

NOTES, NEWS & COMMENTS

Proposed World Water Council

Origins

Concrete steps to establish a World Water Council were taken at a meeting of a founding committee on 31 March–1 April 1995 in Montreal, Canada. Building on discussions growing out of the 1994 Dublin Conference and the most recent International Water Resources Association (IWRA) World Congress, a draft statement of objectives and mode of operation was prepared and is now being circulated for comments and to chart more definitive action in September 1995.

The background for the effort was canvassed at a special plenary session at the IWRA (organized by Brian Grover of the Canadian International Development Agency [CIDA] and Guy Le Moigne of the World Bank) Congress in Cairo, Egypt, in late November 1994. The papers from the review are being published in the *International Journal of Water Resources Development* as edited by Asit K. Biswas (Biswas *et al.*, in prep.). They examine the needs within and without the United Nations system since the Mar del Plata Conference of 1977,* and appraise a variety of possible actions — including the suitability of the model of the World Energy Council, now based in the United Kingdom.

Those reviews were supplemented by statements from representatives of the Bahrain Ministry of Works, Power & Water, the International Water Supply Association, the International Association for Hydraulic Research, the International Association on Water Quality, the International Commission on Irrigation and Drainage, and the Water Supply and Sanitation Collaborative Council. Reference was also made to encouragement from the Ministerial Conference on Drinking Water and Environmental Sanitation, held in The Netherlands in March 1994.

Exploratory Committee Appointed

The IWRA appointed a special committee to explore the idea further under the chairmanship of Dr Mahmoud Abu-Zeid, Senior Under-Secretary of State and head of the National Water Research Center in Egypt. He chaired the inaugural meeting of the Founding Committee in Montreal. That group included, in addition to IWRA, members from CIDA, the Global Water Policy Project, the International Commission on Irrigation and Drainage, the International Centre for Advanced Mediterranean Agronomic Studies, the Moroccan Ministry of Agriculture, Stockholm Environment Institute, the Uganda Directorate of Water Development, the UN Development Programme, the World

* See the account by Dr E. Barton Worthington which we published in our Summer issue of the same year (*Environmental Conservation*, 4[2], pp. 153–4, 1977).

Bank water sanitation, and environmentally sustainable development, programmes, the World Health Organization, Wuhan University of Hydraulic and Electric Engineering, and the World Conservation Union.

The Founding Committee that developed from the above exploratory committee produced a 'Montreal Initiative' that specifies strategic considerations, missions, objectives, scope of activities, membership, governance, financing, and implementation arrangements. (Copies of the Montreal Initiative may be obtained from Ken Lum, IUCN–The World Conservation Union, 38° Rue St Antoine, Montreal, PQ H2X 3K7, Canada, or Glenn E. Stout, IWRA, 1101 West Peabody Drive, Urbana, Illinois 61801-4723, USA.)

In brief, the World Water Council as proposed is to be non-profit, non-governmental, and non-political. It is not to duplicate existing organizations, and is to provide an independent, neutral, participatory forum to cover global water issues — so as to facilitate management and use of water on an environmentally sustainable basis for the benefit of all people.

Details of who will be the principal stakeholders and how they will interact in management are being examined carefully, and will be the subject of a meeting of the Interim Founding Committee at Bari, Italy, on 17–18 September 1995. Clearly it is important that the first membership be representative of all major interests, and that the first activities be significant and practicable.

The Montreal International Conference Centre Corporation has offered to provide partial support for an interim period of five years, and other potential funding sources are being explored. Steps are being taken to establish an Interim Board of Governors, selected from among founding stakeholders.

For the first time since hopes were raised at Mar del Plata in 1977, it seems likely that the world will soon have an organization that is capable of bringing together and mobilizing all groups — governmental and non-governmental — concerned with environmentally sound management of water.

REFERENCE

BISWAS, A.K., MAGEED, Y.A., & WHITE, G.F., CHITALE, M.A., GROVER, B. & JEFFERSON, M. (in prep.). Papers on World Water Council. *International Journal of Water Resources Development*.

GILBERT F. WHITE
Institute of Behavioral Science
University of Colorado
Boulder
Colorado 80309-0482
USA.

Increasing Land Scarcity Poses Threat of Food Shortage

With the world's human population growing very much faster than its cultivated land area (Fig. 1), the food security of hundreds of millions of people may be at risk early in the next century, according to a new report by Population Action International (PAI).

In the early 1960s, only four countries — Kuwait, Singapore, Oman, and Japan — had insufficient arable land to feed their populations without highly intensive agriculture, but they were wealthy enough either to import food or to increase agricultural productivity with modern farming

methods. By 1990, the number of countries with scarcity of arable land had risen to nine, and included The Netherlands, South Korea, and Egypt. By AD 2025, however, at least 17 additional countries are projected to join the ranks of countries suffering from a scarcity of arable land, among them some of the world's poorest nations: Somalia, Bangladesh, Kenya, Mauritania, and Yemen.

