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 ENVIRONMENT CONSERVATION, A NEW MALTHUSIAN ARGUMENT?

Lecture delivered by Carmen A. Miró
 in the Stockholm Lecture Series.
 June 9, 1972.

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I. INTRODUCTION

To participate in the Stockholm Lecture Series sponsored by the International Institute for Environmental Affairs is indeed an honour, but more so, it constitutes a challenge. Designed by their organizers to cover fundamental issues which would provide an important added dimension to the United Nations Conference on the Human Environment, the Lecture Series inevitably had to include Population as one of the topics to be examined. But the passion with which the debate on population has proceeded in recent times, especially when it centers on the relationship with environment deterioration, adds a new ingredient to an already difficult discussion laden with misinformation, not to speak of mistrust. If in any way my remarks today can contribute to the efforts of elucidating the means and ways through which the population factor can be adequately inserted into a global strategy aimed at achieving a dynamic equilibrium between man and the natural milieu, I shall have answered, at least partially, to the challenge posed.

The UN Conference on the Human Environment, as his Secretary General has repeatedly pointed out, constitutes a milestone in the development of international cooperation. It is important not only because in an unprecedented scale it has stirred world interest on basic environmental issues, but also because it has helped to accumulate new knowledge which,

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among other things, will undoubtedly enrich future discussions on how best to tackle the so called "demographic problem".

In presenting the topic of Population in these Series, I do not intend to enter the ongoing polemics between environmentalists and demographers. I believe with Duncan^{1/} that "a concrete human population exists not in limbo but in an environment". As he points out by mere occupancy of it "as well as by exploitation of its resources, a human population modifies its environment to a greater or lesser degree, introducing environmental changes additional to those produced by other organisms, geological processes and the like".

The recognition of this fact and the acceptance of the existence of what might be called a functional interdependence between environment and population, in no way, though, can lead to the conclusion, so often heard today, that population growth is the determining force in the destruction and deterioration of the human environment, which to many is now threatening the very survival of mankind.

Population growth has for a long time been accused of constituting the main obstacle to the development of the less developed world. More recently it has been burdened with

^{1/} Duncan, Otis Dudley. "Human Ecology and Population Studies" in Hauser and Duncan, Ed. The Study of Population. Part IV 20. Pages 681-682.

the responsibility for the degradation of the environment. From this latter assertion has stemmed, as a non sequitur, that the solution to the problem lies in stopping population growth. Curiously enough, the solution is equally advocated for the developing regions where rates of demographic increase have reached very high levels and where the absolute size of the population is already considered too large, as well as for the developed countries with moderate rates of growth and much smaller population size.

This paper tries to uncover the validity of the accusation leveled against population growth as the fundamental source of ecological disruption. Before attempting this, it gives a very condensed description of how population growth is proceeding today and what, in the present view of demographers, is in store until the end of this century. It also examines rather briefly the short or medium term possibilities of attaining a world stationary population. It ends with some personal reflections as to how those interested in the study of population phenomena, especially demographers, can contribute to our understanding of future possibilities and of the consequences of alternative policy decisions.

It should be stressed that the views presented here are strictly personal and do not necessarily represent those of the organization with which I am associated.

II. POPULATION GROWTH TODAY AND PROSPECTS TO THE YEAR 2000

The most recent UN figures^{2/} place the population of the world for the year 1972 in almost 3 800 million, of which, 71 per cent (2 670 million) corresponds to the less developed regions. The same source estimates^{3/} that during the present quinquennial period (1970-75) the annual rate of increase of the population of these latter regions (2,5 per cent) would be two and half times higher than that of the more developed ones (1,0 per cent). While the growth rates are expected to start diminishing in both types of regions by the middle of the 1980's, the differential remains exactly the same towards the end of this century, when the world population would have reached according to the "medium" variant projections to 6 500 million, and the share of the less developed regions in this total would have risen to 78 per cent. Viewed in absolute numbers the world population would increase during the next 28 years by 2 700 million, of which 2 370 million (88 per cent) would be added to the less developed regions.

Another striking feature of present and anticipated medium term population growth behaviour is that related to the increase

^{2/} United Nations. Total Population Estimates for the World, Regions and Countries Each Year, 1950-1985. ESA/P/WP.34. 16 October 1970.

