

Guidelines for Preparation and Execution of Studies of the Social and Economic Impact of HIV/AIDS

Tony Barnett^φ and Alan Whiteside^θ

^φ Professor of Development Studies, School of Development Studies, University of East Anglia, Norwich, UK.

^θ Associate Professor and Director of the Health Economics and HIV/AIDS Research Division, University of Natal, Durban, South Africa.

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We envisage that the document will benefit from continuing feedback.

Full responsibility for the content remains ours however.

Tony Barnett

School of Development Studies
University of East Anglia, Norwich NR4
7TJ UK

Alan Whiteside

Health Economics and AIDS Research
Division
University of Natal
Durban 4041
South Africa

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Introduction: The HIV/AIDS Epidemic and its Social and Economic Impact

The Purpose of this Guideline

HIV/AIDS is now widespread in much of the developing world. Because it results in exceptional levels of illness and death in the mature adult population it has many social and economic implications. This document provides basic concepts to assist thinking about these implications together with ideas and techniques for planning responses to the medium and longer term social and economic impact. It is not envisaged that these Guidelines can be followed in any simple way or that they provide a recipe. They will be used by senior researchers as a source of concepts, ideas and techniques which can be applied in their own setting and to meet their own needs. They are a beginning point for such studies, not an end point. Although the document is written as guidance for those charged with carrying out the studies, it is also intended to be used by anyone planning to commission such work. Annex D is designed for those commissioning such studies and sets out some of the issues they need to consider.

The document is divided into three parts:

- Part 1. The introductory section setting out why AIDS is unique and deserving of such studies.
- Part 2. Guidelines on 'How to do an Assessment of the Social and Economic Impact of HIV/AIDS'.
- Part 3. A Conceptual Framework: Socio-economic Impact Studies.

In addition there are four annexes, namely:

- Annex A. Methods of Projecting the Epidemic.
- Annex B. Imperfect Data Sets: The UNDP and World Bank.
- Annex C. OECD Development Goals.
- Annex D. Commissioning Socio-economic Impact Studies: Notes for Government Officials

The document may be read in conjunction with the background paper **The Social and Economic Impact of HIV/AIDS in Poor Countries: a review of studies and lessons**, which discusses the problems and limitations of such studies and puts them in context and also provides some theoretical background to the ideas in this Guideline.

Why is HIV/AIDS a special problem?

AIDS was first recognised as a disease in the early 1980s. Since then it has spread throughout the world. According to the World Health Organisation's 1999 Annual World Health Report it is now the leading cause of death in Africa, responsible for one in five deaths. Globally, it is the fourth most important cause of death. However, there is considerable variation in the pattern of epidemic spread between countries, within countries and even quite locally. Consequently there is also variation in the impact of the resulting illnesses and premature deaths. In the richer countries of the world, rates of infection are low and advances in treatment mean that people can live with AIDS, although for how long and in what state of health is currently uncertain. The burden of the epidemic falls on the world's poorer countries and also on poorer communities in some richer countries.

AIDS is caused by the Human Immuno-deficiency Virus (HIV). This virus is transmitted via human body fluids and globally most infections occur through sex between men and women. The virus attacks the human immune system and ultimately makes it ineffective. Most people die of infections or cancers against which they might well defend themselves were it not for their compromised immune systems. There is a strong link between HIV and tuberculosis. Many people are infected with TB, but this is not active. Once HIV infection occurs the TB is able to emerge and the result is that TB is one of the major opportunistic infections and killers of HIV infected people.

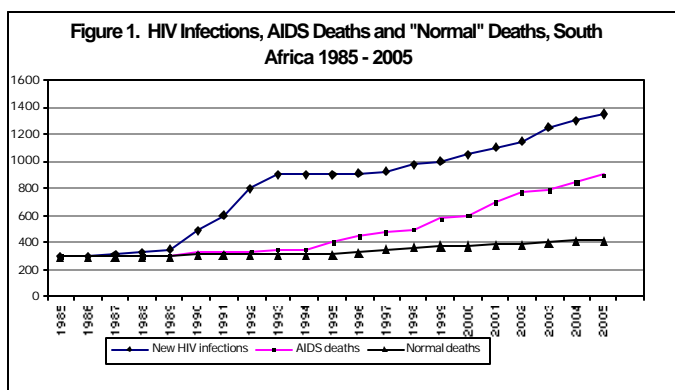
Because most infections are the result of heterosexual intercourse, the disease affects people in the age group which is broadly defined as "sexually active" between 15 and 50, although this is not to say that

there are not infections below and above this range. The significance of this epidemiological characteristic is that the age groups most susceptible to infection are also the most economically and socially active. They are also least likely to be ill and/or die in normal circumstances. The issue of social and economic impact of the HIV/AIDS epidemic stems from the unusual rates of severe illness and premature deaths that it produces in this age group.

HIV infection is not an immediate death sentence. Depending upon individual constitutions, rates and types of ambient infection, living conditions, diet and other factors, an infected person may have years of productive and healthy life before they start to fall ill (develop AIDS). It is not certain how long people can live with HIV, but it is estimated at 5-8 years on average in poorer countries, possibly many more in richer countries. Eventually the person will begin to experience periods of illness that increase in frequency, duration, and severity until they die. Many opportunistic infections and diseases associated with AIDS can be treated, (or prevented), at relatively low cost and allow for prolongation of life. Recently developed anti-retroviral therapies may reverse or slow disease progression but are expensive, the proven therapies costing \$8000 to \$11000 per person per year for the drugs plus the cost of testing and clinical oversight of treatment regimes. There are some cheaper options, but it is unclear how efficacious or cost effective they are. The therapies are complex to administer and are most effective where the person receiving treatment has good diet, healthy living conditions and a stress-free environment. The financial resources and these conditions are, least likely to be available to the poor.

HIV/AIDS - a long wave event

Because the virus is slow acting with an incubation period of many years, an HIV/AIDS epidemic is a long, slow event. By the time that even a few people with AIDS are recognised by clinical services, (or the community), many more exist whose condition has not been diagnosed or observed and there are even more who are well but infected with the virus. In short, a major problem is that once significant numbers of people begin to fall ill and die the HIV epidemic will already be far advanced. This is well illustrated by Figure 1, which shows the epidemic in South Africa. In 1999 there were an estimated 2,947,000 HIV infections, but “only” 97,000 AIDS deaths, the HIV infections recorded in 1999 will develop into AIDS cases and deaths over the next five and more years. By 2005 it is projected that there will be about 383,000 AIDS deaths in South Africa. Or, to take an epidemic at an earlier stage, in Nepal in early 1999, about 1,209 people had been recorded as infected with HIV. This suggested that around 25,000 people might be infected country-wide, but few people had actually been diagnosed as sick with AIDS.



Source: Provided by the AIDS Research Division of Metropolitan Life: Cape Town, South Africa

HIV/AIDS: Stages of Impact - the long wave in action

Once HIV begins to spread in a society then certain consequences are inevitable, although initially they are invisible. The extent and speed with which these stages occur will depend on the effectiveness of prevention programmes and the degree to which the society is willing and able to plan for the impact. The following stages will be seen in relation to an HIV/AIDS epidemic:

- Stage 1: No people with AIDS are visible to the medical services, some people are infected with HIV.

- Stage 2: A few cases are seen by medical services, more people are infected with HIV.
- Stage 3: Medical services see many people with AIDS, there is some awareness of HIV infection and AIDS among policy makers outside medical specialisms. The incidence of reported TB cases increases.
- Stage 4: Numbers of AIDS cases may threaten to overwhelm existing health services. There is widespread awareness of AIDS and of HIV infection among the general population.
- Stage 5: Unusual levels of severe illness and death in the 15-50 age group produces coping problems, orphaning, loss of key household and community members. TB is a major killer.
- Stage 6: Loss of human resources in specialised roles in production and economic and social reproduction decreases the ability of households, communities, enterprises and even districts to govern, manage and/or provision themselves effectively. These difficulties elicit various responses, which may include creative and innovative ways of coping or failure of social and economic entities. Both types of response may be observed in the same country, region, enterprise or even household.

There is little evidence at present that any country as a whole has moved beyond stages four and five. But there are certainly countries which have reached these stage. However, at the sub-national level, there are regions and communities which have reached stage five within the last decade and may be reaching stage six. There is anecdotal evidence at the sub-national, community and enterprise level of stages five and six.

Key Concepts: Susceptibility and Vulnerability

These guidelines introduce two important concepts, namely *susceptibility* and *vulnerability*.

Susceptibility is the term is used to describe the individual, group and general social predisposition to infection. This concept may be operationalised at any level, from an entire "society" or country, down to a household. Thus individuals, societies and nations are more or less susceptible to infection, and the speed and extent of HIV spread will be determined by the susceptibility.

Vulnerability describes those features of a social or economic entity making it more or less likely that excess morbidity and mortality associated with disease will have adverse impacts upon that unit. Thus families, communities and societies will be more or less vulnerable to the impact of increase mortality and morbidity.

The distinction is made because a society may be susceptible but not vulnerable. A study of social and economic impact should show clearly, for each level, subject area, social unit, social group, institution, whether and how it contributes to susceptibility and whether and how it is vulnerable to the impact of the epidemic. As far as is possible, where vulnerability is indicated a policy option or options should be suggested for dealing with this.

Desirable and feasible responses differ at each stage and in particular:

- Prevention requires that people change their behaviour when they cannot see any reason to do so and this reluctance may result in perversion and misunderstanding of prevention messages.
- Planners and policy makers are asked to plan for something which can not yet be seen; which will evolve over a period of years; of which no one has experience; and for which there are few, if any, precedents.
- Successful planning for prevention and/or impact will mean that the problem which was warned about did not happen and so people may query whether all the expenditure of money and effort was worthwhile.
- We cannot realistically expect to avoid all new infections, thus people may feel that prevention is failing, even when it could be having a significant impact.

One of the common responses to the epidemic has been denial that there is a problem. This has occurred at individual, communal and national level. The problem is even greater with regard to impact because it is quite hard to demonstrate.

Impact is hard to see

One of the first and clearest messages of this document is that to see the socio-economic impact of HIV/AIDS you have to look for it. It is particularly hard to detect impact which is not measured by existing and conventional economic instruments.

Why then is there the pressure and need to produce socio-economic impact studies? Often the first reaction of a country faced by the epidemic reaching stage 3 is to commission such a study. The arguments for the studies are:

- If there is a *measurable* or *predictable* impact then people can be convinced of the problem. Showing impact becomes an important tool for **advocacy** - encouraging politicians, leaders and policy-makers to engage in prevention. If we can show the effects of an increase in illness and death, then the need for prevention will be clear.
- If the epidemic will have an impact, we need to know its location, scale and form so as to begin **planning** for it. For example, the Health Ministry needs to look at increased demand, and a private company might assess exposure to impact in terms the effects of illness and death on availability of skilled employees and the level and type of employee benefits.

The Dual Purpose of Impact Studies

Impact studies have a dual purpose. They provide the rationale for both prevention and mitigation. Of course for countries in the early stages of the epidemic there is a paradox - if we are successful in our advocacy, prevention may be more effective and reduce impact - and people will say it was all a scare tactic! Impact studies should be able to accommodate this and not produce overly alarmist scenarios. In countries with more advanced epidemic there is no doubt that there will be an impact and the challenge is to predict and mitigate it.

One of the major problems with many impact studies is that they are commissioned, carried out and then shelved. This is partly because most are 'stand-alone' studies, looking at one aspect of the impact, and are not part of a strategy to respond. Ideally studies should be part of, or feed into such studies.

Part 2. Guidelines on how to do an Assessment of the Social and Economic Impact of HIV/AIDS¹

Identification of the Problem

The first problem that you face in undertaking a social and economic impact assessment is that impact has not so far been catastrophic or even very detectable at the macro level. For this reason, analysis of impact requires methods which detect it at the meso (middle) and micro levels. The second problem that you face is that there are two sets of people who form the audience for the report and may also be among those responsible for commissioning it: those who doubt that a problem exists and those who think that catastrophe lies ahead. Both of these groups will be disappointed and it is your task to modify their expectation in discussion concerning terms of reference. The actual situation is that the impact will be:

- 1) detectable but only if the correct instruments are developed and used;
- 2) located in certain social, economic and spatial groups and areas and some of these may have little political influence or importance and therefore may not attract attention; and
- 3) felt slowly over a long period.

All this needs to be drawn to the attention of those who commission the work.

Setting the Terms of Reference

It is very important that the terms of reference recognise that within the normal period allowed for such work, it will be unlikely that primary data can be collected. However one of the outcomes of the study might be to suggest additional studies that are needed, which could include primary data collection. It is also important to note such a study can't provide a detailed and quantified account of the impact of the epidemic. What it can do is:

- Use existing data insofar as it allows you to form some picture of impact;
- Indicate some possible scenarios of HIV spread and numbers of illnesses and deaths, and make assessments of their relative likelihood;
- Suggest the particular population sub-groups most vulnerable to impact;
- Assess and balance anecdotal accounts of current impact with other data and experience;
- Obtain information on current coping mechanisms and capacity;
- Suggest, on the basis of appropriate consultation, what areas require policy development, decisions and action over what kind of time period;
- Propose additional studies and draft terms of reference for these.

