Health and Sustainability

A Background Paper for the

State Sustainability Strategy

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Introduction

Health and Sustainability must be seen as two distinct sectors of overall Sustainable Development with some undoubted interconnection. The first is better phrased as **'Sustainability in Health'**. This sees health as an industry, mainly focused on health services, with its own resource requirements, economically beneficial outcomes, waste products, and potential for environmental pollution. The second issue is that of **'Sustainability and Health'**, which sees health as a central focus for all other sectors of sustainable or non-sustainable development.

The main concern with Sustainability <u>in</u> health is the ever-increasing resource demand. Especially is this so with the concomitant marginal health gain from the resources consumed. It can be argued that this demand for health services is one of the principle drivers for rapid and non-sustainable economic activity. All governments, and certainly that of Western Australia, are subject to this apparently never-to-be satisfied consumer and provider pressure for health services. With further technological development, and an aging and increasing population, it will take considerable political courage to inform a voting public that they cannot have all that they desire. There will have to be decisions taken to prioritise some health services at the expense of others, and engage with an ever increasingly informed and empowered public.

Much of this type of sustainability in health is dealt with in the WHO report for 2000. In that report health attainment is measured, as is access to services. Equity and propriety in health service provision is included. Nations are graded on their performance in relation to that expected from financial provision and educational levels (WHO 2000). Australia, comes 39th in health attainment and 32nd in overall performance (Western Australia with its higher indigenous population will probably be below the national level). That Australia is rated lower than small well developed European countries like Sweden, Austria and the United Kingdom might be expected but to be ranked lower than Morocco, Saudi Arabia, and, in terms of health attainment, the Solomon Islands, might call into question the methodology, but remain a disquieting finding.

A further feature of this concept of sustainability and health is the degree to which health technology compensates for health lost from non-sustainable development. It might then be reasonably argued that the ever-increasing cost of health services is in part a measure of non-sustainability.

This background paper will however deal with the second issue, i.e. health, broadly defined, which is central to sustainable economic development. There is no doubt that non-sustainable agricultural practice in Western Australia has lead to massive ecological change and to environmental carnage that is self-evident. Health changes secondary to this damage are more difficult to define such as the psychosocial problems following soil degradation and progressive population loss from rural areas.

Ill-health from mining and industrial practices are much easier to connect, ranging from the medical/environmental scandal of asbestos mining, (only discontinued in the 1970s,) to the alcoholism of the frontier town mentality of the mining towns. Industrial practices have now been identified as contributing to much broader environmental changes on a world scale, that have been of increasing concern for over two decades. Western Australia has been making, and is still making, per head of population, a substantial contribution to these changes. These industrial atmospheric and food chain pollutants are generated worldwide and there is expectation that they will lead to premature death and disease on a similar worldwide scale. Western Australia will have to make some contingency plans for local disease and for the effects of devastation elsewhere.

This paper will however take a broader view of health than death and disease and concern itself with more than the direct effects of environmental change. It will suggest that societal ills such as unemployment, loneliness, teen-age pregnancies, youth suicide, and recreational drug addiction are evidence of, and contribute to, ill health. It will argue that development is more than agricultural and industrial practices but includes the socio-economic agenda that drives non-sustainability. This socio-economic policy can be considered to have damaged the social environment and exaggerated disease and will continue to do so for coming generations.

It will be necessary to define health as more than the absence of disease and then suggest measures that might be taken to determine illhealth, now and in the future, that might be sensitive to environmental change. This environment will be more than the immediate physical, chemical, and microbiological neighborhood but include the social, psychological, and cultural determinants of wellbeing.

The difficulties that lie in wait for such a broad view of health, the environment, and development will be discussed. A plan for placing a concern for health at the forefront of a strategy for sustainable development will be advanced. The need will be for credible evidence to support the connection between health and sustainable development. The most urgent present requirement is to develop sensitive indicators of possibly deteriorating health and wellbeing. The risk is of vacillation in progress towards sustainable development while the information and evidence are obtained.

