Draft paper before publication, please do not use it as reference

Draft 2
27 Feb 2005

MORTALITY AS A DETERMINANT AND A CONSEQUENCE OF POVERTY: SYNTHESIS AND POLICY PAPER

By Ian Pool,
University of Waikato,
Hamilton
New Zealand

A. Health and Development's Unhealthy "Triptych"[1]: Mortality, Poverty, Hunger

The central aim of development is to improve the well-being of populations. Growth in per capita income and increases in productivity and production are among the means by which this may be achieved, but so too are a wide range of other factors in other sectors: education, social welfare, culture and health. The Millennium Development Goals (MDGs) of the international community, and the United Nations family of agencies identifies what are the minimum requirements if the wellbeing of the world's populations are to improve, or at least if inequities are to be reduced.

If the path to development is slow, or blocked, or inequitable in the way its rewards and its failures are distributed, then this will be manifested by increases in, or the growth of differential levels for three factors, what we have called here a "triptych" that paints a picture of societal exclusion: Mortality, Poverty and Hunger. Much of the focus in the MDGs is towards these factors directly, or working indirectly through others. But the overarching issue is development and underdevelopment, and the avoidance of the development of underdevelopment.

These questions were the subject of a seminar held at the Centre for Development Studies, Trivandrum, India from 23 to 25 February 2005.[2] It addressed a wide range of issues that have implications for development, for the triptych and for the elaboration of

---

[1] "A set of three thematically connected paintings, etc…" *New Shorter OED,* v.2: 3398
[2] CICRED, CDS, UNFPA etc – Christophe/Tati/Navaneetham please write details.

plans directed to implementing the MDGs. But from this rich array of questions, three major key conclusions emerged from the seminar, and constitute a focus for the various themes to be discussed in further detail in the rest of this note. They were:

- The interconnectedness between mortality, poverty and hunger;
- The need to recognize the cardinal roles of demographic factors as determinants and consequences of mortality, which is itself a demographic factor but one that also has other demographic (attributes (eg age- and gender-specificity of risk);
- The need to recognize the diversity of situations in which mortality, poverty and hunger occur.

These conclusions will now be explored in detail.

B. Major Conclusions about Mortality, Poverty and Hunger

As just noted the seminar permitted three major conclusions to be made about the three factors mortality, poverty and hunger:

1. **That there is inter-connectedness between the components of the trptych**.

   Poverty and mortality are inseparable – one cannot consider poverty without addressing issues of health. Equally well, it is impossible to understand health without taking into account levels of nutrition and its attendant factors: malnutrition and extreme hunger; over-nutrition, obesity and diabetes; and the broader political-economic, environmental and agronomic questions of food and water security. This was a very important conclusion emerging from most of the papers, and, as we will show later, this has implications for the formulation and implementation of the MDGs because in their case poverty and hunger, on the one hand, have been thematically separated from, on the other hand, the two aspects of health specifically identified in the MDGs (child and maternal health). The connectedness comes from the fact that hunger and malnutrition are key determinants of a high prevalence of ill-health, but equally well it can be argued that nutrition (whether mal-nutrition and low caloric intake or over-nutrition and obesity, particularly because of reliance on a poorly balanced diet) and poverty are inseparable.

   A corollary to this emerging from the seminar was that survivorship, measured by the avoidance of premature death, is an essential entitlement of development, and that, conversely, poverty increases the risks of failing to survive, thereby depriving a person of that entitlement. A further corollary to this is that surviving well is also a basic entitlement, a principle enshrined in the 1978 Alma Ata Declaration of the WHO General Assembly (Health for all). Surviving well is an essential element of quality of life, and poor health is a factor of deprivation. These comments then reinforce the point that mortality and poor health are really aspects of exposure to poverty.

2   That demographic factors, not just mortality but a wide range of other ones, play a central role as determinants and consequences of poverty and hunger, and that a better understanding of the demographic dimensions of each is essential for a more effective implementation of the MDGs.

Mortality is, by definition, a demographic variable, but beyond this and beyond infant and maternal death, there are other demographic aspects, that must be taken into account in the MDGs. This holds true even for the population factor of mortality – eg a recognition of the significance age-specific differences in rates – if the MDGs are to be addressed more effectively. The endogenisation of a demographic perspective into MDG-planning will, at the very least, minimise the risk of loose interpretations of the MDG principles and thus increase the effectiveness of MDG action programmes. Population is not about counting people; it is about ensuring that people count in policy and planning. This returns the argument to the basic point made at the very beginning – that development, and thus the MDGs, are strategies by which human wellbeing is improved.