A crucial first step is to establish the immediate purpose of the assessment. Is it primarily advocacy, to provide detailed information for planning, or both? This will guide both the work and the reports/presentations produced and allow the consultants to make appropriate proposals and draw accurate budgets. One way to establish this is to be clear who the target group for the work is.

The experience of one African Country may be instructive. A key government ministry requested a number of studies into the impact of AIDS. These took over a year, from commissioning the work to the presentation of draft reports, and got bogged down on details. The problem being that the expectations of what could be produced did not take into account the complexity of the problem, nor was it clear that all in government had 'bought into' the process.

¹ An example of an early attempt to undertake such a study at a national level may be seen in: Tony Barnett and Alan Whiteside, **The Social and Economic Impact of HIV/AIDS in Ukraine**, British Council, Kyiv 1997. This may be found on the web at:
<http://www.britishcouncil.org/ukraine/english/governance/aids/index.htm>

The Project Team

This kind of study must be overseen by an interdisciplinary team of senior researchers and administrators. It is positively not a project to be undertaken by junior people. It requires strong political and administrative support if it is to be completed successfully and have the desired outcome of influencing opinion and enabling a society to cope with the medium and long term impacts of HIV/AIDS. Such a study is not a small undertaking and is likely to take several months to complete. Ideally, the executing team should consist of at least the following: an epidemiologist and/or demographer, an economist, a sociologist/social anthropologist who is used to working in relation to policy. Ideally these people should be engaged full-time, the reality is that this may not be possible, in which case sizeable allocations of their uninterrupted time should be assured. Additional inputs may be required from specialists in all the areas discussed in what follows. Specialists might include people with expertise in: agronomy, rural development, forestry, mining and industrial production, transport, and gender. Whichever disciplinary specialists are involved it is vital that they are able and willing to work across disciplines and in relation to communities and activists.

Sources and uses of Data

Data are designed to support the findings and recommendations of the studies. As well as background information you should be looking for data that support the analysis of the susceptibility and vulnerability of the society, sector, or groups in it. In particular you will need to establish trends. As noted impact may be hard to see because:

1. The epidemic has not developed enough for the effects to be felt.
2. We are not measuring the right things.
3. It may not be possible to ascribe trends specifically to HIV/AIDS.²

It may be useful to construct a table for data collection. This would set out what data you want, why you want it, and where you think you may get it. It will therefore allow you to structure the data collection as well as think about where you might get it. See the example below.

Table 1 A Data Collection Matrix

Data Required	Reason	Objectives	Source
1. Demographic	Core to projections and impact assessment	Basic information	Government Statistics office
1.1 Population size	For projections	Feed into projection	As above
1.2 Population structure	For projection and analysis	Etc.	Etc.
Etc.	Etc.	Etc.	Etc.

NOTE: a useful first stop for data collection may be the official government web site for a particular country. These sites often contain a wealth of information.

A note on epidemiology and demography

Epidemiology.

This is the study of the distribution and progression of illness or other welfare events in a population. In this context we are concerned with the distribution and progression of infection and illness in human populations. Typically, epidemiology tells us the spatial and social location of infection and illness. Such information should be able to tell us who is infected and/or ill, where they are and how many of them exist at any particular time. It should also be able to tell us about changes over time in these characteristics and thus the progress and development of the epidemic. For example, such studies should indicate the age and gender distribution and the geographical location of people who are HIV+ or who have developed AIDS. Such statistical data then provide indications of possible routes of infection, the possible development of an epidemic and the social and spatial location of the disease

² For example the death rates may be rising, but AIDS is not identified as the cause, or child mortality may appear stable if improvements in nutrition, clean water and health care mask the increased deaths due to AIDS.

over a defined time period. An epidemic of an infectious disease typically develops geometrically with a small number of cases leading to a larger number of cases followed by a very rapid increase until the susceptible population has reached a plateau where most of the susceptible individuals have been infected. The geometric curve which an epidemic follows is known as a sigmoid or 's-curve' from the typical form which it assumes.

Demography.

This is concerned with basic life events of individuals, birth, ageing and death. These individual events are then used to provide accounts of the structure of a population, in particular the numbers in each defined age cohort, the dependency ratio, life expectancy, age specific death rates and changes in these variables. Such information can then be used to make projections as to how the structure of the population may change over a time period.

Epidemiological Data³

Epidemiological data is usually drawn from official sources. The two most common types of data are:

1. AIDS case data, the number of AIDS cases by age, gender, and transmission category. The value of such data is limited as, in most countries, only a small number of cases reach official reports.
2. HIV data are drawn from surveys of specific groups. Typically they will include blood donors, STD clinic attenders, people with TB and women attending ante-natal clinics. The last source, ANC attenders provide the most useful data at present, as it is usually based on surveys done at regular intervals, and has fewer and more predictable biases⁴.

Until recently the only way to test for HIV was by using blood samples which made carrying out population based sample surveys very difficult, the development of saliva testing will result in a wider range of data becoming available. ANC data, while it has its limitations, provides the opportunity to collect data on a sexually active group of adults, and as blood samples are taken from pregnant women for a range of tests, some can be used for anonymous unlinked screening.

Note on Ante-natal Clinic Data:

Recent population based studies have shown that ANC data does provide a good estimate of HIV prevalence in adults aged 15 to 49. When the epidemic is modelled the data are manipulated to produce estimates of prevalence for all adults and for population at large.

ANC data are appropriate when the epidemic is largely hetero-sexually driven as is the case in Africa and most of Asia. It may not be appropriate where the majority of cases are men who have sex with men, or injecting drug users. In this situation other data will need to be collected.

For an excellent discussion on data sources and their value see UNAIDS Case Study, "Reaching regional consensus on improved behavioural and sero-surveillance for HIV: Report from a regional conference in East Africa", UNAIDS Case Study, June 1998, UNAIDS Best Practice Collection.

http://158.232.21.5/wsite/00_core_frame.html

Note on terminology:

³ A literature search of published articles, as well as abstracts from various conferences, can be performed FREE-OF-CHARGE at <http://igm.nlm.nih.gov>.

⁴ It is very important to remember that all data are subject to bias. When we examine HIV data then the main types of bias of which we should be aware are: (i) how representative of the general population is the group for which data has been collected? Typical groups in decreasing representativeness are: ante-natal clinic attenders - ante-natal clinic attenders, blood donors, CSWs - Commercial Sex Workers and IDUs - Intravenous Drug Users (ii) what differences might exist between urban and rural prevalence rates (data are usually collected from urban areas and rural rates are often lower than these)? (iii) HIV infection suppresses fertility, this means that prevalence data derived from ante-natal clinic attenders may under-represent prevalence (iii) there are differences in male-female ratios at various points in the epidemic (>1 for early, closer to 1 for later), once again leading to selectivity in the ante-natal clinic attenders' HIV prevalence data (depending on the stage of the epidemic).

The most common data terms are **prevalence** and **incidence**. Prevalence measures the number of cases at a given time and in the case of HIV is given as a percentage. Thus in Swaziland 31 percent of women attending ANC clinics are HIV positive. Incidence measures the number of new occurrences of a disease. Prevalence is the **stock** of HIV infections, incidence is the **flow**. It is very difficult to measure HIV incidence because we don't know when people are infected, which is unfortunate because these data would be most helpful in measuring the impact of prevention efforts. However high incidence may occur when prevalence has levelled off, if many people are dying and being replaced by new infections.

The first port of call for epidemiological data should be the national AIDS control programme of the country. They should have all available information on AIDS cases and sero-survey data. If such data exist, you should obtain as much detailed information as possible together with any subsequent projections made on the basis of these findings. If annual reports of the AIDS control programme are available you should assemble or gain access to as many years as is possible to gain a perspective of the epidemic. Note carefully what categories of people are being used as the main source of information, from which regions and districts of the country and how are the data being collected.

When you have established the main outline and method of the published official figures, you should see whether there are any unpublished more detailed data which could be of use. Note carefully which geographical areas and social groups are most likely to be absent from the official figures and consider how this might influence the official view of the epidemic. Give some thought to why and how the data came to be constructed in the way that they were. What does that tell you about biases and lacunae in the processes of data production? Does this suggest anything about how you may need to approach the next stages of the impact analysis? It is important to remember that aggregate data even down to the regional and district levels may not reflect particular communities, which may be much better or worse than the average.

When you are satisfied that you are unable to obtain any more detailed data about the epidemic from this source, you should consider whether there are other possible sources which have not contributed to the official statistics. Possible sources of further information are: genito-urinary and other medical practitioners, medical officers in major enterprises and the armed forces, insurance companies, blood banks, visa applicants, major district and general hospitals, and mission hospitals. The data from these sources will be biased in various ways and should be treated with caution.

Once you have HIV data then you can decide at which stage your country is. Note it is extremely unlikely that you will have been asked to do this study if alarm bells were not ringing, which probably means you are at the generalised stage. The stage of the epidemic will advise both impact mitigation and prevention strategies.

Epidemic stages:

- *Nascent*. HIV is less than 5 percent in all known sub-populations presumed to practise high-risk behaviour for which information is available.
- *Concentrated*. HIV prevalence is above 5 percent in *one or more* sub-populations presumed to practise high-risk behaviour, but among women attending urban ante-natal clinics it is still below 5 percent.
- *Generalised*. HIV has spread far beyond the original sub-population with high-risk behaviour, which are now heavily infected. Prevalence among women attending urban ante-natal clinics is 5 percent or more.

Source: The World Bank, **Confronting AIDS Public Priorities in a Global Epidemic**, Oxford University Press, New York, 1997, p87

You can obtain an overview for most countries by visiting the UNAIDS website <http://www.unaids.org> and using the searchable database. This will provide basic information about seroprevalence levels, numbers of AIDS cases and a variable amount of detail depending on the data reported by national bodies to UNAIDS. Much of this information is at least a year and possibly two years old. Another source of background information is the United States Bureau of the Census. Their website, <http://www.census.gov>, also permits you to search for information by country. It is unlikely that they

will have data not available in country, but they may have useful compilations; can provide an overview; and will be able to show data from neighbouring countries.

It may be of value to assess the experience of neighbouring countries. Those that are further ahead in the epidemic may provide indicators of what could happen in your own country. Particular attention should be paid to border areas. It is possible that there may significant epidemics here that are not picked up in national data. For example, if data were available for the “Golden Triangle” and this were a country it would have one of the most serious epidemics in Asia. Instead the data are lost in the national epidemics of India, Thailand, Myanmar and China.

Demographic Data

Demographic information is necessary for both the projection of the epidemic and an understanding of where it might have impact. There are three common sources of demographic data, namely:

- Official census and population surveys and vital registration information.
- Demographic and Health Surveys.
- Reports by academic demographers.

Official census and population surveys are the best sources of data, but will be limited in their usefulness by how long ago they were done, the quality of the material which has been collected and the degree to which data have been analysed. Insofar as it usually takes about four years for any useful analysis to be produced by census departments, it is probable that the most recent materials available will be about five years old. These will be perfectly satisfactory for purposes of projecting the epidemic using programmes described below. Vital registration - information collected by governments about births and deaths - is another important source. It may be very varied in its quality depending on national systems in use and even the quality of local and regional administrations. However, it should be examined for information about numbers and causes of deaths while bearing in mind that causes of death will often be no real indicator of AIDS, as these deaths are often reported by the immediate cause of death such as tuberculosis or pneumonia. Of course, in many countries, the births and deaths of only a small fraction of the population are reported at all. The value of such data will be to track trends in terms of numbers of deaths, and the age and gender of those dying.

The United States Bureau of Statistics at <http://www.census.gov/> also has information about the demography of a range of countries. The address http://www.census.gov/main/www/stat_int.html will lead you to the official statistical bureaux of many, but not all, countries.

Demographic and Health Surveys are undertaken by Macro International Inc. of Calverton, Maryland, USA in co-operation with local bureaux of statistics and offices of population and census. Macro International have a web site at <http://www.macoint.com/dhs> and by accessing their pages at <http://www.macoint.com/dhs/indicatr/datasearch.asp>, you can find information about the demography and health of the countries where they have done surveys.

International agencies. An increasingly important source of data are those on life expectancy, and infant and child mortality. The most up-to-date and regular sources of these data are the annual reports produced by the United Nations Development Programme, UNICEF, and the World Bank. All seem to use their own demographers to calculate these figures. (See Annex B for a discussion of some of the limitations of the World Bank and UNDP demographic and development data). It is on these indicators that the first “official” impact is seen. The websites are: UNDP <http://www.undp.org>; World Bank <http://www.worldbank.org>; and UNICEF <http://www.unicef.org>

Reports by academic demographers can be found in the professional journals. After exploring in-country journals and other publications, you should look at international journals. These include: Journal of Demography, Population and Development, Population Studies, Health Transition Review.