The geographical focus for health issues and sustainability will remain the State of Western Australia, but the state cannot exist in isolation from national, international, and local/community activity. Concern for population sustainability at State level is valid but the influence of these factors in the other nations of the world and the consequent effect on Australia and Western Australia should need no emphasis in these uncertain times (McMichael 2001).

A Definition of Health

The much quoted World Health Organisation definition of health as ‘a state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity’, has been criticised as being idealistic and impractical, and may reflect a vision generated by the preceding horrors of World War 2, (WHO 1946). It may indeed be asking too much for any agency, health service, health profession, or government to accept responsibility for total human happiness, but the inadequacy of mere survival as a measure of health is all too obvious.

The WHO, following on original sponsorship from the World Bank, has been referred to in the introduction as measuring health services by longevity, illness states and the assumption of disability related to those states (Murray and Lopez 1996). Hence the absence of disability must be considered as part of health. Disease and disability are given wide currency with the inclusion of conditions that may make no contribution to shortened life expectancy such as depression, infertility and impotence.

However the disabled may not consider themselves as unhealthy, especially if circumstances are arranged to afford them participation in society. Illhealth for them is uncompensated disability, and determination of the degree of their disease is a matter of that compensation.

It must also be accepted that people place great value on individual freedoms, especially freedom from violence and from threats to personal security. Anxiety encouraged by such insecurity must be a form of disease. It might also be considered that loss of any personal right be an unhealthy state. If the right to reproduce is a disease then the loss of freedom occasioned by imprisonment is unhealthy. Unemployment, with an inability to contribute to, and be part of, a civil society is not only a social contribution to increased disease states but can be considered as a disease in its own right.

The WHO has also included inequity in attainment of health a marker of inadequacy in a nation’s health service. In Western Australia such indictment applies to the indigenous population. However, except for those living in distant communities, their access to health services is no different. Their poor health statistics are related to social, cultural, and educational differences. The persistence of such inequalities could be a measure of the social impact of non-sustainability.

In the evaluation of disease, and the impact of treatment, increasing use is made of Quality of Life studies. It is implied that disease is more than the risk of death and disability but affects psychological, social, sexual, and spiritual wellbeing. Environmental change that affects those same human characteristics requires similar evaluation. It is possible that the loss of wilderness, the loss of usable ‘natural’ countryside, the absence of animal species, or their affliction by human pollution could occasion the same distress.

It is then proposed that 'health' be defined as a combination of:

1 an expectation of a normal life span, and an absence of serious disability,

2 the fulfillment of family and friendship,

3 freedom from fear of violence and impairment of liberty,

4 the ability to contribute to, and be a part of, civil society, and

5 the attainment of social and spiritual contentment.

The contribution of these various facets of health, and the priorities given to them, will differ between individuals, communities, and nations, and depend on historical, geographical, educational and cultural factors. The next chapter will assess our ability to evaluate health in these terms and decide on a plan to include appropriate indicators in a strategy for sustainable economic development.

A Concept of Development

Sustainable development is that 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Bruntland 1987 p 87). The antithesis to sustainability is that which consumes finite resources, and/or contaminates the environment with both the products of development, or the by-products of manufacture. Hence sustainability and environmental protection can be considered as one and the same thing.

However this paper will discuss sustainability as an economic ethos involving effects on society. Non-sustainability in this context is that which harms society with, for example, unemployment, progressive social inequality, and the creation of a disillusioned sub-class of the population. These ill effects are of even greater significance if they exaggerate differences in society based on racial, cultural, or gender difference. **The converse is also valid that development that may be unsustainable in environmental terms can contribute to present and future social well being and that feature be included as a positive in the assessment of the impact of that development.**

The focus on health as central to concerns on economic development was repeatedly expressed by the United Nations Conference on the Environment and Development (UNCED) in Rio de Janeiro in 1992(UNCED 1992). The outcome program on sustainable development for the 21st century, Agenda 21, refers to health more than 200 times.