Starting with age-specific rates of mortality and their impacts – the most poignant example of which is the death of the child-rearing generation, and as a consequence increases in the rates of orphanhood and declines in productivity, that in turn threaten food security, in parts of Africa because of the way HIV/AIDS has cut a swathe through the population at active ages. One could cite many other examples of why the formulation and implementation of the MDGs must be systematically underpinned by an appreciation of demographic factors. Some might be

- ***Geographical distribution and redistribution of the population*** -- think of the burgeoning metropoli of the third world. Or consider the pressures of poverty that push Chinese from underdeveloped regions to join the country's huge "floating population", which is itself highly age-specific in structure; or analogous movements that are illegally played out every single night, mainly by the same age-group, say at the Straits of Gibaltrar or along the US-Mexican border. Or think of the queues of young Pakistani men or of young South-east Asian women waiting for flights to the Gulf States, and sometimes to an uncertain future ; and in their regions of origin these young, frequently undocumented, migrants leave behind a labour force depleted by the absence of its most active members, often in areas that are environmentally threatened;
- ***Family life*** – it is younger families that are most likely to have to shoulder the costs of child-rearing yet which may be the poorest for a number of reasons (eg the need to share their family income, shelter, food etc among their children, typically more numerous in poor regions, as well as the parents. Then there are the problems of a sole-parent, whether widowed or separated, a person typically in the prime childrearing ages, who has to balance income generation, necessary to sustain their family, with all the caring and nurturing demands of family life. And there is the fact that, even among the better-off in cash societies, career promotion and thus

income may increase after the heaviest pressures of child-rearing have declined);

- *Age structural transitions* – the global declines in fertility, sometimes reinforced by migration inflows/outflows, have produced momentum effects, typically "population waves" (and troughs) as cohorts (composed of people born around the same date) of differing sizes pass across different life-cycle stages, alternatively placing severe pressures on services and goods required at those ages when the waves peak, then as trough emerge forcing cutbacks in services and goods by the surplus to requirements, producing a complex sition for planners and policy-makers. Where changes in cohort sizes are highly perturbed because of past demographic events and trends (eg famines; fluctuations in fertility rates; migration flows), as in China or Russia, the need for more refined planning models that endogenise demographic variables becomes even more urgent. Conversely, these waves can aid MDG implementation because of a so-called "demographic bonus" when overall rates of demographic and economic dependency are low, due to declines in child dependency before aged dependency rates set in. Typically the bonus-period will be short and often falls within the time horizon of the MDGs (2005-15), and thus far from being a certainty this period will offer a window of opportunity in which the bonus will be delivered only if the opportunity is exploited (Goal 8 relating to mobilization of civil society is particularly apposite here).[3]

- *Ageing per se* – unless supported by family networks and/or a comprehensive welfare state the elderly may become increasingly impoverished, even when they are asset-"rich" (eg they may own a family dwelling yet face major problems due to maintenance and property taxes); the geographical propinquity of kin and affines, today increasingly minimised because of the migration effects noted above, is yet another population (spatial) dimension to this problem;

- *Gender* – the MDGs highlight the need for gender equality – in Dr Nafis Sadik's seminal phrase "development without women is not development". [*Tati/Christophe/someone else was it Nafis ?? where – Cairo plan of action ??*] But central to the realisation of this goal is the fact that, even in the absence of sex-prejudicial practices (eg sex-specific abortion; or maternal deprivation), gender-specific, and typically also age-specific, demographic changes of all sorts (eg migration flows, mortality) have affected the gender balance and thus often placed extreme burdens on women and girls (far less frequently on men and boys);

- *Social capital and social cohesion* – crosscutting and a function of all aspects of these factors noted above, and essential to societal wellbeing, are demographic factors, above all age-structure (eg the age and gender

---

[3] See a separate CICRED Policy Paper generated by an earlier CICRED Seminar, Feb 2004, and a forthcoming monograph (Pool and Rodriguez Wong eds ………………………. *Christophe/Tati svp. Also when we come to HIV/AIDS you could integrate reference to that CICRED seminar*)

specificity of imprisonment; the age/gender/educational/occupational differences in un- and under-employment);

- ***The planning and policy universe*** – policy is formulated in relation to social groups, that is directed at populations, whether in general or as a service target group; policy is not formulated for individuals albeit that implementation may be directed to services at an individual or household level.