Epidemiological and demographic data are required in order to make projections of the impact of the epidemic. The most commonly used (and the most accessible and user friendly) projection model is the Spectrum model developed by The Futures Group International. This is discussed below.

Economic Data

The purpose of economic data are to provide a profile of the country or region and assist in identifying areas of susceptibility and vulnerability. The collection of such data should be reasonably simple, the key is their interpretation.

Basic economic data. This will include information on the size and structure of the national or regional economy. In particular you should identify the key sectors. It would also be important to have an idea of how the economy works, especially in relation to external factors, is it dependent on a few commodities, heavily in debt, dependent on aid? Information on the labour force should include participation rates, levels of unemployment, skill profile, educational level, age and gender. If data are available for several years, try to identify trends.

Indicators of Susceptibility. Key to increasing people's risk of HIV infection is inequality and mobility. In order to assess this you need to look at how income and wealth are distributed (the Gini coefficient is a key indicator of income distribution), but it is also important to identify groups who are relatively wealthy and relatively poor. For example in a society where there are few income earning opportunities, and these are primarily the preserve of men, then it is likely that "commercial sex" will be one of the few survival strategies open to many women. Mobility is important because it creates the environment in which sex with a non-regular partner is more likely to occur. Here there may be indicators of labour mobility both within areas or countries and across borders. The rates of urbanisation may also indicate this.

Indicators of Vulnerability. Here you are looking for areas where the loss of labour or the increased demand for services resulting from increased morbidity (illness) and mortality may be crucial. These will include sectors that dependant on skilled or experienced labour. The relevance of experience should not be missed. A good example is the gold mining industry in South Africa where the gangs of miners are theoretically unskilled, but have to work together in a dangerous environment and whose productivity is dependent on working as a team with one or two key people. The conditions of service in and entitlements of civil servants may also be particularly important. The likely demand for increased services will mainly affect the welfare sectors, in particular health and social service. It is therefore important to know what provisions are made and how they are likely to be affected.

The first step in collecting all this data should be the Ministry of Finance/Economic Planning and Central Statistical Offices. Secondary sources will be the Central Bank, commercial banks, and major donor agencies. Development agencies usually collect data and it would be worth checking what they have. In particular the UN has established AIDS theme groups in many countries. The World Bank and UNDP are members of these groups, and information can be sought through these. The Economist Intelligence Unit produces country reports and country profiles for all the countries of the world, but these are expensive. They may be prepared to let you have one or two in exchange for a copy of the report. (Economist Intelligence Unit, 15 Regent Street, London SW1Y 4RL, UK. Email: london@eiu.com website: www.eiu.com)

Social Data

Data about society are scattered in many places, ranging from newspapers to government reports, published books and academic journals. They are also contained within people's minds and interview and focus group information should not be forgotten even though it is unreasonable to expect to do a large amount of original investigation as part of an impact study. Governments and international agencies (particularly the latter) often commission reports which will summarise considerable amounts of existing and perhaps hard to find information.

It is important to select only those data which are of relevance for understanding the actual and potential impact of the epidemic. This selection process is not, however, straightforward. What are we primarily interested in? The main issues for which we need to collect data are summarised together with some explanatory comments as follows:

- Households: this basic unit of most systems of immediate social support may take many forms and differ markedly in size from culture to culture. In addition, the very term “household” may be misleading as many peoples’ arrangements involve complex networks of support between people who are related to each other in a wide variety of ways. It is important to know about the range and types of households, the different structures of relations in particular the types of intra- and inter-household transfers of resources. This information allows us to make assumptions about the numbers of each type of household and the probable directions of change in relation to HIV/AIDS. Two household related groups about whom information needs to be sought are:
 - orphans - who will become more common and whose numbers may adversely affect established coping mechanisms in households and extended households.
 - the elderly - who may be left without the support of their grown up children and who may therefore experience extreme poverty and social isolation.

Particular information should be sought about levels and standards of life and of welfare in different sets and sub-sets of households.

- Gender relations: it is essential to collect data relating to these issues. They should be as detailed as possible and indicate clearly, where possible: norms in relation to power both inside and outside marriage; changes over time; directions of change; locational differences; differences by income and occupation; differences by ethnicity, religion and other major features of social differentiation (see below); and core components of the social and cultural construction of gender. Some of the most commonly available data on gender relates to the male to female ratio of AIDS cases. While these data can be useful they represent the HIV epidemic 5 to 10 years prior to the collection of case data. Gender ratios may change if the definitions of AIDS defining illnesses are revised. Information may be biased if health service access and utilisation vary.

In collecting data about gender relations, care must be taken not to confuse “gender” with “women”. Gender is about the relations between men and women as socially and culturally constructed in any society. In the present context, gender has to be considered as it affects susceptibility and vulnerability.

- Social differentiation: all societies are composed of different groups and sub-groups. Data must be collected about these groups according to their relative susceptibility and vulnerability and the factors increasing or decreasing exposure to these risks. Generally speaking, social scientists collect data in relation certain broad categories of social and cultural differentiation which can be seen to underlie self- and other-imposed identities in societies. The main categories of differentiation to explore should be established from background information about a country derived from published and unpublished sources and from interviews and focus groups. They will certainly include all or some of the following:
 - occupational, income and wealth classes
 - status groups such as castes, groups identified as “noble” as opposed to “common”
 - gender - as explained above
 - ethnic groups - including self- and other-defined cultural and/or religious and/or “racial” groups which form the basis of identity.

All of these characteristics must be examined in relation to the ways in which they affect the social and economic processes of:

- livelihood strategies of specific groups
- group abilities to transform their endowments into entitlements

- resultant characteristics of sexual networking⁵

so as to influence susceptibility and vulnerability. This aspect of an impact study will be elaborated upon further below.

- civil society organisations: information about the types, activities and characteristics of civil society organisations must be collected to permit some estimation of the possible response capacity of a society to the demands of the epidemic. Such data may include: information about religious charities, political organisations, citizens' organisations, affinity and locality organisations.
- structure and capability of government: here data are required about the way that state administration operates, regional and local government organisation insofar as these bodies affect the ability of a society or sub-units of a society to respond to the impact of the epidemic.
 - **in both of the above cases, consideration must be given to the possible personnel and other implications of the epidemic for these activities.**
- special social groups: it may be important to collect data about special social groups. What these are must be determined for each case. For example, a special social group may be a group which is very obviously a "high risk" group according to existing epidemiological studies - long distance lorry drivers are a case in point. Other "special social groups" may be those not so obvious to authorities or the researcher because they are socially invisible or stigmatised - male prison populations and the elderly may be important, the former for reasons of special susceptibility, the latter for reasons of special vulnerability.

Sectoral Data

In order to establish which sectors are likely to be affected by the epidemic an analysis of sectoral susceptibility and vulnerability is necessary. The method for carrying this out is described for governments in the "Toolkits for Developing Country Governments" and for donor agencies in "Considering HIV/AIDS in Development Assistance: A Toolkit". The former will shortly be available through a number of websites including USAID, however the best route will be via the Health Economics and HIV/AIDS Research Division of the University of Natal www.und.ac.za. The donor agency toolkit is at <http://www.worldbank.org/aids-econ/toolkit/index.htm>. Essentially the data collected for economic analysis should be obtained for the sector and applied to address three key issues:

1. will there be enough labour of the right type and at the right time?
2. what effect will increased morbidity and mortality have on the cost of employee benefits? and
3. how is the labour used?

Skilled and unskilled labour should be assessed separately. The checklist in the section on Sectoral Analysis below provides a clear indication of the data that are needed.

A General Rule for Structuring Analysis:

Susceptibility and Vulnerability: are the key concepts, referred to earlier, which should inform all of the report.

⁵ This means that analysis should be made of the ways in which gender inequalities and beliefs about sex and sexuality in any particular society result in particular rates of partner change and numbers of partners over the sexual careers of members of sub-groups of the population. For more information about sexual networking, see: Tim Dyson (ed.), **Sexual Behaviour and Networking: Anthropological and Socio-Cultural Studies on the transmission of HIV**, International Union for the Scientific Study of Population, Liege, Belgium.

Susceptibility describes the individual, group and general social predisposition to infection. This concept may be operationalised at any level, from an entire "society" or country, down to a household. *Vulnerability* describes those features of a social or economic entity making it more or less likely that excess morbidity and mortality associated with disease will have adverse impacts upon that unit. For each level, subject area, social unit, social group, institution, the report should show clearly whether and how it contributes to susceptibility and whether and how it is vulnerable to the impact of the epidemic. As far as is possible, where vulnerability is indicated a policy option or options should be suggested for dealing with this.

Epidemiological Analysis

Any impact analysis has to begin with a clear understanding of the size, location and projected course of the epidemic. This is done using the epidemiological data. One of the common features of socio-economic impact studies done to date is that all contain a section describing the epidemic. This reviews the available data and sets out AIDS case by year, age and gender, and if possible transmission category. HIV data are presented for specific groups and where annual surveys have been carried out in ANC attenders then it will be possible to show the trends nationally, and/or in specific sites. Data may be available by age and for some socio-economic characteristics such as urban/rural residence, number of children and so on. This is discussed in the section on epidemiological data.

On the basis of the information that you obtain from these sources, you should be able to:

- Form a broad idea of the geographical and social location of the epidemic.
- Establish the stage of the epidemic.
- Make a judgement as to the shape and gradient of the epidemic and perhaps also of sub-epidemics.
- Develop scenarios as to the likely course of the epidemic. *Epimodel* is a tool you can use.⁶

The information that you have obtained from this stage of the process should be constantly reviewed and forms one of the two legs upon which the assessment will stand. It will also allow you to present a graphic picture of the epidemic in the area for which the assessment is being done.

Assessing the Demographic Effects

The reason that we need to take account of demography is that AIDS causes prime age adults to fall ill and die. In essence we are concerned with a society's dependency ratio and what that means for social support systems and economic productivity plus the effect on demand for services.

Projecting the Epidemic

In order to assess the likely impact of HIV/AIDS we need an idea of the future course of the epidemic and hence how many people will fall ill and die. Mathematical models (which are translated into computer programmes) may be used to create projections of the future course of the epidemic and the consequent impacts, and more specifically, estimate the magnitude of these impacts. There are several different types of models in use and several software packages available for projecting the HIV/AIDS epidemic. These range from the very simplistic to the highly complex.

Projections and Models:

In order to produce figures as to the future course of the disease projections are prepared. These make use of computer models. However the terms projecting and modelling are often used interchangeably.

HIV/AIDS projection models may be used for several different purposes, such as:

⁶ Epimodel is not currently recommended for use by UNAIDS as it does not make use of the wealth of new data that are becoming available. UNAIDS is preparing a new version of Epimodel which will be made available through their website.

- Projecting HIV prevalence and numbers.
- Projecting future numbers of AIDS cases, AIDS related deaths and orphans by year.
- Examining the demographic impact of AIDS and addressing questions regarding the impact of AIDS on population growth rates, the population age structure, numbers of orphans,⁷ and life expectancy.
- Simulating different intervention strategies and comparing their strengths and weaknesses.
- Assessing the impact of the AIDS epidemic, for example in terms of increased health expenditure, and interactions with other diseases such as tuberculosis⁸.
- Creating different scenarios which illustrate the effect of different assumptions on the projected outcome.

In order to use models to create projections of the future course of the HIV/AIDS epidemic and its likely impact, we need reliable information about what the current situation is. All models depend on data, however the amount and type of input data required will depend on the type of model being used and the questions you wish to answer. Projection models (such as the *Spectrum* package of models discussed in more detail in Annex A⁹) require demographic data as well as HIV and AIDS data. Typically input information would include current population size (broken down by age and sex), current fertility, mortality, and migration rates and assumptions about future trends, estimates of current HIV prevalence and assumptions about future trends, and assumptions about variables such as the HIV incubation period, perinatal transmission rates, age and sex distribution of new transmissions and the start year of the epidemic. It is wise to draw on the expertise of a multidisciplinary team because of the varied nature of the knowledge required to produce sensible projections and interpretations.

It is important to keep in mind that models are simply tools which may be used to guide decision making. Models are by definition a *representation* of an *aspect* of reality and they cannot possibly replicate the complexity that the real situation presents. Furthermore, the degree to which the outputs of models are applicable to the real world depends upon the nature of the model itself and the reliability and validity of the data that is used. When using models it is important to bear in mind what the model was designed for and what the limitations are.

Outputs.

The model can produce the following projections:

- HIV prevalence for females, males, adult and total population both as percentages and numbers.
- HIV positive births.
- Adult and child illnesses.
- Adult and child deaths.
- The effect on the size and structure of the population.
- Numbers of orphans.
- The impact of successful interventions.

