depends to a great extent on the approach one takes toward understanding poverty.

[22] This is similar to the selection bias evident in quantitative household surveys that leave out the institutionalised and the destitute.

2.2.1 Aggregating multiple dimensions

The problem of aggregation in a multidimensional approach is addressed either by comparing individual dimensions separately, or by using some kind of weighting scheme, where weights are either imposed by expert knowledge, or derived from the data using some kind of statistical basis, or by using an aggregation rule, such as that of *union* (individuals poor in *any* one of x dimensions are considered poor) or *intersection* (individuals must be poor in *all* of x dimensions to be considered poor).

Figure 3: Strategies for multidimensional measurement



Source: Adapted from Brandolini and D'Alessio (2000).

Even approaches that use a weighting procedure (such as the HPIs) acknowledge the arbitrariness of choosing weights. Many empirical examples use either equal weighting or Borda rule (ranking), the only advantage of which is that the criterion is transparent. Principal components analysis and factor analysis provide the best way out so far.[23]

2.2.2 Incorporating multidimensionality in the quantitative approach

Opponents of the objective-quantitative approach argue that it ignores non-monetary dimensions of poverty. On the contrary, what it does is to assume that a monetary indicator such as consumption is a good proxy of non-income dimensions of poverty as well. Whether or not that is the case is largely an empirical question, and so far, the evidence for a correlation between consumption poverty and non-monetary indicators of poverty is mixed.

[23] See Filmer and Pritchett (2001) and Sahn and Stifel (2000).

An illustration of potential problems can be given using Figure 2. The "economic" conception of poverty is given by line 3 in the figure, and includes private consumption, common property resources and state provided goods. However, what is measured under the objective-quantitative approach, at best, is private consumption.[24] Consider the following scenario: a country undergoes a period of fiscal discipline that leads to growth, which even trickles down to the poorest deciles, as measured by consumption. However, part of the fiscal discipline involved budget cuts that led to the closing down of publicly provided community-level health services. The overall rise in wealth increases the demand for land, and leads to privatising of the commons. What is the overall impact of these movements on a typical "poor" person? While her consumption increases, she will experience a fall in welfare because she either has further to walk in order to gather fuel-wood and collect water, or she has to pay for fuel and depend on less safe sources of water. She may now visit the local private sector doctor when her child falls sick, whose services may actually be of lower quality than of the base hospital she used to visit previously. Moreover, because her use of these services results in monetary expenditure that she did not incur before, this may actually register as an increase in her consumption, and thus may show her as being better off than she was before.

Thus, it is apparent that the objective-quantitative approach is limited in its ability to deal with multidimensionality, can lead to erroneous judgements about changes in poverty, and as a result lead to an emphasis on policies that lead to rising private incomes at the cost of publicly provided goods and services, or common property resources. Practitioners within this approach have suggested that a "credible approach to poverty measurement" should therefore include in addition to a "sensible" (consumption) poverty measure based on the distribution of real expenditure per single adult, covering all market goods and services (including those obtained from non-market sources) *indicators of access to non-market goods* for which meaningful prices cannot be assigned (such as access to non-market education and health services), *indicators of distribution within the household* (measures of gender disparities and child nutritional status), and *indicators of certain personal characteristics which entail unusual constraints on the ability to escape poverty*, such as physical handicaps or impairments due to past chronic undernutrition (Ravallion 1996). Alternative approaches to understanding poverty offer some guidance in the choice of these indicators.

[24] Note that even constructing an accurate measure of private consumption requires imputing values for autoconsommation (household's consumption of goods it produces), as well as prices (such as rental value of housing) when markets are thin or non-existent.

Table 1: Most commonly used non-economic well-being measures

Indicators
Education
Education enrolment rates*
Survival to the final primary or secondary school grade completion of primary or Secondary school*
Literacy rates*
Health and nutrition
Malnutrition rates* /food or calorie consumption per capita*/ Body mass index
Mortality and morbidity rates*/life expectancy/not expected to survive forty years/infection rates*
Health service usage—skilled personnel at birth*/contraceptive prevalence rate*/immunisation rates*
Environment
Access to "improved" water sources*Access to "adequate" sanitation*
Household infrastructure—permanent material used for walls of home and electricity supply
Empowerment and participation
Participation in general and local election voting (decision making at various levels)
Extent of knowledge of local projects and district budgets (access to information)
Number, size and revenue of active NGOs (potential for civil society monitoring)

Note: * denotes the indicator is a Millennium Development Goal
Source: Adapted from Sumner 2003.

A variety of "lists" of indicators including other dimensions of poverty are used by various approaches. The Millennium Development Indicators (MDIs) are a list of 48 quantifiable indicators to monitor 18 specific targets in eight broad dimensions of wellbeing/deprivation (the Millennium Development Goals or MDGs) on which there is broad agreement by the international community.[25] Table 1 gives a list of commonly used indicators including some of the MDIs, indicators used in the UNDP's *Human Development Report*, elements of asset based indices, etc. The approaches to poverty provide some guidance in choosing among these indicators.

2.2.3 Incorporating multidimensionality in the capability approach

In practice, the capability approach resolves to the measurement and analysis of functionings. The choice of indicator in this approach is two choices: (1) identifying the appropriate evaluative space and (2) identifying a list of functionings and a set of indicators related to the selected dimensions of well-being with adequate criteria to measure and represent them (Chiappero Martinetti 2000). Evaluation takes place (a) within functionings space (b) combining functionings and income, as in the approach suggested by Ravallion (1996),[26] and (c) within adjusted income space, where, in an extension of the equivalence scale approach, the income level of a family may be adjusted downwards by illiteracy and upwards by higher levels of education, to make them "equivalent" in terms of capability achievement (Foster and Sen 1997).

[25] A full list of Millennium Development Indicators is given in List 1 in Annexes. See UNDP (2003) for the list of goals, targets, and indicators and a description of the progress made by countries in achieving these targets and World Bank (2004a) for an analysis of progress toward measuring the Millennium Development Goals in Sri Lanka.

[26] See section 2.2.2.

The choice of poverty line in the capability approach has to address the problems faced when constructing any multidimensional poverty measure. Poverty thresholds have to be determined for each elementary indicator, and a threshold (or aggregation rule) in multidimensional space also needs to be determined. Consider the example of a multidimensional indicator that includes consumption, health and education as dimensions where health status is measured by anthropometric data, and education is measured by years of schooling. A threshold is required in each of these dimensions, i.e., a consumption poverty line, a cut-off point of, say, a -2 Z-score in the height-for-age indicator, and threshold of perhaps 5 years of schooling. Once these thresholds are determined, an aggregation rule must be applied in order to determine who is poor in this multidimensional space. The criteria of *intersection* would say that a person is poor only if (s)he is poor in all three of these dimensions, while the criteria of *union* would indicate poverty if the person is below the threshold in any *one of these dimensions.*

Although the capability approach still has a long way to go in transforming its concepts into measures, it has given legitimacy to a wide range of indicators that have anyway been used for several decades, under the unsatisfied basic needs and similar approaches. In particular, the composite indices, Human Development Index (HDI) and Human Poverty Indices (HPI-1 and HPI-2) used by the UNDP, are seen by many to be an operationalisation of the capabilities approach, though they are in fact, indicators of functionings, not capabilities.[27] Both the HDI and the HPI-1 use indicators that portray the same dimensions: a long and healthy life, knowledge and a decent standard of living.[28]

2.2.4 Incorporating multidimensionality in the social exclusion approach

The difficulty in applying the concept of social exclusion to the measurement of poverty in developing countries is that this approach originated in developed countries, and if one were to use these norms (such as exclusion from formal sector employment or social insurance coverage) large portions of the population of developing countries would be considered "excluded".[29] Some alternatives suggested by Ruggeri Laderchi *et al.* (2003) of which examples are found in the empirical literature are (a) to identify excluded groups through participatory approach consultations, (b) to use a (social and political) rights-based approach, or (c) to use statistical analysis to identify which characteristics of a population are empirically correlated with multiple deprivations defined in other approaches.[30]

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27 The HPI-1 is calculated for developing countries and the HPI-2 for developed countries.

28 The HDI incorporates indicators of achievement in these three dimensions: life expectancy at birth, adult literacy rate, gross enrolment ratio (both indicators of achievement in knowledge) and GDP per capita (at adjusted US$ PPP rates). The HPI-1 uses indicators of deprivation in these dimensions: probability at birth of not surviving to age 40, adult illiteracy, the percentage of the population not using improved water sources, and percent of children under five who are underweight. The HPI-2 includes the long-term unemployment rate as an indicator of social exclusion in addition to the aforesaid indicators of deprivation.

29 See for example, Appasamy et al. 1996 which defines exclusion from health, services, education, housing, water supply, sanitation and social security.

30 Asset based wealth and poverty indicators that have been developed recently follow this methodology (Filmer and Pritchett 2001, Sahn and Stifel 2000).

Specific measures of social exclusion (inclusion or integration) that are appropriate for developing countries may include indicators of "solidarity": (a) at least one member of the household has participated in mutual aid activities with neighbourhoods or in an association (b) at least one member of the household has found his job thanks to personal relations (c) the household has received (or given) gifts coming from (or to) other households at the time of festivities during the year, as well as indicators of "participation in social life" such as access to and keeping abreast of information, knowledge of institutions and participation in association activities (Razafindrakoto and Roubaud 2003).

Some excluded groups relevant to Asia have been identified by Deolalikar *et al.* (2002). In rural areas, these are the landless, small and marginal tenant cultivators, and indigenous peoples (often ethnic minorities). In urban areas these are urban slum-dwellers who are usually recent migrants, women (widows and household heads) and children (street children, child workers and orphans).[31] Regional exclusion (eg. Northeast Thailand and the Northern Uplands and Central Highlands in Vietnam) is also identified as a category of exclusion.

2.2.5 Incorporating multidimensionality in the participatory approach

The advantage of using the participatory approach to identify non-income indicators is that they are no longer "expert" determined, but are chosen by local persons with local knowledge. Participatory surveys reveal that economically marginalized groups tend to be socially marginalized as well, so that they are disadvantaged with respect to both resources and power (Salmen 1995). For instance, in Cameroon the poor distinguished themselves from the non-poor on five main criteria: hunger in their households, fewer meals a day and nutritionally inadequate diets; a higher percentage of their income spent on food; nonexistent or low sources of cash income, and a feeling of powerlessness and inability to make themselves heard [World Bank (1995), cited in Kanbur and Squire (2001)]. There is some overlap here with Chamber's (1995) list (see Table 2).

[31] Rodgers et al. (1995) identified similar groups (ethnic minorities in Cameroon and Thailand, rural landless in Tanzania and poorly educated farmers in Thailand, and informal sector workers or workers in very poor urban occupations and the homeless in Thailand and Tanzania).

Table 2: Criteria of ill-being

Being disabled (eg. blind, crippled, mentally ill, chronically sick)
Suffering the effects of destructive behaviours (eg. alcoholism)
Lacking land, livestock, farm equipment, a grinding mill
Being "poor in people", lacking social support
Being unable to decently bury their dead
Having to put children in employment
Being unable to send their children to school
Being single parents
Having more mouths to feed, fewer hands to help
Having to accept demeaning or low-status work
Lacking able-bodied family members who can feed their families in a crisis
Having food security for only a few months each year
Having bad housing
Being dependent on common property resources

Source: Chambers (1995)

2.3 The dynamics of poverty

Dealing with the issue of dynamics in the measurement of poverty has a somewhat recent history. Within quantitative and qualitative approaches, methodological advances include (a) methods to distinguish between poverty that is transient, and poverty that is permanent or chronic and movements in and out of poverty, as well as more recent work that (b) attempts to understand the evolution of capabilities (D'Agata 2003) or the adaptive processes that influence subjective well-being (Burchardt 2003).

There is growing recognition that transitory and chronic poverty are caused by different processes, and have different routes out of poverty, with important implications for policy.[32] Two main methods are used to measure chronic poverty (McKay and Lawson 2003). The first of these uses longitudinal or panel data, and typically, though not necessarily focuses on monetary measures of living standards. A variant of this approach uses non-monetary measures (eg. measures of malnutrition or illiteracy), with similar (panel) data and analysis. Panel data analyses will necessarily look at short-term fluctuations in poverty because the data being used will typically not be more than ten years in duration, and is usually less.[33]

[32] The March 2003 special issue of World Development on "Chronic Poverty and Development Policy" contains several analyses of chronic poverty. Chronic poverty requires much more far-reaching interventions that include investment in human capital, land redistribution, removal of barriers to social mobility than does transitory poverty which is typically alleviated by the provision of social safety nets, credit and insurance programmes.

[33] Note that this is due to the recent availability of panel data in developing countries. However, because of attrition, even the best of long-term panel data sets will also be limited.

When panel data is not available, *repeated cross sections* may be used to track poverty dynamics for regions or clusters, though not for households (Wodon 1999).[34] When only a *single cross-sectional survey* is available, it is possible to build measures of vulnerability that rely on variation within communities or other subgroups or on external information on the seasonality of prices and production.[35]

Those experiencing *multiple dimensions of deprivation* may also be considered to be chronically poor (Hulme *et al.,* 2001). A study using data from Britain's *Poverty and Social Exclusion Survey* uses an intersection and union approach to classify the population into four groups—poor, rising out of poverty, vulnerable to poverty and not poor—based on households' income and "standard of living" (Gordon 2002).[36]

The *severity of poverty* or *extreme poverty* is often considered a proxy for persistent poverty. Nevertheless, many studies that do use panel data analysis find that the chronically poor are not necessarily the poorest (Aliber 2001 for Kwa-Zulu Natal in South Africa, Gaiha 1989 for India), indicating that this is not a very good proxy.

Another approach is to use information that is obtained at one point in time but which offers evidence on chronic poverty. This may be obtained from retrospective questions or life histories, or one-time indicators that have implications for duration, such as illiteracy or stunting (McKay and Lawson 2003).

2.3.1 Incorporating the time duration of poverty in the quantitative approach

The objective-quantitative approach is criticised for emphasizing static, snap-shot views of poverty, compared with the social exclusion and participatory approaches which are said to focus on process. This is a misconception, arising from the fact that in a quantitative framework, measurement and analysis are frequently separate exercises. Quantitative analysis that uses consumption poverty measures has, for a long time, examined issues of the duration of poverty, vulnerability and the risk of falling into poverty, and the inter-generational transfer of poverty and inequality using cross-sectional and panel data.[37] Similarities are evident between the objective-quantitative approach and (social exclusion type) subjective approaches, both of which construct survival rates, transition matrices etc. (Dirven *et al.* 1998).

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34 While this will not reveal information about poverty dynamics within these broad areas, it is more likely that chronic poverty exists in areas that exhibit few changes in poverty levels over time.

35 For example, Suryahadi and Sumarto (2001) regress the relationship between household consumption and its determining characteristics and term the predicted value an estimate of permanent consumption. Thus, the transient poor are those whose current consumption falls below the poverty line, but whose predicted consumption lies above it, while the chronically poor are those whose predicted and actual consumption lie below the poverty line.

36 Those whose incomes were high, but whose standard of living was low were those who wererising out of poverty (the improvement in living standards lags behind the improvement in incomes) while those whose incomes were low, but whose standard of living was high were those who were vulnerable to, or falling into poverty, maintaining their standard of living by dis-saving. The difficulty in applying this to developing countries arises from the prevalence of measurement error in income.

37 The lack of panel data in many countries is a constraint on this type of analysis, but several alternatives that use cross-sectional data have been used (Chaudhuri et al. 2001, Lanjouw and Lanjouw 2001).

2.3.2 Incorporating the time duration of poverty in the qualitative approach

Within the capability approach, some have argued that "becoming" is as important a category of analysis as "being" and "doing" (Comim 2003). The analysis of the dynamics of capability is still very much at an early stage.

Social exclusion and relative deprivation approaches that use subjective measures of well-being attempt to capture changes in well-being over time. However, recent work using panel data shows that people's subjective assessment of their well-being is likely to depend on how long they have been poor - there is a process of adaptation that results in an underestimation of chronic poverty.

Participatory approaches, which also have a strong neighbourhood element, are likely to inaccurately estimate long-term poverty. Methods that rely on long-term recall are also likewise flawed.

On the other hand, qualitative approaches are more likely to capture the underlying reality of processes that keep people in and move people out of poverty. For example, the large expenses incurred when there is a gambler, alcoholic or drug addict in low-income households, which keep these households in poverty, can rarely, if ever, be captured by the (representative) survey data typically used in the objective-quantitative approach.

2.4 Other important issues in poverty measurement

2.4.1 Absolute or relative deprivation?

A much-debated question is whether poverty should be considered in absolute terms or relative terms. The monetary approach uses both types of measurement, with relative poverty lines being more common in developed countries, and absolute poverty lines being used in developing countries. The capabilities approach favours absolute measures of poverty, in that poverty is defined as the lack of opportunities to attain *basic* functionings, although it is realised that what is *basic* will differ from one society to another. The social exclusion approach is by definition *relative*, in that exclusion or inclusion is *relative* to the norm. Participatory approaches in theory could be either absolute or relative, but in practice, methods like participatory wealth ranking are relative.

2.4.2 Objective or subjective measurement of poverty?

Does poverty have an objective existence, where it is up to the researcher or society to observe and describe it, or is it society or individuals in society, that define(s) it? If so, who defines it? Typically, most of the approaches to poverty, consider it to have an objective existence, and only disagree over which approach is best at uncovering this objective existence. Proponents of social exclusion and participatory approaches, with their emphasis on subjective or local knowledge are more likely to favour "subjective" methods in identifying the dimensions, indicators, and thresholds in poverty measurement, than proponents of the other two approaches.

2.4.3 Measurement of vulnerability

Several ways in which vulnerability can be measured using consumption-related measures are well known. For example: (a) variability in consumption—the higher the coefficient of variation the more vulnerable the household (Morduch 1994); (b) whether an income shock is passed onto current consumption or not (are households able to deplete savings or borrow in the face of a shock, and thereby smooth current consumption?) (Amin, Rai and Topa 1999, Jalan and Ravallion 1999); (c) how often a household is above or below the poverty line in a given period (Gaiha and Deolalikar 1993), and (d) as the proportion of non-poor households who became poor in a subsequent period (Sen 2003).

