

# DEBATE

*Per Fugelli:*

## In Search of a Global Social Medicine

*Words ought to be a little wild, for they are the assault of thoughts upon the unthinking.*

John Maynard Keynes

The patient Earth is sick. There is a big team trying to help: ecologists, economists, environmental activists, politicians. But the medical doctors are mainly absent. The impact of the disruption of natural ecosystems

on human population health may be profound. It is, therefore, essential to call upon doctors to give a world diagnosis and help with the treatment.

### *The world diagnosis*

From an ethiological point of view, our patient Earth suffers from over-population and over-consumption. From 1950 to 1992 the world population increased from 2.6 to 5.5 billion, mainly in the Poor World. UN demographers project the number of human beings to reach 9 billion in 2030 and 11–12 billion later next century<sup>1</sup>. More than 90% of the growth will take place in developing countries.

The "consumption trap" in the North may endanger the prognosis of the patient Earth as much as the demographic trap in the South<sup>2, 3</sup>. The energy output per capita in the rich North is fiftyfold that of the poor South. In Los Angeles there are more motorcars than in China, India, Indonesia, Pakistan and Bangladesh put together. In 1989 the emission of CO<sub>2</sub> was 5.37 tons per capita in the US, 2.31 in Japan, 0.38 in Brazil, 0.21 in India and 0.03 in Zaire<sup>4</sup>. It has been estimated that if every inhabitant of the Earth adopted a western lifestyle, five planets would be needed to supply the resources and absorb the waste<sup>5</sup>.

We have been exploiting the planet as if its resources are limitless. They are not. The ecological imbalance is now clearly observable in environmental degradation<sup>6</sup>. Signs and symptoms escalate indicating that global environmental change will cause illness on a massive scale<sup>7</sup>.

### *Health in the greenhouse<sup>8 9 10 11 12 13</sup>*

From the last Ice Age, 5000 years ago, the global temperature has increased by 1 degree Celcius per 1000 years. Now, we are probably to be confronted with a similar increase every twenty years. Atmospheric CO<sub>2</sub> hinders the outlet of heat from the Earth. The concentration of atmospheric CO<sub>2</sub> has increased by 25% since the industrial revolution. Now it is increasing at a rate of 0.5% per year.

A global temperature rise of 2–5 degrees Celcius the next century will result in increased morbidity from heat stress and heat stroke, particularly among elderly and chronically ill persons.

Climatic changes will alter the distri-

bution of disease vectors and reservoirs and thereby the occurrence of epidemic infectious diseases. Shistosomiasis, leishmaniasis, rabies borne by the vampire bat and malaria can advance to higher latitudes as global warming increases.

Global warming will change the basic living conditions in parts of the world. Weather extremes, cyclones, floods, landslides, fires are likely to increase. A rise in sea level of 0.5–1.0 metre from melting of the polar ice, will make delta lands and coastal areas uninhabitable for millions of people. Global warming will aggravate the strain on the remaining crop land and water resources. These biometeorological changes will probably induce geopolitical instability, economic chaos, large-scale migrations, perhaps ecological wars. The impact on the health of humankind may be dramatic.

#### *Ozone and health*<sup>9 14</sup>

Stratospheric ozone protects life on Earth against ultraviolet radiation (UVR). The concentration of ozone-destroying chlorofluorocarbons (CFCs) increased by 5% annually through the 1980s. 4–5 % of the ozone layer over the Nordic hemisphere has disappeared during the last ten years.

The additional UVR will result in an increase in cataracts and skin cancers. A 10% loss in stratospheric ozone may cause 1.75 million cases of cataract worldwide each year, and increase the incidence of malignant melanoma by 20%. UVR causes immune suppression. The clinical significance is uncertain. Increased UVR will affect adversely the food chain. Reduced growth is already evident in essential plants such as peas and beans as well as phytoplankton.

#### *Pollution and health*<sup>14</sup>

Pollution from road vehicles, industries and power stations threatens health universally, but in particular in the former communist block and in the Third World urbanisations. Cause-effect examples are:

|                              |            |
|------------------------------|------------|
| Sulphurous compounds, ozone, | Asthma,    |
| nitrogen oxides              | bronchitis |
| Volatile hydrocarbons        | Cancer     |
| Benzene                      | Leukemia   |
| Heavy metals (lead, mercury) | Toxaemia   |
| Most pollutants              | Allergies  |

#### *Radiation and health*<sup>15</sup>

The nuclear powers still have 10 000 nuclear warheads. There are 500 nuclear plants on Earth. Hitherto they have left 84,000 tons of highly radioactive waste, producing 10,000 more tons every year. No country has found a safe way to store or destroy the waste. The half time of Plutonium 239 is 24,400 years.