Ideally one or more scenarios will be produced, one benefit of this is that it will avoid the impression of spurious accuracy. Typically three scenarios can be produced: a low one with optimistic assumptions and assuming behaviour change, a high scenario with pessimistic assumptions and assuming no response to the epidemic, and a middle (or most likely) projection.

⁷ UNAIDS and UNICEF have models on the calculation and estimation of number of orphans on their websites.

⁸ These types of projection may be done with Spectrum software available from The Futures Group.

⁹ The Futures Group family of models is available from: <http://www.tfgi.com/software/SPEC.HTM>

Economic Impact Analysis.

Macro-economic.

The macro-economic impact of AIDS is difficult to assess. Most studies have found that estimates of the macro-economic impacts are sensitive to assumptions about how AIDS affects savings and investment rates and whether AIDS affects the best-educated employees more than others. Few studies have been able to incorporate the impacts at the household and firm level into macro-economic projections. Some studies have found that the impacts may be small, especially if there is a plentiful supply of labour and worker benefits are small. Other studies have found significant macro-economic impacts. The magnitude of the impact depends partly on the structure of the economy. Economies based on extractive industries or export agriculture are likely to be most severely affected. Unless highly qualified economists are to spend time trying to assess the impact of AIDS it is likely that the output of the Spectrum model will be sufficient for the study.¹⁰

Sectoral level¹¹

The aim at this level is to:

- 1) Identify the most important sectors and sub sectors for the economic life of the country as indicated by official statistics.
- 2) Identify any major plants, areas or institutions contributing more than x% to the overall sector.
- 3) Within these sub-units identify key plants and within them key processes – e.g. maintenance of crusher in a sugar mill supplying country's sugar needs with no alternative source than imports; then consider the relative susceptibility of the maintenance engineers and thus the vulnerability of the process, the plant and thus the sector; finally examine alternatives for replacing engineers or other staff whose premature illness or death might place particular stress on the sector.
- 4) Establish the impact of the epidemic on baseline efficiency in the case of the public sector and baseline profitability for the private sector.

One method of doing this is by asking the questions set out in Figure 2.

Figure 2. A Checklist for Sector Susceptibility and Vulnerability.

A1 - Labour Availability

- (i) Is there sufficient labour available?
- (ii) Are new recruits available? Labour may be available initially, but can it be replaced?
- (iii) Are there seasonal constraints? Are there peaks in the supply of and demand for labour.
- (iv) Does the work require experience? Some jobs do not require training but are learnt through experience - this type of employee will be difficult to replace.
- (v) Is there sick leave provision (how much)? Although sick leave is a benefit, it will have an impact on labour availability. It is not unreasonable to expect employees to take all the sick leave they are entitled to - this can affect labour availability, especially if benefits are generous.
- (vi) Is there any compassionate leave? Increased mortality will increase demand for compassionate leave.

A2 - Employee Benefits

- (i) Are medical services or medical aid provided? The effect of AIDS will be to increase the demand for medical care whether supplied or paid for by the sector/company/project.
- (ii) Are death benefits provided? If employees or their dependants receive death benefits such as ex gratia payments or coffins, increased demand will increase costs.
- (iii) Is insurance provided? AIDS means claims will increase and either premiums rise or benefits decrease.
- (iv) Is a pension provided for dependants? Pensions for contributors obviously cease at their death, but some schemes provide for spouses and dependants. These will continue to pay out. In the event of AIDS death, it is likely that children will be left and the contributor will not have paid enough in contributions to cover the benefits that will be paid out.
- (v) Other benefits, e.g., housing and transport? Are there other benefits which might be affected by increased

¹⁰ The model most commonly used for detailed macro-economic modelling is MacroAIDS developed by John Cuddington at Georgetown University.

¹¹ Guidelines for examining the impact of HIV/AIDS on sectors of the economy are available as AIDS Briefs http://www.info.usaid.gov/regions/afr/hhraa/aids_briefs/intro.htm

morbidity and mortality?

A3 - Use of Labour

- (i) Does work demand travel? Workers who travel as part of their work (e.g., military, transport sector) are more likely to engage in risky behaviour.
- (ii) Are migrant workers employed? Migrants are more likely to undertake risky behaviour - as they are separated from their families.
- (iii) Are male or female employees predominant? In some settings where the employees are mainly male or female, there may be more risky behaviour.

AIDS has the potential to affect the size and the structure of a population, and how households and governments earn and spend money. Section B sets out possible trends assessing their importance.

B1 - Demographic Trends

- (i) Is the population growth rate significant? AIDS has the potential to reduce the rate of population growth. If the sector assumes a certain level of population growth (for example planning new schools is based on a certain size of the school age population), then the impact of AIDS must be considered.
- (ii) Is the population structure important? AIDS will have a marked impact on the structure of a population as certain cohorts will be more seriously affected than others.
- (iii) Is the household size and composition important? As people in their twenties and thirties die, they will leave children who need care. This may change both the size of households and their composition.

B2 - Income and Expenditure

- (i) Will changes in government budgets affect this sector? AIDS will increase demand for expenditure on health and social services and decrease resources available for other sectors.
- (ii) Will changes in taxation affect this sector? It is possible that taxes may have to rise to pay for increased health and welfare while tax revenues are reduced.
- (iii) Are changes in household income and expenditure significant? As households lose income-earners and/or take in orphans, both income and expenditure patterns may change.

Finally each sector should ask sector specific questions. Here it needs to look at issues for each sector, especially the inputs and outputs of a specific sector.

This kind of analysis should be extended to all major sectors of an economy and in particularly vulnerable sectors and sub-sectors. The analysis should/could be extended to specific plants, enterprises, installations or organisations. These units can then be subjected to an institutional audit.

The Health Sector

You may be asked to look at various sectors or government services, depending on the terms of reference. The sectoral analysis above provides a framework for doing this, but the one sector that should **always** be considered is health. The health sector sees the first impact of AIDS. This is hardly surprising as people who are experiencing periods of ill-health will seek care here. In assessing the impact of AIDS the emphasis is on the public sector health care system. For the private sector, in the short term, increased illness will present an opportunity rather than a threat. However it should be noted that in some settings the private sector provides a significant percentage of treatment usually through employment linked health insurance. As the epidemic develops and individuals use up their resources or become ineligible for medical insurance because they lose their employment, they have a choice going without care or seeking it in the public sector. Although the private sector may offer a way of mobilising resources it is driven by profit motives so may not be the most efficient or cost effective way of providing the type of services wanted.

The impact on the public health sector will be one area of concern for this type of study. Essentially five questions need to be asked. Note that volume data may give a more accurate picture than the cost data.

- What effect will AIDS cases have on demand for public health care?
- What are the potential costs?
- How is the government and Health Ministry likely to react?
- What will the affect of AIDS cases be on the supply of health professionals?
- How is the service organised and how efficient is it? What is its planning and management capacity in relation to human resources and other issues that make it more or less able to manage impact?

This could be a study on its own. However the following methodology can be followed in order to carry out a quick assessment.

1. Estimate the number of AIDS cases (using a projection model).
2. Estimate the increase in public health sector demand. This should be done by looking at what percentage of people use public health care facilities and expecting the same percentage of AIDS cases to use these facilities. The underlying assumptions are: a.) All AIDS cases will be new demand on the health system, which given the age profile is realistic, b.) AIDS cases seen by the private or traditional sector will not seek public sector health care which given the tendency for people to use their resources may tend to under estimate longer term demand.
3. Estimate the cost per AIDS case by a.) Using the rule of thumb that each case costs 2.7 times the GNP per capita. b.) Looking at the cost per case in similar countries where studies have been done. c.) Estimating percentage of patients needing treatment for HIV/AIDS in the public health sector in order to get a figure of resource utilisation of the existing budget. d.) Developing a specific cost per case estimate for the country. There was an attempt to do this during the preparation of the World Bank book, "Confronting AIDS" and the work can be found in the background papers.¹²
4. Show the cost of care as a percentage of the Ministry of Health budget currently and into the future assuming the health allocation retains a constant share of the national budget.
5. Show the likely effect of increased mortality on health care professionals assuming they have the same levels of HIV infection as the 20-40 age cohort in the population.

You need to be aware that one of the questions that may be implicit is what level of treatment can be afforded. In Latin America much of the health care is provided by the quasi-governmental Social Security Institutes. These are being forced through legal challenges to provide expensive anti-retroviral therapy that has the potential to use considerable resources.

Similar assessments can be done for the other service producing sectors e.g. welfare and education.

Institutional Audit

An institutional audit attempts to make a judgement whether an organisation is vulnerable to the impact of HIV and AIDS. It approaches this problem by means of "bottom line analysis". This means that it asks the hard-headed question: "Will the organisation be able to operate in an environment where its personnel are becoming infected with HIV, ill with AIDS and ultimately dying?" In the case of a private sector firm the issue will be the loss of profitability and in extreme cases the survival of the firm. For government ministries, parastatals and non-governmental organisations the issues centre around the levels of service provided and demanded and the effect on these. Apart from the requirements of the local legal system and reasonable morality, no account is taken in such an analysis of particular emotional or other issues. The bottom line is always: "can this organisation continue in existence over the foreseeable future?" The benefit of an institutional audit is that it can be done for and with any organisation or institution.

Techniques for Assessing Institutional Vulnerability

This section provides suggestions as to how an institutional audit might be undertaken. The main steps are presented (there is inevitably overlap with the sectoral analysis), and are then followed by some general comments.

Step 1: Personnel Profiling - what kinds of people are employed?

Susceptible groups : are there particular groups among employees who may be particularly exposed to infection? Why are they exposed? Can / should the organisation do anything to reduce this exposure? Will undertaking such programmes benefit the organisation? Should all employees be included or only those who are most difficult to replace?

¹² See: Part III, pp. 239-322 in M. Ainsworth, M. Over, L. Fransen (eds.), **Confronting AIDS: Evidence from the developing world: selected background papers**, The European Commission, Brussels, 1998.

Skill levels: what skill levels are there in the organisation. How many at each level? What are the costs of training / replacing these people? Given the known and predicted rates of seroprevalence and assuming that the organisational population reflects the wider population, how many people might be expected to become ill or die in each year over the next x years in each category of employment?

Ease of Training and Replacement: How easy will it be to train or recruit personnel at each skill level? Consider costs and time for training and also the state of the national and regional labour market in relation to these skill levels.

Step 2: Critical Post Analysis: Are there key personnel whom it will be particularly difficult to replace? Are there key personnel on whom a production or administrative process depends (for example the “institutional memory” or the person who knows how to use the computer!). Such people may be difficult to replace.

Step 3: Organisational Characteristics

Size of organisation and “depth”: how easy will it be to replace or retrain within the organisation? Are there sufficient people to allow for internal training? Should the organisation introduce “shadowing”? How big is the organisation? Does it have sufficient internal resources to be able to undertake replacement and / or training or replacement of personnel? Is it big enough to move people around to take over other people’s jobs? What is the lead time for training or recruiting a replacement for different skill levels?

Step 4: Liabilities: the potential or actual liability of the specific organisation will be determined by some or all of the following factors:

Level and type of employee benefits - related to contracts of employment. What kind of contracts do staff have - medical care? pensions?

Level of labour value added - for a production organisation or a commercial organisation, this measures the part of gross profit attributable to the work done by labour.

Variables are: quantity of labour/quality of labour (seen in levels of pay); labour as a proportion of all inputs to production;

Example - in a software design enterprise, the labour value added will be large.

Step 5: Productivity: reduction in the quality and quantity of labour supplied by employees who are sick or who may be caring for sick dependants. Absenteeism may result in slow and hardly detectable decline in output in any organisation. How is this going to be detected? Coped with?

Labour/capital substitution: can capital be used to replace people who are sick or who are dead so as to avoid that risk in the future? Could larger numbers of unskilled workers replace the lost skilled workers.

Out-sourcing and multi-skilling: can non-core functions (for example security and cleaning) be out-sourced? This is a possible solution for the enterprise but it must be noted that while such tactics will shift the problem from the company, it will not solve the problem at a sectoral level. Can staff be trained to have multiple skills thus enabling them to do their own and others’ jobs should the situation demand it?

Step 6: Organisational context: what is the law?¹³ What must an organisation do for its workers in the way of invalidity benefit, keeping them at work while they are HIV+ but not ill or when they have AIDS but are not so sick as to be unable to work?

Employee organisations: power and attitudes of trade unions and political parties towards this issue and towards the rights and interests of employees?

Some Basic Principles

Early Response is Important for organisations as for everyone else

Early response to the epidemic is important. We may think about this in terms of the following five stages:

1. With the appearance of the HIV in the wider community.
2. With the sporadic occurrence of illness and death in the organisation.
3. With the first significant interruption of or disruptions to work caused by continuing employee illness, absenteeism or death.
4. With the recruitment and training of new employees in response to greatly increased employee mortality or morbidity.
5. With the recognition that the entire way of working in the organisation must be re-designed to cope with the epidemic.