> 'Human beings are at the centre of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature'. 'the primary health needs of the world's population are integral to the achievement of the goals of sustainable development'.
>
> UNCED 1992 Principle 1 p 1

In 1992 the World Health Organisation bemoaned the absence of a concern with health in activities directed to environmental protection (WHO 1992 p xiii). In Australia, in the same year, the National Medical Research Council (NHMRC) requested an inclusion of health impact analysis within environmental assessment (NHMRC 1992).

> The maintenance and improvement of health should be at the centre of concerns about the environment and development. Yet health rarely receives high priority in environmental policies and development, rarely figures as an important item in environmental or development programs, despite the fact that the quality of the environment and the nature of development are major determinants of health.
>
> WHO 1992 Our Planet, Our Health
> Report of Commission on Health and Environment
> WHO Geneva

Ten years later the Report of the Secretary-General to the World Summit on Sustainable Development to be held in Johannesburg in 2002 considered little had been accomplished (Agenda 21 2002):

> Secondly, no major changes have occurred since UNCED in the unsupportable patterns of consumption and production, which are putting the natural life support systems at peril. The value systems reflected in these patterns are among the main driving forces that determine the use of natural resources. Although the changes required for converting societies to sustainable consumption and production patterns are not easy to implement, the shift is imperative.
>
> Report of the Secretary-General
> Introduction paragraph 5
> 2002

The barriers to change on a global scale are mirrored in Western Australia and will be discussed later. One of these is the continuing and improving health statistics measured in crude terms. These statistics, however may not address matters of concern to Western Australians, or pose the question of how much better life/health could be.

We propose that a body be appointed to review the surveillance of health in Western Australia in terms of more relevance to population wellbeing. This background paper will note some methods that have been suggested and used elsewhere. It will be divided into those appropriate for regular population analysis and those for individual programs.

Population Health Surveillance

a) GBD Study

The methodology used for the Global Burden of Disease Study of 1990 eventually published in book form in 1996 (Murray and Lopez 1996) has been applied to Australia and to Victoria (Mathers et al 1999, Vos an Begg 2000). A regular study of this kind can supply much information on the incidence and prevalence of disease. It will also analyse contributing factors such as tobacco use, alcohol intake, obesity and other dietary features, and physical inactivity. It can include non-fatal conditions that cause 'burden' and might be applicable to environmental matters, e.g. depression, infertility and impotence.

b) Environmental Indicators

The paper from New South Wales published in 1999 discusses the development of more specifically directed environmental health indicators, although acknowledging the prime importance of socio-economic factors (Sladden et al 1999). It proposes a set of indicators based, as is indeed is the Global Burden of Disease, on presently gathered data from hospitals, disease notifications and cancer registers.

These indicators are divided into human activity related health environment indicators, and those that can be attributed to non-human causation. The former include

transport, e.g. motor vehicle accidents,
air pollution, e.g. asthma, pneumoconiosis, Legionnaires disease
water contaminants, e.g. hepatitis A, cryptosporidium, giardia
food contaminants,
soil contaminants, e.g. heavy metals, pesticides,
radiation,
and other diseases possibly related to environmental contaminants awaiting confirmation
e.g. cancers, male infertility (sperm counts), abortion rates, birth defects, and endocrine disrupters (environmental disruption of normal sexual and sexually dependent development and behavior).

Those indicators dependent on non-human cause, though an arbitrary distinction, are,

U.V. exposure e.g. skin cancers, cataracts,
Insect borne diseases e.g. Ross river virus, Japanese encephalitis,
Zoonoses e.g. Q fever,
Other infectious diseases,
Plant pollen counts e.g. hay fever, asthma,
Heat waves,
Cyclones,and
Flooding.

c) British Columbia, Canada

A State with quite different geography and climate but similar demographics to Western Australia is that of the Canadian province of British Columbia. The province has a sparsely populated rural area, a concentration of people in a metropolitan region, and a substantial proportion of indigenous people. The province's health department has chosen to develop a set of 93 mixed medical and social indicators with researched weightings, (Health Goals 1999).