A general principle emerges here. Demographic behaviours that are normative for the context in which they occur (eg migration from poor regions), and even in the absence of prejudicial practices may have disparate and inexorable impacts on various segments of populations, and thus require policy and planning responses that are refined to meet this situation.

3. **That there is great diversity in the profiles and morphologies of populations disproportionately exposed to the ravages of the triptych.**

Poverty and its triptych companions act selectively. There is thus a great diversity in the situations in which the MDGs are to be implemented. This diversity is also multi-dimensional: regional, demographic (as by age- and gender), ethnic, populations in some minority or excluded groups. This multi-dimensionality must always be recognised if the international community and governments, are to be assured that some poor groups, or some poor areas, or some poor age-gender-groups, or some poor ethnic or minority or excluded groups are not overlooked in programmes that produce overall, averaged out, improvements in wellbeing.

There is yet another dimension to this. Because of the multi-faceted nature of poverty and other problems to which programmes have been directed in the past, reduction of poverty and other differences in wellbeing have frequently adopted fragmented, and/or uni-dimensional approaches, often as much agency- as problem- driven.

Follow-up to the Trivandrum Seminar

A methodological rather than substantive point can be added at this juncture. The empirical analyses presented in the Trivandrum Seminar add to the implementation of the MDGs in another way. They provide some benchmarks for later evaluations of the progress of MDG implementation. These benchmarks are not just in terms of overall targets, although they may suggest ways in which these might be refined so as to be more realistic in some contexts (eg what is a realistic goal for the reduction of infant mortality in the Gambia, as against what is feasible in countries which already have very low levels), but are also interms of the diversity of the problems faced in implementing the MDGs. A corollary to this is that the MDGs are essentially scale-neutral, yet, as will be shown below, the factors of the triptych operate at diverse scales.

C. Towards Analysis of the Triptych

Clearly then we are dealing here with a very critical issue that is at the very heart of the United Nations' Millennium Development Goals. The findings of the seminar identify ways in which the MDGs could be modified so as to increase their effectiveness. In short the issues here are central to development, a major point to be discussed later.

In analysing the linkages between mortality, and poverty and hunger one is looking at a bi-directional question – m -> p and p -> m -- as Guilmoto noted at the start. But what the seminar showed was that the directionality was far more complex than this, for example p -> m -> p, or m -> p -> m.

Most commonly research and policy interventions study the impact of poverty on mortality differentials, yet the converse is a very important question. An example would be the effects of HIV/AIDS on poverty through factors such as orphanhood

In the seminar, in fact, only one paper very specifically dealt with the relationship m -> p although it was implicit in a number of others. This m -> p study was at the micro-level, but not at the meso/macro. But it showed the social and economic impacts of death and the rites that immediately follow this.

In the past most research touching on the field has been "univariate". Researchers have looked at mortality/health OR at poverty, but not the interlinkages between them (eg comments of Mohandas at the start of the seminar – ***correct reference please Nava/Guil***).

We have tended to look at the prevalence and incidence of morbidity and mortality, and to attempt to explain trends, but now need to look at the impacts of mortality. To take another case we have established prevalence rates for HIV/AIDS, but far less about its socio-demographic impacts in terms of causing poverty.

Another major problem, and this is a very important point, is that in making bi- or multi-variate analyses, necessary for the research agenda that we are addressing -- that is looking at mortality, poverty and hunger -- one is dealing with three factors each going through its own transition. But this will rarely be in perfect tempo with the transitions in the other parts of the triptych, and thus a key factor to analyse and include in any explicanda is where each factor is on its own transition path. Thus any population will find itself at one stage in a mortality or epidemiologic transition, at a different stage in a poverty transition, and yet another in its nutritional transition. The Pacific Island populations are often relatively advanced along the path of an epidemiologic transition, by some standards at an early stage in a poverty transition, yet in terms of a nutritional transition, especially the consumption of imported consumer items, very advanced in a detrimental direction. Parenthetically, a poverty transition is part of general development, but is also something rather different – poverty, accompanied by poor nutrition yet high caloric intakes can occur in countries that, in classical economic development terms are highly developed

D. Frameworks and Methodologies Relative to the Triptych

The question then arises: how can we capture these linkages and the different factors? A complication, just noted, is that the different stages of the poverty, hunger (or nutritional) and mortality transitions may even require different measurements. The most self-defining of the trio is mortality which is the same everywhere – a death is a self-defining event -- but once it is looked at in detail (by cause; by health factors that underpin it) then immediately difficulties are encountered.