High levels of radiation result in severe injury or death. Low level radiation may induce cancer, genetic change and reduced immune response. The radioactive material incorporated into human beings by the end of this century from fallout from nuclear weapon testing, will eventually produce 430,000 cancer fatalities.

#### *Reduction in biodiversity and health*<sup>13 16</sup>

Due to pollution and loss of tropical rainforest, the Earth now loses 50,000 species of plants and animals every year. The extinction of species implies loss of medical chemicals. The value of the Earth's biota (the fauna and the flora collectively) is poorly understood. The ecomedical damages of the ongoing reduction in biodiversity are therefore unpredictable.

#### *North-South inequity and health*<sup>17 18 19 20 21 22 23</sup>

Economy interacts with ecology. The maldistribution of resources between North and South is part of the global ecological imbalance. 1200 million human beings in the Third World live below the absolute poverty line, deprived of basic sanitation, water supply, nutrition, housing, education, employment and health care.

The poverty in the Third World endangers the environment in three ways:

- In many regions the population exceeds the biological capacity. The local ecosystem cannot supply enough food on a sustainable basis. In order to survive, short-term, the population is forced into land-exhausting agriculture, depletion of water resources, deforestation.
- Many developing countries build industries without sufficient environmental security.
- Hazardous, toxic waste from the Rich World is increasingly dumped in poor countries.

## The prescription

Such is the world diagnosis. Is it possible to write a prescription for hope? History says yes. Humankind has outlawed slavery, eradicated smallpox, reversed the nuclear arms race. A dismal future is not preordained.

### *The ethics of change*

The media revolution may promote a necessary globalisation of moral responsibility. Live pictures of human misery are brought into our living rooms and minds from all over the world. Overexposure may lead us into a refractory state, but the electronic unification of the planet may also widen the scope of our social consciousness.

Furthermore, the very nature of the ecomedical threats calls for a universal ethic. Acid rain does not respect national borders. The radio-isotopes from Chernobyl were implanted in reindeers in Arctic Scandinavia. Melting of the polar ice will have the most severe effects on islands in the Indian ocean.

The moral code of the past, giving priority to me, my family, my town, my country, is not valid with respect to sustainability in the 21st century<sup>24</sup>. To prevent an eco-catastrophe, we must shift the unit of concern and commitment from me to us, from nation to planet, from now to future.<sup>6</sup>  
7 25 26

### *The psychology of change*

This challenge should be addressed with particular vehemence to the inhabitants of the Rich World. In the affluent North, there is a severe bias of perception, with tendency to blame the 'others', the people of the South. The monomaniac demand for birth control in the Poor World is one example. Each baby born in Scandinavia represent a 50-fold greater strain on the global ecosystem than does a newborn in the Third World. The continuous flow of North Sea oil may contribute to global warming as much as the deforestation in the Amazon. Bears and wolves were decimated in Scandinavia decades ago for the sake of economical progress. Today we urge Africa to save their elephants.

In addition to eurocentrism, we have to fight the collective apathy of the North. The

Titanic syndrome is all too popular: global disaster is closing in on us unavoidably, so why not enjoy the last moments on the first class deck

The neoliberalism of the 1980s sharpened the socio-economic inequities between North and South and fuelled cynicism<sup>2 3 27</sup>. The debt of the poor countries doubled from 600 billion US dollars in 1980 to 1200 billion in 1990<sup>28</sup>. The net flow of money has been reversed. More than 100 billion US dollars now go annually from the poor to the rich countries<sup>18</sup>. After decades of growth, the GNP has fallen in 40 developing countries during the last decade<sup>23 29</sup>. The economic backlash is reflected in worsening health care and health status, most brutally manifested in the poorest countries<sup>30</sup>.

In spite of the depressing 1980s, a long-term perspective demonstrates substantial achievements<sup>18 31</sup>. From 1955–85 infant mortality rates were reduced from 126/1000 to 63/1000 in Latin America. In 1960, 34 countries had a life expectancy at birth of less than 40 years. Today there are no countries in this category. In 1970, 20% of the Third World children were vaccinated against measles, polio, diphtheria, tetanus and whooping cough. In 1990 the coverage was 70–80%, reducing the annual mortality from 5 million to 2.6 million children.

Decolonisation, industrialisation, the liberation of women, improved education, widespread affirmation of human rights, international aid, national health system development, have brought great gains to the Third World population.