For policy purposes, it is not sufficient to identify vulnerability after the fact. One needs indicators that can be used to identify at-risk households beforehand. There is some consensus that a single indicator cannot capture all the complexities of vulnerability. World Bank (2001) and Moser (1998) identify the following indicators as useful in assessing a household's exposure to risk: (1) physical assets (housing, equipment and land) (2) human capital (health and education) (3) labour and (4) stocks (food, money or valuables) all of which are a measure of the households' capacity to self-insure. (5) Income diversification is sometimes, but not always an indicator of the households' ability to spread risk. (6) Links to networks (family-based networks, occupation-based groups of mutual help, rotating savings and credit groups, and other groups or associations to which a household belongs) can be a source of transfers in cash or kind in the event of a calamity. In addition, (7) participation in the formal safety net (social assistance, unemployment insurance, pensions and other publicly provided transfers) and (8) access to credit markets are other indicators of a household's ability to cope with shock.

Detailed qualitative surveys—or modules in quantitative surveys incorporating questions on these indicators—are required to capture all the dimensions of vulnerability. Measuring vulnerability requires panel data, because vulnerability is a dynamic concept. Households need to be observed more than once in order to assess how they respond to shocks.

Another approach to measuring vulnerability is to measure the prevalence of risks or shocks (usually aggregate risks such as crime, natural disasters).

2.5 Summary and questions to be addressed in relation to Sri Lanka

Poverty measurement has made incredible advances in recent times, both in terms of (1) consolidation and developing best practice, mainly in relation to monetary and quantitative methods that took place in the fifteen years from the mid 1980s to the end of the last millennium, and (2) the recent conceptual and methodological advances that have taken place in the first few years of the new millennium.

Some important features of these developments are described below. (1) It is now clearly recognised that *any single indicator of poverty* will not adequately describe or

measure the complex phenomenon that is poverty. The multidimensionality of poverty is now firmly accepted, and we are much closer to measuring it than we were a decade ago. (2) It is also evident—although arguably so—that any single *approach* to measuring poverty will not suffice. The contribution of the monetary approach to poverty measurement is well-known, just as its limitations are evident. The capability approach to poverty measurement by focusing on basic deprivation, has contributed much to the conceptual resurgence in this field, and thus provides a good theoretical and conceptual basis for improvements in poverty measurement.[38] However, the social exclusion approach has a contribution to make by adding the element of participation or inclusion. In addition, the focus on groups rather than individuals has useful implications for measurement as well as analysis. Participatory approaches provide the "subjective" or local non-expert based knowledge that is insufficiently emphasized in the other approaches.[39]

(3) We are also much better at measuring the *dynamics* of poverty now than we were several years ago. The availability of panel data has led to methodological improvements in distinguishing between the transiently and permanently poor and tracking movements in and out of poverty. (4) This has also had important implications for the measurement of *vulnerability.* (5) The measurement of empowerment or its absence in voicelessness and powerlessness is still at a somewhat rudimentary stage, but with a growing research agenda.

(6) Recent *empirical* work has focused on comparing results using different approaches (quantitative and qualitative, objective and subjective, monetary and non-monetary, etc.). (7) This has been facilitated by the availability of non-traditional instruments of data collection. Mainly, the household survey design that is most useful is a multi-topic panel survey, where questionnaires include both standard objective data collection questions, as well as the type of questions on subjective well-being that sociologists have been collecting for years. An example of such a survey is the British Household Panel Survey.[40]

The fundamental elements of the process of poverty measurement have not changed, however. The problems of identification and aggregation with the attendant choices of indicator, unit of analysis, poverty line and poverty measure are still the basic nuts and bolts of poverty measurement. A country that is looking to improve its poverty measurement methodology needs to pay attention these choices, and devise ways of making them. To a large extent, the process of improving a poverty measurement methodology would consist of (1) determining which dimensions and indicators of poverty are appropriate to that country using a combination of local knowledge and expert knowledge, (2) assuming that income or monetary poverty measurement is retained as an important though not exhaustive dimension of poverty, improving the

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38 In terms of practical application, many of the educational, health, environmental and empowerment indicators that are currently used can be regarded as indicators of functionings in the multiple dimensions of deprivation.

39 Practically speaking, this knowledge can be used in helping to choose from a list of expert-based or "objective" indicators (such as the MDIs).

40 See Burchardt (2003) for an analysis using this survey.

measurement of income poverty using the well-established guidelines on which there is a great deal of consensus and (3) determining methodologies for the aggregation of indicators into poverty measures. This may include easily constructed composite indices, even though their disadvantages are well-known, more sophisticated methods of statistical analysis such as principal component or factor analysis, latent variable analysis, as well as developments in the use of fuzzy set theory, etc. (4) Finally, this will include establishing priorities in the process of data collection that is required for the purpose of poverty measurement.

In the next section, I provide an overview of the status of poverty measurement in Sri Lanka, including an assessment of the contribution made by the qualitative and quantitative approaches, and assess the available data sources. In the last section I identify the tasks to be addressed in relation to poverty measurement and the poverty information system.

3. Overview of Sri Lanka's Poverty Measurement Methodology

Sri Lanka is a middle-income country where 45.4% of the population have a per capita consumption of less than $2 a day (World Development Report 2002), yet life expectancy at birth (73 years) is almost as high as the average for high income countries, under-5 mortality is half the average for middle income countries and adult illiteracy is lower than the average for East Asia or Latin America. It has also witnessed two decades of violent conflict and ethnic disharmony. These features have important implications for the measurement of poverty in this country.

In this section, I provide a brief synopsis of poverty measurement in Sri Lanka and use existing work as a starting point to examine directions for future work in poverty measurement.[41] I use the framework outlined in the previous section of *issues*, *choices* and *approaches*.[42]

Firstly, what are the *dimensions* that poverty measurement in Sri Lanka has incorporated? Which dimensions and indicators *should be included* in future poverty measurement exercises? How should they be *aggregated*? How should *thresholds* be set in these multiple dimensions? Are *absolute* or *relative* definitions used? Which of these is more appropriate in the Sri Lankan context? Has poverty measurement in the past focused on *objective* or *subjective* perceptions of poverty? Is there a case for a shift in emphasis? Have there been any attempts to measure the *dynamics* of poverty?

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41 While much has been written on poverty-related issues in Sri Lanka, little has been done on poverty measurement per se. Possibly as a result of the recent interest in poverty measurement in the research and donor communities, a large amount of poverty measurement related work on Sri Lanka has been done in the last few years, and is currently ongoing. Thus, reviewing the work on poverty measurement in Sri Lanka, like reviewing international research in poverty measurement methodology (Gunewardena 2004a:1) is somewhat like hitting a moving target.

42 This is also the approach used in the accompanying study, Poverty Measurement: Meanings, Methods and Requirements (Gunewardena 2004a).

Secondly, how does the existing body of work on poverty measurement in Sri Lanka address the problems of *identification* and *aggregation*? Specifically, what choices have been made in the past in relation to choices of *indicator, poverty line, unit of analysis, measure and weights*? What are the implications for the future?

Thirdly, how have the *"monetary", capabilities, social exclusion,* and *participatory approaches* differed in addressing the issues and choices described above? Poverty measurement exercises within the "monetary" approach have the longest history in Sri Lanka, and are well-documented (Hopkins and Jogaratnam 1990, Lakshman 1997, Tudawe 1999). Thus, it is with a critical review of poverty measurement in Sri Lanka within this approach that I begin. I then move on to highlighting briefly the attempts or contributions to poverty *measurement* within the other approaches. Finally, I discuss the potential contribution of each of these approaches to improving poverty measurement in Sri Lanka.

3.1 Poverty measurement in the monetary approach

Although emphasis in recent discourse (Lakshman 1998, Dunham 1999), and of policy documents has been on the need to go beyond the monetary approach to poverty, the measurement of poverty in Sri Lanka has traditionally focused on this approach, based on absolute poverty lines.[43] Beginning with Visaria's (1979) description of poverty and living standards, several studies have calculated poverty indices for Sri Lanka from the late 1960s until the mid-1990s.[44] There has been little open discussion over the choice of measurement methodology, and a variety of methods and baselines (such as minimum nutritional standards) have been used, including Lipton's (1983) definition of ultra-poverty and variants of it, direct calorie intake (DCI) and food energy intake (FEI) measures, and more recently, cost-of-basic-needs (CBN) methods (Visaria 1979, Marga 1981, Anand and Harris 1985, Bhalla and Glewwe 1985, Sahn 1985, Edirisinghe 1990, Nanayakkara, 1994, World Bank 1995a, Gunewardena 2000 and Vidyaratne and Tilakaratne 2003, among others).[45] The variety of methods has yielded measures that are

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43 Researchers in Sri Lanka (Lakshman 1998, Dunham 1999), have emphasized the importance of moving from absolute to relative conceptions of poverty, and this concern has appeared in recent policy documents. "perceptions of poverty are undoubtedly linked to changing social perceptions. In Sri Lanka the combination of economic progress, urbanization, globalization and liberalization has altered expectations and raised the threshold for what the general population would regard as "poor". GOSL (2003:28). Up to date there have been few attempts to overtly measure relative poverty in either a quantitative approach or a social exclusion approach. Some early approaches (Visaria 1981 and Alailima 1988) are better described as measures of inequality rather than relative poverty, while others (Bhalla and Glewwe 1985, Anand and Harris 1985, and Gunaratne 1985) use a relative poverty basis as essentially a shortcut to establish their food poverty line.

44 See Tudawe 2001 and Lakshman 1997, table 6.13 for a comprehensive summary of these estimates. The latter builds on an earlier compilation of estimates from 1969 to 1987 by Hopkins and Jogaratnam (1990).

45 In fact, Lakshman (1997) (and his later paper drawing on the same work), appears to be the only work that discusses "poverty measurement exercises".

largely incomparable with each other (except within studies using data from two or more points in time that have specifically constructed comparable poverty measures).[46]

Appendix Table A2 provides a summary of poverty studies using information from secondary sources (Hopkins and Jogaratnam 1990, Lakshman 1997 and Tudawe 1999) as well as from the original studies. This also attempts to establish the methodology used by each of these surveys, although the lack of background information on poverty line construction (even in some of the original documents) is an obstacle.[47]

Several ways in which these studies are inconsistent are apparent:

1. *They use different units of analysis (individuals and households).* The appropriate unit is individual, as households differ in size and composition. Any form of ranking, whatever the indicator, also should be of individuals, not households.

2. *They differ in their use of indicator (per capita food expenditure, per capita total expenditure, calorie intake and income).* Bhalla and Glewwe (1985) and Anand and Harris (1985) argue persuasively for per capita food expenditure and against the use of per capita total expenditure on the grounds that it is difficult to exclude durables from the measure, and that there is likely to be less measurement error in food expenditure. However, it is difficult to accept the use of food expenditure on conceptual and definitional grounds. Edirisinghe (1990) and several other studies (Sahn 1984, 1985) use caloric intake and food share. Anand, Harris and Linton (1993) use consumer finance data from Sri Lanka (CFS 1981/82) to test the criteria in the concept of ultra-poverty and find that (a) neither calorie intake nor food share on their own contain very much poverty information, that (b) together they perform better than separately, but that (c) even the double criterion is inferior to a poverty criterion based simply on total expenditure, which is that used by Datt and Gunewardena (1997), Gunewardena (2000), Vidyaratne and Tilakaratna (2003) and DCS (2004).

3. *They differ in their choice of minimum requirements.* Alailima (1978), Visaria (1979), Sahn (1985), Rouse (1990), Edirisinghe (1990) and Nanayakkara and Premaratne (1987) all use (slightly) different calorie norms ranging from 2200 calories per day per person to 2750 per adult equivalent unit. Visaria's is based on WHO/ FAO recommendations and estimates of calorie requirements by the Indian

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46 Bhalla and Glewwe (1985), Anand and Harris (1985), Datt and Gunewardena (1997) and Gunewardena (2000) provide comparable poverty estimates for two or more points in time, but these estimates are not comparable across studies. See Ranatilaka (2001) for a "quick and dirty" attempt to make these three sets of estimates comparable.

47 Note that Vidyaratne and Tilakaratna (2003) was the precursor to the Official Poverty Line announced by the Department of Census and Statistics in June 2004. Issues discussed and characteristics described in relation to Vidyaratne and Tilakaratna (2003) in this section and in Table A2 in Annexes apply in most instances to the Official Poverty Line as well. Table A2 indicates where they differ.

Council of Medical Research (ICMR), while Sahn uses an FAO/WHO determined threshold. Nanayakkara and Premaratne (1987) and Vidyaratne and Tilakaratne (2003) base their threshold on MRI recommendations.[48] Edirisinghe (1990) claims that the commonly used calorie requirement is 2200 calories.

4. *They differ in the application of calorie norms.* Alailima (1978) converts calorie norms into household income, while Edirisinghe (1990) converts calorie thresholds into per capita food expenditure. Sahn (1985) and Rouse (1990) use caloric thresholds directly with caloric intake as the indicator. Vidyaratne and Tilakaratne (2003) use the cost of basic needs method in constructing the poverty line.[49]

5. *They differ in the way they define the poor.* While some studies compare calorie intake directly with a threshold, others use Lipton's (1983) definition of ultra-poverty, or a variant of it. The shortcomings of this method are well known.

6. *Some studies use absolute poverty lines, while others use relative poverty lines.* Bhalla and Glewwe (1985), Anand and Harris (1985) and Gunaratne (1985) which were all part of the same World Bank living standards research study base their benchmark *food* poverty line on a *relative* measure of the average food consumption of the lowest 40 percent of the population, according to Lakshman (1997).[50]

7. *The poverty line methodology differs.* The cost of basic needs method appears only after 1995, when it is used by Datt and Gunewardena (1997) and Gunewardena (2000).[51] Their food poverty lines are based on Nanayakkara and Premaratne (1987). The Official Poverty Line, computed by the Department of Census and Statistics, declared in 2004, follows this methodology and a statement in the document states that this is henceforth the methodology that will be used to compute the official poverty line (DCS 2004a). Vidyaratne and Tilakaratne (2003), which clearly explains the methodology and data used, began the process toward establishing the official poverty line using this method.[52]

8. In addition to the inconsistencies noted above, the *use of different calorie conversion rates also poses problems*. This is particularly problematic in the case of staples. For eg. Sahn (1984), Korale (1987) and Rouse (1990) all use different conversion rates or "calorie counts" in converting coconuts (Rouse 1990).

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48 World Bank (1995), Datt and Gunewardena (1997) and Gunewardena (2000) all use the food poverty line used in Nanayakkara and Premaratne (1987).

49 So do World Bank (1995a), Datt and Gunewardena (1997) and Gunewardena (2000), but these studies took as their starting point Nanayakkara and Premaratne (1987)'s conversion of calories into rupees which yielded a food poverty line of approx. Rs. 200 in 1985/86 prices.

50 Little evidence is available as to what Gunaratne's (1985) poverty line was based on—Bhalla and Glewwe (1985) suggest that "this level is arrived at, with reference to (among other factors) the eligibility criteria for the Sri Lanka food stamp program."

51 Background papers for the World Bank Sri Lanka Poverty Assessment 1995 and the Policy Framework for Poverty Alleviation in Sri Lanka respectively.

52 However, their method of scaling the food poverty line upward to derive the overall poverty line differs from Datt and Gunewardena (1997) and Gunewardena (2000).

9. *Few studies used both sets of household surveys (DCS and CFS).* It is also not clear as to whether those that did so (Khan 1989) made the necessary adjustments for consistency and comparability. The design of the expenditure modules of the CFS and the HIES differ in important ways. Pradhan (1999) compared the two modules and derived a common basket to be used to derive comparable measures of household consumption from the two surveys.

10. *The studies only focus on equivalence in the underlying calorie norm, and make no adjustment for economies of scale.* Equivalence, whether treated explicitly (as in the studies that used calorie intake as indicator) or implicitly (as in other studies where the calorie norm is underlying) is restricted to the calorie norm, which is but one of many aspects of consumption. None of the studies attempt to incorporate economies of scale.[53, 54]

11. *The studies differ in poverty measures constructed.* Apart from the recent studies, most of these studies only construct the headcount index as Lakshman (1997) observes. This is partly owing to the nature of the poverty measure that is used. For example, ultra poverty indices cannot compute poverty gaps of any degree.

12. Among studies that are in line with best practice on most counts, *measures of inference are not* used (or reported) (Gunewardena 2000, Vidyaratne and Tilakaratne 2003, DCS 2004a).

13. *None of these studies measure chronic and transitory poverty.* It is interesting to note that there is not a single study that is based on a representative sample in Sri Lanka that analyses movements in and out of poverty over time. This is primarily because of the lack of panel data, which is required for an econometric analysis of how households respond to shocks over time. However, in the absence of panel data, it is possible to analyse such movements for the smallest level of disaggregation possible within the sample design, instead of the household. This requires that the same *clusters* be used in consecutive surveys and that they are identifiable from the survey raw data.

14. *Spatial price variation at a disaggregated level is evident only in recent studies.* While earlier studies were careful to generate separate poverty lines for urban, rural and estate areas, the use of separate poverty lines or spatial price indices for geographical regions (districts or provinces) is evident only in Datt and Gunewardena (1997), Gunewardena (2000), Vidyaratne and Tilakaratne (2003) and DCS (2004a).[55]

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53 The exception is DCS (2004a) which computes the Official Poverty Line. A footnote in this documentation indicates that equivalence scale and economies of scale analyses were done, and had little impact on estimates of the Headcount Index.

54 See Deaton 1981 and Deaton and Case 1988 for computations of equivalence scales based on the 1969/70 LFSES and Deaton and Case 1988 for the 1980/81 LFSES.

55 Note that using spatial price indices that deflate/inflate individual measures of consumption against a national poverty line is equivalent to constructing several (spatial) poverty lines and comparing unadjusted measures of consumption against them. See section 2.1.3 in Gunewardena (2004a). See Appendix Table 3 for a set of regional poverty lines from Gunewardena (2003b) that are equivalent to the spatial price indices in Gunewardena (2000).