The new study, *Conserving Land: Population and Sustainable Food Production*, employs a benchmark of land scarcity conservatively set at 0.07 hectare of arable land

per caput — an area less than one-seventh the size of an American football field. Below that benchmark, farmers must employ highly intensive and generally expensive* agricultural methods — using inorganic nitrogen fertilizer, for example — to feed their countries' peoples.

'In the next century, we will be faced with the challenge of growing enough food for at least 3 thousand million more people than are alive today, while also improving diets and reducing malnutrition', says Robert Engelman, co-Author of the study and director of PAI's population and environment programme. 'We will have to grow much more food on the same amount of farmland, but we will be working with land that is becoming increasingly degraded and, in many countries, using farming methods inadequate to the task.' †

Projections for Population and Arable-land Scarcity: AD 2025

The UN projects world population to reach between 7.6 and 9.0 thousand million people in AD 2025, with the medium projection indicating a population of 8.3 thousand million people in that year. The number of people living in countries with scarcity of arable land will depend greatly on which of the three population projections comes closest to reality.

On a country-by-country basis, the UN's low and high population projections indicate that arable land scarcity could affect as few as 918 millions or as many as 3 thousand million people, living in between 26 and 37 countries, in AD 2025. Under the medium projection, an estimated 2.5 thousand million out of 8.3 thousand million people, or one in three people, would live in 36 countries with less than 0.07 hectares of arable land *per caput*. China's projected population of 1.5 thousand million represents more than half of those who would be affected by arable land scarcity under this projection in the year 2025.

This new study includes data on *per caput* availability of arable land in 125 countries at three points in time — 1960/61, 1990, and 2025. 'Scarcity of arable land has the biggest impact in Africa, where farmers are least able to afford fertilizers and other means to boost agricultural production', Dr Engelman notes. 'Already one in three Africans is malnourished. Despite an array of obstacles, African farmers have been increasing their productivity — but not enough to keep up with the continent's 3% annual rate of population growth.'

Eight of the 29 countries projected as land-scarce under the medium population projection for AD 2025 are in Africa; another six African countries — including Rwanda and Malawi — are projected to be only fractionally above the 0.07 hectare benchmark. In ten of these 14 countries, people already consume an average of less than 2,400 calories a day; in another five countries the figure is less than 2,100 calories. Over the period 1988–90, food imports absorbed more than one-quarter of total export earnings in six of these 14 countries — in Egypt, Mauritania, Somalia, Togo, Rwanda, and Sierra Leone.

The task of increasing agricultural production in a number of land-scarce countries is further complicated by a lack of fresh water. Fully 12 of the 29 countries projected as land-scarce in AD 2025 will be classified as also water-scarce, with less than 1,000 cubic metres of renewable

* as well as often ecologically disruptive. — Ed.

† This is a particularly worrying thought at a time when the world's fish-stocks are deteriorating to an extent that is causing widespread concern. — Ed.

WORLD POPULATION AND ARABLE LAND, 1700-1990

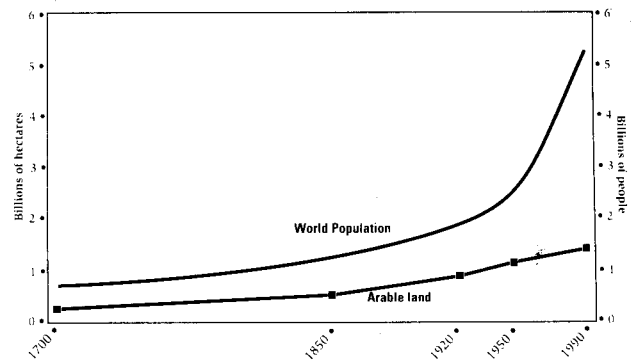


FIG. 1. World population and arable land availability, 1990–2050. The 'Billions' are American ones (French milliards) of one thousand millions each, English (OED) billions being a million millions.

fresh water per person available for agricultural, industrial, or domestic, purposes each year. Four of these land- and water-scarce countries — Egypt, Yemen, Somalia, and Haiti — already spend more than one-quarter of their export earnings on food imports.

Food Security: Declining Reserves

'Food security — meaning economic and physical access to enough food for a healthy, active life — has been seen as primarily the concern of individual nations', says Pamela LeRoy, co-Author of the PAI study. 'But as more and more countries cross these benchmarks of land and water scarcity, international cooperation will be critical, if *per caput* agricultural productivity in these resource-poor nations is to increase.'

At the international level, food security is often measured by the availability of emergency grain reserves. These reserves peaked in 1986, when there was enough grain for more than 14 weeks of world consumption. In 1994, there were sufficient reserves for less than nine weeks. On a *per caput* basis grain production has been declining since 1984.

Land: A Deteriorating Resource-base

In 1990, about 1.4 thousand million hectares of land were under cultivation world-wide predominantly under cereals, and reflecting a five-fold increase in cropped area since AD 1700. But the rate of expansion in arable land — currently less than 0.2% per year — is declining steadily. And while an estimated 100 million hectares of land are newly cultivated each year, a roughly equal area is lost to other human uses or becomes too degraded to farm effectively. The 'new lands' are also usually of lower quality, according to PAI.