Thus, there are no historical or biological arguments for the laissez-faire policy of the North. On the contrary, international economists and ecologists<sup>2 5 6 25 32</sup> support the statement of Donella Meadows, co-author of the classic *Limits to Growth*<sup>33</sup>: 'The earth is a fruitful, beautiful, and resilient planet. Homo sapiens is a strong and resourceful species. If the global society just decided to do it, it would be simple to create a secure, equitable, sustainable, and sufficient life for everyone — much simpler than trying to maintain continuous physical growth on a finite planet'.

Let there be no doubt: sustainable devel-

opment is achievable. The question is: how to do it.

### *The politics of change*

The political prescription for sustainable global health contains several remedies<sup>6 7 29 34 35</sup>:

- A new world economic order including:
  - reduction in Third World debt
  - better prices for Third World's natural resources (exports)
  - reduction of trade protection favouring the industrialised countries
  - making advancements in science, especially biotechnology, available to developing countries.
- A new global security concept channelling funding from the military threat of the past to prevention of the ecological enemy of the future. If 10% of the world's annual military spending had been used to reduce Third World debt, it would have been wiped out in 20 years.
- Replace GNP as the measure of progress and welfare of nations. GNP reflects economic growth only, which may be counterproductive in ecological terms.
- Develop combined economical/ecological budgeting systems for enterprises, building environmental credit and debit into the calculations.
- Introduce taxes on activities that exploit

natural resources, waste energy or pollute the environment.

- Enforce laws against ecological crime.
- Escalate environmental aid to Eastern Europe, the former Soviet Union and Third World countries.
- Promote birth control in the Third World.
- Promote consumption control in the Rich World.
- Expand research into and use of alternative energy (sun, wind, waves).
- Stimulate recycling and recirculation.

### *The personal implication of change*

It is easy to join in with macropolitical proclamations. The trouble starts when Gandhi whispers: 'The change you want to see in the world, you must be yourself'. It is the sum of the values, actions and lifestyles of each one of us that creates policies and shapes future development. The personal challenge for us in the rich North is to enter a sustainable lifestyle. This means:

- reducing luxurious consumption
- eating food that is lower down the food chain
- reducing the use of private motorcars and making greater use of public transport
- wearing warmer clothes and tolerating colder rooms
- making fewer energy-wasting journeys.

## *A global social medicine*

The patient Earth calls for the doctor, but nobody answers. Hitherto medicine has not responded to the ecological challenge. The reasons for medicine's negligence may be found in ethics and culture. The western medical ethic is anchored in the absolute value of each human being. The doctor's commitment is with the individual patient, not with the population or the ecosystem. The current ethical paradigm is now criticised for not giving attention to social justice, the sustainability of the ecosystem and the welfare of future generations<sup>35 36 37</sup>.

Biomedicine as a culture is characterised by<sup>38</sup>:

- a reductionist approach

- a focus on disease as a biomechanical failure
- a focus on the human body rather than the global or the local ecosystem
- the locating of most resources in hospitals.

This is in opposition to the basic elements in the new ecomedical paradigm advocated by ecologists and public health innovators<sup>6 20 21 32 39 40 41</sup>. This calls for:

- concentration on the whole rather than the parts
- a focus on the ecological context of illness and sickness
- an emphasis on medicine interacting with other health-related sectors: agri-

culture, education, economics, politics etc.

The prevailing biomedical culture with its individualistic orientation, technological mode of response and institutionalised traditions is not prepared to cope with the global medical challenge. Thus, a global social medicine requires a radical shift in the ethical and cultural foundations of modern, western medicine.

To promote this reorientation, we have to clarify the potential values of medicine's contribution to ecology. Why and how should doctors join the team trying to heal the Earth?

Doctors have, by profession and tradition, a central moral responsibility to prevent disease and relieve suffering. As Lown<sup>42</sup>, on behalf of IPPNW, put it in his Nobel Prize lecture: 'It may be argued that nuclear war is a social and political issue and we may address it only as concerned citizens. But we physicians have taken a sacred and ancient oath to assuage human misery and preserve life. This commitment imposes social and moral obligations on us to band together to make our collective voices heard'.

Furthermore, doctors are trusted by the people as guardians of their health. From ancient times doctors have been expected to identify, report on and fight epidemics and health hazards<sup>1119</sup>.

Finally, physicians possess specific competences and skills that may be used for the treatment of the patient Earth.

#### Research

A critical review of the literature on environment and health reveals an alarming lack of scientific evidence<sup>9 10 11 13</sup>. In particular, the medical consequences of environmental changes are poorly documented. The situation is clearly grasped by the World Commission on Environment and Development<sup>22</sup>: 'The rate of change is outstripping the ability of scientific disciplines and our capabilities to assess and advice.' There seems to exist an inverse research law: resources are allocated to minor, sophisticated topics, while essential global health problems remain untouched by medical money and minds.