15. *Price data (and related deflators) differ.* Anand and Harris (1985), Datt and Gunewardena (1997), Gunewardena (2000) and DCS (2004a) use implicit prices from the surveys, while Bhalla and Glewwe (1985) use a specially constructed index. Vidyaratne and Tilakaratna (2003) use retail price data. Deflators used by Anand and Harris (1985), Datt and Gunewardena (1997) and Gunewardena (2000) are the geometric mean of Laspeyres and Paasche indices.

A comparison of two of the studies that use the "closest-to-best-practice" methods in analysing the 1995/96 HIES is given in Table 3. What is striking is that the food poverty lines derived by the two studies, which use the same data, differ by about 10 percent. The reason for this will lie in the different calorie norms used, as well as the different price data used.[56] Interestingly, the food poverty line derived by Gunewardena (2000), which is 10 percent higher than that of Vidyaratne and Tilakaratne (2003), yields an overall poverty line which is much lower (Rs. 792 compared with Rs. 953). This is probably the result of (a) the use of different price data and (b) the use of different scaling methods.

Table 3: Two Cost-of-basic-needs consumption poverty lines for 1995/96

	Gunewardena 2000	*Vidyaratne and Tilakaratne 2003*
Poverty line	Rs. 791.67; Rs. 950.00	Rs. 953
Calorie norm	2500 per adult equivalent per day[a]	2030 per person per day[b]
Price data	Implicit prices (unit values) from HIES	Retail prices collected by DCS
Food poverty line	Rs. 641.82	Rs. 591
Scaling method	Estimating food share at food poverty line (1-4 deciles)	Average food ratio of 2nd-4th deciles.

Source: Gunewardena 2000, Vidyaratne and Tilakaratne 2003

Notes: [a] Based on Nanayakkara and Premaratne (1987) which is based on LFSES 1980/81 and 1985/86 data; the corresponding per person calorie norm is 2020 per day.

[b] Calculation based on Demographic survey 1994, which is higher than LFSES 1980/81 and 1985/86, but lower than HIES 1990/91 (2043).

These results can be compared with the DCS (2004a) derivation of the poverty line for 1995/96 (Rs. 833) which is arrived at by deflating the 2002 national poverty line by the CCPI.[57] The 2002 poverty line uses the same calorie norm as that of Vidyaratne and Tilakaratne (2003), and its methodology differs from that study only in that implicit

prices (unit values) are used instead of retail prices, and the reference group for scaling up the food poverty line is different.[58] It is similar to Gunewardena (2000) in the use of implicit prices (unit values) in computing the spatial price index, and while the method of scaling up the food poverty line is different, the underlying definition of the lower

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56 Note that DCS (2004a) uses implicit prices from the survey.

57 Note that future updates of the poverty line will be based on the SLCPI, an expanded consumer price index constructed by the Department of Census and Statistics, and not the CCPI.

58 The reference group for the upper bound is individuals whose per capita food expenditure is close (10 percent above and below) to the food poverty line, while the lower bound is determined by those whose per capita total expenditure is close (10 percent above and below) to the food poverty line.

bound is identical. The national poverty line in DCS (2004a) is the simple average of the upper bound and lower bound poverty lines. The average of Gunewardena's (2000) poverty lines is approximately Rs. 840 in 1995/96, just Rs. 7 higher than the deflated official poverty line.

What is apparent from this survey of poverty measurement exercises is the complexity of choices in the construction of a "monetary" poverty measure. While the poverty line methodology should be *in keeping with international best practice* on the poverty line methodology (i.e. cost of basic needs), it is also necessary to use the same *underlying minimum requirements* (eg. minimum calorie requirement). Agreement (that is informed by best practices) needs to be reached on the *choice of indicator* and *unit of analysis*, as well as *equivalence scales*. Alternatively, while several methods could be used, norms, thresholds and definitions should be kept consistent among them so as to maintain comparability over time. Reports of such measures should explicitly describe the methodology used. The establishment of the official poverty line by the Department of Census and Statistics and the clear exposition of how this line is constructed (DCS 2004a and Vidyaratne and Tilakaratne 2003) has gone a long way toward resolving the inconsistencies that existed in the "monetary" approach to poverty measurement in Sri Lanka.

3.2 Poverty measurement in the "Capabilities" approach

There is no distinct body of literature relating to poverty measurement within the capabilities approach in Sri Lanka, unlike in the monetary approach. What does exist is a vast amount of material from diverse literatures that can throw light on some of the issues that need to be resolved when measuring poverty within this approach. The main questions to be asked within this approach are which dimensions (and indicators) have been and should be used, how thresholds are and should be chosen, and how the multiple dimensions are and should be aggregated.

3.2.1 Dimensions and indicators

The recognition that poverty is multidimensional and the use of indicators in dimensions other than income or food consumption is evident even in the earliest discussions and descriptions of poverty in Sri Lanka.

> *"Hard core poverty is manifested in the poor conditions of shelter and inadequacy of living space; in the lack of access to satisfactory health facilities; in poor environmental sanitation reflected in unsatisfactory sources of drinking water, inadequate toilet facilities and so on, and in the lack of skills in literacy and numeracy for conducting the minimum relationships with the outside world."* (Marga 1981)

Indicators of these dimensions have been measured and reported in Sri Lanka for a very long time—some even from the 1920s! (Alailima 1997b).[59] Some of these indicators (eg. mortality and morbidity, enrolment numbers, student-teacher ratios) are collected

[59] This refers both to outcome indicators such as literacy and inputs such as schools, teachers, health officials, hospitals and beds.

administratively and reported in administrative reports such as the Annual Health Bulletins (Ministry of Health) and Annual School Censuses (Ministry of Education), while others are generated from survey data (eg. under 5 malnutrition rates, population lacking access to safe water and sanitation).

The *National Human Development Report 1998* (UNDP-Sri Lanka 1998) and the more recent reports on MDGs (UNDP-NCED 2005, De Mel, Jayaweera and De Silva 2004, DCS 2004b, DCS 2005) represent efforts to collate sub-national level information on a variety of education, health and nutrition, environment and empowerment indicators (see Table A4 in Annexes for district level indicators of human poverty).

The following are the indicators used in the compilation of human poverty indices for Sri Lanka (UNDP-Sri Lanka 1998).

- Population dying before age 40
- Adult literacy
- Population without access to safe water
- Children not fully immunised
- Births not in institutions
- Population without access to electricity
- Population lacking access to safe sanitation
- Schooling non-enrolment rate, grade 1-9

This choice of indicators reflects, to some degree, data availability, and international "expert-based" judgements of basic capabilities. A similar list in an Asian Development Bank study includes in addition, male and female unemployment rates, the total fertility rate, infant mortality and maternal mortality ratio, measures of the prevalence of malnutrition, anemia and Vitamin A deficiency among preschool children, and the extent of low birth weight (Abeyratne and Tabor 2001).

Several "social" and "vulnerability" indicators have been developed by various organizations for various purposes. Examples of indicators appropriate to specific locales and situations are the studies by Arunatilake and Sivaram (2001) for the estate sector, and the study on livelihood strategies of war-affected communities in the Trincomalee district (IFSP 2001).

In their study, Arunatilake and Sivaram (2001) develop seven social development indices for the estate sector in Sri Lanka (ESDI). These were developed in order to "measure the level of achievement of individual estates in respect of the most crucial aspects of social development in the estate sector." (Arunatilake and Sivaram 2001). The indices and the dimensions they encompass are given in Table 4.

Table 4: Estate Social Development Indices and the dimensions they encompass

Index	*Dimensions*
Estate Human Development Index (EHDI)	Survival, access to knowledge, access to resources
Estate Gender Development Index (EGDI)	Survival, access to knowledge, access to resources
Estate Gender Empowerment Index (EGEI)	Female access to earnings, Community participation, Career advancement indicator.
Estate Social Infrastructure Development Index (ESIDI)	Susceptibility to illnesses, Access to education, Access to safe water, Access to basic health care, Access to electricity, Inadequate housing
Estate Child Survival and Development Index (ECSDI)	Child Survival, Child health, Preventive health measures, Child development
Estate Social Mobilization Index (ECDI)	Social harmony, Access to recreational cultural and religious activities, Access to capital, Political empowerment, Access to work related training opportunities
Estate Career Development Index (ECRDI)	Earnings indicator, Stability of employment, Career advancement indicator, Training indicator

Source: Arunatilake and Sivaram (2001)

While the dimensions included here may seem to be fairly typical of those used in the UNDP indices, the indicators used are those appropriate to the estate sector.[60]

Dimensions for which indicators were developed in the IFSP study included education facilities (village schools), water and sanitation (village drinking water/toilets), vulnerability (female headed households, orphans, less than 3 meals a day, information regarding displacement and resettlement, information on government support received, refugee and migrant status), and employment (types of employment and livelihoods).

A complete list of Millennium Development Indicators (MDIs) is given in List 1, in Annexes.[61] DCS (2005) provides information on twenty three of these indicators, at the lowest disaggregated sub-national level.

Perhaps the most important recent development in the literature on poverty is the development of the Composite Indicator of Multidimensional Poverty (Siddhisena and Jayathilaka 2004) which is based on data from the 1996/97 Consumer Finance Survey (CFS) conducted by the Central Bank of Sri Lanka and the 1999/2000 Sri Lanka Integrated Survey (SLIS) commissioned by the World Bank. The seven dimensions in which deprivation was measured in this study were nutrition, primary education, health care, sanitation, safe water, housing quality (including source of lighting), and income.

60 The indicator to measure female access to earnings is the proportion of females collecting their own wages, the indicators to measure social harmony are the percentages of men and women respectively who do not drink regularly, and political empowerment is measured by the proportion of adults who have National Identity Cards.

61 Data availability for these indicators is given in Tables A6 and A7 in the Annexes and discussed in section 4.

(To be given)

Weerahewa and Wickremasinghe (2005) use a creative method to adjust monetary poverty measures for subjective judgements on non-monetary aspects of poverty, where the perceptions of individuals on these aspects are given a monetary value based on the willingness-to-pay concept. Based on access to education, health, location level, and salary level, Weerahewa & Wickremasinghe (2005) define nine hypothetical social climates. A questionnaire covering these communities was administered to a stratified random sample of 100 undergraduate students at the Faculty of Agriculture, University of Peradeniya, and conjoint analysis used on the data obtained.

3.2.2 Thresholds

Thresholds within this approach typically follow international practice (eg. the cut-off for the determination of "safe" water or the definition of "underweight" or "wasted" or "stunted"). In other cases, the threshold is obvious, because the situation is dichotomous; eg. unemployment, enrolment in school, etc.

3.2.3 Aggregation

Multidimensional indicators related to the capabilities approach that are used in Sri Lanka are either used in a supplementary fashion, or else are aggregated into a composite index, or ranked usually using the Borda ranking method. Siddhisena and Jayathilaka (2004) use Principal Component based Factor Analysis to develop their composite index. Problems of insufficient information or lack of transparency plague composite indices, though this is to some extent minimised when actual values of component elements are also displayed as in Table 4, in the Annexes.

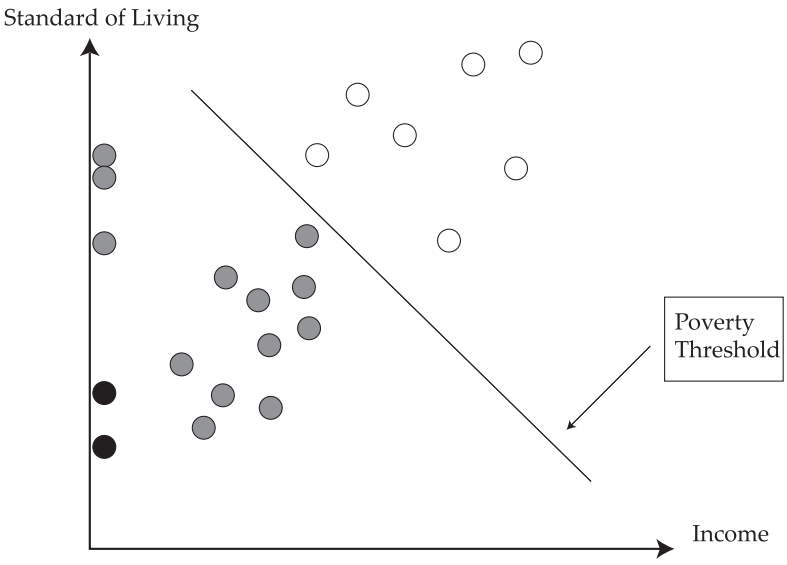
3.3 Poverty measurement in the Social Exclusion approach

Attempts at measuring poverty using a social exclusion approach as defined in section 2.1.3 are non-existent in Sri Lanka; instead, what is commonly adopted is a "groups" approach to social exclusion, i.e., it is argued that this or that group is socially excluded. The rest of the discussion in this section reviews these arguments.

A few distinct arguments are evident in the small but significant literature on social exclusion in Sri Lanka. Both Lakshman (1997) and Dunham (1999) argue that liberalisation policies have on the one hand raised general expectations in the population at large, yet generated very few formal sector jobs. These have been mainly in the garment industry and in overseas employment and have primarily attracted women. They argue that as a result, relatively educated young males were excluded from the benefits of global integration. This type of argument would lead to the selection of unemployment—and underemployment—as indicators of poverty. On the other hand, others (within the quantitative measurement framework) have shown that the (consumption) poor cannot afford to be unemployed, and that the majority of the unemployed are not poor (Alailima 1997a).

Conceptualising this on a continuum (or dispersion) following Gordon (2002), the Lakshman-Dunham argument might be shown as follows:

Figure 4: Poverty and Social Exclusion



Source: Adapted from Gordon (2002)

The circles in Figure 4 depict individuals, and the white circles which are higher up and further out indicate individuals with higher incomes and higher standards of living, whom Gordon (2002) considers to be the non-poor. The grey circles which are close to the origin of the graph are the poor. The poverty threshold indicated in the graph is what is considered to be the optimal position of the poverty threshold—it is the point that maximises the differences between the two groups and minimises differences within the two groups.

The circles that are very close to the vertical axis represent the unemployed—who have no income, and therefore must lie close to the vertical axis. Some of them are the sole income earners in their families, and thus, the standard of living of their families—which to be greater than zero, must currently be maintained either by dissaving, borrowing, or private or public transfer receipts—is very low. These are the individuals who are depicted by the darker grey circles. They are unemployed and poor.

Some of the unemployed—in fact, according to most studies (Alailima 1991 cited in Rama 2003, Central Bank 1999), *most* of the unemployed live in families with a relative high standard of living. These are the relatively educated young males who Dunham (1999) and Lakshman (1997) argue are socially excluded.[62] They would be represented by the light grey circles that are close to the vertical axis, but by their higher placement indicate a high standard of living.[63]

Unemployment by itself is therefore probably an inadequate indicator of social exclusion for Sri Lanka. An alternative approach may be to identify as excluded those unskilled workers who are trapped in a vicious circle of employment in the low-skilled sector, unemployment, and periods out of the labour force (Bradley *et al*. 2003).

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62 Yet, it is relatively educated females who have a much higher unemployment rate than males (Central Bank 1999).

63 Although not illustrated here, it is possible that some of these unemployed would lie even further up on the vertical axis, beyond the poverty threshold.

However, this type of identification requires longitudinal panel data, which is as yet unavailable in Sri Lanka.

Silva (2001) takes a more conventional view of the socially excluded, yet is contextual and relevant. He uses the term "marginalisation" and exclusion of people on the basis of political affiliation, ethnicity, gender, caste, and place of residence. He also rightly points out the inadequacy of the quantitative approach in measuring the gender dimensions of poverty.[64] On the other hand, qualitative research (ethnographic and survey) finds evidence of lower wages for female casual workers and occupational segregation where they are engaged in more tedious, hazardous and low-paying work, for instance, in the coir industry, metal-breaking, road work, and weeding of paddy fields. Other categories of the poor who have been identified by research in Sri Lanka as socially marginalized are "depressed caste communities, village expansion colonies which are often at the lower end of both class and caste configurations, squatter settlements, fishing communities in the coastal belt, and slum and shanty communities in urban areas" (Silva 2001).

Tudawe (2001) suggests several "groups" that are likely to have a high probability of experiencing poverty for extended periods. These are (a) the displaced and those exposed to violent conflict (see below), (b) those who are socially excluded due to ethnicity and caste, (c) the urban poor, (d) female-headed households, (e) older people, (f) street children, (g) working children, (h) disabled people and (i) unemployed youth. While existing evidence points to some of these categories *not* being prominent among the poor in Sri Lanka (eg. female-headed households, unemployed youth) other categories are likely to be important groups to focus on in poverty measurement, particularly from a social exclusion approach.

Niriella (2004) in a study on ethnic relationships and social cohesion among slum dwellers in Colombo City uses subjective measures (perceptions) related to "neighbouring" and "neighbourhood" to analyse the level of social cohesion in the survey area.

3.4 Poverty measurement in the Participatory approach

Experience from participatory studies in Sri Lanka confirms the view that they are not useful for constructing a representative count of the poor. However, they are successful at identifying the concerns and priorities of the poor, identifying dimensions that can be used for constructing multidimensional indicators of poverty, and identifying the dynamic processes of poverty.[65]

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64 World Bank (1995) and Gunewardena (2000) which relied on household-level data did not find statistically significant differences in the levels of poverty of male-headed vs. female-headed households, and Aturupane, Rodrigo and Perera (1997) actually found rural male-headed households to be poorer.

65 This last characteristic is very important given the lack of panel data in Sri Lanka.

Identifying the concerns and priorities of the poor

Table 5 below gives a general list of concerns and priorities of the poor in a participatory study conducted in four districts by PIMU (2000). The districts were Badulla and Moneragala in the Uva province, Trincomalee in the Northeastern Province, and Hambantota in the Southern Province. A comparison of needs and priorities that emerged from focus group meetings in all four districts yields some very interesting results. Focus groups in Moneragala, which is the poorest district according to consumption poverty estimates (Gunewardena 2000), voiced some of the same needs identified in other districts, but this was the only district to identify *doctors* as a need, and one of two districts to need *teachers*. What they did *not* identify—that all the other districts *did*—was also revealing: employment or permanent jobs (but they found self-employment to be a need), and land, agricultural assistance and access to education. One could construct a picture here of a sparsely populated district, with abundant, but infertile land inhospitable to agriculture, and with few qualified medical personnel. Is there a contradiction between their needing teachers, but not needing access to education? Probably not; without teachers, "education" means nothing to them. They also do not aspire to permanent jobs (i.e., formal sector jobs), preferring self-employment, probably because that is all they perceive to be available to them. This may also explain why the need for access to education is correlated with the need for employment in the other districts; formal sector jobs, though few, are relatively more abundant in these districts.