The health report includes the status of the province in terms of infant mortality rate, potential years of life lost, and life expectancy, but incorporates five health goals considered part of the province's aspiration for the future. They are:

Living and Working Conditions
e.g. unemployment rates, requirement for income assistance, economic hardship in seniors, income inequality, crime rates, children in care, and housing affordability.

Individual Capacities, Skills and Choices
e.g. educational attainment, high school completion rates, youth smoking rates, and teenage pregnancies.

Physical environment
e.g. second hand smoking exposure, necessity to boil (scheme) water, and hazards in food preparation.

Health Services
e.g. participation rates in mammography, percentage of children's ear infections treated by antibiotics, Caesarian section deliveries, community follow-up of mental health admissions, preventable hospital admission rate, and expected lengths of hospital stay compared with actual.

Disease and Injury Prevention
e.g. death rates from selected medical conditions, vaccine preventable disease incidence, S.T.D. incidence, injury rates in children, spousal assault rate, suicide death rates and child abuse rates.

The weightings and methodology is available from BC STATS, British Columbia, Ministry of Finance and Corporate Relations.

d) Quality of Life Surveys

Quality of life surveys have been widely developed and tested. Many are targeted to particular health or disease states and are now expected in the evaluation of chronic illness and cancers to determine the benefit of treatments. The WHO has been refining generic instruments applicable to international and inter-cultural use for over ten years (WHOQOL 1998. The general WHOQOL 100 and WHO BREV (abbreviated version). explore domains of social, psychological, sexual, and spiritual well being, as well as functional disability (WHOQOL 1998, WHOQOL BREV 1999).

Facets of well-being explored by WHOQOL include,
pain and discomfort,
energy and fatigue,
sleep and rest,
positive feelings,
thinking, memory and concentration,
self-esteem,
bodily image and appearance,
mobility,
activities of every day living,
dependence on medication,
work capacity,
personal relationships,
practical social support,
sexual activity,
safety and physical security,
home environment,
financial resources,
health and social care,
opportunities for acquiring new information and life skills,
participation and opportunities for leisure,
physical environment,
transport,
and spirituality/personal beliefs.

The degree to which these facets of well-being impact on disease states will be variable but cannot be ignored. Their consideration is part of the care system of every experienced general/family physician. Health services at secondary and tertiary level need to be increasingly aware of their relevance to the cause, prognosis, and treatment of their patients. Health management at departmental level will be ineffective, inefficient and costly if they are not included in concepts of sustainability.

e) Environmental and Public Health Surveillance

There are already many programs within the Environmental Health Branch of the Department of Health in Western Australia which deal with the traditional monitoring of water safety, the quality of food preparation, the application of pesticides, and radiation hazards to name but a few. Their regulatory and administrative functions are in pursuance of legislation and are advisory to many agencies. Their focus must be on the here and now of health management. Nevertheless the surveillance of mosquito prevalence, analysis of pesticide and heavy metal accumulation, and aboriginal environmental health are of relevance to sustainable development.

. At a National level the National Pollutant Inventory can now supply regular data on a wide level of industrial and domestic emission pollution of air, soils and waters (National Pollutant Inventory 2001). This provides background information with which local levels can be compared

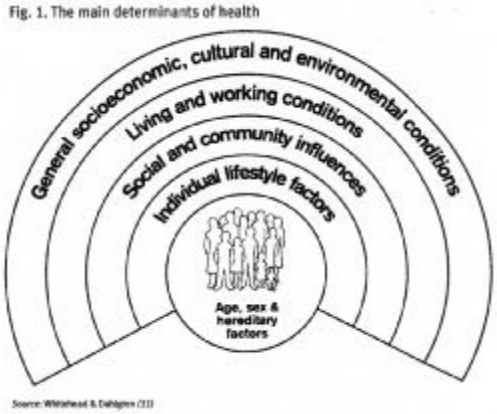
f) Health Impact Analysis/Assessment (HIA)

The recommendations of the NHMRC in 1992 to include HIA within environmental assessment have been noted above. Tasmania legislated to this end in 1994. The National Environmental Health Strategy recommending HIA for all States was not concluded until 1999 (Strategy 1999), and the Health Impact Assessment Guidelines not until 2001 (Guidelines 2001).

