

## EDITORIAL

### HEALTH AND ENVIRONMENTAL DILEMMAS: THE RIO SUMMIT

Much has been written about environmental impacts on health and disease since Rachael Carson's (1962) epic landmark *Silent Spring*. Perhaps the broadest interpretation of environmental impact is Lovelock's (1979) Gaia hypothesis and its more recent extensions (Lovelock 1988, 1991), in which the whole of planet Earth and its accompanying atmosphere is considered to behave like a giant self-regulating organism. Between these two pillars lies a vast literature in the popular and academic press, which has identified a wide range of environmental despoilation that impinges on economic development and the health of nations.

A critical realization, by no means new, is the interdependence of species, plant and animal, in the face of both intrinsic and man-generated environmental disturbance. Thus the limited anthropocentric view is far too confining to be relevant, since much of the human disease burden that can be traced to environmental recklessness represents intrusion upon other species and the relationship between the biota and the physical world.

Against all the aggressive hype and all the defensiveness of the differing human cabals, the key issue is action: what is to be done? It was in this spirit of positive aspiration that the United Nations Conference on Environment and Development, the so-called Earth Summit, was held in Rio de Janeiro from 3 to 14 June 1992.

It was of course symbolic that the meeting should convene in Brazil, where destruction of the Amazon rainforest symbolises the developmental dilemma of so many nations struggling to grasp a glimpse of the rainbow that colors the living standards of the profligate west. The hollowness of the hopes centered on conversion of rainforest to pastures lies in the well understood ecology of tropical forest soils: without the canopy their apparent fertility is non-renewable and as pasture they evolve into desert. Southeast Asia is caught in this dilemma too, for in Malaysia and Indonesia lies a substantial part of the tropical world's great rainforests, under massive commercial exploitation (Hurst, 1990). Here the gauntlet has

been thrown down to the rich nations: 'you free up trade and we'll save the forests' (Schwartz, 1992). Arguable GATT holds a significant part of the environmental key, for until trade equity is achieved, or at least seriously approached, resource exploitation will continue to follow those opportunistic paths which are open. This picture underscores the global nature of the environmental debate, not so much in the self-evident geographic sense but rather in the sense that it impinges on most of human activity related to economic survival.

That the Earth Summit was held at all was an achievement but the extent of conclusive action was disappointing. The failure of the USA to sign the biodiversity treaty signifies the limited view of the world taken by the biotechnology and pharmaceutical industrial lobbies: species are there to be exploited for commercial gain. Medicine is one of the main beneficiaries of chemical conversion of wild plant species into therapeutic drugs. The west, having denuded its own wild gene pools, seeks ownership rights of the prolific plant genetic resources of poorer nations for minimal return. The debate must be kept wide open: who contributes more to drug development, the chemists who identify molecular structures and synthesize analogs, or the peoples of the forests and the farms where de facto clinical trial and error of cultural history has yielded the presumptive data base ready for easy cropping?

This debate crystallizes some of the major issues in the environmental dilemma: the interdependence of species, the intricate environmental fabric woven by cultural history, the dominance of the culture of money acquisition over harmony with nature. These issues permeate many of the specific areas of environmental concern related to human health: the excesses of chemical agriculture with its negative trade-offs for increased food production; the diminishing supplies of potable water and the health threats from pollution; the disruption of whole communities by the insatiable search for new energy sources to supply expansion of manufacturing industries; the toxicity of industrial outputs and wastes; the endless crowding of human

populations into inelastic urban conglomerates (WHO, 1992).

Perhaps the most important environmental agenda item was censored out of the Rio program: human population (Anonymous, 1992). Despite heroic efforts by some countries, such as China, Costa Rica, Thailand and more recently Indonesia to take serious educational steps to control population growth, the outlook for the next few decades on a global scale is ominous (Ehrlich and Ehrlich, 1991). The 400 million people of Southeast Asia epitomise the horns of this part of the dilemma, encompassing as they do countries with population expansionist dreams of the economic power of large home market size, others with focal population crowding now for which there is no migratory solution; overall there is the common picture of mobile populations seeking their place in the sun in the face of increasing economic inequity. The increasingly overcrowded urban slums, with their deteriorating health support, testify to the urgency of the problem.

Time is a critical constraint in the environmental strategy. And money. Both are in short supply. To prevent destruction, to prevent pollution is cheaper than to clear up after the damage. Just as we recognise that preventive medicine is a better yielding investment of health care dollars than the massive spending on therapeutic medicine in which we overindulge, so too much of the talk is about cleaning up the environment after the cataclysms and how to pay for it. The health of human populations is an integral part of the stake. Here it is bound up with the momentum of economic growth versus environmental conservation, the push for sustainable development (Smith, 1992) versus the steamroller of industrial disdain. Yet the failure of the industrial giants of underwrite more than a fraction of the investment needed in the preventive strategy tabled in Rio underscores the distance the race has yet to run even to catch a fleeting vision of equitable development.

The macropolitics aside, the global challenge to health planners emanating from the Earth Summit lies in the realms of both macro and micro economic strategies for improving the odds against disease in the environmental wars. The continuing dramas of communicable disease are being joined by a widening spectrum of problems relating to industrial and agricultural toxicology, by accel-

erating rates of industrial accidents, by chronic diseases, by diseases of poverty. Medicine and public health in the tropical world are inexorably caught up in the developmental race with its environmental recklessness, short term goals and blinkered future. The Summit has served to focus global attention on the problems. We have the analyses (World Commission on Environment and Development, 1987; Report of the South Commission, 1990; WHO, 1992). We now must look to the solutions, through application of appropriate technology, strategic planning and economic balance within a framework of cultural wisdom.