To add to this there is a lack of frameworks. Although fragments exist, there is no overarching schema on the area under review. That said, the seminar papers produced a number of frameworks. For example, one was Samosir's at the macro-level for an Indonesia-Japan comparison; at the micro-level Bhagava mapped the relationships between HIV/AIDS morbidty/mortality and poverty were modeled; and there were the life-span framework of Navaneetham. (***Nava/Chris please give references***)

Moreover, a wide range of analytical strategies at different levels of aggregation are needed to investigate the issue. These strategies run from micro-level/qualitative to macro-level international cross comparisons. This reflects the complexity and diversity of the issue being analysed.

A further fundamental difficulty is how to measure poverty. Should the focus be on income and its proxies, or on what might be described as distributional factors. Whichever set of indicators is taken there is a need to measure population share. This is because we are measuring, above all, the impacts on people: a baseline question is how many are affected. Most potential variables are difficult to handle statistically. Even for a factor like income, that superficially seems easy to calibrate, that is an interval level measure, and which thus can be compared between units of analysis, both in relative and absolute terms, the researcher encounters major difficulties, both at the data collection (reporting is very difficult) and analytical stage (eg benchmarking; to take one case, the use of mean income and benchmarks as a % of this, a value that is constantly changing, affects levels of poverty). Among other factors are overcrowding, whether in households, or in neighbourhoods, including atolls in the Pacific for example.

It is also difficult to measure health, both its bio-medical and social manifestations. Among the dimensions to be analysed, mortality (all causes combined) is easier to analyse; mortality by cause is more difficult; and health/morbidity even more so. There are different approaches to achieve the last. At a population-wide level various techniques allow for self- reporting of good health/ poor health (eg the SF 36), occurrence currently of morbid conditions, and daily living and thus functionality, which is possibly the most efficient to collect and analyse. There may also be clinical data, but these represent only the "tip of the iceberg" of the prevalence of poor health conditions.

Finally, there is also a lack of data. Multi-variate analysis is limited by the fact that in many countries data on one factor will be available, but those on another not.

E. Levels of Aggregation

This area is one in which analyses must be conducted at different levels of aggregation. For each of these levels -- cross-comparative, macro, meso and micro − there are methodological problems. While multi-level analysis may seem to be the answer, this depends on data availability and also introduces its own problems. Moreover special care must be taken to avoid breaches of the laws of aggregation, to avoid the so-called "ecological fallacy".

Important for analyses of the triptych is what is termed "spatial" or "geographical capital", or its analogue at a lower level of aggregation what is termed social capital. This could be for, say, neighbourhoods or the social groups involved in various institutions (say the parents and pupils in a given school zone). Both spatial and social capital have implications for policy and planning.

Cross- national analyses are perhaps the most difficult to carry out yet increase the power of the research. Not the least of the difficulties is the problem of availability of directly comparable data. Beyond this there is the problem that bi-variate measurement is affected by the stage of transition achieved by each of the different factors, poverty, mortality and nutrition. It is a bit like using ratios as against rates: for ratios the analyst is never sure whether they are recording numerator or denominator effects, or both.

There is also a need to be aware of what one might call "meta" factors – for example, the path towards, as against the level of, development. Polities such as Cuba or Kerala have development trajectories very different from states with higher GDP/capita, but the latter typically have much less success in terms of distributional policies and thus are more inequitable. The traditional development studies question of the conflict between policies to accelerate growth in income and wealth, and those that focus on distribution and equality of access according to need is, of course, fundamental to this whole problem, and for all levels of aggregation. One might also include the general environment and natural resources as "meta" factors, as is clear in the papers on West Africa and the Pacific.

Macro-level analyses are arguably the easiest to effect, because, typically, regional data are available from censuses, and for vital estimates. But there are problems of "averaging out" intra-regional differences, and thus variance is reduced. Furthermore, multi-variate statistical analysis becomes problematic, especially where the number of units (say states/provinces) is limited.

Meso-level analyses are the most difficult in a sense, not because of conceptual issues but because of problems of measurement. This is exacerbated when analysts have to turn to DHS or similar sources to examine clusters. The question of intra-cluster variance, both statistical and substantive, becomes as critical as inter-cluster, or perhaps more so.