> Integrating sustainable development into decision making requires the open and careful reconciliation of economic development, health and social needs, and environmental quality through the best available tools and information
>
> The National Environmental Health Strategy 1-5
> 1999

The 'Guidelines' include a focus on the social environment minimally acknowledged in the 'Strategy', and are explicit in acknowledging the contribution of more recent European thinking on HIA. The 'Guidelines' refer to the 'Gothenburg Consensus Paper' of the WHO regional Office for Europe and the figure below is taken from that Healthy Cities publication of the WHO (WHO 1997). It is explicit in de-medicalising the responsibility for health, and making plain the social factors involved in health and well being.

Fig. 1. The main determinants of health

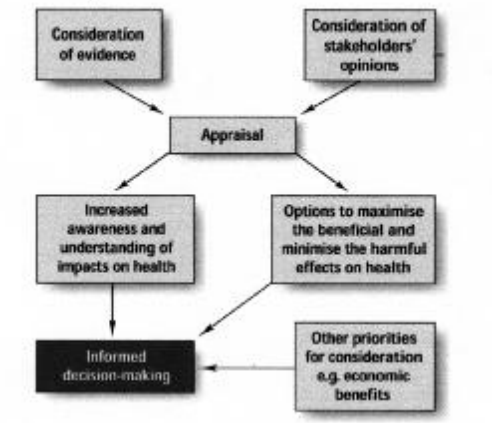


Source: Whitehead & Dahlgren (11)

The methodology of HIA is described in the 'Guidelines' and the chart below is a London simplification of a similar design in that publication. Western Australia must make provision for this program within environmental legislation. A substantial educational program to support HIA will be required for all government agencies, industry, and local authorities. The health department will no doubt supply advice and expertise but HIA is to be an expectation of all areas of public and private activity.

It must be acknowledged that health/environment/development linkages will require information and research validity at present unavailable. Much of the surveillance data mentioned above will be vital to HIA.

The diagram summarises the inputs and outputs of the HIA process.



Of signal importance to the collection and analysis of the data obtained at national, state, and local level is its **publication**. This publication cannot be only as official government information but must be such as to involve an educated media. That media must accept responsibility and training in the proper evaluation of information and disown sensationalism.

Management of Health and Sustainability

Community Action Agenda 21

While it is important to acquire information on the impact of development practices, it is also vital that activities be undertaken now to remedy, or ameliorate, those effects already recognised, or that are highly likely to influence the health of people now and in the future. This is the impetus of the UNCED declaration Agenda 21 from Rio in 1992, and of the Healthy Cities program of WHO, the series 2 report published in 1997 (WHO 1997). Those reports emphasise the responsibility of community to become involved in its own well being. They also recognise the continuing significance of progressive urbanisation to present and future demographic change, and of its influence on health.

There is no doubt that Agenda 21 programmes are of relevance to Western Australia and some local authorities have supported them. However local authorities are considerably less powerful in the Australian political system and are subject to short-term sectional and business interests.

Community activity is promoted by both the Strategy on Environmental Health (Strategy 1999) and by the Australian Conservation Foundation (ACF) paper on Environmental Health (Guest et al 1999). Hence the 'Strategy' supports the provision of a Shade Creation Policy by local authorities to help prevent the UV exposure responsible for Australia's high skin cancer rate. The ACF paper is more emphatic in its promotion of local activity. It supports programs of, permaculture gardening by the elderly, swimming pools for rural towns with high indigenous populations, cycledromes and cycle paths, and re-cycling of old industrial waste.

The State government in Western Australia could be more zealous in its encouragement of Agenda 21 programs, but is more likely to utilize the Enhealth financing from the 'Strategy' document to pursue more large scale activities of control of air quality, mosquito infestation, and regional cooperation for environmental management. It is doubtful however that such financing could support the extensive information systems and research activity promoted by that same Strategy document (Strategy 1999 chapters 5 and 6).