Table 5: List of concerns of the poor

Lack of access to infrastructure (roads, electricity, water supply, transport)
The prevalence of armed conflict and violence
Lack of income/employment opportunities
Lack of capital/tools/assets to carry out livelihoods
Scarcity of natural resources (water, land, fish)
Crop loss due to wild animals (elephants, wild boar)
Lack of housing and sanitation
Lack of quality education and skill-training
Vulnerability due to sickness, disability, old age and death (of income earner)
Vulnerability to market fluctuations
Scarcity of food
Neglect by the state
Political/ethnic bias in the delivery of poverty assistance
Lack of unity/togetherness within the community

Source: ADB-PIMU (2000) Perceptions of the Poor: Poverty Consultations in Four Districts of Sri Lanka, Colombo.

This list can be compared with a similar list of options provided to young male and female interviewees in a survey of poverty and youth (Ibarguen 2005).

Table 6: How would you identify a poor household?

	Frequency	*Percent*
Head of household is unemployed	118	34.1
No house/land	66	19.1
Children do not go to school	37	10.7
Alcoholism of its members	27	7.8
Lack of household assets	26	7.5
Malnourishment	22	6.4
Idleness of its members	17	4.9
Structure of the house	8	2.3
Other	6	1.7
Socially or politically discriminated	5	1.4
Persistent illness	4	1.2
Members do not participate in the community	3	0.9
No access to law enforcement	2	0.6
No social connections	2	0.6
Dependent on scarce natural resources	2	0.6
No political connections	1	0.3
Total	346	100

Source: Ibarguen, 2005

Ibarguen (2005) reports that this list was presented with the items mixed in no apparent order. Disaggregation by conflict and non-conflict areas showed that head of household being unemployed and lack of house/land were more important to the conflict area respondents when compared to non-conflict area respondents. This study also asked questions regarding respondents' perceptions on how serious they considered the problem of poverty was in the country, and a similar question was asked regarding their own locality. Surprisingly, respondents showed a pattern of regarding poverty in their own locality as less serious than poverty in the country as a whole.

Too much or too little?

That Sri Lanka has its fair share (perhaps more) of participatory or rapid appraisals is evident from the first statement highlighted in the "Perceptions of Poverty" Report (ADB-PIMU 2000).

> *"Every month someone comes here from the university, the government or foreign agencies to ask us questions and call us for meetings. The last time we lost three good days of work drawing a map of our village—every tree was there. What have we got from answering questions? Don't bother to come here."* -Hemapala, fisherman and local leader, Hambantota District.

These statement contrasts with one from Wijepala, a small farmer/agricultural labourer from the Moneragala District who says,

> *"No one has come to see us before. Not the NGOs. Not the government. They only visit those near the road. No one even tells them that we are here. You are the only people from outside we've seen here. Even if you can't help us, at least our voice will be heard at last."*

These two statements taken together have a strong message: participatory appraisals "need to be put into more of a quantitative framework", specifically, a sampling frame. At the very least, users of this approach, and users of its results need to be aware that if the same people are being over-sampled while others are being under-sampled, there is considerable bias in the results.[66]

Studies by Sellamuttu and Clemett (2004) and Sellamuttu and Milner-Gulland (2005) use a smorgasbord of participatory approaches in analysing conflict (avoidance) over water resources between farmers and fishermen in Kalametiya, and in a rapid assessment of tsunami impact in the rural coastal communities of Kalametiya and Rekawa. In the first study household wealth rankings and primary livelihood activities were used to obtain a random stratified sample of households from each of three villages in Kalametiya, intra-household questionnaires were conducted in a sub-sample of these, and wealth rankings were used to obtain a purposive sample of "very poor" and "better off" farmers with whom a series of focus group discussions were conducted (with resource mapping, problem scoring, and water resource scenarios). In the second study, the existence of baseline data allowed (among other things) the assessment of the impact of the tsunami on the household and on productive assets. Focus group discussions and a household survey were used. In the former, participants were asked to write out and rank their recommendations. The survey was used to elicit coping strategies of households after the tsunami and their sense of personal well-being and security.

The ongoing community based monitoring systems (CBMS) pilot study in Colombo used qualitative case studies to determine what kind of data would enable the development of appropriate indicators to monitor poverty at the community level and to get a better understanding of poverty dynamics and changes within communities (Fernando 2005). An interesting outcome of this research is the dialogue between community members, government officials and donor representatives to discuss the data collected and to outline ways and means of utilising them for local planning exercises.

How can participatory appraisals/qualitative approaches be used to improve poverty measurement in Sri Lanka?[67]

1. They are not useful for identifying the poor or counting the number of poor people.

The results of ADB-PIMU (2000) support the perception that qualitative approaches are not very useful for identifying the poor. Depending on the method used (focus groups vs. household interviews) the results varied.

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66 Qualitative studies conducted in recent years have attempted to be more rigorous in sampling, and also to explicitly state the sampling procedure in their reports (Eg. Ibarguen 2005).

67 Note that what is being discussed here is the contribution of participatory approaches to poverty measurement; the contribution of participatory approaches in poverty monitoring is well recognized, and an excellent paper that illustrates the complementarities of qualitative and quantitative approaches in poverty monitoring with reference to Sri Lanka is Herath (2004).

2. They are useful for identifying the concerns/priorities of the poor.

Several of the items identified can be used in (a) developing subjective indices of deprivation and (b) constructing multidimensional measures of poverty.

3. They are useful for identifying the dimensions of poverty.

Although the poor do not distinguish between the causes and conditions of poverty, their responses are useful indicators of what they themselves consider to be important aspects of deprivation. Thus, from the above list, in many districts (except those very well served), the lack of water or water supply was a high priority. Other important aspects were a lack of access to land, employment and income, housing, education and services.

What is interesting is that apart from water, which was universally highlighted, other aspects varied by district. This may be due to the specific agro-climatic nature of the district (such as health being important in Hambantota) or the degree of urbanisation and the spread of facilities (such as water, housing and education being less of a priority in Trincomalee) *or* it could be due to sample bias, where the households sampled may not have been representative of the district.

4. They are useful for identifying the dynamic processes of poverty.

Perceptions of the poor in relation to the dynamics of poverty in Sri Lanka confirm what studies elsewhere have identified: ill health or death of the breadwinner, loss of security in old-age, and conflict and violence lead to chronic poverty.

3.5 Other concepts and approaches

3.5.1 Vulnerability

If poverty is defined as "unacceptable deprivation in wellbeing" (WDR 2000), then vulnerability could be defined as "the possibility of suffering a decline in wellbeing, in particular a fall under some minimum benchmark or poverty threshold [where] the fall is brought about by shocks against which protection is either costly or not possible" (Duclos 2002). Although vulnerability has not been measured in Sri Lanka in this way (mainly due to the lack of longitudinal data), many qualitative studies and non-nationally representative quantitative surveys have identified vulnerable groups, either because of obvious characteristics that make these groups prone to risk, or on the basis of indicators that have been developed. Some of these studies are reviewed briefly in this section.

Silva (2003), in an analysis of perceptions of vulnerability and coping in conflict-affected populations based on primary data from two selected communities in the north-east (including refugee camps, resettlements, disturbed or border villages), identifies three types of vulnerability that specifically affect the conflict areas: environment-related risks

and vulnerabilities, market-related risks and vulnerabilities, and conflict-related risks and vulnerabilities. The primary environment related risks relate to weather and climate, related vulnerability (frequent droughts, floods, cyclones, etc. which often lead to the loss of crops, damage to housing and periodic displacement),[68] crop damage by pests and wild animals (elephants, wild boars and monkeys), and environmental hazards in the form of environmental degradation, including deforestation, soil erosion, and water scarcity. Market-related risks operate on both the supply and demand side of the market. Low producer prices prevail, and increased costs incurred by traders due to poor infrastructure are usually passed on to farmers. On the other hand, food shortages result in a blackmarket and higher consumer prices. Silva (2003) reports that seasonal fluctuation in wage demand and the stagnation of wage levels (especially for women) seriously affected the food security of the most vulnerable households in many of the study communities. Silva (2003) further notes an important difference in the nature of conflict-related risks between those experienced during the active conflict and those experienced in the peace and reconciliation period:

> *"At the time of the active conflict key problems related to displacement; disruption of livelihoods, assets and infrastructure, injury, ill-health and death caused by war, taxes and restrictions on movements of goods and people imposed by the security forces and the LTTE and the development of a war economy in the conflict zones and adjacent areas."*

The peace-time vulnerability related to fears of renewed conflict, forced recruitment and increased tax burden in LTTE controlled areas, fear of losing dry rations, and loss of jobs on the part of military and para-military (Silva 2003).

Interestingly, while Silva (2003) focuses on ethnicity as a framework for assessing vulnerability and coping among internally displaced persons, Ibarguen (2005) finds in the survey on youth and poverty that none of the respondents linked vulnerability with the categories of gender, ethnicity, or caste, but instead linked it to livelihood activities and labour force status, especially wage labour and unemployment.

Village Data Sheets developed by the Integrated Food Security Project (IFSP) implemented by GTZ in the Trincomalee District in 1988-2003 (now modified and renamed the Vulnerability Poverty Profile) also provide useful indicators of

[68] This paper was written more than a year before the most devastating of these natural disasters, the Tsunami of December 26, 2004.

vulnerability.[69] The concept note outlining the VPP describes the nature and objective of the profile. "The design of the VPP takes into account the unit of analysis, which is the Village, and not the Household, the scope of its application (all villages as opposed to a sample), and the potential users of the VPP, which are primarily development agencies and projects oriented towards rehabilitation and basic development, with an emphasis on restoring basic infrastructure (irrigation, roads, electricity, housing), promoting small scale business and income generation and resettlement and support of displaced populations. In addition, the method of data collection for the VPP, through government officers such as Samurdhi Officers, all combine to limit the degree of complexity that can be measured in the VPP." (CIRM 2004).

The four dimensions included in the CIRM-VPP are Economic, Health, Education, and Vulnerability. While the first three use standard indicators such as access to electricity and roads, access to health services and sanitation, access to education and educational level of school going children, three types of vulnerability indicators are used to measure the last dimension. These are Food Insecurity, Human Security or Conflict Affectedness, and Social Vulnerability. Variables included in the computation of food insecurity include food insecurity of production as well as household food insecurity which is a composite measure of households consuming less than three meals a day, households receiving food stamps, and number of families receiving dry rations. Conflict affectedness is measured by the percentage of war widows among female-headed households, and families affected directly by the war (including loss of life and being disabled) and displacement. Social vulnerability indicators include the percentage of female-headed households, orphans as a proportion of children less than 16 years, and the percentage of children 14 years and under who work.

Sellamuttu and Clemett (2004) use an "intra-household" survey to assess food security at the household level using a variety of indicators (percentage *cooked less food than usual, fewer times a day,* percentage *bought less food, bought food on credit, borrowed money to purchase food* etc.)

Herath (2004) in an impact assessment of the Second Badulla Rural Development Project used the following indicators (within a participatory rapid appraisal framework) to measure the vulnerability impacts of the project: insecure land ownership, high wage labour dependency, drought and water scarcity, increased land degradation, lack of off-farm jobs, lack of technology and high valued crops, indebtedness, lack of social capital, low technical skills, and fluctuation of farm-gate prices.

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[69] The Village Data Sheets (VDS) was developed by the IFSP to facilitate the selection of villages for project support. The background to the VDS and the subsequent VPP are described in a concept note: "Given the orientation of the IFSP towards ensuring food security, it was necessary to identify vulnerable groups that qualified for support. To do this, more detailed information at the village level was required to identify villages that were 'worst off' in terms of food security and poverty. CIRM, which was established to take over the knowledge base of the IFSP, after its closure in end 2003, considered the continued development of the VDS and its application to the other districts of the North East Province, a key activity, particularly since there was a demand for its application by government and other development agencies operating in the NEP. The VDS was modified by CIRM to suit the broader geographical context and clients' needs and renamed as Vulnerability Poverty Profile". (CIRM 2004).

A household survey conducted by the Institute for Policy Studies in 2004 (Tilakaratna and Wickramasingha 2005) and administered to about 1500 households to obtain information on the outreach and poverty impact of microfinance in Sri Lanka, provides a list of several risks and "vulnerabilities" encountered by the households in their sample. Sources of covariate risk such as natural calamities and crop failure were important, while the main idiosyncratic risks were related to sickness/accident or death, loss of employment and indebtedness.[70]

Table 7: Nature of Risks and Vulnerabilities faced by Households

Nature of Risk	*No of Households*	*Percentage*
Natural Calamities	335	22.64
Employment Related	232	15.68
Crop Failure	271	18.31
Sickness/Accident/Death	306	20.68
Social Calamities	48	3.11
Marriage/Child Birth	96	6.49
Other Personal Problems	30	1.42
Indebtedness	185	12.50
Others	154	10.41

Source: Microfinance Survey 2004, IPS (Tilakaratna and Wickramasingha 2005)

This study also examines the coping strategies of households that faced an income fall during the 12 months previous to the survey.[71] On average, the most used coping strategy was of reduced food consumption (68 percent), and the second (50 percent) was of reduced consumption of non-food items. Forty four percent of households borrowed, half from the formal sector and half from the informal sector. One fourth of households pawned or sold jewellery (gold) (Tilakaratna and Wickramasinghe 2005). [72]

Quantitative poverty measurement exercises also indicate a high degree of vulnerability of the rural poor to droughts.[73] However, the lack of longitudinal (panel) data makes it difficult to track movements in and out of poverty at the household level, and to quantify both vulnerability and the possible relationship between vulnerability and droughts. This underscores the importance of micro studies (such as the one above)—both quantitative and qualitative—in providing indicative measures of the dynamics of poverty and vulnerability.

The ADB "quick and dirty" estimate of the number of additional poor as a result of the Tsunami natural disaster, which is based on the number of houses destroyed, the

70 This study was conducted before the Tsunami that hit Sri Lanka's coastline on December 26, 2004.

71 This was 50.2 percent of the sample of 1,480 households.

72 The study also provides this information disaggregated by quintile, which is very informative. For example, of the eight (1.08 percent) households that sent children to work as a coping mechanism, seven were from the lowest 40 percent of the sample.

73 Poverty fell drastically in 1990/91 which was a booming year for the rural sector, from 1985/86 (which was a dismal year) and rose again in 1995/96 which was a year of drought.

number of houses damaged,[74] existing national estimates of the headcount index, and average household size, is a good example of the use of existing data and "quick and dirty" methods to obtain an approximate indicator when the time and resource requirements for a more rigorous approach are unavailable (ADB 2005).

3.5.2 Subjective measures and relative deprivation

While many qualitative surveys that are conducted in Sri Lanka by researchers and organizations include and obtain information that could be used to conduct a subjective poverty line, or subjective measures of poverty, no study appears to have actually done so. Part of the reason may be that the question that is framed in order to obtain the information (the so-called minimum income question) is framed in monetary terms. Given that market goods do not comprise a large part of income for the rural population, and very likely for most of the poor, the response to this question would need to be adjusted upward in order to be a meaningful poverty line and would be subject to a high degree of spatial variation.[75] Interestingly, a recent study on poverty and youth that used qualitative and quantitative questionnaires in conjunction found that the income considered to be adequate for a family to move out of poverty rose with educational qualifications, gender (in general, males had a higher figure), sector of residence (indicating spatial cost of living differences matter) and conflict and non-conflict areas (conflict areas had a lower estimate) (Ibarguen 2005).

3.6 Empirical evidence

The four approaches reviewed in this paper yield somewhat different results when applied to poverty measurement in Sri Lanka. No surveys exist that use both qualitative and quantitative methods, so comparison of empirical results is difficult. One strand of opinion in the social exclusion school argues for the use of unemployment as an indicator, while other research indicates more conventional (for developing countries) indicators of isolation and marginalisation. Participatory assessments lend support to both interpretations, but suggest that employment, especially in the formal sector, is an aspiration of those in the relatively better-off districts. This author believes that the solution is empirical: survey instruments that combine qualitative and quantitative approaches will be needed to provide evidence on areas of intersection, so that the truly poor can be identified.

Spatial variation in poverty

Poverty measurement exercises in this approach have identified poverty in Sri Lanka as being an overwhelmingly "rural" phenomenon, and that the poor are concentrated in the following social groups (but mainly in income, consumption or under-nutrition terms): landless, agricultural workers, small-land owning peasants cultivating food crops using family labour, those engaged in fishing and animal husbandry, workers in small-scale, often cottage-type rural industry, small traders and self-employed persons in

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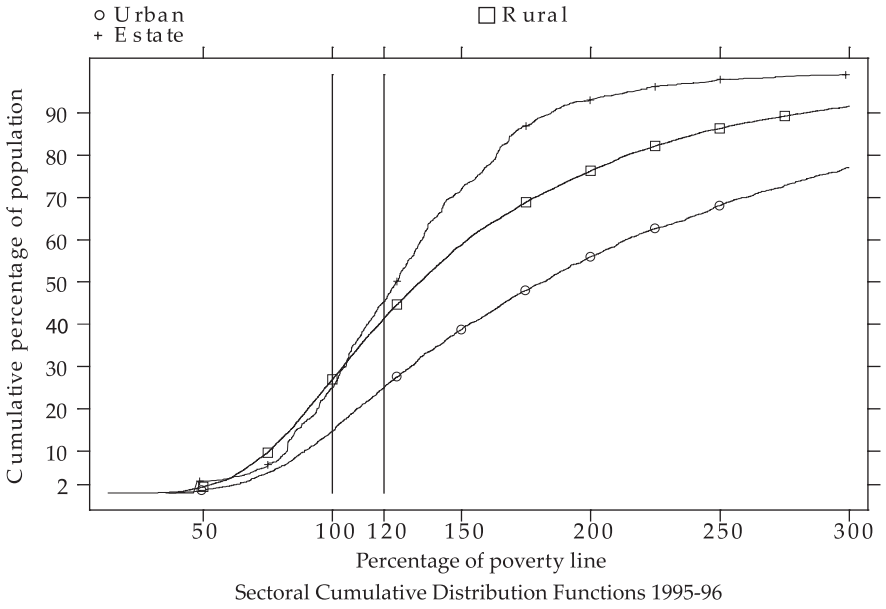
74 This information is available on the DCS website at www.statistics.gov.lk

75 This is a point that escapes those who attempt to categorise the poor according to responses given to an income or expenditure question and a predetermined poverty line.

personal and other activities, and individually operating craftsment such as masons and carpenters (Alailima 1986, Marga 1981, Bhalla and Glewwe 1985, Edirisinghe 1990 cited in Lakshman 1997). Datt and Gunewardena (1997) found that a little less than half of the poor depended on agriculture for their livelihood, while another 30 percent depended on rural non-agricultural activities. Gunewardena (2000) found the incidence of poverty to be high among those whose occupation was farming, or engaged in agriculture, and whose income was diversified between wage-income and income from self-employment. Production workers and those engaged in mining and quarrying also had a higher than average incidence of poverty (Gunewardena 2000).