The following points should be noted:

- Total cost to the organisation will be significantly reduced if the decisions to respond are pre-emptive and early rather than responsive and late.
- Effective management information and monitoring systems are important in developing pre-emptive strategies and subsequent responsive strategies as the epidemic increases its impact on the organisation.
- Succession planning strategies should be considered and costed in outline in big organisations with large numbers of people at risk. This should be done on the basis of a personnel profile exercise so as to explore substitution by multiple recruitment, multi-skilling, and skill pooling by key people
- Assessment of organisation financial risk exposure: this should be made on the basis of existing benefit packages, types of contract and actuarial calculations of risk
- Where appropriate and cost-effective for the organisation, workforce education and extension of education to workers' households so as to reduce work force susceptibility.

The steps to be undertaken for a generic institutional audit are shown below in Figure 3.¹⁴

¹³ This might include international norms, national legislation and regulations and agreements with the employees right the way down to the shop floor level.

¹⁴ This table is based on ideas developed by Dennis Bailey at a Social and Economic Impact Policy Research Workshop in Durban, South Africa.

Figure 3: Steps and Processes of an Institutional Audit

ACTIVITY	JUSTIFICATION	OUTCOME	RESOURCES	CHALLENGES AND ASSUMPTIONS
1 Internal (and if necessary external) performance / impact appraisal of the organisation	increase productivity establish base profitability establish base sustainability	identify the necessity and nature of institutional audit. In particular: <ul style="list-style-type: none"> • whether and how many of the next steps are necessary • whether and how many of the steps set out in the text are necessary 	Annual financial statements, sectoral legislation, mission statements, strategic plan and previous budget	Systematic organisational management / monitoring tools are used and reports are available
2 Establish the current profile of the organisation – e.g. use SWOT analysis (identify Strengths, Weaknesses, Opportunities and Threats)	Identify new opportunities and possible threats, minimise impact of weaknesses, maximise potential of strengths	Potential susceptibility / vulnerability are agreed and prioritised in the order of their potential impact on institutional productivity and / or sustainability	Consolidated Management Information System [MIS] ¹⁵ reports and performance appraisals Independent facilitators and arbiters	MIS and / or performance and / or appraisal systems exist and can be used
3 Detailed Diagnostic Assessment { this has been described in detail in the text }	To define and cost the impact of vulnerabilities which have been identified	Establish baseline for measuring future productivity / sustainability and / or organisational growth potential	Outcomes of steps 1 and 2 above	The organisation has come this far in its analysis and still believes that it has a role, a potential market, an effective workforce.
4 Environmental Survey	To quantify the potential market(s), agree strategies for and risks involved in continuing in same market, expanding into another market or ceasing to operate in this market	Agreed strategic objectives, targets and performance standards	Paper / Time consultants and other specialists	That the previous steps have been completed

¹⁵ MIS - Management Information System - a *system* of data *collection* and *organisation* designed to provide management with information which will answer key strategic questions. For example: how many people and at what levels are taking sick leave, early retirement, compassionate leave? Which grades of employee are taking what periods of sick leave or early retirement and what are the causes of these absences and retirements? At current rates of sickness, early retirement and death in service, how many years of work might be expected from each year of training or unit cost of training? At which points in the organisational process is it clear that unexpected absence, early retirement or death in service will affect the smooth operation of the enterprise?

Social Impact

Social Structural Impact

The idea that societies have “structure” is useful for considerations of impact. Societies have structures which exist in fluid ways and which may change their form, meaning or relationships to each other. This is a complex idea but can be illustrated by the following three examples from diverse societies. The key questions to be asked in each case are (a) which social groups are in short supply and are of strategic importance to the operation of society in terms of the supply of skills, talents and capabilities (b) are there any social groups which are currently emerging and therefore may be in short supply:

- in many western societies, income and occupation classes are important social markers of prestige and status as well as of wealth. Over the past 100 years, the hierarchy of wealth and income has altered in many respects, but an hierarchy remains although its social meanings and precise make-up and ordering has changed. Examples of change in recent decades might be that “professional” groups have become less socially valued as they have encountered more competitive and less ideologically protected environments. This may mean that their control over allocation of resources is now less pronounced than once was the case. In contrast, with the development of a more competitive information based economy, technical specialists in these fields are now in shorter supply and more important to the effective operation of society than are the old professional groups.
- Countries of the Former Soviet Union were previously characterised by centralised government and control through the party and its personnel. These people were crucial to processes of organisation and production social support systems. Recent political and economic changes have changed much of this. The formerly powerful party and state personnel have either lost their positions or have transferred their former influence into the private sector. In response to change, there is now a growing class of mainly young, highly mobile people who exercise their entrepreneurial skills in the business, NGO and remaining state sector. They may also be active in a variety of illegal and semi-legal activities. This new social segment may be seen as possessing skills and capabilities, which are currently in short supply.
- In Uganda, as in many other parts of the world, individuals have taken much of their identity and expectations of support from their immediate family and ultimately from their much more extended kin group, sometimes called a lineage. In circumstances of adversity, these have been expected to offer support and welfare. In the early days of the HIV/AIDS epidemic, it was expected that these social units would cope with the burden of orphaning. This has turned out to be only partially the case as the numbers of orphans has exceeded their ability to cope. They have to some extent now been replaced or supplemented by various forms of fostering, institutional care and NGO support. Here it may be that the lineage elders are of less direct importance than the supply of trained NGO workers - a group which may itself because of age and education be particularly susceptible to infection, making these “new” organisations vulnerable to the impact of the epidemic.

Inevitably this is a difficult area in which to assess potential impact as opinions and circumstance as to the relative importance of different social groups will vary dramatically between and within societies. These are questions which may be of current political debate.

Another way to approach this issue is through the framework of human resource endowment. Estimates need to be made of the numbers of people with particular skills who are available in a society and how susceptible they are to infection.

In principle this appears a straightforward task. How many doctors, in what specialisms, where are they located, what is their age distribution? This might be done for a variety of key professional skill groups. Judgements are inevitable as to the importance or otherwise of different occupational groups. In particular, it should not be forgotten that there are many occupations which may be judged of low status

which are of great social, cultural and economic importance. Examples here might include: locally trained mechanics, most unpaid women's occupations associated with the farm and the home, ritual specialists. These are very difficult judgements to make but some such estimate is necessary if impact is to be correctly assessed. The ideas of social capital and socially reproductive labour which should inform such judgements have been outlined above.

Social Scale and location

So far we have looked at impact on society as a whole. However, as has been noted it is most difficult to discern it at this scale. We must therefore take the process of impact identification down from the macro to the meso and micro levels. Here we use the ideas of susceptibility and vulnerability as our guides. What we are interested in ascertaining is whereabouts in society and economy are groups of people and organisations and social institutions most likely to be susceptible to infection and where and which of these are most likely to be vulnerable to the impact of loss?

Some examples will assist in understanding the problem. At the macro level, we may assume that excess morbidity and mortality will impact upon "households". The question for us is "which households?" The answer is to start from what we know of the spatial distribution of the epidemic as indicated by sero-surveys, sentinel surveillance, reported cases and any other sources which are available. This gives us a broad indication of "where". We must remember however this answer is to be treated as provisional. It may be an artefact of the reporting system as much as an indication of what is happening. When we have identified a location, then we will want to consider its households in terms of their relative susceptibility and vulnerability. To take an example from a study in Ukraine. Information about seroprevalence and reported AIDS cases and in particular about injecting drug use indicated that households in an area of declining industry were very susceptible. This gave the location. Within this location, the most susceptible households were likely to be among those where there was no wage earner. The most vulnerable were those households where either there was no income earner (for example the elderly) or where the household had a large number of dependants.

A similar exercise has been undertaken in Uganda where sero data were used in conjunction with farming system data to identify areas where excess mortality or morbidity would have the most pronounced impacts on production and the household's welfare¹⁶. Within the identified spatial unit, the most vulnerable households could then be identified in relation to dependency ratio and asset endowments.

Main Analytical Foci

The main analytical foci of the study of social impact should follow the data categories which have been outlined above. For each focus, every effort should be made to show the relationship between those data sets and the development and possibility of susceptibility and vulnerability.

Additional foci should be identified and analysed in similar ways as the particular problems and characteristics of any society become apparent in the course of the impact study.

Development Impact

While there are debates about exactly what constitutes development there are certain "gold standards". Development should represent an improvement over the status quo. Most countries work from development plans, which set out national goals and targets, and how money will be spent to reach these targets. Global development goals tend to be set by donor agencies (See Annex 3 for the OECD development goals), and the UNDP has developed indicators to measure levels of development.

¹⁶ see T. Barnett & Blaikie, P., **AIDS in Africa: its present and future impact**, John Wiley, London and Guilford Press, New York, 1992 and 1994.

Measuring Development.

The UNDP states “the purpose of development is to create an enabling environment for people to enjoy long, healthy and creative lives”.¹⁷ In order to measure this it uses the Human Development Index, (HDI) which combines three indicators of the most basic human capabilities - leading a long life; being knowledgeable and enjoying a decent standard of living, to give the index of human development by country or disaggregated to regions. Variations of these basic indicators have been developed to produce a Gender Development Index (GDI) and Human Poverty Index (HPI). Increasingly planners and policy makers look at the UNDP’s methods of measuring development. It is therefore important that the report should consider the effect of AIDS on these indicators, and the best way is to take the methodologies of calculating the HDI, HPI and other indicators and apply the modelled impact on life expectancy to them.

The changes in life expectancy and ranking in the global human development table are shown for selected African countries in Table 2. The 1996 HDR used 1993 life expectancy figures, and AIDS was not considered. Since 1997 it has been taken into account, but not consistently. The table shows this loss of life expectancy has a dramatic effect on the standing of countries in the world ranking.

	1996		1997		1998		1999	
<i>Country</i>	<i>Life Expect.</i>	<i>Rank</i>	<i>Life Expect.</i>	<i>Rank</i>	<i>Life Expect.</i>	<i>Rank</i>	<i>Life Expect.</i>	<i>Rank</i>
Botswana	65.2	71	52.3	97	51.7	97	47.4	122
South Africa	63.2	100	63.7	90	64.1	89	54.7	101
Swaziland	57.8	110	58.3	114	58.8	115	60.2	113
Namibia	59.1	116	55.9	118	55.8	107	52.4	115
Zimbabwe	53.4	124	49	129	48.9	130	44.1	130
Kenya	55.5	128	53.6	134	53.8	137	52	136
Zambia	48.5	136	42.6	143	42.7	146	40.1	151
Malawi	45.5	157	41.1	161	41	161	39.3	159

Presenting the Findings

A significant number of reports on the Social and Economic Impact of AIDS have been commissioned and written over the past ten years. Most are prepared, presented and forgotten. If the Impact Report is to have an effect it must include:

- Material that can be used in advocacy.
- Suggestions for action

A suggested structure for a report might follow the sections of these guidelines. It should contain:

1. Terms of Reference

A statement of the terms of reference of the Impact Assessment

2. A brief description of the society with which the assessment is concerned, indicating:

¹⁷ United Nations Development Programme, **Human Development Report 1999**, Oxford University Press, New York, 1999

¹⁸ United Nations, Human Development Reports, Oxford University Press, New York, 1996, 1997, & 1998, 1999. Note that the life expectancies used for calculating the human development index are for 1993, 1994, 1995 and 1997 respectively.

- name of country
 - a brief historical account
 - a brief account of the current political, social and economic situation
 - a brief account of the population size, structure and main administrative and social divisions
 - a consideration of the current position of the country on the Human Development Index, the standards and levels of welfare provision
 - any particular cultural features of the society which are relevant to the later analysis
3. Epidemiology
- description of the epidemiology of the disease as far as it is known
 - projections of the epidemic showing high, medium and low estimates together with main locations of infection both social and spatial together with an assessment of the accuracy and dependability of these data in relation to the existing reporting systems
 - a note on any particular features of epidemiology relevant to impact assessment
4. Demography
- a description of the demography of the country indicating any peculiar features such as unusual numbers of young or old people, gender imbalances, together with indications of with and without AIDS life expectancy, age specific mortality rates
 - projections of demographic structures under assumptions of different levels of infection, indicating the effects of different levels of infection on dependency ratios, numbers of orphans and elderly dependents, numbers in the 15-45 year age cohort over time
5. Susceptibility and Vulnerability
- a general account of the particular features of the society which make its structures and processes contribute to increased or decreased levels of susceptibility
 - a general account of the particular features of the society which may make it more or less vulnerable to the impact of the epidemic
6. Economic Impact
- a detailed analysis of the economic impact following the outline structure indicated in this guideline
7. Social Impact
- a detailed analysis of social impact following the outline structure indicated in this guideline
8. Development Impact
- an assessment of the impact of AIDS on development indicators and the implications of this.
9. Summary and Policy Implications
- a summary of the main findings
 - key policy implications of the impact assessment indicating the time span within which policies might be necessary and the expected results including outline indicators for monitoring and evaluating the effectiveness of policy and where possible some indications of the cost and feasibility of different policy options.
9. Executive Summary
- an executive summary of not more than 2000 words which should be placed at the front of the report.