Community Research

Local concern with the immediate environmental consequences of industrial and mining processes is now a common news item. Proponents of development use 'expert' professional and scientific research to allay these local fears. However there is considerable suspicion of the objectivity, or even honesty, of these research findings.

It is proposed that local action groups be empowered to employ, and be involved in, research of their own. This would have the benefit, not only of reassurance, where this is appropriate, but also of education into scientific methodology and ownership of the research data. It would have a similar status and be assessed as justified just as legal aid is at present allocated to those deemed to need its provision.

Global Health and Sustainability

Greenhouse Effect

Global warming is established, but the continuing effects of carbon dioxide excess are less predictable, and debate continues on the climate effects to be experienced. Nevertheless the warming effect, and/or the planetary responses to that effect, is unlikely to be friendly to humanity. The Australian NHMRC published on the health effects possible from global warming in 1991 (NHMRC 1991). Speculation continues, but little activity on behalf of health authorities has occurred.

The Australian population is not likely to experience direct ill effects from excessive heat; it is too aware of the problem. However changing climate will effect the local flora and fauna and research modeling has taken place. The most significant response in terms of health may be a shift in the distribution of insect vectors of disease with the exposure to infection of populations less immune or accustomed to dealing with them. Malaria may well be the most significant infection of this type on a world scale but Australia and Western Australia may be most effected by mosquito borne viruses, e.g. Ross river, dengue fever, Japanese encephalitis.

The spread Southward of these arbor viruses may be the earliest local health effects of increasing atmospheric CO2 and other greenhouse gases. We have little defense from virus infection except the development of vaccines. The insecticide spraying for mosquito eradication is contaminating and short-lived. Will we have to contemplate mosquito netting for residents of Geraldton, and then the Northern Suburbs of Perth?

The significant aspect of sustainability and health in this area is the commitment of State and Commonwealth governments to the Kyoto Protocols on industrial carbon emission. It is suggested that government be obliged to publish Australia's and Western Australia's carbon accounting.

Atmospheric Ozone

The agreement to phase out chloro-flouro-hydrocarbons, used as propellants and refrigerants, is one of the few climate control measures agreed on a world scale. This has occurred as the enlargement of the Antarctic 'ozone hole' threatened ever-increasing numbers of Australians with skin cancers. The publication of ultra-violet exposure levels, health information on skin coverage, and the use of U/V skin creams is also one of the few widely accepted health promotional activities.

This is probably testament to the fact that many Australians are acquainted with, or know of someone, often relatively young, who has died of malignant melanoma. This feature is important in the discussion on barriers to the concept of sustainability and health.

Hormone Disruptors

Reproductive problems have been reported in various animal species exposed to levels of pesticides. These chemicals 'disrupt' hormonal systems. It is also claimed that food additives or growth promoters in animal husbandry can act as oestrogen competitors, (Vailliancourt). The ACF paper noted above, states that 45 chemicals have been identified as potential hormone disruptors in humans, but so far that potential has not been realised (Guest et al 1999). There are however suggestions of decreasing sperm counts in some human males.

It may be appropriate to include sperm counts and hormone analysis as environmental indicators as suggested from N.S.W., (Sladden et al 1999) and in table 1 above.

Other Global Effects and Complexities

The Regional Meeting on Sustainable Development for Asia and the Pacific held in November in Phnom Penh in preparation for the Johannesburg World Meeting to be held in 2002 noted poor progress towards the implementation of Agenda 21. It pointed out features that could be held responsible for constraints in progress to that goal (Agenda 21 2001). These are:

Widespread chronic and persistent poverty

Impact of globalisation the least developed being those least able to benefit from the process the financial crisis of 1997

Natural disasters

Lack of peace, stability and security

It is pertinent that these features are also those most likely to be compromised by non-sustainable development and its global and local climatic and social effects. There is thus a multiplier effect risking conflict and disaster with massive population displacement. This must have an effect on Western Australia. It is in our interest, and in the interest of our health, to ensure support for sustainability in our geographical region.