More controversially, the estate sector is found to have the least poverty. Lakshman (1997) argues that the latter result is due to the poverty definition adopted.[76] Subsequent analysis of the 1995-96 Household Income and Expenditure survey showed that poverty was higher in this sector than in the urban sector, but lower than in the rural sector. However, Figure 5 indicates that this result is driven by the position of the poverty line. At a poverty line 20 percent higher than the reference poverty line, the estate sector is the poorest of all three sectors, *even within the quantitative definition of poverty.*[77]

Figure 5: Poverty in Urban, Rural and Estate Sectors in Sri Lanka, 1995-6.



Source: Gunewardena 2000, Figure 3.1

[76] Anyone familiar with the crowded living conditions in estate workers' lines would find it hard to believe that poverty is low in this sector. However, it is because minimum wages and food distribution mechanisms operate in this sector, and unions in this sector have been able to secure minimum hours of work that estate households appear above a nutrition-based consumption poverty threshold (Lakshman 1997).

[77] The implication for best practice is that a range of poverty lines should be used to avoid the effects of arbitrariness (which is the case in the study cited, and several others), and ideally, cumulative density functions should be used to describe distributions of the poor and establish stochastic dominance.

The table below combines results from poverty measurement from a variety of approaches. The first column ranks districts from the poorest (1) to the richest (17) based on the human poverty index compiled by UNDP (1998). The second column indicates consumption poverty ranking from the 1995/96 HIES survey (Gunewardena 2000), the third column provides the same information based on the official poverty line (DCS 2004a) and fourth and fifth columns are consumption poverty and multidimensional poverty, respectively, both based on 1996/97 CFS survey data (Siddhisena and Jayathilaka 2004).

Table 8: Comparing Poverty Rankings of Districts under different approaches, mid-1990s, Sri Lanka

District	Human Poverty (1994) Rank[a]	Consumption Poverty (1995/96) Rank[b]	Consumption Poverty (1995/96) Rank[c]	Consumption Poverty Rank (1996/97)[d]	Multidimensional Poverty Rank (1996/97)[d]
Colombo	17	17	17	17	15
Gampaha	16	16	16	16	17
Kalutara	15	12	12	14	13
Kandy	14	7	5	10	12
Matale	9	3	3	8	3
Nuwara Eliya	1	15	9	5	5
Galle	13	14	8	13	16
Matara	11	9	7	6	14
Hambantota	7	11	10	1	7
Kurunegala	8	4	14	11	10
Puttalam	12	5	11	15	11
Anuradhapura	10	6	13	7	2
Polonnaruwa	3	10	15	4	6
Badulla	4	8	4	2	8
Moneragala	2	1	1	3	1
Ratnapura	5	2	2	9	4
Kegalle	6	13	6	12	9

Source: [a]UNDP-Sri Lanka (1998), [b]Gunewardena (2000), [c]DCS (2004), [d]Siddhisena and Jayathilaka (2004)

The comparison yields some interesting results. Firstly, note that the district rankings for 1995/96 consumption poverty are largely similar between methods.[78] Secondly, many of the district rankings in the consumption poverty approach do not change much between 1995/96 and 1996/97. In fact, those with a relatively high urban population hardly change at all. The startling reversals in ranking are in Hambantota, Ratnapura and Polonnaruwa. Thirdly, the similarities between the ranking by the multidimensional poverty index for 1996/97 and the human poverty index for 1994 are striking, considering the differences in methodology and sources of data.[79]

[78] Except for Nuwara Eliya, Galle, Kurunegala, Puttalam, Anuradhapura, Polonnaruwa, Badulla and Kegalle. Recall from section 3.1 the differences between these two sets of measures.

[79] Only Matale and Anuradhapura had ranking differences of more than 5 places.

Finally, do the multidimensional rankings tell a different story than those given by consumption poverty? For the three districts in the Western Province, the answer is an unequivocal no. Other districts where the difference is unambiguously small include the poorest, Moneragala, Kurunegala, and Galle. Ambiguity is introduced by the different rankings provided by the different measures. For example, although Siddhisena and Jayathilaka's (2004) measures provide identical rankings for Nuwara Eliya in consumption and multidimensional poverty 1995/96, the other measures show a disparity.[80] Kandy and Matara, on the other hand, are districts where multidimensional measures show a lower ranking than consumption poverty measures.[81]

In order to make best use of the data provided by these measures, more information than that provided by dominance ranking is required. Some indication of distance between the measures would help to make more sense of the picture.

Lessons for choosing indicators

Which indicators should be used? A donor/external/expert-driven approach would be to use several of the MDIs which measure dimensions of poverty. The list of indicators could also be modified to include specific dimensions and indicators that are appropriate to Sri Lanka. Security from the effects of violent conflict, and social exclusion on the basis of ethnicity are two dimensions that would naturally arise. Alternatively, indicators used in the human poverty index could be employed.[82] Indicators could also be based on the results of social exclusion research and participatory assessments.

An alternative to *ad hoc* choices or basing choices on expert opinions would be to use statistical methods. The most sophisticated method used so far is the principal component analysis used in Siddhisena and Jayathilaka (2004) described above.

Another approach might be to identify indicators where Sri Lanka has low achievements relative to some relevant indicator (say GDP).[83] An example is given below.

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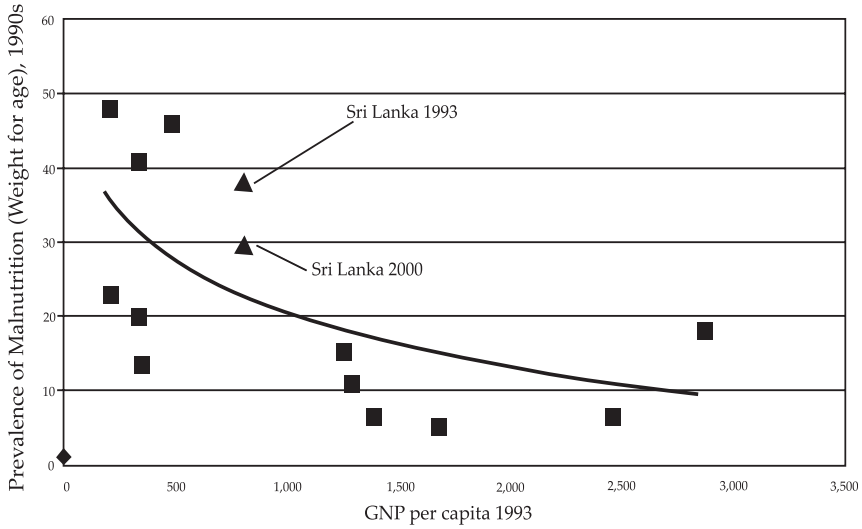
80 Note however, as the previous discussion showed, low consumption poverty in the estate sector (which accounts for a large part of the Nuwara Eliya district) is partly a construct of the location of the poverty line. A higher poverty line may have yielded high consumption poverty in Nuwara Eliya as well.

81 Interestingly, the ranking of districts by Weerahewa and Wickremasinghe (2005) using a different approach to multidimensionality yields similar results to these—in that the poorest districts and the least poor districts come out the same on consumption poverty rankings and "multidimensional" rankings.

82 The NHDR 1998 (UNDP 1998) covers the following aspects of deprivation: survival, knowledge, access to safe drinking water, access to safe sanitation, access to adequate basic health care, access to electric power and energy.

83 Either in terms of levels or changes in the indicator.

Figure 6: Prevalence of malnutrition (weight for age) among children aged 0-60 months in selected countries



Source: Gunewardena 2003a, Figure 1 and Table 1.

Sri Lanka's "outlier" status is well-known, where relative to the level of national income, its achievements in terms of social indicators of infant mortality and literacy have been outstanding. Child malnutrition represents an area where although good progress is being made, the achievements are not outstanding given the country's level of national income.[84]

Applying poverty lines: a common mistake and a solution

As with poverty measurement, poverty lines serve several functions.[85] Lanjouw (1997) identifies four: (a) poverty monitoring (b) developing a poverty profile (c) a threshold for entitlements and (d) a focus for public debate.[86]

When applying poverty lines as a cut-off for welfare benefits, and in poverty monitoring, the typical approach is to compare the poverty line (updated to the relevant year, sometimes multiplied by average household size to determine household poverty lines) with income or expenditure data usually obtained from a small scale special survey and determine that a household is poor if its level of household income or expenditure is below the poverty line.[87] While this is a useful "quick and dirty" method, it must be remembered that that is all it is, and like such methods it is fraught with problems that are not negligible. Small scale surveys are notoriously bad at measuring

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84 This is similar to Vietnam in the 1990s (Thang and Popkin 2003).

85 Coudouel, Hentschel and Wodon (2001) identify four purposes of poverty measurement: (1) cognitive (to know what the situation is), (2) analytical (to understand the factors determining this situation), (3) policy making (to design interventions best adapted to the issues) and (4) monitoring and evaluation (to assess whether current policies are effective, and whether the situation is changing). See Gunewardena (2004a):2-4, for a discussion of these purposes.

86 See Gunewardena (2004a: 35-36 for a discussion of these functions).

87 Alternatively, the per capita poverty line is compared with wage rates (eg. those collected by the Central Bank) to determine if wage earners in various categories are likely to be above or below the poverty line (De Alwis 1996).

income and expenditure. In the Sri Lankan (developing country) situation, this is made worse by the fact that for most rural households, cash income (or spending) is a small fraction of total income (or spending). Poverty lines are laboriously constructed according to current best practice, using data from the much better designed expenditure modules of budget surveys conducted by national statistics offices (HIES conducted by DCS) and then compared with (unreliable or incomplete measures of) income or expenditure from the small surveys. It is well established that the larger the amount of items in an expenditure survey the larger the measure of total household expenditure that will be arrived at (Pradhan 2000). Obviously, the poverty line, based on the DCS expenditure module of over 200 items, will be on a much higher scale than the expenditure measures calculated from the small survey, which would in addition probably have succeeded only in capturing cash income or consumption (even if an effort had been made to collect information on non-cash income and consumption).

What is the alternative? Proxy measures of poverty need to be developed and indicators arrived at in order to identify if households are poor. One approach, that is a blunt instrument, is to use an identification that is based on correlates or causes of poverty. Periodic poverty profiles based on detailed household data identify variables that are correlates or causes of poverty. Thus, indicators or "predictors" are chosen based on (1) how well they predict poverty and (2) how easy they are to observe (or how difficult they are for a household to distort). Once these are chosen, qualitative and small scale quantitative surveys can include questions that obtain information on these. The collected information can then be used to compute a "score" (the formula for the score is based on the previously conducted econometric exercise employing survey data that is used to obtain the predictors). Households whose score lies below a predetermined level are considered poor. An exercise based on this approach to econometrically derive a viable Proxy Means Test Formula (PMTF) that can be used to determine eligibility for welfare benefits is currently under way.[88]

Poverty measurement initiatives currently in progress

Apart from the initiatives mentioned already, work is under way to improve capacity in small area statistical methods (poverty mapping) and data collection. Work on developing poverty measures by combining census and survey data are also under way.

3.7 Overview of data sources and data issues relating to poverty measurement

A distinction needs to be made between the lack of data, and the lack of processed data in the format necessary for quick analysis. Data and information form a kind of continuum where, say, raw data from the Census or household surveys would lie at one end (requiring the most amount of processing in order to convey information about poverty) and calculated (income or proxy) measures of poverty at the other end. It is

[88] This is being developed by the World Bank in collaboration with the technical staff of the Welfare Benefits Board.

probably accurate to say that Sri Lanka is rich in reliable data of the first kind, but needs to develop capacity in generating/meeting the needs of a poverty information system, which lie at the other end of the spectrum.

In this section, I briefly review the sources of data from census and sample surveys and administrative data from the point of view of requirements for poverty measurement indicated above.[89] These are summarised in Table A5 in the Annexes. I then discuss the main gaps in data collection and information management. Suggestions to improve data collection and information management are given in section 4.

3.7.1 Overview of data sources

Data from Surveys

Table A5 examines major surveys as well as the two population censuses conducted during the period 1980-2002. As the information on sample size and coverage indicates, these are national surveys with representative samples. The 1985/86 Labour Force and Socioeconomic Survey conducted by the Department of Census and Statistics is the last survey to cover the North and East. As the column denoted "data" indicates, these surveys are rich in data that can be used in poverty measurement.[90]

Special Surveys (conducted by agencies other than the DCS and CBSL)

Samurdhi Survey

The survey implemented by the Samurdhi Ministry in 2003 has all the features of the Core Welfare Indicators Survey. It was administered to *all* Samurdhi recipients (which is an estimated 50 percent of the population) and the results were obtained within 45 days.[91] The survey was carried out by Samurdhi Niyamakas and the Grama Sevakas, and except where collusion exists, it is likely to have been implemented accurately.

However, there are several problems with this survey. With its large sample size (it is essentially a census of Samurdhi recipients), one would expect that inference is not a problem, but since the sampling design cannot be related in any statistically representative manner to the population, it cannot be used to make any inferences about the national level of poverty, or for that matter about any "population" other than the list of existing Samurdhi recipients.

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89 An excellent review of data and sources of data to monitor poverty in Sri Lanka is found in Tudawe (1999). This study does not attempt to cover the same ground, but focuses on a few specific issues of current importance.

90 And as the preceding discussion indicates, have been used to some extent to do so.

91 The processing was carried out by a local firm, which indicates that the technical capacity for such a project is not lacking in the country.

Sri Lanka Integrated Survey

The Sri Lanka Integrated Survey (SLIS) was a special multi-topic survey commissioned by the World Bank[92] and carried out across all provinces of the country between October 1999 and the third quarter of 2000. The questionnaire was designed in line with similar surveys in the World Bank's Living Standards Measurement Surveys, in a process of consultation and collaboration with local experts. With the exception of the North East, the sample was designed by the Department of Census and Statistics (DCS). The sample selection procedure is explained in the enclosed note prepared by the DCS entitled "Integrated Survey 1999." The total of 7,500 households was surveyed in 500 urban, rural and estate communities. This survey has since been used by World Bank and other researchers in the analysis of poverty. The dataset and extensive documentation are available in the public domain, and can be downloaded from the following link. http://www.erd.gov.lk/publicweb/ERDDOCS.html

National Education Commission (NEC) Education, Health and Household Survey

The NEC Education, Health and Household Survey which combines information on the levels of achievement of Grade 4 students in mathematics and language (NEREC 2003) with detailed, comprehensive data on students' family background, household and socio economic characteristics, detailed health data, and extensive information on teachers and schools (including principals) is an excellent example of a multi-topic survey that can be used to analyse the multidimensionality of poverty. This study was also commissioned by the World Bank and forms the basis for much of the empirical analysis in World Bank 2004b.

3.7.2 Specific data issues

The lacunae in data sources for Sri Lanka can be categorised by (a) type of survey instrument and (b) type or nature of indicator (processed data).

Panel data and Multi-topic Surveys

In the first category, the major gap is in the lack of panel data and multi-topic surveys. The first is important in the analysis of poverty over time, while the second is important in understanding the correlates and causes of poverty. As Siddhisena and Jayathilaka (2004) argue, data other than income and expenditure are needed for the construction of a multidimensional poverty measure—hence their use of the CFS and SLIS surveys. The popularity of SLIS in policy relevant analysis and its use as basis for deriving the proxy means test formula should indicate the importance of multi-topic surveys for improving poverty measurement in the country.

[92] And implemented in the field by the Sri Lanka Business Development Centre.

3.7.3 Poverty information/monitoring systems

Data requirements will need to be identified at different levels. The primary or "raw" data will be what is collected in sample surveys. While some users will be interested in this raw data (to do research on intra-household allocation of resources and poverty for instance) others will be more interested in the tabulated findings. There will be a continuum of processing along which various needs will occur.

There is a greater responsiveness of government statistical agencies to the need for processed data. Appendix Table A6 is a list of MDG and Economic and Social Indicators, drawn entirely from four documents on the Department of Census and Statistics Website.[93]

3.8 Summary: Strengths, weaknesses and suggestions

This brief review has shown that poverty measurement in Sri Lanka has evolved considerably, and that large strides have been made, especially in the last few years. Within the monetary approach, an official poverty line for Sri Lanka now exists that is in line with best practice. In addition, several applications of recent conceptual and methodological advances are also evident.

(1) The multidimensionality of poverty is firmly accepted, and the human poverty index (UNDP-Sri Lanka 1998) and multidimensional composite index (Siddhisena and Jayathilaka 2004) are examples of attempts to operationalise it in Sri Lanka.

(2) While there is much room for improvement in operationalising the capabilities and social exclusion approaches to poverty measurement in Sri Lanka, these concepts are now an integral part of the poverty debate, and there is a large literature of descriptive analysis that can inform future work.

(3) We are not much further on in *measuring* the dynamics of poverty, mainly because of the lack of panel data. However, the scope for using existing data to construct pseudo-panels from repeated cross-sections (Deaton 1985) is as yet unexplored. (4) Similarly, little if any *measurement* of vulnerability and (5) empowerment exists, but there is a wealth of information on risk and coping strategies of households that can be obtained from micro-studies.