If data are available in a form that is robust in terms of both sampling and non-sampling properties, then micro-level analyses are easiest, especially if the analysis is at a national level (ie the unit of analysis is the individual or household). The problem here is that, typically, the cluster size in samples is far too small to be able to asses the effects, as intervening variables, of community contextual factors. This may be a factor even when census mesh-blocks are the unit of analysis.

In the seminar the results presented seemed to show that household level data have produced the clearest results. But one is left with a concern that meso-level factors that are difficult to measure may play an important role in household differentials, but are not really taken into account. In sum, study design becomes a factor of paramount importance in this area.

F. Results

The studies point to relationships between the three factors of mortality, poverty and (to a lesser degree because few studies directly measured this factor) hunger. But the relationships are complex.

Perhaps in reality the relationships are so complex that studies can not – should not – attempt to disaggregate mortality, poverty and hunger. They may be a symbiotically interwoven "trio", and that is why we have called them the "*exclusion triptych*" or cycle.

This cycle is an extension of the conventional malnutrition-infection cycle, adding in poverty. This was reinforced in the paper by Navaneetham who showed how nutrition operated both directly and indirectly: maternal deprivation and malnutrition affected the health status of mothers and has an immediate impact on the size and other health indicators of neonates, and this effect can be traced across the entire life cycle. In Sarr's paper the effects of agricultural production and food security, and increasingly, water security, are increasingly problematic, for reasons that include not only natural environmental factors, on nutrition were shown. In some regions over- and under-nutrition can co-exist, as in the Pacific. This said, it must be recognized that poverty may play a major role in societies where the morbidity patterns are dominated by non-communicable disease rather than communicable – some small-island countries of the Pacific are examples. These countries have often have a "double-burden", of communicable diseases such as diarrhoeal, respiratory and other acute infectious diseases, and the non-communicable diseases that cause premature adult mortality. Finally, new factors of infection are operating, as Sarr showed in the case of HIV/AIDS. The fact that its force is most marked at the young working, productive ages means that there is a loss of the most productive sector of the workforce both for the formal and subsistence sectors. There are also other cost impacts.

The relevance of the effects of this triptych is most marked for children. This finding is a reinforcement of the well-established axiom of development studies specialists: that the

most sensitive index of development in all its manifestations is the health of children. Thus we may modify this to state what we could call the "**_Trivandrum Axiom_**": that the most sensitive index of development is the "exclusion triptych" of "mortality – poverty – hunger"

This merely underlines another key point coming out of the seminar. Generally speaking, "**_distributional_**" "economic" and "social" factors seem more related to the triptych than does income per se. Distributional factors relate not just to more equitable distributions of incomes, wealth, goods and service. More important seem to be factors such as access to health and related services, and more general infrastructural issues, as can be illustrated by intra-state differentials in the triptych in Kerala.

Moreover, distributional factors may be strongly affected by intervening factors, above all, as was clear in many papers and comments here, cultural differences. Nutrition is a critical factor, whether a result of factors such as agricultural production or cultural practices.

Distributional problems may be exacerbated by the "withdrawal of the state" and dependence on the market. This typically comes about as a result of the application of current development paradigms. Beyond this, radical social change producing factors such as rapid urbanization and intense migration flows, have sometimes directly exacerbated these effects.

Last, but not least, there is a high degree of selectivity in terms of the force of the exclusion triptych. Indigenous and other minorities outside the mainstream of society seem most likely to be negatively affected. There is even selectivity at a higher level of aggregation – at the regional or country level.

G. Policy Issues

The papers in the seminar have all raised policy questions. Although the seminar extended the knowledge base on the triptych, there are still many gaps and these affect theory, conceptualization and measurement, and thus limit the generation of empirical information. This means that the evidence-base on the eradication of poverty and hunger, and the reduction of mortality is still incomplete, although advanced significantly by the seminar.

A critical policy issue for the eradication of poverty and hunger, and the reduction of mortality is the development path – whether distributional or focused instead on national income generation and the market. Swings between these paradigms have further destabilised the policy environment. There is also the conumdrum whether or not the two approaches are mutually exclusive or can be satisfactorily married.

A major policy issue is the point just noted in the last section of this paper: the selectivity of the effects of the triptych. Everywhere there are problems with "excluded" groups, such as the more rural (although this is not systematic), and very commonly minority

populations outside the mainstream. Their disadvantage will often be heightened by the fact that frequently they lack access to the political process, of making their voices heard, as well as access to social and physical capital, to services and the infrastructure.