It should be noted that this table of contents is most useful for a broad impact assessment. There will be variations with specific sectoral documents.

Part 3. The Conceptual Framework

Socio-economic impact studies can be, and usually are commissioned by people who do not have a clear idea of what they can and can't do. Clients often expect the study to tell them **exactly** what they should do. It is important to have a conceptual framework.

In this part we examine the concepts of:

- **impact in general**
- **epidemiologic and demographic impact**
- **social impact**
- **economic impact**
- and also the question of **time scale** in connection with such studies.

Impact in general

The impact of AIDS flows from the increase in premature morbidity and mortality that it causes. A general working definition is that impact is:

A shock to an existing system of livelihood at the national, regional, communal or household level which reduces the levels and expectations of life and welfare. It may mean the dissolution of the unit and involve the loss of individuals from poverty related causes other than as a direct result of HIV/AIDS illness or death.

A slow but complex set of changes to a social and economic system, attributable to the effects of an identifiable set of causes. In this context those causes are increased illness and death associated with HIV/AIDS.

In the very much longer term, we should not overlook the possibility that in some cases the epidemic may have economically and socially positive impacts. However, for most individuals, households and communities affected by the epidemic, impact will only be experienced as negative.

The extent and the precise nature of impact will depend on a wide range of factors but among them will be:

1. The number of people infected and the time between infection and death.
2. The rate at which the epidemic moves from being concentrated in particular population sub-groups to when it becomes established in the wider population.
3. The rate at which it is transmitted and thus the shape of the epidemic curve, in particular the speed with which it spreads (its gradient) and the highest level it reaches (the peak).
4. The social, cultural and economic location of those infected in terms of key social indicators which will vary in significance from one society to another but which may include:
 - Income, occupation, gender, ethnic affiliation, religion, spatial location, geography.
 - Of particular importance will be the question of the ways that people make their livings (livelihood strategies) which involve spatial and social mobility, conflict with existing legal dispensations, crossing of socially and culturally approved boundaries in any particular society. In other words, the ways that making a living expose individuals and groups to risk of infection.
5. The existing coping mechanisms in society i.e. are there safety nets available from the public sector such as fostering grants and does the society respond in a charitable and altruistic manner to crises among its members?

The bases of any impact study: epidemiology and demography

An impact study cannot begin by looking at the social and economic issues alone. The foundation of any impact study must be as clear an understanding as possible of two sets of underlying information:

- **epidemiological**
- **demographic**

Epidemiological information:

this is important in confronting issues of prevention and impact mitigation.

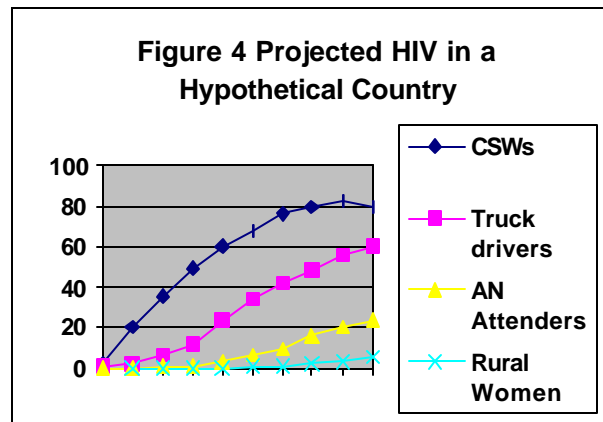
Epidemiology permits identification of the key “risk groups” in the early stages of an epidemic and of “core transmitter groups”. This enables cost-effective preventative interventions such as needle-exchange, increased condom use, and other forms of behavioural change programmes.

However, epidemiology also has a part to play in identifying the social, economic, cultural and geographical location of groups likely to be most seriously affected by excess illness and death.

National epidemics and sub-epidemics

Such information is also of importance because - depending on its quality and how “fine-grained” a picture it provides - it can identify the separate epidemics which make up a “national” epidemic. The curve of the national epidemic will have a particular gradient and peak and so will each of the sub-epidemics from which it is constituted. Figure 4 shows some of the typical sub-epidemics which might be identified in a hypothetical country. These differences in sub-epidemics, defined in social, cultural, spatial or economic sectoral terms should also give some indication of the areas of society and economy in which impact will be most pronounced and thus where mitigation policies would be most urgently required assuming, as we must, less than perfect response to prevention messages.

Epidemiological information is also essential for developing projections of the progress of the epidemic. This will include the number of cases by age and gender, and deaths from AIDS. This information is crucial for the development of impact studies.



Demographic information:

this information is used in conjunction with the epidemiological information. We need to take account of demography because of the effects of the epidemic on so-called “prime age adults” who fall ill and die. These people are the producers, innovators, parents, carers, tax-payers, employers and employees in all societies. They are also the group, who under normal circumstances, are least likely to make demands on state and other health and social services. In essence we are concerned with this means for social support systems and economic productivity. We can not simply look at dependency ratios as these may not change very much. The reason is that, although adults experience increased mortality, so do children, either because they are infected by their mothers or because the level of care is lower.

However although a child born to an infected mother may have only a 30 percent chance of being infected, they have a close to 100 percent chance of being orphaned, and this will usually happen before their 10th birthday.

Demographic analysis must be part of socio-economic impact studies. In most cases, an impact study will require that **projections** be made so that a range of population effects of increased death and illness can be considered. Examples of such information include: how many orphans will result from premature deaths, over what period and where? How many old people will be left without children to care for them, over what period and where? What numbers of adults might be expected to seek hospital treatment, over what period and where?

Social Impact

Social Support Systems explained

All social support systems follow essentially the same principles. They depend on:

- Contributions which may be in cash, kind or labour.
- Distributions which may be in cash, kind or labour.
- Systems of social relations and beliefs which regulate the collection and allocation of resources.

This is as true of the small rural community as it is of large, state administered systems. The difference is one of scale, complexity and intimacy. In each system the principle remains the same. Transfers occur from some sections of the population to others and from one level to the other - for example households and individuals may pay taxes which are transfers to the state and the state may redistribute these receipts. The rules and practices by which these transfers occur depend on many factors. These include:

- Current political balances reflecting relative power of social groups in relation to each other.
- Ethical or religious beliefs.
- Cultural evaluations of age, gender and ethnicity.
- The rules which are derived from these balances and evaluations and which then determine the ways in which endowments are translated into capabilities and ultimately into entitlements.

The end result of these processes is a range of states of well-being for different population groups and sub-groups. States of well-being may be seen as falling along a continuum from an assured belief that expected levels of health, nutrition, security will be met from available resources over the foreseeable future to a sense that none of these is certain, that the foreseeable future is short and that values and norms are widely questioned and uncertain. The degree of equality or inequality of distribution of resources and valued goods and services which forms the basis for people's assessment of their expectation will depend on local cultural traditions, political decisions and beliefs.

In relation to an epidemic of HIV/AIDS, the range of states of well-being is of particular importance in the following ways:

- There are indications that poverty, expectations of level of life and wealth can all in different circumstances and for different reasons make individuals and groups more or less susceptible to infection
- Excess mortality and morbidity affects the lives of those who are (a) not ill or dying (b) not even born but who will be entering a society in which resources may be more constrained than they would have been had the society not experienced excess death and illness associated with the epidemic.
- There is also the possibility that excess mortality may in some circumstances result in improved well being for those born later in the epidemic. **Although this may seem**

callous, at the macro-level, the possibility of positive as well as negative long term social and economic impacts should not be overlooked in any consideration of impact.

Social Relations of Production and Reproduction

So far the discussion has been in terms of social support and the collection and allocation of material and other means of support. These means of support must be produced. The question of impact on production is dealt with under “Economic Impact” but social and economic impact cannot be so easily separated. Death and illness affects the ways that goods and services are produced and even whether they are produced at all. Above all they affect the social relations of production, the ways in which people come together to produce, the co-ordination and timing of production, decisions as to who shall do what, when and how. Disruption of and change to these types of relations, whether at the level of the household, the farm, the factory, the ministry or an entire state will all be symptoms of social impact.

We must also be concerned about what may be described as **relations of social reproduction.**

This has been touched upon already under social support systems and in the preceding paragraph. Social relations - whether of the household, the community or an entire state - require constant effort if they are to continue in existence and do what people expect of them. For example, kinship and family relations may provide support in times of trouble but only if there has been investment of various in their continuing existence. This investment is not necessarily material, it could be investment of time or participation in rituals or events such as religious ceremonies or regular family and community gatherings. Similarly, relations of authority (for example co-operation between citizens and the police force), in a state require constant demonstration that relations of trust may exist between the two groups. In each example, the effort is either partially remunerated or not at all, yet the structures of relationship will not continue to exist unless the effort is made.

It is at these points that social impact of premature and excess deaths may be most important and yet undetected using normal economic measures. It is here that different methods of impact detection may be necessary. These are likely to include various kinds of focus group and participatory methods if the impact is to be detected and become an object of policy consideration. Remember: you often have to look for evidence of social and economic impact.

Thus, social impact may be defined as any sudden shock or slow acting and cumulative series of events which disrupts existing systems of social support. This includes not only the work of those who collect and allocate material and other forms of support but also those whose work is in itself supportive of others or those whose work supports and reproduces the system of social support itself.

A matrix for assessing how social impact might in principle be identified and measured at various “levels” of society is presented in Figure 5.

Figure 5: Social Impact

Level*	Definition	Indicators ^
Macro-Social Political and Administrative Unit	Any large scale socio-political unit including a country or the major administrative unit of a country	breakdown of social order, changes in people's perceptions of personal safety, ability to plan for the future, expectation that there is a future; in some extreme cases, civil disorder
Sectors/regions	any subsidiary socio-political unit down to but not including the level of the district, parish or community	increased numbers of orphans and orphaning events following a sigmoid curve; increased numbers of street children; increased reports of failure of and stress in "traditional" orphan coping mechanisms; increased death rates among young state employees e.g. teachers, doctors, administrators; failure of "traditional" mechanisms for care of the elderly; stress in and failure of community and regional provisioning systems; changes in funeral practices, fewer days' mourning; increased coffin or other burial goods production.
Firms, Enterprises And NGOs	any subsidiary unit	Increased rates of absence; increased rates of death in service; increased demands on medical insurance schemes; reports of loss of institutional memory and key workers; decline in institutional performance - profit lines and other measures of productivity - for example increased rates of power breakdowns in electricity supply system
Community	The level of the district, parish or community	Difficulties in finding personnel for local government processes; unavailability of people for meetings, increased frequency of elections as a result of more frequent deaths of representatives; increased numbers of deaths in service of officials of local government and community organs.
Households	Any unit of habitual residence where some consumption and/or production may be undertaken in common and where some members may recognise culturally defined relationships of kinship and/or affinity where the members are related in some way.	increased frequency of deaths of mature age adults; unusual and sudden increase or decrease in household size; unusual rates of household dissolution and reconstitution; declines in nutritional status of children; declines in school attendance particularly among girls in the 8-15 year band; rural subsistence households: changes in cropping patterns to less labour intensive crops
Individual	Person	reported actual and perceived inability to meet social and particularly familial obligations

* These units of analysis are suggested for illustrative purposes only. In practice they will be defined by levels and titles specific to a particular country and in relation to the culturally specific questions raised by impact analysis in that context.

^ Specific indicators will differ from place to place and will have to be developed on the basis of participatory methods which aim to translate anecdotal information into useable indicators.

Economic Impact

Economic impact may be defined as that which causes the diversion of resources to uses, which would not have been necessary in the absence of HIV/AIDS, and decreased production due to the disease. In

some circumstances, impact may be positive from the perspective of the unit of analysis as a whole when considered in strictly economic terms. This may occur when, for example, economically “unproductive” people die leaving the resources of a unit to be divided between fewer people whose individual portion is then increased. This is a formal, technical economic perspective. While recognising that this is the case we must also recognise that people who are economically “unproductive” may well be of the greatest value, when measured against other criteria such as those of child care, non-market, non-remunerated work in farm or home, wisdom, affection, traditional obligation and commitment or even love!

Economic impact may be considered to occur at various levels as illustrated in Figure 6.