Chev Kidson

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## NINETY YEARS AT IMR

Of the centers which currently comprise the SEAMEO-TROPED infrastructure in Southeast Asia, the Institute for Medical Research (IMR), Malaysia is the oldest (although in terms of regional institutions Institut Pasteur in Ho Chi Minh City, Vietnam, is 10 years senior, having celebrated its centenary in 1991). It was thus with distinction that IMR placed on public record on 23-25 June 1992 its achievements of 90 years, in an international seminar in Kuala Lumpur.

At the time IMR was founded Kuala Lumpur was a tin mining town of 32,000 people, rubber not having been introduced until 1906. Beri beri was claiming its victims by the thousands in that period of history. Eight of fourteen wards in Kuala Lumpur hospital being reserved for its treatment. Dysentery and other infectious diseases posed problems without specific solutions (Ramathan *et al.*, 1976).

In his report in this issue of the Journal the present Director reviews current and past work at IMR, reflecting on what 90 years of research have yielded for the benefit of Malaysia and of mankind in general. The compendium is large and long of the achievements that reflect the changing panorama of health in Malaysia over the best part of a century.

Today Malaysia basks in pride at its attainment of one of the world's highest economic growth rates, having reached a *per capita* GNP of nearly US\$2,500 in 1992. While this wealth is not evenly spread, the nation can boast very substantial advances in dissemination of health care and education in recent years, and a widespread increase in living standards. To a significant degree it can be argued that the economic growth reflects expansion of export-oriented manufacturing industrial output, following massive domestic and foreign investment in a country rich in natural resources. This changing industrial scenario is gradually altering the disease patterns in many areas of the country, presenting new challenges for the Ministry of Health and for the IMR, the Ministry's centerpiece of research and development. For this reason it was of prime importance that the review process should highlight this moment, rather than awaiting passively for another decade until the centenary bells ring, reflecting an impatience for change.

For it is the ability to respond to change that marks the relevance of research centers as instigators and promoters of new ideas and new strategies. It was thus hearkening to hear the Director of IMR and the Director-General of Health announce moves to expand IMR activities in the clinical arena, in chronic disease epidemiology and in technology development. It is salutary that WHO's special input into strengthening epidemiology and immunology in recent years is now shifting to augment the Institute's capabilities in nutrition together with its implications in the environmental equation. In a different frame of mind, for example, in an era when road and industrial accidents loom high on the list of causes of morbidity and mortality, we may ask what can a research institute contribute to their reduction? Is this an IMR function or would pursuance of such a question dilute the research effort too tangentially?

In a sense IMR should be in a good position to answer the new challenges, if it can devise appropriate ways of staff retraining and mobility of expertise. For its whole lifetime it has been devoted to practical issues affecting the health of Malaysian populations, translating basic ideas and technologies to field control programs. It has not been a closeted ivory tower. For much of this lifetime, however, the main challenge was considered to be infectious diseases, especially infections peculiar to tropical regions, with emphasis on vector-borne problems such as malaria, filariasis, scrub typhus, but covering the gamut of infections: viral, bacterial, rickettsial, mycotic, parasitic. The annals of IMR history have recorded compendia of contributions in this broad field, as well as in nutrition, with others in fields such as genetics and cancer being added in more recent times.

One of the dilemmas faced by IMR and by many similar institutions in the tropical world is that of pursuing the conquest of infectious diseases in the face of rising incidence of chronic illnesses and other diseases of affluence related to environmental change and to extended lifespan. Any institute must *focus* to achieve excellence, yet perceived priorities change rapidly in a more mobile world with its global economy in which the competitive advantage of nations is a compelling force (Porter, 1990). The rapidly increasing dominance of urban centers over rural expanses changes the

perceived priorities of health care, even though the rural heartland continues to contribute substantially to economic growth, albeit a diminishing proportion thereof. Pressure is thus generated to give thought to changing strategies for infectious disease control, requiring a more judicious selection of appropriate technologies, including epidemiologic modelling as well as diagnostic and therapeutic modulations.

In this context the critical issue of infectious disease surveillance, following the control phase, requires also careful economic modelling, to make better use of manpower, facilities and technology. There is no reason why economic analysis and forecasting cannot be coupled with epidemiologic planning: both are more mature sciences now than in the earlier period of IMR history. But in reality the question is partly one of political economy, for it is not easy to argue for continuing large budget allocations for control of infectious diseases affecting fewer and fewer people, even though the experts know that diminished surveillance carries the risk of renewed (and explosively expensive) epidemic activity. The case has to be for more sophisticated strategies than in the past with respect to technology, manpower and economic returns, as well as providing accuracy in prediction of risks.

The gradual evolution of IMR's attention to computer-based epidemiologic strategy development and to human behavioral research has yielded a thrust with potential to move in this direction. The expansion of capability in biotechnology is also encouraging, though it is perhaps still too early to estimate its full potential across the disease spectrum. Yet it is probably the potential for IMR

to influence the health system as a whole, from primary to tertiary care, that is most important in the years immediately ahead. For this objective to be realized, the increased clinical interface being encouraged is critical, since this will allow permeation into the clinical arena of the quantitative guidelines of epidemiologic planning and evaluation, as well as of collaborative development and application of newer technologies *per se*.

Few countries in the tropical world are fortunate to have an institution like IMR positioned so critically between the academic and pragmatic spheres which are both essential for advancement of health care in the national perspective. Although some conceptual shifts in infrastructure may be needed to provide the necessary freedom of movement to adapt to competitive demands, it has a justly proud history and is gearing up to an even more challenging future. We congratulate the Institute for Medical Research and the community of people who guide and carry out its work, offer the utmost encouragement for tackling the exciting period ahead and look forward to the centenary bells a decade from now.

Chev Kidson

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