Stakeholders in Health and Sustainability

The ACF paper lists the numerous agencies that may be involved in health and sustainability (Guest et al 1999 p 24-25). They are:

Health sections

Aboriginal and Torres Strait Islander health
Chemical safety and regulation
Drug safety and regulation
Food safety and regulation
Health promotion
Occupational health and safety
Recreational activities
Radiation protection
Tobacco, alcohol, and drug regulation

Environmental sections

Biodiversity
Chemicals, waste, and air quality
Climate change
Ecological sustainable development
Environmental impact assessment
Land use planning
State of the environment planning

Other departments

Aboriginal and Torres Strait Islander organisations
Education
Employment
Finance
Foreign affairs
Housing
Land-use
Manufacturing
Mines and Energy

Primary Industry
Public safety
Regional development
Transport
Tourism

To which can be added:

Medical Associations
Universities
Federal and State governments as political agents
Local authorities
The community at large
Special Interest groups within community
    The aged, the young
    Women
    Ethnic minorities
The media
Legal authorities

This extensive list is to illustrate that no one is excluded from an interest in this matter

Barriers to Health and Sustainability

Globalisation, and Economic Rationalism

In 1992 in Rio de Janeiro the greatest gathering of world leaders had been gathered together in a supposedly common cause, that of planetary well being and the common good of humanity. The ideal of an Agenda for the 21st century in pursuit of that common good should have been inspirational for all. And yet there is general agreement that the planet is more damaged than ever and a significant mass of humanity exists in continuing misery.

Some of the reasons are stated above and have much to do with other 'agendas' that became politically pre-eminent in the 1990s. The philosophy of economic rationalism, which holds that the ability to pursue profit in a free market will eventually be of benefit to all, became allied to a rapid transfer system of finance and knowledge, and the exploitation of ever-lower labour costs. Globalisation has already been noted to have had mixed results (Agenda 21 2001, Agenda 21 2002).

The application of 'rational' health economics attempted to place 'health' as a purchasable commodity. Hence the interest by the World Bank in its sponsorship of the global burden of disease study (World Bank 1993). The 'Disability Adjusted Life Year' is a largely economic concept maximising those years of economic contribution, and focusing health programs onto those of maximum returns.

HIV/AIDS

This pandemic of a sexually transmitted disease has devitalised much of Southern Africa, is established in much of Asia, and now threatens Papua New Guinea, and the Indigenous Australians in Northern Australia. While the linkage to development is tenuous, its occurrence compromises both economic and health activities.

Complexity

The numerous stakeholders noted above are testament to the complex intersectorial, and interjurisdictional nature of the concept of health and sustainability. This complexity can be overwhelming. It is the main barrier to a government's ability to deal with this problem.

Present Health

Western Australians have never lived as long, or as well, as they do now. Moreover results from the GBD study noted above suggest that this will continue until 2016 (Mathers et al 1999). This has been noted before and, although a crude broad-brush statistic, it does not encourage resource commitment to future health problems that are not presently apparent. This has been argued as the reason for the success of arresting Australia's high skin cancer rate i.e. the disease was evident and the cause convincing.

Recommendations

1 That State government insist on Health Impact Assessments (HIA) to include environmental and social consequences of any proposed development. This would have the effect of galvanising interested stakeholders. This would lead to

2 A round table forum to discuss HIA. This would in turn recommend

3 State-wide health indicators directed to the environmental, health, and social consequences of development. Research funding to be allocated to establish valid data analysis.

The proponents of unregulated, unsustainable development would utilise proposals 2, and 3 to delay implementation of Health Impact Analysis. This must be avoided by the insistence on concurrent HIA, with development delayed until this can be assured and financially supported.

4 Publication of agreed State-wide health indicators.

5 Creation of a 'Science Aid' program for local groups to carry out their own assessment of development projects.

6 Publication of State and National Carbon Accountancy

7 State advocacy of much increased' Ausaid' directed towards sustainable development within Asia and the Pacific, with prerequisites to:
the abolition of trade barriers hindering the eradication of poverty and sustainable development in our region, while promoting fair labour laws and regulations and
the education, emancipation, and empowerment of women.