(6) Empirical work in comparing results using quantitative and qualitative approaches in poverty measurement is also limited, partly due to the lack of instruments to do so. Some success has been achieved in combining the two approaches in the area of poverty monitoring in an application of the sustainable livelihood framework. (7) New survey instruments and new methodologies to make better use of traditional instruments have also been developed. These include the Sri Lanka Integrated Survey, and the combining of census and survey data.

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[93] DCS 2003, DCS 2004b, DCS 2004c, and DCS 2005

The s*trengths* of data collection in Sri Lanka are that the DCS and Statistics Department of CBSL have considerable data generation "capacity" in terms of experience, and a large number of surveys conducted in line with best practice. In addition, there is a large amount of administrative data which is available, some of which is published and easily accessible, some of which is less so. The w*eaknesses* are that although the data exists, it needs to be made into an information system. As highlighted above, the gaps include the absence of panel data (which seems to be the next step in the evolution of data generation!) and a regular, institutionalised, integrated (multi-topic) survey.

Other issues that need to be addressed creatively are the lack of representative survey data for the North and the East for the last twenty years, and the very apparent need for highly disaggregated (small area) data to meet the needs of donors who wish to fine-tune their targeting. Ongoing work in the Department of Census and Statistics with World Bank assistance is addressing this issue.

The c*auses* for the weaknesses probably arise from the lack of domestic demand and regular feedback from users of the data. Statistical capacity in the country as a whole is low, even among academics and other analysers of such data. Statistical capacity building is therefore important in order to make use of the data.

4. Plan of Action

The proposals for a plan of action or study programme in this section are based on the review of best practices in poverty measurement in section I and the assessment of Sri Lanka's measurement and data status in section II. These proposals fall into four broad categories:

- Proposals relating to identifying user needs
- Proposals relating to poverty measurement
- Proposals relating to data and information generation and management
- Proposals relating to dissemination of poverty information

4.1 Proposals relating to identifying user needs

4.1.1 Carry out an assessment of user needs

Improving poverty measurement and data (poverty information systems) are on the agenda of both the international donor community and the national government. An assessment to identify the priorities of these institutions would shed further light on priorities for a plan of action.[94]

[94] See Davis and Siano (2001) for a similar assessment in relation to poverty mapping users.

In order to do this, potential users of poverty information from national institutions (Ministry of Finance, Ministry of Samurdhi, Ministry of Social Welfare) bilateral aid organizations, international NGOs, UN organizations and international financial institutions should be identified, and information should be obtained from them on:

- The type of poverty information they require
- The key questions/issues they would like to address with this information
- Specific concerns they have with regard to conceptual and technical issues
- Common concerns and needs
- Priority of research tasks

4.2 Proposals relating to poverty measurement

Beyond the Official Poverty Line

The most significant step in the recent past has been bringing the official measurement of poverty in line with international best practice (Vidyaratne and Tilakaratne 2003, DCS 2004a). As the discussion in section 3.1 indicated, and the *Announcement of the Official Poverty Line* (DCS 2004) states, the Department of Census and Statistics is now committed to calculating the Official Poverty Line using the Cost of Basic Needs method in line with best practice.[95] The value of the food basket for the official poverty line was constructed based on the most recent Income and Expenditure Survey (HIES 2002), spatial price indices (regional poverty lines) were computed using imputed prices (unit values) for the survey data, and the new official price index covering all districts of the country, the Sri Lanka Consumer Price Index (SLCPI), has been identified to update the official poverty line for future years.

Equivalence scales

Thus, all that remains to bring the methodology for measuring absolute poverty in the monetary approach completely in line with best practice is to *derive appropriate equivalence scales which can be used to assign household expenditure to individuals*.

Many approaches exist in theory and practice on how to derive equivalence scales.[96] The existing practice in Sri Lanka and several developing countries of using only nutrition based equivalence scales is not a good practice. Little reference is made at all to the concept of *economies of scale*. Ironically, some of the most rigorous empirical work on equivalence scales used survey data from Sri Lanka (Deaton 1981 and Deaton and Case 1988, using the 1969/70 and 19809/81 Socioeconomic Surveys). While future work on poverty measures should employ equivalence scales, the method and basis for doing so should be made explicit. Ideally, several equivalence scales should be used and the results compared. These can initially be done using existing datasets (eg. HIES 2002).

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95 See Gunewardena (2004a): 39-52 for a discussion of poverty line methodology.

96 Deaton (1997):241-270 provides a good introduction to the issues that need to be dealt with in constructing equivalence scales.

A review of the existing nutrition based equivalence scales (used by the MRI) could be undertaken, comparing it with nutrition based equivalence scales used in other countries, for instance, India. Such a review would deal with issues such as the appropriateness of using different scales in different sectors/occupational levels, etc.

The "subjective" approach uses qualitative data to construct equivalence scales. One or more of existing small scale surveys that have included the minimum income question (or similar appropriate questions) may be used to triangulate information on equivalence scales (Ravallion and Pradhan 2000). However, to do so requires datasets that combine qualitative and quantitative data. The possibility of including a qualitative/ subjective module in future budget surveys (HIES; CFS) is something to be considered by the Department of Census and Statistics and the Central Bank of Sri Lanka.

Relative poverty and Subjective Poverty

Derivation of an appropriate relative poverty line for Sri Lanka

While the need for focusing on relative poverty has been emphasised in recent discussions on poverty, there appears to be no attempt to derive an official *relative* poverty line. It is probably inappropriate to follow the example of developed countries—such as the cut off point of 60 percent of median income (European Union) in locating the relative poverty line for Sri Lanka. A process of discussion and consensus building informed by analysis would be useful in order to locate a poverty line for Sri Lanka.

The analysis of household data linking absolute poverty measures and conducting simulations to obtain several relative poverty lines under different scenarios could provide a useful starting point. Such a relative poverty line should follow best practice and be based on consumption expenditure, not income (several developed countries are now following the practice of using expenditure based poverty lines as well); use a median concept, not mean, and should be compared with the absolute poverty line and any subjective poverty lines in order to provide context.[97]

Derivation of Subjective poverty lines

Deriving a subjective poverty line for Sri Lanka is an important gap that needs to be filled. Existing qualitative surveys can be used in conjunction with quantitative surveys to derive subjective poverty lines. These should be tested for robustness (to the survey, sample size, and type of question asked). Subjective poverty lines could be income or expenditure based (eg. based on the minimum income question, or the kinds of questions used in Ravallion and Pradhan 2000)[98] or based on "items that are lacked" (Mack and Lansley 1985 and Callan and Nolan 1998). Subjective poverty lines could

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97 See Gunewardena 2004a: 36-38 and 49-50.

98 Pradhan and Ravallion (2000) have devised a set of alternative questions that could be used instead of the minimum income question. These would be best included in a HIES, in order to make comparisons between subjective measures and monetary measures of poverty. See Section 2.9.3 in Part I of this study, *Poverty Measurement: Meanings, Methods and Requirements* (Gunewardena 2004a: 120-128).

also incorporate other dimensions of poverty including social exclusion and the lack of resources. A study or review of existing qualitative data should identify the appropriate indicators to be used for this purpose.[99] Alternatively, a survey (qualitative, but in several parts of the country, and ensuring coverage of different groups) could be initiated for the purpose of identifying the indicators that could go into a subjective description of poverty.

Baseline data for the North and the East

1. The most recent representative survey for the North and the East is the 1985/86 LFSS. Although poverty estimates cannot be constructed below district level, poverty analyses which examine the determinants of poverty, can be. This can be compared with analysis (in 1985/86) on the rest of the country—to determine differences or similarities at the time of the beginning of the conflict.
2. Administrative data—this is available at the GN division level, and an *effort* can be made to include these into a poverty database. This will help identify divisions that are "poorer" than others in the case of indicators such as mortality, morbidity and supply of services.

Combining qualitative and quantitative methods

Much can be achieved by combining qualitative and quantitative methods of poverty analysis in Sri Lanka. The rich qualitative literature can be used to design questions to be included in a subjective module in a structured questionnaire.

4.3. Proposals relating to data collection and the poverty information system

As the discussion of new methods in poverty analysis has made clear, the greatest information gains in the area of data collection are from multi-topic surveys and longitudinal surveys.

4.3.1 Changes to existing surveys

While much can be done with the existing CFS, the potential of the HIES conducted by the DCS can be greatly increased by the addition of a small schedule collecting information on household assets, land ownership[100], housing quality and number of rooms, sanitation and source of drinking water and source of lighting and fuel.

Coordination of sampling frames between CFS/DHS/HIES surveys will also bring in large returns in terms of analytical ease. For example, if the HIES includes a single question obtaining information on agro-eco climate and terrain, yet retains its district-based sampling, comparisons could be made with the HIES and CFS. The definition of rural and urban sectors also needs to be made comparable across surveys.

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99 The "items lacked" could be derived from poverty consultations such as the ADB-PIMU study on "Perceptions of the Poor" (ADB-PIMU 2000).

100 Land ownership and cultivation were formerly part of the HIES schedule but have been omitted from the HIES 2002 schedule.

The problem of incomparability/inconsistency of definitions of urban and rural across the years in recent surveys needs to be addressed and can be done so fairly simply. A list of GN identifiers with their related definitions in the last 3-4 surveys, i.e., covering the period of change, could be made public so that *researchers* can use this information to make consistent comparisons over time, by stating explicitly the year on which the sectoral definition is based.[101] This could probably be achieved by adding a column to the documentation on "List of Codes for the Administrative Districts of Sri Lanka".[102]

Similarly, additional questions to HIES or district-level QLFS regarding home district, employment district, mode of travel to work, travel time, etc. will be useful for the analysis of internal migration.

4.3.2 Panel data

The lack of panel data prevents the analysis of chronic and transitory poverty and vulnerability, and is an important lacuna in data collection in Sri Lanka.[103] A serious consideration of (1) the costs versus benefits of incorporating a panel into the household surveys, and of (2) creative ways of incorporating panels in a low-cost manner, are in order.

4.3.3 Small area data collection

Collecting and managing administrative data for use in poverty maps is important and appears to be under way.

4.3.4 Qualitative data

A large amount of qualitative data is produced in Sri Lanka by numerous organizations. On the other hand, standard surveys use very little qualitative data. Several possibilities exist which will enrich the analysis of poverty if data from quantitative and qualitative sources are combined.

As was attempted with the Sri Lanka Integrated Survey, participatory/rapid appraisals could be done in some of the same villages as the next large scale household survey in order to be able to compare results.

"Subjective" questions on poverty could be included in standard household surveys. Organisations with a background in conducting subjective surveys should participate in the design of the survey.

In the absence of panel data, vulnerability mapping provides the only information on vulnerability. Methods of triangulation/verification of data and incorporating the sample design in the overall sample frame so as to combine with census data need to be devised.

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101 For instance, if Maharagama in 1985/86 was defined as urban, but this was changed in 1990/91 to rural, its different status for the different years (1985/86=urban, 1990/91=rural, 1995/96=rural) can be included in a list/dataset of all GN divisions.

102 Available online at www.statistics.gov.lk

103 Note that any rigorous analysis of the recovery of households from the Tsunami requires panel data.

4.4 Proposals relating to the dissemination of poverty information

Transparency and public debate and dissemination of results will go a long way in reducing the dissonance between poverty measurement and analysis and what the public believes to be the ground situation about poverty. The following proposals are made with this objective in mind.

4.4.1 Proposals for official data and statistics generating organizations[104]

The main task for the data and statistics generating bodies in respect of dissemination is the determination of what information needs to be provided to the public, how often and in what manner.

Publish consistent and comparable poverty related statistics in the reports of main household surveys. If the CFS and HIES are both to be used in official calculations of poverty, the modifications that are made in order for the results to be comparable should be made explicit.[105]

Present an annual poverty report.[106] This will present data relating to poverty gathered from its various statistics generating activities. This will involve selecting which indicators to monitor, etc.

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104 Department of Census and Statistics (DCS) and the Central Bank of Sri Lanka (CBSL)

105 Along the lines of Pradhan (1999).

106 Such as that presented by the Census Bureau in the Unites States. See Weinberg et al. (1998) and Short et al. (1999).

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Annexes

List 1: Millennium Development Indicators (MDIs)

1. Poverty Indicators (Eradicate Extreme Poverty and Hunger)

1.1 Proportion of population below $1 per day (PPP-Values)

1.2 Poverty gap ratio

1.3 Share of poorest quintile in national consumption

1.4 Prevalence of underweight children under 5 years of age

1.5 Proportion of population below minimum level of dietary energy consumption

2. Education Indicators

2.1 Net enrolment ratio in primary education

2.2 Proportion of pupils starting Grade 1 who reach Grade 5

2.3 Literacy rate of 15-24 years old

3. Gender Equality Indicators

3.1 Ratio of girls to boys in primary, secondary and tertiary education

3.2 Ratio of literate females to males, 15-24 years old

3.3 Share of women in wage employment in the non-agricultural sector

3.4 Proportion of seats held by women in national parliament

4. Health Indicators

4.1 Under five mortality rate

4.2 Infant mortality rate

4.3 Proportion of one year old children immunized against measles

5. Maternal Health

5.1 Maternal mortality ratio

5.2 Proportion of births attended by skilled health personnel

6. HIV/AIDS, malaria and other diseases

6.1 HIV prevalence among 15-24 year old pregnant women

6.2 Contraceptive prevalence rate

6.3 Number of children orphaned by HIV/AIDS

6.4 Prevalence and death rates associated with malaria

6.5 Proportion of population in malaria risk areas using effective malaria prevention and treatment measures

6.6 Prevalence and death rates associated with tuberculosis

6.7 Proportion of TB cases detected and cured under DOTS (Directly Observed Treatment Short Cause)

7. Environment

7.1 Proportion of land areas covered by forest

7.2 Land area protected to maintain biological diversity

7.3 GDP per unit of energy use (as proxy for energy efficiency)

7.4 Carbon Dioxide emissions (Per capita)

7.5 Proportion of population with sustainable access to an improved water source

7.6 Proportion of people with access to improved sanitation

7.7 Proportion of people with access to secure tenure

8. Global Partnership for Development

8.1 Net ODA as percentage of DAC donors' GNI

8.2 Proportion ODA to basic social services

8.3 Proportion of ODA that is united

8.4 Proportion of ODA for environmental protection in small island developing states

8.5 Proportion of ODA for transport sector in land locked countries

8.6 Proportion of exports admitted free of duties and quotas

8.7 Average tariff and quotas on agricultural products and textiles and clothing

8.8 Domestic and export agricultural subsidies in OECD countries

8.9 Proportion of ODA provided to help build trade capacity

8.10 Proportion of official bilateral HIPC debt cancelled

8.11 Debt service as a percentage of exports of goods and services

8.12 Proportion of ODA provided as debt relief

8.13 Number of countries reaching HIPC decision and completion points

8.14 Unemployment rate of 15-24 years old

8.15 Proportion of population with access to affordable essential drugs on a sustainable basis

8.16 Telephone lines per 1000 people

8.17 Personal computers per 1000 people

Source: UNDP. 2003. Millennium Development Goals Report: An Assessment, Vol 1, Main Report, p. 38-39, UNDP Evaluation Office, New York. Available online at http://www.undp.org/eo/documents/MDGRs_Volume_1.pdf

Table A1: A comparison of four approaches to poverty

	Monetary approach	Capability approach	Social Exclusion	Participatory approach
Unit of Analysis	Conceptually the individual, in practice, the household	Usually the individual, but for some indicators, the household, or more aggregated geographic areas.	Individuals (or households) or groups relative to others in their community/ society	Groups and individuals (or households) within them
Indicator	Income or consumption. Best practice in LDCs is consumption expenditure.	Many	Many	Many
Definition of thresholds	Central element is a minimum food requirement (defined externally, by "objective" criteria. Best practice methods use information from household consumption patterns to determine minimum level of non-food consumption	"Lists" of dimensions that are normally assumed to be objectively definable.	Reference to those prevailing in society and state obligations	Local people's own perceptions of wellbeing and illbeing
Relative or absolute	Both relative and absolute poverty lines are used, although absolute is more typical in LDCs	Usually absolute	Relative, by definition, yet tendency to use absolute definitions in LDC context Central element	Relative
Sensitivity to social institutions	Not intrinsic to measurement methodology—typically would be dealt with in analysis	Emphasis on adequacy rather than sufficiency leaves space for variations		Reflected in the way poor people analyse their own reality
Importance of processes	Not intrinsic to measurement methodology—typically would be dealt with in analysis	Not clear	One of the main thrusts of the approach	Critical for achievement of satisfactory methods
Major conceptual weaknesses	Utility is not an adequate measure of well-being; and poverty is not an economic category	Elements of arbitrariness in choice of basic capabilities, problems of adding up	Broad framework, susceptible to many interpretations, difficult to compare across countries	Whose perceptions are being elicited, and how representative and consistent are they? How does one deal with disagreements?
Problems for cross-country comparisons	Comparability of surveys, price indices, and national poverty lines	Fewer problems if basic capabilities are defined externally ("objectively"); aggregating of different indicators leads to inconsistencies which can make comparisons meaningless	Lines of social exclusion are essentially society-specific, problems of aggregation of multiple dimensions similar to that in the case of capabilties	Cultural differences can make appropriate processes differ across societies, results may not be comparable
Manner of incorporating multi-dimensionality	Assumes that monetary indicator can appropriately proxy other aspects of poverty. Extensions of this approach include asset-based indicators.	Identifies indicators in many dimensions, either separately or aggregated into single index	Identifies indicators in many dimensions, either separately or aggregated into single index	Indentifies many dimensions of poverty. No attempt to combine into a single index.
Data availability	Household (income and expenditure) surveys conducted at intervals. HH surveys may overlook important sub-populations such as the institutionalised and the destitute. Controversial use of national income data to estimate in the interim—requires assumptions about distribution.	Data available from a variety of sources including demographic and health surveys, multi-topic surveys and administrative data from Ministries of Health, Education, and public service providers (water, electricity, telecommunications and other infrastructure). Problems of comparability of unit or sub-populations overlooked.	Data intermittent, depends on individual researchers. If basic dimensions are agreed upon, data could be collected regularly.	Generally only small purposive samples. Never available nationally, methodology makes representative sampling and regular national data collection impossible.
Cost	Representative surveys with large samples are expensive, analytical costs heavy.	Much data routinely collected for administrative purposes. Additional data from multi-	Cost will depend on survey instruments used.	Generally much cheaper than large sample surveys. However

Table A1: A comparison of four approaches to poverty Contd.