Policy formulation and implementation relating to the exclusion triptych is essential to the realisation of the Millennium Development Goals (MDG) of the United Nations family. In fact, for most of the UN's goals, by addressing the triptych the international community and civil society have a means of informing the action plans of the MDGs and and providing a focus for them.

Finally, the seminar validated and also very much reinforced the significance of the MDGs and the need to mobilize the international community to address the problems it hopes to reduce. But equally well, the seminar has shown that the MDGs are directed at what is a very diverse problem. As noted at the start of section B, there may be a need to modify or enhance aspects of some of the MDGs if their full effect is to be achieved.

The MDGs represent a consensus across the international community. To that extent they provide a focused way of summarising and synthesizing the policy factors that emerged at the seminar. To conclude, then, this paper turns to the MDGs.

H Millennium Development Goals

The seminar provided a number of analyses that identified places where the MDGs might need refining or strengthening. For the seminar and its subject matter, the triptych, the MDGs were of varying degrees of interest, as represented by the following hierarchical prioritisation:

<div align="center">

GOAL ONE
GOALS 4, 5, 6
Goals 2, 3 and 7

</div>

GOAL ONE: *Eradicate extreme poverty and hunger.* The seminar identified the fact MDG1 focuses on poverty and hunger, but does not recognise health as part of an inseparable triptych. This is something the international community might need to explore further if poverty and hunger, and their two prime consequences are to be addressed

In the seminar a number of the papers raised other issues. Sarr's paper on West Africa argues that, in fact, poverty and hunger are almost inseparable twins. Another comment from the floor linked poverty and hunger in another way – that even when production is

adequate for many poor groups food may be priced out of the market, and thus hunger could be widespread even among relative "plenty". The quality of nutrition is also a factor to be taken into account; again poor nutrition could occur even where there is a "cornucopia" of food.

Turning to refinement of analyses so as to increase the effectiveness and efficiency of programme delivery, in the scientific analysis each part of the triptych has strategies that can be carried across to the other(s). Studies on poverty and hunger have focused on groups that are disadvantaged, whereas the mortality literature has emphasized the demographic dimensions. This extends beyond cross-sectional analyses to cohort and other longitudinal studies that identify how negative impacts (eg exposure to risk of a given disease; nutritional deprivation) at one life-cycle stage can be carried forward to later stages.

GOALS 4, 5, 6: *Reduce child mortality, Improve maternal health, Combat HIV/AIDS, malaria and other diseases.*

All the papers saw child mortality as a factor central to the triptych, and even as a sensitive indicator of overall development. For some regions such as West Africa, the average annual rates of decline that would be necessary to attain the MDG make this goal almost unattainable without massive interventions, probably with international support (see MDG 8 below).

Maternal health and general wellbeing are critical also. It has both direct effects on the triptych, and, through neonatal infant loss because of maternal deprivation as Navaneetham has shown, it also has indirect impacts.

The reduction of the incidence and prevalence of HIV/AIDS, malaria, tuberculosis and other major infectious diseases would have an immediate effect on mortality. But beyond this as some of these affect active ages their reduction would have an impact on both production and productivity, thereby assisting maintain food and water security, services and industrial output.

Goals 2, 3 and 7: *Achieve universal primary education, Promote gender equality and empower women, Ensure environmental sustainability*

The first two of these are very important elements of development in their own right, but in the present context they are rather more indirect determinants of change. But equally well, they are correlated to all of mortality, poverty and hunger, both directly through socio-economic mechanisms, and directly through level of knowledge as a determinant of understanding of mechanisms allowing the reduction of the effects of the triptych.

Education is very much linked to poverty, hunger and mortality – for the reasons noted in the last paragraph, the better-educated are less likely to disadvantaged. But some papers

have shown that a critical threshold is reached only when adults have received education at the secondary or tertiary level.

Gender equality and the empowerment of women are essential if the effects of the triptych are to be reduced. The mechanisms are both directly through mechanisms such as education and economic wellbeing, and indirectly through intermediate factors such as maternal health.

Again environmental sustainability is an important goal in its own right, but the links to the triptych are less important and immediate, and are often indirect. Two linkages do however stand out: firstly the immediate environment surrounding the dwelling of the household/family. Secondly, there are the resources available to the family/household, including access to land, and the capacity of the land to produce adequate amounts of food.

Goal 8, Develop a global partnership, is a cross-cutting goal, an enabling one, a strategy, rather than an objective, but one that is essential to the achievement of the other seven MDGs. Without global partnerships then it is difficult to see how less developed regions and countries can eradicate poverty and hunger and reduce mortality.