Each year, about 25 thousand million metric tons of nutrient-rich topsoil is dislodged by wind and rain, most of it eventually finding its way into waterways. Moreover, the soil that is left is less able to hold water and can eventually become too dense for roots to penetrate. And salinization — the build-up of salts and other minerals in the soil — is a growing problem for the one-sixth of the world's cropland that is irrigated, and that produces more than one-third of all crops and half of all cereal grains.

Modern agricultural methods, while responsible for dramatic increases in food production over the last few decades, rely heavily on man-made fertilizers and pesticides that can harm not only the water-retaining quality of soil, but also the beneficial organisms and the purity of

drinking-water. Agriculture also absorbs large quantities of water — roughly two-thirds of all fresh water that is used world-wide.

'Over the last few decades, we have not been growing food in ways that will allow us even to maintain, let alone increase, crop yields in the future', says Engelman. 'Food production depends on good soil and fresh water, and we are losing far too much of both.'

Strategies for Achieving — and Sustaining — Food Security

Noting the seriousness of natural resource trends world-wide, the PAI study identifies a three-parts strategy for putting food production on a sustainable path while increasing total output. This strategy focuses on:

- enhancing the capacity of farmers to grow more and better-quality food;
- encouraging the restoration and preservation of the natural resource-base; and
- supporting the ongoing decline in rates of population growth by improving health, education, and economic opportunities.

'New high-yield seed strains, crops that resist salt and drought, and farming techniques that conserve both soil and water, are among the improvements that can help to ensure the sustainability and increase the productivity of

agriculture', says Engelman. 'However, farmers will need information and other kinds of help to make this happen.'

Achieving the goals spelled out in the Programme of Action endorsed at the International Conference on Population and Development is equally important, according to PAI. This Programme calls for universal primary education, access to family planning, and other basic reproductive health services, by no later than AD 2015.

'Access to family planning and education, supports and reinforces the decline in desired family size that is already under way', says LeRoy. 'At the same time, it moves us closer to a stable world population and, consequently, helps ease the pressure on farmers to produce more food in the short term without regard to the more distant future.'

'If we can move away from the relentless search for improved yields, we will be better able to conserve and restore soils and water supplies for tomorrow's use', says Engelman. 'A long-term strategy integrating agricultural development and population policies would make possible a world in which ending hunger and conserving resources are not at odds with each other.'

PATRICIA SEARS
Population Action International
 1120 Nineteenth Street NW, Suite 550
 Washington
 DC 20036, USA.

Environmental Problems Foreseeable in the Year 2020

Our theme to relate to environmental problems — both the ones we speculate on today and especially the ones we are going to have to relate to in 5, 10, or 25 years. This connection between environment and future studies is reflected in a number of institutes for future studies in many countries, which are all characterized by focusing almost exclusively on the aspect of environment when thinking about the future. The Copenhagen Institute for Future Studies (CIFS) does not belong to this category, as we seek to throw light on the future as broadly and multidisciplinary as the subject — the future — invites us to do. The environment is a significant but not a dominant factor in our choice of topics.

In December 1994 CIFS prepared a report about environmental problems in the future. The aim of the report was partly to mark our conclusion of 25 years' environmental debate in Denmark, and partly to try to describe a number of relationships which will surely, to some extent at least, determine the future environmental debate. The report included a description of future forms of regulation, consumer attitudes, work environment, etc. In connection with the report, questionnaires were sent to a number of institutes for future studies, which all belong to the Active Futures Network — a global Network consisting of institutes for future studies established by CIFS. All the institutes work with problems relating to the environment.

Among the questions we asked were: which problems were currently seen as most urgent locally and globally, whether the environmental movement has any future, and if there are to be new movements, which of them would seem most likely to replace the environmental movement. All these questions were, not surprisingly, answered differently according to the home country and other circumstances of the respondent.

Results of Questionnaire

Finally we asked the institutes: which environmental problems would be most pressing, seen in 25 years perspective. We had expected the answers to this question to look more alike than the answers to the other questions. However, this was not at all the case, as can be seen from the following rough grouping of the answers received:

- Hyper-consumerism.
- Food shortages due largely to environmental abuses.
- Super-cities.
- The deterioration of water supplies.
- The spreading and accumulation of persistent chemicals.
- World population growth.
- Increasing energy demand.
- Global warming.
- The stratospheric ozone shield.
- Spreading of infectious diseases.
- Destruction of oceans.

It is interesting to note that almost no respondents gave the same answers, apart from a number of answers indicating human population growth as the largest problem. This indicates that we have difficulties in specifying what is most serious, and in which areas we should especially concentrate in the coming years. Quite simply, we lack consensus and knowledge about the environmental issue.

A number of the answers indicate continuous human population growth as being the most serious problem seen in 25 years' perspective. This may be partly due to the population conference held in Cairo in 1994, which has contributed very much to the focusing on the population question. What is especially noteworthy is probably that it is a problem, which it is going to be immensely difficult to deal with effectively. The demographic inertia is consi-