	Monetary approach	Capability approach	Social Exclusion	Participatory approach
	However, several surveys are routinely conducted.	topic surveys would be expensive.		opportunity costs of participants are never included in cost calculations.
Major weaknesses for measurement	"Arbitrariness" of "externally" determined thresholds and other elements.	Impossibility of set evaluation. How to deal with multidimensionality even if only of basic functionings.In practice, what is measured is functionings, not capabilities.	Problems with multi-dimensionality. Challenge of capturing processes.	How comparable? How repres entative?
Policy implications	Emphasis on growth and distribution of personal monetary income. Social income neglected.	Investment in extending basic capabilities/basic needs via monetary incomes and public services	Foster processes of inclusion, in markets and social process, with particular emphasis on formal labour market	Empowerment of the poor

Source: Adapted by the author from Ruggeri Laderchi et al. 2003, Chart 1

Table A2 : Summary of poverty lines in Sri Lanka

Study	Survey(s) used	Indicator of poverty	Calorie Norm	Poverty line (Rs)	Price Data[a]	Spatial (price) adjustment[b]	Unit of analysis	Scaling Method[c]	Method used[d]
Alailima (1978)[e]	LFSES 1969/70	Daily per capita calorie intake	2200 calories per person per day	Monthly household income of Rs 200 for urban sector and Rs 150 for rural sector	Not available	Yes, separate lines for urban and rural sectors	Households	Not available	Not available
Visaria (1979)[e]	LFSES 1969/1970	Daily per capita calorie intake	a. 2200 calories per person per dayb. 2250 calories per adult equivalent per day	Not available	Not applicable	Not available	Individuals	Not available	Not available
Marga (1981)	CFS 1973	Monthly per capita household income level	2200 calories per person per day	Rs. 36.50 in 1973 prices	Not applicable	No, but justification is given	Spending units	Not applicable	Level of income at which calorie adequacy is achieved, based on aggregate data reported in CFS. (Closely approximates the FEI method)
Sahn (1985)[e]	LFSES 1980/81	Calorie intake and food share	FAO (1973) recommended daily calorie allowance	Food expenditure 80% of which sufficient to meet 80% of calorie needs	Not applicable	Not applicable	Individuals	Not applicable	Direct Calorie intake/ Ultra Poverty method
Anand & Harris (1985)	CFS 1973, CFS 1978/79, CFS 1981/82	Monthly per capita food expenditure	Not available (based on Gunaratne 1985)	1. Rs 70 per capita per month in 1978/ 79 prices (Same as Gunaratne 1985)2. Rs 60 per capita per month for 1978/79 (arbitrarily selected for sensitivity analysis)	Implicit prices (unit values) from survey data	Yes, for urban, rural and estate sectors	Individuals	Not applicable	Equivalent to Gunaratne 1985, temporal price index constructed from survey data
Bhalla & Glewwe (1985)	LFSES 1969/1970 LFSES 1980/81	Monthly per capita food expenditure	Not available (based on Gunaratne 1985)	Rs 21 per person per month in 1969/70 prices (by deflating Gunaratne (1985)'s 1978/79 poverty line of Rs 70 per person per month)	Specially constructed price deflator with weights from 1969/70	Not available	Individuals	Not applicable	Equivalent to Gunaratne 1985, temporal price index constructed from "specially" using weights from 1969/70 survey data
Gunaratne (1985)[e]	CFS 1978/79 CFS 1981/82	Monthly per capita food expenditure	Not available	Rs 70 per capita per month for 1978/79	Specially constructed food price index[h]	Yes[h]	Individuals and Household	Not applicable	"Average per capita montly food expenditure of the bottom 40 percent households" [f]

Table A2 : Summary of poverty lines in Sri Lanka Contd.

Study	Survey(s) used	Indicator of poverty	Calorie Norm	Poverty line (Rs)	Price Data[a]	Spatial (price) adjustment[b]	Unit of analysis	Scaling Method[c]	Method used[d]
Khan (1989)[e]	CFS 1973 CFS 1978/79 LFSES 1980/81 LFSES	Monthly per capita income	2170 per capita 2700 per adult equivalent[j]	Rs. 26.50 in 1973Rs. 50.80 in 1978/79Rs. 110 in 1980/81Rs. 175 in 11985/86	Not available	Not available	Individuals and households	Not available	Minimum cost bundle method
Gunaratne (1989)[e]	1985/86 CFS 1986/87	Not available, but probably food expenditure	Not available	Not available	Specially constructed food price index[h]	Not available	Individuals	Not available	"Households having food expenditures below a level required to meet nutritional requirements"[g]
DCS (1983)	LFSES 1980/81	Monthly Household income	Not available	Monthly household income for 1980/81- urban= Rs 1466, rural= Rs 1101, estate= Rs 845	Not available	Yes, separate poverty lines for urban, rural and estate	Households	Not available	Monthly household income necessary to purchase minimum nutritional requirements and other basic needs
DCS (1987)	LFSES 1985/86	Monthly Household income	Not available	Monthly household income for 1985/86- urban= Rs 1920, rural= Rs 1610, estate= Rs 1451	Not available	Yes, separate poverty lines for urban, rural and estate	Households	Not available	Monthly household income necessary to purchase minimum nutritional requirements and other basic needs (Possibly FEI)
Nanayakkara & Premaratne (1987) [i, j]	LFSES 1985/86	Daily calorie intake per adult equivalent	2500 calories and 53 grams of protein per adult (age 20-39 years) male equivalent	Rs 202.49 monthly per capita food expenditure at 1985/86 prices[i]	Not applicable	No	Not available	Not available	Not available (Possibly FEI)
Edirisinghe (1990)	CFS 1986/87	Daily calorie intake per adult equivalent	a.2475-2750 calories per adult equivalent per dayb.2200-2750 calories per adult equivalent per day	Food expenditure insuf ficient to purchase a. 90-100 percent and b. 80-100 percent of reco mmended calorie allow ance.Rupee equivalent approx imately Rs. 185 per capita per month, Average household po verty line Rs. 1565 per month	Not applicable	Not applicable	Households	Not applicable	Direct Calorie intake method
Rouse (1990)	LFSES 1985/86	Per adult equivalency calorie intake	Per adult equivalency requirement for each individual	None	Not applicable	Not applicable	Individuals and households	Not applicable	Direct Calorie Intake/ Ultra Poverty method

Table A2: Summary of poverty lines in Sri Lanka Contd.

Study	Survey(s) used	Indicator of poverty	Calorie Norm	Poverty line (Rs)	Price Data[a]	Spatial (price) adjustment[b]	Unit of analysis	Scaling Method[c]	Method used[d]
De Alwis (1993)	CFS 1986/87	Calorie intake	FAO recommendations used by MRI	Rs. 1,215 for a family of five; Zone 1=Rs. 1,316, Zone 2=Rs. 1,080, Zone 4=Rs. 1,114	Central Bank Prices used to update to 1994	Yes, for four zones	Spending Units	Not applicable	Food Energy Intake Method (FEI) and Ultra Poverty definitions
Nanayakkara (1994)	LFSES 1980/ 81LFSES 1985/ 86HIES 1990/91	Per capita Food Expenditure and Expenditure on Food per Adult Equivalent	a. 2500 calories per adult equivalent per dayb. 2020 calories per capita per day	a. Rs. 646.58 (Food expenditure per adult equivalent), Urban=Rs. 769.26, Rural=595.69 , Estate=568.64b. Rs. 539.27, Urban=630.96, Rural=479.50, Estate=454.46	Not applicable	Yes, separate poverty lines for urban, rural and estate	Household and Individual	Not applicable	Cost of basic needs (CBN)
Datt & Gunewardena (1997)[k]	LFSES 1985-86HIES 1990-91	Monthly per capita consumption expenditure	Approx. 2500 per adult equiv. per day (Based on Nanayakkara and Premaratne 1987)	Rs 242.06 monthly per capita expenditure at 1985/86 prices,Rs. 471.20 in 1990/91 prices	Implicit prices (unit values) from survey data	Yes, for 10 regions (Urban and rural areas of Western, Central, Southern, South Central, and North Western and North Central regions)	Individuals	Estimating food share at food poverty line	Cost of basic needs (CBN)
De Alwis (1996)	CFS 1986/87 and CFS 1996/97	Per capita expenditure	1800 calories per capita per day (80 per cent of requirement)	Rs. 890 in 1996/97 prices	Implicit prices from the survey	Yes, for three sectors and four zones	Households	Non-food expenditure share of lowest decile	Cost of basic needs (CBN)
Gunewardena (2000)	LFSES 1985/ 86HIES 1990/91 HIES 1995/96	Monthly per capita consumption expenditure	Approx. 2500 per adult equiv. per day (Based on Nanayakkara and Premaratne 1987)	Rs 791.67 monthly per capita at 1995/96 prices. 2. Rs. 950 per person per month (arbitrarily set 20% higher for sensitivity analysis)	Implicit prices (unit values) from survey data	Yes, for 10 regions (Urban and rural areas of Western, Central, Southern, South Central, and North Western and North Central regions)	Individuals	Estimating food share at food poverty line	Cost of basic needs (CBN)
Vidyaratne and Tilakaratne (2003)	HIES 1995/96	Monthly per capita consumption	2030 calories per person per day (derived from Demographic Survey 1994)	Rs. 953 per person per month	DCS retail prices	Yes, for 3 sectors and 7 provinces (separately)	Individuals	Average food ratio of 2nd to 4th deciles	Cost of basic needs (CBN)
DCS (2004)	HIES 2002	Monthly per capita consumption	2030 calories per person per day (derived from Demographic Survey 1994)	Rs. 1423 per person per month	Implicit prices from survey data	Yes for districts	Individuals	Median per capita non-food expenditure of	Cost of basic needs (CBN)

Table A2 : Summary of poverty lines in Sri Lanka Contd.

Study	Survey(s) used	Indicator of poverty	Calorie Norm	Poverty line (Rs)	Price Data[a]	Spatial (price) adjustment[b]	Unit of analysis	Scaling Method[c]	Method used[d]
			Demographic Survey 1994)					households whose real per capita food expenditure is within an interval of plus or minus 10 percent around the food poverty line	
Siddhisena and Jayathilaka (2004)	CFS 1996/97 SLIS 1999/ 2000	Per capita expenditure	2475-2750 calories per adult equivalent	Rs. 883 per person per month in 1996/ 97Rs. 1, 206 per person per month in 1999/2000	Not available	Yes, sectoral, province and district level for CFS 1995/ 96, and sectoral and province level for SLIS 1999/2000	Individuals and households	Not available	Not available, although the term "minimum needs approach" is used

Source: Unless noted otherwise, original documents were used as the source.

Notes:

[a] Source of price data for constructing deflator or spatial price index

[b] "Not available" implies that the source material does not indicate if a spatial price index or separate poverty lines by location were constructed.

[c] "Scaling Method" refers to the method by which the food poverty line is scaled up into an overall poverty line. "Not available" implies that no indication was available in the source material whereas "Not applicable" means that the methodology used did not require a scaling up process.

[d] "Not available" implies that the source material had insufficient description of the methodology to determine its nature.

[e] Cited in Hopkins and Jogaratnam 1990 and Lakshman 1997.

[f] Hopkins and Jogaratnam (1990): 4

[g] Hopkins and Jogaratnam (1990): 5

[h] Hopkins and Jogaratnam (1990): 4-6

[i] Datt and Gunewardena (1997)

[j] Edirisinghe (1990)

[k] Same as World Bank (1995) in Lakshman (1997).

Table A3: Nominal poverty lines (Rs./person/month at current prices) and spatial price indices, 1985/86, 1990/91 and 1995/96

District		Food poverty line			General poverty line			Food price index*			General price index*		
		1985/86	1990/91	1995/96	1985/86	1990/91	1995/96	1985/86	1990/91	1995/96	1985/86	1990/91	1995/96
Colombo	R	200.67	395.56	641.22	241.87	471.76	803.56	100.3	197.8	319.58	99.9	194.9	324.09
	U	217.87	423.43	712.94	256.18	501.99	902.48	108.9	211.7	355.33	105.8	207.4	364.00
Gampaha	R	200.67	395.56	641.22	241.87	471.76	803.56	100.3	197.8	319.58	99.9	194.9	324.09
	U	217.87	423.43	712.94	256.18	501.99	902.48	108.9	211.7	355.33	105.8	207.4	364.00
Kalutara	R	200.67	395.56	641.22	241.87	471.76	803.56	100.3	197.8	319.58	99.9	194.9	324.09
	U	217.87	423.43	712.94	256.18	501.99	902.48	108.9	211.7	355.33	105.8	207.4	364.00
Kandy	R	196.43	381.41	616.72	235.36	463.44	751.37	98.2	190.7	307.37	97.2	191.5	303.05
	U	207.64	398.75	619.97	248.30	490.44	772.44	103.8	199.4	309.00	102.6	202.6	311.54
Matale	R	196.43	381.41	616.72	235.36	463.44	751.37	98.2	190.7	307.37	97.2	191.5	303.05
	U	207.64	398.75	619.97	248.30	490.44	772.44	103.8	199.4	309.00	102.6	202.6	311.54
Nuwara Eliya	R	196.43	381.41	616.72	235.36	463.44	751.37	98.2	190.7	307.37	97.2	191.5	303.05
	U	207.64	398.75	619.97	248.30	490.44	772.44	103.8	199.4	309.00	102.6	202.6	311.54
Galle	R	191.04	390.94	605.32	236.43	480.34	742.87	95.5	195.5	301.66	97.7	198.4	299.63
	U	205.75	395.84	663.05	244.73	471.84	853.67	102.9	197.9	330.47	101.1	194.9	344.30
Matara	R	191.04	390.94	605.32	236.43	480.34	742.87	95.5	195.5	301.66	97.7	198.4	299.63
	U	205.75	395.84	663.05	244.73	471.84	853.67	102.9	197.9	330.47	101.1	194.9	344.30
Hambantota	R	191.04	390.94	605.32	236.43	480.34	742.87	95.5	195.5	301.66	97.7	198.4	299.63
	U	205.75	395.84	663.05	244.73	471.84	853.67	102.9	197.9	330.47	101.1	194.9	344.30
Kurunegala	R	194.65	361.37	688.06	240.48	443.30	857.13	97.3	180.7	342.94	99.3	183.2	345.71
	U	207.25	371.59	654.85	247.97	455.72	856.91	103.6	185.8	326.39	102.4	188.3	345.61
Puttalam	R	194.65	361.37	688.06	240.48	443.30	857.13	97.3	180.7	342.94	99.3	183.2	345.71
	U	207.25	371.59	654.85	247.97	455.72	856.91	103.6	185.8	326.39	102.4	188.3	345.61
Anuradhapura	R	194.65	361.37	688.06	240.48	443.30	857.13	97.3	180.7	342.94	99.3	183.2	345.71
	U	207.25	371.59	654.85	247.97	455.72	856.91	103.6	185.8	326.39	102.4	188.3	345.61
Polonnaruwa	R	194.65	361.37	688.06	240.48	443.30	857.13	97.3	180.7	342.94	99.3	183.2	345.71
	U	207.25	371.59	654.85	247.97	455.72	856.91	103.6	185.8	326.39	102.4	188.3	345.61
Badulla	R	198.45	377.50	603.84	242.31	475.20	738.43	99.2	188.7	300.97	100.1	196.3	297.84
	U	199.60	394.62	620.97	241.20	492.98	776.25	99.8	197.3	309.50	99.6	203.7	313.07
Moneragala	R	198.45	377.50	603.84	242.31	475.20	738.43	99.2	188.7	300.97	100.1	196.3	297.84
	U	199.60	394.62	620.97	241.20	492.98	776.25	99.8	197.3	309.50	99.6	203.7	313.07
Ratnapura	R	198.45	377.50	603.84	242.31	475.20	738.43	99.2	188.7	300.97	100.1	196.3	297.84
	U	199.60	394.62	620.97	241.20	492.98	776.25	99.8	197.3	309.50	99.6	203.7	313.07
Kegalle	R	198.45	377.50	603.84	242.31	475.20	738.43	99.2	188.7	300.97	100.1	196.3	297.84
	U	199.60	394.62	620.97	241.20	492.98	776.25	99.8	197.3	309.50	99.6	203.7	313.07
Sri Lanka		200.00	387.00	641.82	242.06	471.20	791.67	100.0	193.5	313.90	100.0	194.7	319.30

Note: Food poverty lines are rescaled such that the national food poverty line is equal to the population weighted average of regional poverty lines. *1985/86 National prices=100

Source: Gunewardena 2003b, author's calculations using LFSES 1985/86 and HIES 1990/91 and 1995/96 raw data.

Table A4: Regional Patterns in Human Poverty and its Components, 1994.