Figure 6. Economic Impact

Level	Definition	Indicators
Macro-economic	National or provincial economy as defined by Gross Domestic or Gross Geographic Production	A decline in GDP or GGP that can be attributed to reduced production due to HIV/AIDS. Per capita GDP or GGP Gini-coefficient or levels of poverty
Sectors	Productive economic divisions, for example agriculture or banking. Usually defined in national accounts.	A change in output from the sector that is attributable to HIV/AIDS. Changes in demand attributable to HIV/AIDS Changes in operation attributable to HIV/AIDS
Health sector ¹⁹	Provision of curative and preventative care making populations live longer and healthier.	Increased mortality - Disability Adjusted Life Years (DALYS). ²⁰ Increased morbidity - Quality Adjusted Life Years (QALYS)
Firms, Enterprises And NGOs	A private or publicly owned unit producing goods or services for sale in a market or for distribution through the administrative organs of the state or through mechanisms of a non-governmental organisation - the “Third Sector”	Increased staff absenteeism. Changes in productivity. Deaths in service. Increased early retirement. Increased staff turn-over. Changes in demand for output or services (decrease or increase)
Households	A unit of habitual residence where some consumption and / or production may be undertaken in common.	Changes in wealth (usually poverty) measured by reserves including money savings, land, animals. Decreased levels of intake of food and/or expenditures on other forms of consumption. Decreased uptake of services which require cash or time e.g., schooling or health care
Individual	A single person	Lower productivity, or no productivity.

¹⁹ Since AIDS is after all a disease which causes increased illness and death it is appropriate to look at its economic impact specifically through and on the health sector.

²⁰ DALYS, Disability Adjusted Life Years calculate at the years lost to each disease to produce an indicator. These can be expressed as the number of DALYS lost to a disease, a percentage of the total health burden, or in relation to total population. Because health is a continuum and DALYs measure life years a second measure was developed to measure morbidity. The Quality Adjusted Life Years (QALY) is an attempt to measure the both the quantity and quality of life lost to specific diseases.

The Macro-economy

In the early 1990s there were a number of studies that looked at the impact of AIDS on macro-economic trends. The hypothesis was simple - AIDS would affect the macro-economy by:

1. Reducing the number and level of productive people in a nation; and
2. Diverting resources from investment to care.

Early models found that the magnitude of impact would depend on number and skills of the people affected and the degree to which resources were in fact diverted. Over time it has become apparent that, while it is possible to model the impact of HIV and AIDS on the national economy, it is extremely difficult to identify and measure macro-economic impacts. This problem is made worse as economies, especially in developing countries, are constantly being subjected to shocks and pressures. There is however a likelihood that in some countries more sophisticated macro-models may pick up the complex impact of AIDS on macro indicators.

Sectoral level

The impact at the sectoral level will be more pronounced and easier to measure. "Sector" covers conventionally defined economic sectors such as agriculture or mining or government budget lines such as health, welfare or defence. It may be appropriate to look at sub-sectors such as forestry or peasant agriculture or, in the case of government, primary health care or hospitals. The amount of sectoral detail a study can go into will depend on the time and the budget. The one sector that frequently receives attention is the public health sector. This is done with good reason, the health sector will be the first non micro-level at which the effects of the disease are seen as the number of sick people needing care increases.

The Firm or Institution

There have been a small number of attempts to assess the impact of AIDS on the private sector which have been made public. It is likely that many more firms have carried out such assessments internally but have not made them public. The evidence from those studies that are in the public domain is that such impacts may be limited but significant in the five to ten year period and that degree of impact will depend entirely on the type of activity, the number of workers infected, the benefits offered and the response of the firm. In the longer term the business environment, including the demand for goods and services and the local or regional labour market may become important. Assessing this does not require a socio-economic impact study but rather an **institutional audit** as described in Section 2. These audits can also be seen as components in overall social and economic impact assessments and can be applied to the full range of enterprises including private sector firms, NGOs and government ministries and parastatals.

Household and Community Level Impact

These are difficult to undertake for the following reasons

1. Households are not at all homogeneous between cultures or even within them
2. Households change their size and constitution over time, in particular through processes of natural growth, decay and dissolution;
3. It is difficult to gain information about the internal distributional dynamic of households and thus to discern the gendered impact at this level
4. Households may split, join or coalesce and the impact of excess death and illness may be hard to track over a number of years as these processes occur and are combined with geographical mobility.

This level of study may be useful but is also difficult to carry out. The reason for the difficulty is that to track AIDS affected households a large sample will be needed over a longish period of time.

Nonetheless, it is at this level that the impact will be felt first and worst. An important problem that should be borne in mind when considering such studies is that the earliest and most seriously affected households will disappear first, probably before the survey has been commissioned let alone executed. This means that any survey of this type should be carefully designed to pick up traces of survivors in

successor households or to pick up memories of households that have disappeared from communities or kinship networks.

A study of the impact of HIV and AIDS at this level is a study in its own right, and very few have been undertaken – they are described in the background paper. That is not to say that this impact is not important, indeed in the long run it is probably one of the most important impacts because of its effect on social capital and socially reproductive labour which are the foundations of households, communities and nations. If we are fully to appreciate the nature of impact we must recognise and make some efforts to estimate the ways in which loss of social capital and socially reproductive labour will affect the society and economy.

Time scale

This is crucial as it has implications for data collection and projections. Many terms of reference ask for a “socio-economic study” with out giving a time scale as to how far ahead the study should look. The people commissioning the work will want an assessment of current and future impact, it may not be clear as to what exactly they mean by future, and how far ahead they want to go. What is usually meant is:

- Assessing the current impact of AIDS.
- Projecting the future scale of illness and death, but being clear as to how far to project.
- Predicting the spatial and social location of these illnesses and deaths.
- Making judgements as to what effects this will have.

The time scale over which an impact study is undertaken is a most important variable. Two important points should be noted:

- As with all projection exercises, the further the projection is pushed into the future, the less certain are the outcomes. Or to put it another way, the further into the future the projection is made, the wider the margin for error and the larger the range of possible outcomes.
- The final state(s) of the projection will be determined by the initial data. It is therefore of the greatest importance to assure that data quality is the best possible.

In addition to these technical points, consideration must also be given to the following:

- Politicians’ attention may be limited to the next five years or the next ten years at most. It is therefore difficult to persuade of the need for policy responses beyond these time horizons even if the impact study indicates that the problems lie into a future beyond those time limits.
- All administrations operate on a periodic cycle whether this is annual, two year, five year or other, and whether it is a rolling or sequential cycle. If any impact study is to be effective then its conclusions and policy outcomes must be developed in such a way that they can be fitted into the appropriate local administrative cycle.

The implication of the above is that both those carrying out the study and those commissioning a study should ensure that the time scale is established and realistic. Furthermore the implicit target of such studies is to identify areas where HIV infections are, and might be located, for prevention, and where cases will occur and the consequences of these infection for mitigation. In order to do the concepts of susceptibility and vulnerability are used.²¹

Susceptibility and Vulnerability

A review of the terms of reference of many of the social and economic impact studies carried out to date, and those reports available, show that they implicitly had the dual function of identifying target groups for prevention and areas of impact for mitigation. They generally failed in both goals because:

1. The implicit objectives were not made explicit; and

²¹ These concepts and the ideas which lie behind them are discussed in more detail in: Tony Barnett and Alan Whiteside, HIV/AIDS and Development: Case Studies and a Conceptual Framework, **European Journal of Development Research**, Vol. 11, No. 2, December 1999

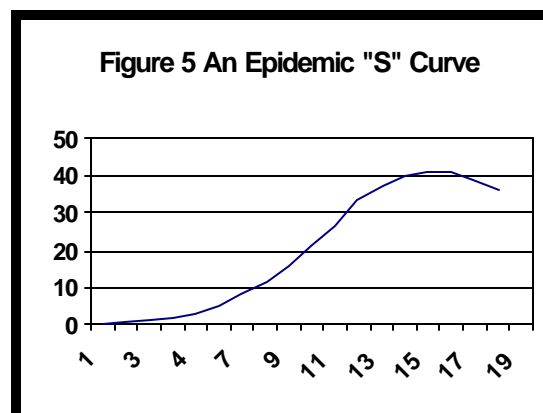
2. The identification of impact was too complex for the studies.

This manual suggests that the targets should be made explicit if studies are to be of value.

Susceptibility

This term is used to describe the individual, group and general social predisposition to infection. This concept may be operationalised at any level, from an entire "society" or country, down to a household. It may also be applied at the level of socio-economic entities - such as an organisation, service or manufacturing enterprise. Susceptibility describes the degree to which the social, economic, cultural and environmental environment increases the rate at which disease spreads and thus the ultimate gradient and peak of the epidemic curve.

These factors may be considered in part to describe the "riskiness" of the environment. They be may be infrastructural (the development of a road), environmental (a drought resulting in unusual population movements), cultural (a particular sexual practice or belief, or a change in these), economic (increased unequal distribution of income) or social (the operation of labour and associated housing markets in urban areas). Thus social units and groups may be more or less susceptible to infection.



Vulnerability

This describes those features of a social or economic entity making it more or less likely that excess morbidity and mortality associated with disease will have adverse impacts upon that unit. Once again, this concept may be applied at a number of levels. For example a household with only one wage earner who is aged 25 is more vulnerable than one in which there are two or more wage earners, one of whom is more than 50 years old. A farming system in a dry region, with rainfall limited to six weeks of the year, is one in which any shortage of labour for key cultivation activities will result in restrictions of production for the entire season. An industrial process plant that depends upon one or two key pieces of equipment with very specialised operators in short supply, is more vulnerable than one where large numbers of unskilled workers are involved in the same or similar processes.

A review of some of the terms of reference for studies carried out to date shows that the researchers were commonly asked to:

1. Assess the current state of the epidemic;
2. Make projections as to how it might develop in future years;
3. Assess the impact on sectors in the society and economy, typically the health sector would be included.

If studies are to maximise their value we propose that they should explicitly identify:

- those groups who are most **susceptible** in society – in order that prevention efforts can be targeted; and
- those social and economic units (households, communities, enterprises) or sectors (welfare, health, industry, education, the military) that are most **vulnerable**. This vulnerability may be because they will face increased demands for their outputs or services (health ministries) or because a decline in their performance will have a severe adverse effect on social and economic life. These units, areas and sectors are drawn to the attention of policy makers in order that the need for prevention be better understood and that the impact and its consequences be planned for.

Thus impact studies should:

1. try to identify who in a society is susceptible to infection.
2. Determine the likely scale of illness and death in future years.
3. Assess the vulnerability to impact of groups in society.
4. Make recommendations as to what can be done.

Vulnerability to Impact - The Epidemic Hollows out Society - Civil Society, Social Capital and Socially Reproductive Labour

Given the complexity of the AIDS epidemic and its long wave nature, its impacts upon society and economy can be best understood in relation to the following three concepts:

- civil society
- social capital
- socially reproductive labour

Civil Society - units of identification, identity, consensus and conflict

The idea of **civil society** has become popular in recent years. It is used to describe those social units which are neither part of the state nor of the household. The term refers to those social, economic and cultural units which occupy the space between the household and the state²². The importance of the term is that it focuses our attention on the large range of formal, semi-formal and informal activities which constitute “society”. It is these organisations which work apart from or in co-ordination with the state organs and, it is increasingly believed, provide the framework within which social and economic development take place; determine the success (or not) of such development; and affect a range of other features of society such as health, crime rates and well-being. Civil society is supported by accumulated **social capital** and social capital is a store of **socially reproductive labour**.

Symptoms and examples of the building up and breaking down of civil society can be illustrated by examples such as the following:

- establishment or breakdown of NGOs
- increased local social conflict where people are unsure of their rights and obligations, or local mobilisation on issues.
- Establishment or failure of local and regional organisations

Social Capital - stored trust, understanding and knowledge

describes the stored investments of trust and understanding which are embodied in many aspects of social life. For example the belief that property rights will be respected, and transgressors punished is taken as axiomatic in many societies. Social capital is in many respects the medium which other aspects of social and economic life require if they are to thrive. Premature loss of this kind of social capital without its replacement is a major loss to society. At a time when so much attention is paid to the importance of “civil society”, loss of social capital threatens the existence of civil society. However social capital is very difficult to measure or identify.

Symptoms of the breakdown of social capital may be illustrated by:

²² It should be noted that there is no reason at all why civil society should be or is actually conflict free. Indeed it is often the site of considerable social and economic conflict.

- failure of informal and formal caring structures as a result of overload
- increased levels of inter-communal suspicion and failure of conflict resolution mechanisms
- increased conflict and disputes over property inheritance and care of children on death of parents
- failure of informal education systems such as adolescent initiation ceremonies
- decline in child care standards
- decline in informal knowledge base about values and goals of local communities and households
- socially perceived decline in level of meeting obligations and decline in honesty and commitment in day to day social transactions

Symptoms of the construction and development of social capital might include:

- the development of organisations to support AIDS widows
- the development of orphan care community based organisations
- widespread perceptions of the legitimacy and fairness of police and legal apparatuses

As was noted at the beginning of this guideline **we may have to look for impact as it may not be readily visible, and the impact is a long wave event.** It is important to understand that the AIDS epidemic will affect social capital in a society. This has long term economic, social and development consequences. Understanding the consequences of AIDS for social capital and socially reproductive labour (see the next section) may be crucial for understanding how to target alleviation strategies.