In the vacuum of research-based knowledge, myths and dramatisations thrive. By

strengthening research on environment and health, medicine can counteract the tendency to fanaticism and New Age romanticism present in today's ecological movement<sup>43</sup>. By reinforcing the scientific foundation, medicine will also contribute to:

#### Education

To rescue the patient Earth, fundamental changes in policies and personal lifestyles are required. Power structures and individual minds will not alter on the mere basis of assumptions. Hard evidence is needed to motivate painful adaptations.

In addition, medicine can promote ecological consciousness by highlighting *the patient* on the environmental stage. Statistics are people with the tears washed off. Global figures — millions of tons, billions of people — do not provoke a response. One patient, his illness and suffering, does.

The third impact medicine can make on the prognosis of the patient Earth, is by giving:

#### Hope

There is a strong bias towards apocalyptic statements in the ecological movement. Dramatic proclamations like: 'We have ten years to save the planet, then it will be too late', are all too common<sup>7 26</sup>. The medical tradition of combining realism with hope can counteract the apathy created by the prophets of doom.

The commitment to global social medicine should be shared by all physicians:

The *medical research community* should channel resources away from marginal biomedical topics towards the study of the survival of human populations related to the environment's carrying capacity. Essential topics must be<sup>12 13 39</sup>: reproduction control, toxicology, the effects of global climatic changes on food supplies and health, the medical consequences of the loss of biodiversity, the consequences for health and health care of potential ecological migration, terrorism and wars.

The *practitioners* in hospitals and in primary care can make their ecological contribution in two ways: The clinical meeting has proven to be a golden opportunity for changing lifestyles. In the future, advice on sustainable lifestyle should be integrated

into the consultation. As with smoking and exercise, doctors should act as good examples by pioneering new, ecologically sustainable lifestyles themselves. In addition to the preventive outcome, there may be a clinical value in introducing ecomedical topics into the consultation. Many patients are deeply concerned for their own and their children's health as related to pollution, radiation, future water and food supplies, etc.. Bringing up these hidden agendas, and empowering the patients to personal action, may have a therapeutic effect.

All physicians should engage in making clinical practice more ecologically sound. Western medicine today represents, at the extreme, a big spending enterprise<sup>44</sup>. The pharmaceutical industries and the medical technology firms are among the fastest-growing businesses in the USA, Japan and Germany. The proportion of GNP spent on health may rise from 12% to 20% in the USA during the next seven years<sup>45</sup>. As health economy seems out of control, the sustainability of health policies and clinical practice is also questioned<sup>32 46 47</sup>. The dehumanisation of the doctor-patient relationship, the medicalisation of the problems of daily living, overprescribing of drugs, the addiction to costly clinical chemistry and high-tech examinations, the extreme social bias in availability and quality of medical services, all add to the image of non-sustainable health care systems.

In order to obtain credibility as ecomedical advocates, doctors must first put their own house in order. A first step could be to develop guidelines for ecologically sustainable health policy, hospital management and clinical practice.

All disciplines in medicine must take

ecological responsibility. But the ecomedical scenario charges one discipline in particular: *Public health*<sup>20 21 39 40 41</sup>. During this century public health has confronted three major challenges:

- the infectious diseases of the past
- the lifestyle risks of the present
- the global environmental hazards of the near future.

A new public health concept grounded in ecology and recognising the interactions between politics, economy, biology, environment and health, may be medicine's most useful instrument for healing the patient Earth. The new public health approach must re-examine the fundamentals: housing, nutrition, water, sanitation, education, occupation, transport, genetics, microbiology, medical and social services — with new ecological eyes and set new standards within the scope of global sustainability<sup>19 48</sup>.

By demonstrating the relations between the disruption of the ecosystem and the dangers for present and future human health, the new public health can contribute to enlightened public opinion. By offering decision-makers empirical evidence and realistic predictions, the new public health can induce policies to prevent the ecocatastrophe.

In Venice there is a famous mask, representing The Plague Doctor. The mask has opaque eye glasses symbolising the physician who shields his eyes from the sight of the plague victims. The mask also have a long nose for deposit of perfume, to protect the doctor from the stench of the dead. Western medicine must now unmask and confront the global ills.

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## Summary

*Per Fugelli, 'In Search of a Global Social Medicine', Forum for Development Studies, No. 1, 1993, pp. 101–108.*

The patient Earth is sick. The six major ecomedical symptoms are related to: global warming, depletion of the ozone layer, pollution, radiation, reduction in biodiversity and North–South inequity. The medical profession and science have neglected the

patient Earth. Medicine can contribute to a sustainable global health:

- by giving priority to ecomedical research
- by profiling health education in ecomedical direction
- by promoting ecologically based health policies and clinical practices.