District	Population dying before age 40 %	Adult literacy %	Population without acess to safe water %	Children not fully immunised %	Births not in institutions %	Population without access to electricity %	Population lacking access to safe sanitation %	Schooling non-enrolment rate, grade 1-9 %	Human Poverty Index	Human Poverty Rank	Consumption Poverty (1995/96) Rank
Colombo	0.14	6.00	4.89	37.25	1.20	23.40	5.19	24.29	13.02	2	1
Gampaha	0.05	4.90	18.60	2.50	4.60	33.66	12.81	16.55	12.40	1	2
Kalutara	0.06	7.80	31.09	3.50	3.10	48.73	15.56	14.04	16.21	3	6
Kandy	0.10	10.10	25.73	20.50	1.10	47.71	16.82	14.36	17.39	4	11
Matale	0.10	13.50	27.27	2.25	5.20	72.76	21.00	15.27	21.50	9	15
Nuwara Eliya	0.09	22.30	25.25	18.75	58.10	74.57	35.38	17.56	30.54	17	3
Galle	0.08	9.00	39.32	9.50	4.05	52.39	20.56	13.48	18.61	5	4
Matara	0.08	11.40	37.21	10.75	5.80	50.92	15.65	18.84	19.32	7	9
Hambantota	0.06	13.10	28.32	11.00	15.90	74.37	24.53	12.59	23.33	11	7
Kurunegala	0.09	8.80	27.47	1.75	10.90	76.62	29.84	12.80	22.21	10	14
Puttalam	0.09	7.30	28.32	5.75	14.70	60.80	30.84	6.30	19.05	6	13
Anuradhapura	0.15	9.60	35.66	0.50	15.30	67.40	37.23	6.39	21.31	8	12
Polonnaruwa	0.15	9.50	63.72	3.75	24.70	77.05	26.15	20.25	27.69	15	8
Badulla	0.10	18.30	54.36	15.75	41.10	63.70	29.20	10.01	27.05	14	10
Moneragala	0.09	15.90	47.33	8.50	31.10	83.23	39.01	10.18	28.73	16	17
Ratnapura	0.10	13.00	44.16	21.00	17.20	75.33	25.29	9.55	25.30	13	16
Kegalle	0.05	9.30	52.18	3.00	16.60	73.54	20.15	15.60	24.08	12	5
Sri Lanka	0.09	8.90	27.91	13.50	15.92	56.23	23.84	8.69	17.76		

Note: Ranking is from lowest poverty (1) to highest (17).
Source: Gunewardena 2003b, UNDP-Sri Lanka 1998, and author's calculations from 1995/96 HIES raw data tapes

Table A5: Poverty-related Indicators that can be generated from Survey Data in Sri Lanka, 1980-2002

	Name of survey	Year	Sample size	Data	Coverage	Level of Data Tabulation	Availability of Data in Computer Files
1	Labor Force and Socio-Economic Survey	May 1980-April 1981	10,000 households	• Depth, Incidence and Severity of Poverty • Number of people below the poverty line • Head count index • Poverty gap • Squared poverty gap • Indices of inequality (gini coefficient, Atkinson and Theil indices etc) • Caloric intake and calorie requirement Share of (poorest) quintile(s) in national consumption • Proportion of population below minimum dietary energy consumption level • Crop production, yield and area under cultivation • Cost and sale price • HH consumption expenditure •HH food expenditure • HH income • Number of occupants •Ownership of House •Access to clean drinking water • Access to safe sanitation •Number of Rooms • Access to electricity •Distance to primary school • Distance to Market • Ownership of selected HH goods •Average number of hours worked per week • Literacy rate • Adult (>18yrs) female literacy rate • Adult (>18 yrs) male literacy rate • Unemployment rate • Occupation	Whole island	National & sector	Available
2	Population Census	March 1981		•Literacy rate • Educational attainment • School attendance • No. of literate females (15-24 yr olds) • No. of literate males (15-24 yr olds) Disability • % HHs with access to clean drinking water •% HHs with access to safe sanitation •Main economic activity •Occupation • Unemployment rate • Adult (>18 yrs) male literacy rate • Adult (>18 yrs) female literacy rate • Percentage of population living under thatched houses • Types of buildings • Number of rooms, floor space • Number of occupants (crowding) • Type of fuel used for cooking • Type of fuel used for lighting • Access to electricity	Whole island	National, district	
3	Agricultural Census	1982	6,750 households	Crop production, yield and area under cultivation •Promoted community managed irrigation schemes in all potential irrigation areas	Excludes Colombo, Dehiwela-Mount Lavinia municipalities	National, district, AGA division	
4	Labor Force and Socio-Economic Survey	April1985-March 1986	25,000 households	• Depth, Incidence and Severity of Poverty • Number of people below the poverty line • Head count index • Poverty gap • Squared poverty gap • Indices of inequality (gini coefficient, Atkinson and Theil indices etc) • Caloric intake and calorie requirement Share of (poorest) quintile(s) in national consumption • Proportion of population below minimum dietary energy consumption level • Crop production, yield and area under cultivation • Cost and sale price • HH consumption expenditure •HH food expenditure • HH income • Number of occupants •Educational attainment • Literacy rate • Occupation • Average number of hours worked per week • Unemployment rate	Whole island	National, district & sector	Available
5	Demographics and Social Aspects	June 1986-May 1987		•Literacy rate • Educational attainment •% HHs with access to clean drinking water • % HHs with access to safe sanitation • Adult (>18 yrs) male literacy rate • Adult (>18 yrs) female literacy rate • Types of buildings •Number of occupants (crowding) • Access to adequate energy supply •Access to electricity •Distance to markets •Distance to primary schools • Distance to health clinics • Proportion of pupils starting	Whole island	National, district & sector	Available

Table A5 : Poverty-related Indicators that can be generated from Survey Data in Sri Lanka, 1980-2002 Contd.

	Name of survey	Year	Sample size	Data	Coverage	Level of Data Tabulation	Availability of Data in Computer Files
6	LConsumer finance and socio-economic survey	October 1986 - September 1987	7,104	Grade 1 who reach Grade 5 • Net primary enrolment rate • Type of sickness or injury • Type of fuel used for lighting • Ownership of selected HH goods • Distance to public transport •Literacy rate •Educational attainment •School attendance • Number of literate females (15-24 year olds) • Number of literate males (15-24 year olds) • Disability • % of households with access to safe drinking water •% of households with access to safe sanitation • Occupation •Unemployment rate •Vocational/technical training enrollment •Average hours worked per day • HH food expenditure • HH consumption expenditure •HH Income • Adult male literacy (15-24 year olds) • Adult female literacy (15-24 year olds) •Percentage of population living under thatched roofs • Number of rooms/floor space •Cooking facilities • Type of buildings •Number of occupants (crowding) • Access to adequate energy supply • Access to electricity •Access to primary health care • Immunization rate •Growth in savings	Excludes the North and East	National, zone & sector	Available
7	Demographics and Health Survey	January 1987-May 1987	6,750 interviews	•Educational attainment • Anthropometric measurements •Child/infant mortality •Percentage of births attended by skilled health professional • Access to family planning •% of HH's with access to clean drinking •water % of HH's with access to safe sanitation • •Access to electricity •Immunization rates • Type of constraction materials of dwelling units • Stunting prevalence • Wasting prevalence • Mean number of HH members • Ownership of selected HH goods • % of women with a recent birth who received prenatal care • Child feeding practices	Excludes North and East	National, zone & sector	Available
8	Household Income and Expenditure Survey	May 1990-April 1990	19,620 households	•Depth, Incidence and Severity of Poverty •Number of people below the poverty line •Head count index • Poverty gap • Squared poverty gap • Other composite indexes (gini coefficient etc) • Caloric intake to requirement• Share of poorest quintile in national consumption • Prop of population below minimum dietary energy consumption level • Literacy rate •Educational attainment •Number of literate females (15-24 year olds) •Number of literate males (15-24 year olds) •Crop production, yield and area under cultivation • Cost and sale price • Main economic activity • Occupation • HH consumption expenditure • HH food expenditure • HH income • Female adult literacy (>18 years) •Male adult literacy (>18 years) •Number of occupants (crowding)	Excludes North and East	National, district & sector	Available
9	Quarterly Labor Force Survey	1990 first quarter onwards	2000 housing units per quarter upto 1995 and thereafter 4000 housing units per quarter	•Educational attainment •School attendance •Occupation •Unemployment rate •Vocational/technical training enrollment rate •Average number of hours worked per week Wage data • Earnings data • Labour Force Participation	Excludes North and East, the survey is being done separately in the North East from the 2nd quarter of 2002 Excludes	National & sector National, zone and sector	Available
10	Demographic and Health	July-September 1993	6,983 interviews	• Educational attainment • Number of literate females (15-24 year olds) •Number of		National,	Available

Table A5 : Poverty-related Indicators that can be generated from Survey Data in Sri Lanka, 1980-2002 Contd.

	Name of survey	Year	Sample size	Data	Coverage	Level of Data Tabulation	Availability of Data in Computer Files
	Survey			literate males (15-24 year olds) •Anthropometric measurements • Child/infant mortality •Percentage of births attended by skilled birth attendant/health professional• Family planning •% of HH's with access to clean drinking water • % of HH's with access to safe sanitation •Percentage of households living under thatched roofs •Access to electricity • Immunization rates • Housing quality/Type of construction • Stunting prevalence • Wasting prevalence • Ownership of selected HH goods • % of women with a recent birth who received prenatal care • Child feeding practices	North and East	zone and sector	
11	Demographic Survey	15-30 September 1994 (period of enumeration)	92,180 households	•Literacy rate •Number of literate females (15-24 year olds) • Number of literate males (15-24 year olds) • % of Households with access to clean drinking water • % of Households with access to safe sanitation •Main economic activity Occupation • Unemployment rate •Percentage of population living under thatched roofs • Type of building •Number of rooms/ floor space •Number of occupants (crowding) • Type of fuel used for lighting • Type of fuel used for cooking • Number of people internally displaced	Excludes North and East	National, district, division & sector	Available
12	Household Income and Expenditure Survey	November 1995-October 1996	21,220 households	• Depth, Incidence and Severity of Poverty • Number of people below the poverty line • Head count index • Poverty gap • Squared poverty gap • Indices of inequality (gini coefficient, Atkinson and Theil indices etc) • Caloric intake and calorie requirement Share of (poorest) quintile(s) in national consumption • Proportion of population below minimum dietary energy consumption level • Crop production, yield and area under cultivation • Cost and sale price • HH consumption expenditure •HH food expenditure • HH income • Number of occupants •Educational attainment • Literacy rate • Occupation • Average number of hours worked per week • Unemployment rate • Number of HHs/ Individual receiving transfers from the government • Ownership of house • Type of fuel used for lighting	Excludes North and East	National, District & Sectors	Available
13	Consumer finance and socio-economic survey	October 1996-December 1997	8,880 households	•Literacy rate • Educational attainment •School attendance • Number of literate females (15-24 year olds) • Number of literate males (15-24 year olds) • Disability • % of households with access to safe drinking water •% of households with access to safe sanitation • Occupation • Unemployment rate • Vocational/technical training enrollment •Average hours worked per day • HH food expenditure • HH consumption expenditure •HH Income • Adult male literacy (15-24 year olds) • Adult female literacy (15-24 year olds) •Percentage of population living under thatched roofs • Number of rooms/floor space • Cooking facilities •Number of occupants (crowding) • Access to adequate energy supply • Access to electricity •Access to primary health care • Immunization rate • Growth in savings • Ownership of selected HH goods • Ownership of house • Type of construction materials of dwelling units • Type of fuel used for lighting • Dependency ratio	Excludes North& Easr	National, zones, sector	Available
14	Sri Lanka Integrated Survey	October 1999-third quarter 2000		• Number of occupants (crowding) • Number of people internally displaced • Main economic activity • Average number of hours worked per day HH income • Vocational/Technical training enrollment • Ownership of house • Type of construction materials of dwelling units • Number of rooms • Access to clean drinking water			

Table A5 : Poverty-related Indicators that can be generated from Survey Data in Sri Lanka, 1980-2002 Contd.

	Name of survey	Year	Sample size	Data	Coverage	Level of Data Tabulation	Availability of Data in Computer Files
15	Demographic and Health Survey	May-June 2000	6,601 interviews	• Access to safe sanitation • Access to electricity • Source of lighting • Number of HHs using wood, crop residues for cooking fuel • Distance to market • Distance to primary school • Distance to public transport • Proportion of HHs affected by theft of civil disturbances • Literacy rate • Educational attainment • Disability • Type of sickness or injury • HH food expenditure • HH consumption expenditure • Ownership of selected HH goods • Number of HHs/ individual receiving transfers from the government • Crop production, yield & area under cultivation • Cost & sale price • Child feeding practices • Educational attainment • Anthropometric measurements •Child/infant mortality •Percentage of births attended by skilled birth attendant/health professional •Family planning • % of HH's with access to clean drinking water • % of HH's with access to safe sanitation •Percentage of households living under thatched roofs • Access to electricity • Type of fuel used for cooking • HIV & other STDs • Type of construction materials of dwelling units • Stunting prevalence • Wasting prevalence • Number of occupants (crowding) • Ownership of selected HH goods • % of women with a recent birth who received prenatal care • Child feeding practices	Excludes North and East	National, zone & sector	Available
16	Population Census	June 2001		•Literacy rate • Educational attainment • School attendance • No of literate females (15-24 yr olds) • No. of literate males (15-24 yr olds) • Disability • % HHs with access to clean drinking water •% HHs with access to safe sanitation •Main economic activity •Occupation Unemployment rate • Adult (>18 yrs) male literacy rate • Adult (>18 yrs) female literacy rate • Percentage of population living under thatched houses • Types of buildings • Number of rooms, floor space • Number of occupants (crowding) • Type of fuel used for cooking • Type of fuel used for lighting • Access to electricity			Available
17	Household Income and Expenditure Survey	2002	20,000 housing units	•Depth, Incidence and Severity of Poverty •Number of people below the poverty line •Head count index • Poverty gap • Squared poverty gap • Other composite indexes (gini coefficient etc) • Caloric intake to requirement• Share of poorest quintile in national consumption • Proportion of population below minimum dietary energy consumption level • Literacy rate •Educational attainment •Number of literate females (15-24 year olds) •Number of literate males (15-24 year olds) •Crop production, yield and area under cultivation • Cost and sale price • Main economic activity • Occupation • HH consumption expenditure • HH food expenditure • HH income • Female adult literacy (>18 years) •Male adult literacy (>18 years) •Number of occupants (crowding) Type of fuel using for lighting • Ownership of house • Number of HHs/ Individuals receiving transfers from the government	North East is being done separately in 6 rounds	National, district & sector	Available

Table A6: Disaggregated Poverty-related Indicators from DCS Website (www.statistics.gov.lk)

Indicator	Years	Data Source	Geographical Coverage	Periodicity	Level of disaggregation
MDG Indicators					
Poverty Indicators					
Head count index[a]	1990/91, 2002	HIES 1990/91 and 2002	All except N & E	Once in 5 years	Sector, Province, District
Poverty gap[a]	1990/91, 2002	HIES 1990/91 and 2002	All except N & E	Once in 5 years	Sector, Province, District
Squared poverty gap[b]	1990, 2000, 2002	HIES 1990/91, 1995/96, 2002	All except N & E	Once in 5 years	Sector
Gini coefficient[b]	2002	HIES 2002	All except N & E	Once in 5 years	Sector, District
Caloric intake to requirement					
Share of poorest quintile in national consumption[a]	1990/91, 2002	HIES 1995/96 and 2002	All except N & E	Once in 5 years	Sector, Province, District
Proportion of population below minimum dietary energy consumption level[a]	1990/91, 2002	HIES 1990/91 and 2002	All except N & E	Once in 5 years	Sector, Province, District
Prevalence of underweight children under 5 years of age[a]	1993, 2000	DHS 1993, 2000	For seven Zones except 8th & 9th Zones	Once in 5 years	Sector, Zone
Education Indicators					
Net enrollment in primary education[a]	1996, 2002	SLFS	All except N & E	Quarterly	Sector, Province, District
No. of classrooms and benches		CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Literacy rate 15-24 years old[a]	2001				
Educational attainment[d]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	District
Proportion of pupils starting Grade 1 who reach/complete Grade 5[a]	1990, 1992	Annual School Censuses	All Island	Annually	Province
School attendance[d]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Gender Equality Indicators					
Sex ratio in primary and secondary education[a]	1996, 2002	SLFS	All except N & E	Quarterly	Sector, Province, District
Ratio of literate women to men, 15-24 years old[a]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Share of women in wage employment in the non-agricultural sector[a]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Health Indicators					
Child mortality rate[a]	1991, 2002	Civil Registration System of Registrar General's Dept.	All Island	Annually	Sector, Province, District
Infant mortality rate[a]	1991, 2002	Civil Registration System of Registrar General's Dept.	All Island	Annually	Sector, Province, District
Proportion of 1 year old children immunized against measles[a]	1993, 2000	DHS 1993, 2000	For seven Zones except 8th & 9th Zones	Once in 5 years	Sector, Zone
Maternal Health					
Maternal mortality rate[a]	1991, 2002		All Island	Annually	Sector, Province, District
Proportion of births attended by skilled birth attendant/health professional[a]	1993, 2000	Civil Registration System of Registrar General's Dept. DHS 1993, 2000	For seven Zones except 8th & 9th Zones	Once in 5 years	Sector, Zone
HIV/AIDS, malaria and other diseases					
Contraceptive rate[a]	1993,	DHS 1993, 2000	For seven Zones	Once in 5 years	Sector, Zone

Table A6 : Disaggregated Poverty-related Indicators from DCS Website (www.statistics.gov.lk) Contd.

Indicator	Years	Data Source	Geographical Coverage	Periodicity	Level of disaggregation
	2000		except 8th & 9th Zones		
Condom use rate of the contraceptive prevalence rate[a]	1993, 2000	DHS 1993, 2000	For seven Zones except 8th & 9th Zones	Once in 5 years	Sector, Zone
Environment					
Proportion of population with sustainable access to an improved water source, urban, rural and estate[a]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Proportion of population with access to improved sanitation, urban and rural[a]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Proportion of the population using solid fuels[a]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Sector, Province, District
Proportion of housing units with access to secure tenure in urban sector[a]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	Province, District
Economic and Social Indicators (ESIs)					
Unemployment rate of young people aged 15-24[a]	1996, 2002	SLFS	All except N & E	Quarterly	Sector, Province, District
HH food expenditure per month[c]	2002	HIES 2002	All except N & E	Once in 5 years	Sector, District
HH income per month[c]	2002	HIES 2002	All except N & E	Once in 5 years	Sector, District
Life expectancy[b]	1970, 1980, 1990, 2000, 2001	CPH /Health	Only for completely enumerated Districts in CPH	Once in 10 years	National Level
Adult (>18 yrs) male literacy rate[b]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	District
Adult (>18 yrs) female literacy rate[b]	2001	CPH 2001	Only for completely enumerated Districts in CPH 2001	Once in 10 years	
HH with access to electricity[b]	2000	DHS	For seven Zones except 8th & 9th Zones	Once in 5 years	Sector, Zone
Personal computers in use per 100 population[a]	2004	A sample survey on computer literacy in Sri Lanka	All districts except Mullaitivu and Kilinochchi	To be decided	Sector, Province
Internet users per 100 population[a]	2004	A sample survey on computer literacy in Sri Lanka	All districts except Mullaitivu and Kilinochchi	To be decided	Sector, Province

Notes: [a] =Selected Millennium Development Indicators (MDIs)
[b] =Poverty statistics/Indicators for Sri Lanka
[c] =HIES 2002 basic information at district level
[d] =Population and housing data by district from sample tabulation