Socially reproductive labour - the work of making society

is the work which goes into the production of social capital. One type of socially reproductive labour with which we are all familiar is the care and rearing of children. But there are many other types of socially reproductive labour, the work of a woman in the “informal sector” is close to “economic activity” as measured by economists, while the work of a ritual specialist is difficult to conceive in economic terms. Care of orphans is most certainly socially reproductive labour, not solely in terms of their physical care but also their emotional and social development.

Symptoms and examples of the breakdown of socially reproductive labour can be illustrated by examples such as the following:

- perceived breakdown of caring arrangements for children and the elderly
- perceived inadequate supply of community managers such as local councillors and leaders
- perceived failure of informal education systems such as adolescent initiation ceremonies
- perceived failure of child care standards
- perceived decline in informal knowledge base about values and goals of local communities and households

Many of the phenomena illustrated above may not be directly attributable to HIV/AIDS and may be the result of other processes. However, it is important to consider whether such phenomena are possibly associated with levels of illness and death associated with HIV/AIDS.

Impact assessments are most difficult in relation to these issues. How changes in their quantity and quality are to be exposed through some kind of measurement are very large methodological problems which can only be hinted at here. Any consideration of the effects of HIV/AIDS on these aspects of social and economic life will require sensitive analysis which takes full account of different cultural contexts and uses a combination of participatory and objective methods so as to translate anecdote and impression into data which can be measured at some level.

This is because we must not forget that impact studies are looking for short to medium term measurable affects of AIDS illness and death. While these may be hard to find and harder to quantify, some of the most important impacts may be longer term. **THEY NEED TO BE LOOKED FOR.**

Conclusion: Some Limitations of Social and Economic Impact Studies

In its early days, the HIV/AIDS epidemic was often represented in the press and other media as though it would be apocalyptic in its impact and mythical in its proportions. This has not been the case although to the tens of millions of people whose lives it has affected the experience has been tragic and personally devastating.

There are no simple technical solutions!

Today, politicians, policy makers and others often expect, and are looking for, a dramatic and measurable impact from the disease - something they can respond to in a technical manner as they respond to many other social, economic and medical problems. There are number of reasons why this is not and will not be possible.

- The period between HIV infection and AIDS illness and death means that, although HIV prevalence levels may be high, the AIDS epidemic will not be visible.
- AIDS may not be highly visible because cases usually occur throughout the population (and geographic area) rather in single dramatic cluster (although in some rural African communities there has been a clustering of cases).
- In societies where AIDS carries stigma then cases may be even less visible as people conceal the diagnosis. An extreme case was the murder of a self-declared HIV positive person in South Africa following a World AIDS Day meeting, for “bringing disgrace on the community”. In India, until recently, people infected through heterosexual intercourse were defined as “promiscuous”.
- It is not clear how impact can be measured, and how AIDS impact can be disassociated from other national and international events.
- It is particularly problematic to measure the non-economic impact of the epidemic, its effects on social capital formation and on socially reproductive labour activities.

Thus we can conclude:

- **Impact stems from increased and premature levels of illness and death**
- **AIDS is a long wave event that will take many years to work through a society in all its ramifications.**
- **The epidemic progresses incrementally and silently, but in the end its impact is cumulative and is likely to be very severe**
- **the impact of the epidemic is not always counted by those who do the counting because the people affected may not count - in the sense that they may be poor and marginal and part of a very large population**
- **HIV/AIDS is one problem among many which confront policy makers and politicians and is less visible and more challenging than many others**
- **HIV/AIDS is difficult to respond to because it deals with new issues, which make new demands on resources, and requires attention to issues that government is traditionally not very good at addressing eg personal behaviour, and household level dynamics and economics.**
- **Good impact studies can encourage effective prevention programmes; good impact studies can prepare societies and economies for the worst.**

Technical Annexes.

Annex A. Methods of Projecting the Epidemic.

Several models have already been developed for use in modelling the AIDS epidemic. These include:

Extrapolation models which the future number of AIDS cases based on data on past AIDS cases. They models are simple and were used predominantly in the early stages of the epidemic before much information was available. Extrapolation models assume that trends of reported cases will remain similar to those observed in the recent past and are only suitable for short term projections.

Projection models project AIDS cases from information on the incubation period. *EpiModel* is a good example of a forward projection model. The models are based on fairly simple assumptions, are easy to use but limited in being unable to simulate the impact of prevention programs.

Simulation models are large scale, sophisticated, complex mathematical models that simulate interaction among individuals or among population groups. They incorporate biological and behavioural variables that describe the transmission and natural history of HIV infection to simulate the epidemic. Many different simulation models have been developed. Two well known and multipurpose simulation models are *SimulAIDS* and *ivgAIDS*. An important strength of these more complex simulation models is that they allow for the simulation of the effect of different intervention strategies which can in turn be used to guide public health strategies. They are complex and require extensive input data and a high degree of skill.

Impact models focus beyond the direct question of projecting the number of AIDS cases and look at the impact of AIDS morbidity and mortality. *Spectrum* is a good example of a software package which enables the calculation of outputs such as life expectancy, infant mortality, number of orphans, dependency ratios, health costs, amongst others.

The *Spectrum* package was developed by The Futures Group International (TFGI) as a part of The Policy Project (a USAID-funded project). It is available from The TFGI website <http://www.tfgi.com>. This program was designed to assist policy makers and programme developers and includes several programs including the *AIDS Impact Model (AIM)*, which when used in conjunction with another program in the suite, *Demproj* (a demographic projection model), enables projections of the impact of the AIDS epidemic.

Demproj is used to create a base population projection (assuming that there was no AIDS), and *AIM* is then used to create projections incorporating the impact of AIDS. Prior to beginning you need to decide on the geographic area for which the projection will be done. This is usually done at national level, but can be done for regions or smaller areas as long as the data is available. The base year and period for the projection will also need to be selected. The base year is often selected on the basis of data availability (e.g. a census year). The period of the projection will depend on the purpose of the projection, bearing in mind that the further into the future we project the less reliable it becomes. Once these basic parameters are decided, the data is collected and the assumptions made. The output of these models is by definition a reflection of the input, therefore it is important that data used is of acceptable validity and reliability, and also that assumptions are carefully considered.

The data input for creating a *Demproj* projection includes:

- the population for the base year by age and by sex (usually from a census, and preferably a census year just before the HIV epidemic began),
- an estimate of the total fertility rate for the base year and assumptions about the future total fertility rate,
- assumptions about the age distribution of fertility (often based on existing models of fertility),
- life expectancy at birth, by sex, for the base year, and
- future assumptions about life expectancy, age-specific mortality (usually based on existing model tables), net migration and the distribution of migrants by age and sex.

The input required for creating an *AIM* projection includes assumptions and estimates of:

- the adult HIV prevalence for the base year and projections of future HIV prevalence,
- the start year of the epidemic,
- the perinatal transmission rate (i.e. the percentage of babies born to HIV infected mothers who are infected themselves),
- the percentage of infants with AIDS who die in the first year of life,
- the (adult) life expectancy after an AIDS diagnosis,
- an assumption about the percentage reduction in fertility for HIV-infected women,
- the incubation period, and
- the age and sex distribution of new infections.

If projections of impacts on the economy are required, then additional input data is needed (e.g. the estimated expenditure per AIDS patient, the average number of bed days per AIDS patient, etc.). For many of these inputs *AIM* provides default options which may be used. In most cases the default assumptions are satisfactory in the absence of more specific data for the region being modelled. By changing one or more of the assumptions made, different scenarios can be created, and the impacts assessed. This enables planners to assess the social and economic values of different programmes in dealing with the epidemic.

The software itself is relatively simple to use and requires a basic familiarity with Windows software. The accompanying manuals provide clear instructions for use. The most complex and demanding aspect of running these projections lies in deciding what assumptions to make. It is generally advisable to draw on the knowledge and experience of others who have expertise in specific areas (e.g. demographers, epidemiologists, HIV/AIDS specialists, etc.). Those using this software need to be careful of making erroneous assumptions based on simple extrapolations of the data and misinterpretation of projections. One example of misguided assumptions occurs when HIV and AIDS assumptions from first world countries are applied to third world countries, or visa versa.

The *Spectrum* software is effective in developing projections and displaying them in accessible graphic format which can be useful in presentations to decision-makers. However, developing a feasible HIV projection to determine the HIV inputs into the model requires an informed estimate of where the epidemic is likely to reach its endemic stage, as well as the best possible data on HIV prevalence. The best approach remains developing projections as a working model which is adjusted from year to year as new data is received.

Annex B: Imperfect Data Sets: The UNDP and World Bank

UNDP.

The primary indicator produced by UNDP is the Human Development Index which is made up of three variables: life expectancy, educational attainment and income. It is designed to capture the concept that human development is about more than per capita income. "Income is only a means to human development, not an end. Nor is it the sum total of human lives". The HDI has been produced since 1990. In the 1999 report, "its methodology was significantly refined on the basis of a thorough review of its concept and formulation... This year's HDI also reflects new and improved data for 1997 for the indicators included in the HDI".

The report states, "Because of these changes, this year's HDI is not comparable with last year's. The improvements in methodology and data effect the HDI ranks of almost all countries. Thus if a country ranks higher or lower on the HDI this year compared with last year, that does not necessarily mean it's state of human development has improved or deteriorated."

At a stroke the value of the HDI as a comparable indicator is lost and it will be several years before it's value is re-established. One can only ask in despair why the UNDP did not see fit to maintain the old system of calculation in parallel for several years.

World Bank

Up to 1998, the World Development Report contained a mass of statistics in it's World Development Indicators. Again the institution has constantly sought to update and improve these. In 1998, the report changed and many statistics previously included were left out. The result, comparisons could no longer be made between countries. For example, despite the fact Botswana has one of the fastest growing economies on the African continent, and the most interesting social trends, it is no longer included. Instead, the user of this data is required to purchase the new document, 'World Development Indicators' (in 1998, this cost \$60.00, a considerable expense in many developing world economies.) However, even with a new, comprehensive 398 page book, the user guide states, 'Selected indicators for 62 other economies – small economies with populations of between 30,000 and 1 million, smaller economies if they are members of the World Bank, and larger economies for which data are not regularly reported are – shown in Table 1.6'. In other words detailed data on 62 countries is omitted.

It is perhaps not surprising that countries like Afghanistan, Liberia, and Somalia do not have data. It is a source of concern, however, that the only data available for places like Bahrain, Swaziland and Fiji, are gross national product, life expectancy, adult illiteracy and carbon dioxide emissions. (all 'where available'.)

Again, as many of these countries are recipients of significant quantities of aid, (per capita, this may be higher than larger countries), the decision to exclude them is a source of great concern to those who seek to use those data. It is strange that the more comprehensive indicators document should have this glaring omission.

Annex C. OECD Development Goals

Recently the Development Assistance Committee of the OECD countries set out global development goals. It stated “We are proposing a global partnership effort through which we can achieve together the following ambitious but realisable goals:

Economic well-being:

- a reduction by one-half in the proportion of people living in extreme poverty by 2015.

Social development:

- universal primary education in all countries by 2015;
- demonstrated progress towards gender inequality and the empowerment of women by eliminating disparity in primary and secondary education by 2005;
- a reduction by two-thirds in the mortality rates for infants and children under age 5 and a reduction by three-fourths in maternal mortality, all by 2015;
- access through the primary health-care system to reproductive health services for all individuals of appropriate ages as soon as possible and no later than the year 2015.

Environmental sustainability and regeneration:

- the current implementation of national strategies for sustainable development in all countries by 2005, so as to ensure that the current trends in the loss of environmental resources are effectively reversed at both global and national levels by 2015.²³

²³ The OECD, “New Strategies for the Challenges Ahead: A Changing Development Co-operation”
<http://www.oecd.org/dac/htm/stc/intro.htm>

Annex D. Commissioning Socio-economic Impact Studies: Notes for Government Officials

Although these guidelines have been written for both those commissioning and carrying out the studies there are some points of specific relevance for government officials.

Be sure about what you want. It is crucial that you have a clear idea of what you want from your researchers and that they do not take on work when they can not deliver. In order to achieve this:

- Access existing studies.
- Negotiate the terms of reference with those are doing the work to make sure you are both happy with what can and can't be done.
- Set up a steering committee or reference group to review the terms of reference; monitor progress at regular intervals; and agree on the main findings and conclusions.

Be sure about what you are going to do with the results. If the document is to be used for advocacy then have a mechanism set up to use it. If it is to feed into policy and planning the best way to do this is to make sure the results can be immediately accessed and used by the planners, and that they are in a format that can be used.

Take an interest, and provide as much information as possible. In part the steering committee or reference group will deal with this but you should be able to provide the consultant with as much information as possible and open doors for them where you can't.

Selecting your senior researchers. This type of study may require a range of technical and professional competencies. Your senior researchers should be able to provide these, or buy them in. Look at the team and their past experience and the results they have achieved on similar projects.