8 Increased public discussion on the concept that Western Australians may come to accept apparently decreasing standards of living in exchange for equitable living conditions for:
a) the locally disadvantaged in our own community,
b) internationally in our geographical region, and
c) globally for the coming generations.

That 'decrease' may well be such as to concentrate health and well being into factors that really matter to our population, and not those encouraged by a market placed philosophy involving non-sustainability and short term gains.

Conclusion

This background paper has explored the central concept of health within sustainability. It has not considered the sustainability of health services although admitting the need for this to be determined.

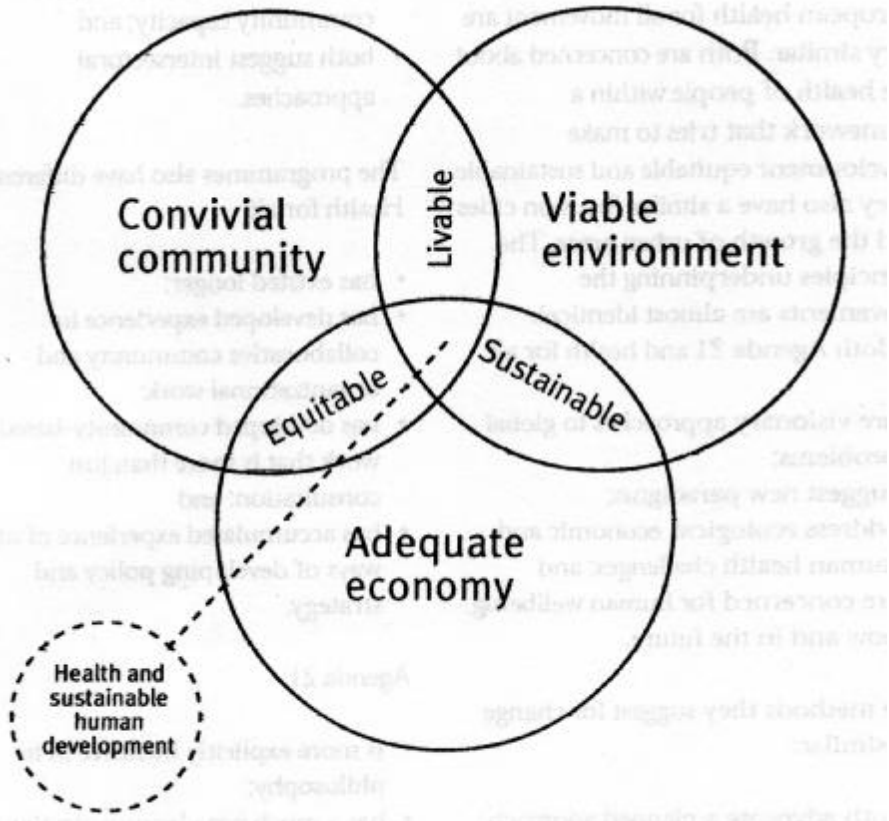
The paper asserts that there needs to be a different method of evaluating the over-all health of Western Australians to include social, psychological, cultural, and environmental factors. Different methods and types of health indicators are presented. It is argued that these indicators will be more sensitive to sustainable and non-sustainable development.
Western Australia will inevitably include Health Impact Assessment as a requirement for all proposed development programs. This process will require the epidemiological data

of health indicators and the ongoing research associated with their use. The paper recognises the requirement that the heath needs of indigenous Australians and other disadvantaged groups be included within the development and use of health indicators.

The place of State government within National and Local government activities directed towards environmental health is included. The poor general acceptance of Agenda 21 community programs requires reassessment. A support for community research is made.

The paper notes Australian, and Western Australian participation in regional programs of Sustainability. Consideration is given as to the Health causes and consequences of poor progress in these programs. It is considered that non-sustainability within Asia and the Pacific could eventually impact on the Health and Welfare of all Australians.
A view of health and sustainability is encapsulated in the diagram below taken from the Healthy Cities publication that shows health and sustainability as the overlapping concern of all other activities (WHO 1997).

Conceptual Model Health and Sustainability



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