

A monthly features service on scientific, technical, and educational subjects pertinent to development.

Words: 1150 approx.

ENERGY: THE WORLD AT A TURNING POINT

by MICHELLE HIBLER

It's sometimes difficult to identify turning points in history when they are taking place. Today, however, there can be little doubt that the industrialized nations of the world are at a crucial turning point in the pattern and form of energy use and supply.

The signs of change are reported almost daily: cities and towns use up to 50 percent of all energy; about half of the energy used is wasted; prices are continually rising; buildings now being planned have a greater life expectancy than that of known oil and gas reserves.

How to reduce the Western settlements' dependence on non-renewable energy sources was discussed by some 140 scientists and planners from 24 European and North American countries and 12 specialized organizations at a seminar organized in Ottawa by the United Nations Economic Commission for Europe (ECE). In the key-note address, Janez Stanovnik, Executive Secretary of the ECE explained: "Settlements are built for years to come, for decades... (they) in a way predetermine what will happen tomorrow. If we are wrong in our calculations", he added, "we may well lay the foundations of future tension."

During the past 25 years the world has known unprecedented economic growth: as production tripled, economic growth rates were sustained at 5 percent annually. Most economists will tell you that the most important factor influencing this development has been technology. But technological developments have become so energy intensive that what we believe to be their result might well be considered to be the product of cheap and plentiful energy.

But growth and energy consumption have not been uniform the world over. The average 5 percent growth rate means that some countries achieved 10, even 15

percent growth while others none at all. And the 34 countries included in the ECE currently consume 75 percent of world commercial energy supplies although they contain only 25 percent of the world population.

The unequal distribution of energy reflects the great inequality that prevails in the world today. Except for the present oil-producing and exporting countries, the majority of developing countries are energy poor and cannot expect to increase substantially their production of conventional fuels.

"Should the presently developed world, by importing known reserves of the oil-rich developing countries, use them before the developing countries as a whole come to the point where they start using this energy in any larger quantities for their industrialization?" asked Mr. Stanovnik, adding that we have been doing so for the past 50 years.

While the seminar focussed on very concrete and practical problems in a regional framework, their implications are global and touch on the sensitive questions to be answered in considering a new international economic order.

The Chairman of the seminar and of Petro-Canada, Maurice Strong, who was formerly head of the UN Environmental Programme and has recently been appointed Chairman of the Board of Governors of Canada's International Development Research Centre, emphasized that the issues cannot be dealt with "without a fundamental re-thinking of the growth process itself, without a fundamental adjustment of our expectations of the growth process, and without some very basic changes in the content and direction of growth".

The direction of future growth must be towards conservation, said Mr. Stanovnik, "in which the resources are used rationally and in which nature is not destroyed". This growth will nevertheless need to be fuelled. Best estimates predict enough conventional energy supplies -- oil, gas and coal -- for 79 years. But warns Stanovnik, "the shoe will start to pinch in 10 to 15 years". Consumption is rising at some 4 percent annually, faster than new resources are discovered. And if consumption rates are now lower than were predicted in 1972, so is economic activity. The initial drop occurred as a result of the energy crisis in 1973-74 and since then there has been further decline.

Hydro power and uranium 235 are also relatively limited, unless the uranium is used in breeder reactors, in which case it could last for 230 years. But breeders produce plutonium, a most dangerous substance with a life span of some 25,000 years. Stringent international controls would be required if breeder reactors were put into use. And, says Stanovnik, not all countries will have nuclear fuel and a new system of world dependence would be created.

But there is an alternative, and one described throughout the conference as a most attractive one: conservation. This goes beyond fuel efficient automobiles and turning off unnecessary lights, although such apparently simple measures cannot be ignored. To truly conserve, cities themselves must be redesigned.

If the scientists' recommendations are followed, tomorrow's cities will be more compact and densely populated. They may well follow a "corridors, clusters and centres" pattern where increased emphasis is put on mixed-use buildings, centralized infrastructure such as district heating, more public transportation and higher density dwelling units. Communication networks will have a greater role to play.

Individual buildings within cities will also need to be modified. Sixty percent of the buildings that will be in use in the ECE region in the year 2000 have already been built. Largely inefficient they present great opportunities for savings. In fact, the participants at the seminar estimate that up to 37 percent of energy consumption could be saved by retrofitting the existing building stock -- insulating walls, floors and ceilings, double glazing windows, changing or improving heating, cooling and air circulation systems.

New technology could also be introduced in these buildings to further savings and most countries are supporting experiments in the use of heat pumps, heat recovery systems, solar energy for space and water heating, and new heating systems using renewable energy sources.

As a delegate from the United States pointed out, however, buildings themselves don't use energy. The people in them do. And that is where the

greatest change will have to occur, through consumer education campaigns and pricing policies, being considered and implemented.

The need for more rational use of energy may however be perceived by some as a need for restrictions on personal comfort and aspirations. These attitudes will above all need to be changed. To do so, says Mr. Strong, "involves a new approach to life in our human settlements, a new standard, a new set of criteria for measuring the quality of life, a new value system, cultural change, a change in the concept of growth itself... it is how to make a transition to that new growth, that less physically-oriented, less wasteful use of physical resources, that less energy-intensive type of growth that our main challenge lies."

If the peoples of the ECE region can rise to the challenge, conservation will surely ensue and with it a new type of settlement where the quality of life is enhanced, not only for the people in the region but for those of the developing world whose future growth depends on the restructuring of the western cities.

END

IDRC-F68, e
1978