^{3/} United Nations. World Population Prospects, 1965-2000 as Assessed in 1968. ESA/P/WP.37. 17 December 1970.

settlements. Of the world population ^{it} is estimated that close to 1 100 million are living today in places of 100 000 or more inhabitants, ^{4/} with almost equivalent figures in the more developed and the less developed regions. If the projections would obtain, the urban population so far would be more than twice as large in the year 2000. An interesting aspect of the development envisaged is that while in the so called affluent societies the increment would take the urban population to a size one and half times larger than the existing one, that of the less developed regions would almost treble. It should be further stressed that these figures do not portray in its entirety the trend towards urban agglomeration in the latter regions because there would still be an important fraction of the population concentrating in smaller cities.

The estimates just cited are not of course intended as an adequate and accurate description of today's demographic situation nor of its expected evolution in the coming decades. They serve only to underscore that the concern with the swelling size of mankind is indeed unavoidable, whatever the ideology, the profession or the nationality. The magnitude of the task that lies ahead will require that men show not only ingenuity but also courage and generosity. Ingenuity to devise adequate solutions, courage to apply them and generosity

United Nations. Growth of the World's Urban and Rural Population, 1920-2000. Population Studies, N°44, New York, 1970.

to do so even if it implies forsaking some earlier anticipated advantages.

III. THE PROSPECTS OF ATTAINING A WORLD STATIONARY POPULATION

Perhaps overwhelmed by the factual evidence advanced by demographers regarding the expected medium term evolution of the world population, even the most ardent proponents of population growth curtailment do not advocate the attainment of population stabilization, or more properly, of a stationary state before the end of this century.

As pointed out by the authors of "The Limits to Growth",^{5/} history has witnessed recurrent proposals for "some sort of nongrowing state for human society" since Plato through Malthus to Boulding.

Furthermore analytical exercises on the demographic conditions necessary to move in the direction of a stationary population and the demographic consequences accruing therein have long been a favorite subject with formal demographers^{6/}. But

^{5/} Meadows, Donella H., Meadows, Dennis L., Randers, Jorgen and Behrens III, William W. The Limits to Growth. Universe Books, New York, 1972.

^{6/} See for example, P. Vincent. "Potentiel d'accroissement d'une population" in Journal de la Société de Statistique de Paris, January-February, 1945; Frejka, Tomas. "Reflections on the Demographic Conditions Needed to Establish a U.S. Stationary Population Growth" in Population Studies, Volume XXIX N^o3, November 1968. Pages 375-387; and United Nations. The Concept of a Stable Population. Population Studies N^o39. New York, 1968.

public debate on what is now called "zero population growth" is very recent. As has been the case with several other lively discussions on population matters, it started in the United States. It was prompted by the publication in early 1970 of an exhortation by the United States representative in the UN Population Commission^{7/} in the sense that his country, and with it the rest of the world, should strive for a zero rate of population growth by the year 2000, at the latest. This was followed by discussion of the topic in the 1970 meeting of the Population Association of America,^{8/} when Notestein branded the proposal as "platitute" though recognizing its value as a possible "organizing focus for research and educational efforts concerning the importance of a world-wide trend to stationary population and the means by which it is ultimately to be achieved".

This is precisely what it has turned out to be. Bourgeois-Pichat^{9/} using the population of Mexico as the basis for his analyses, tried to uncover what would be the true meaning, in demographic terms, of attaining a stationary state by the year 2000 and retaining it afterwards. The U.S. Commission on

7/ Draper Jr., William H. "Is Zero Population Growth the Answer?". An address at a testimonial dinner in Washington, D.C. 2 December 1969. Published by the Population Crisis Committee.

8/ Population Index, Vol. 36, N^o4. October-December 1970. Pages 444-465.

9/ Bourgeois-Pichat, Jean. "Un taux d'accroissement nul pour les pays en voie de développement en l'an 2000 rêve ou réalité?" Population, 25 année, N^o5, 1970, pages 957-974.

Population Growth and the American Future dealt with the subject as "a principal issue in its deliberations".^{10/} As part of the research undertaken for the Commission, Coale^{11/} prepared a paper on "Alternative Paths to a Stationary Population" in which he examined the feasibility of the United States of attaining and maintaining a stationary population. The Club of Rome's Project on the Predicament of Mankind^{12/} is also an exercise on how to attain a "state of global equilibrium", including in this, of course, the stabilization of population growth. The Latin American Demographic Centre (CELADE) is presently exploring the resulting demographic consequences for some latin american countries of pursuing the goal of a stationary population. No doubt many other demographic research institutions are studying the topic.

Up to now, all the research recently undertaken in this area leads to the conclusion -indeed not very comforting to the advocates of Zero Population Growth- that given the present demographic conditions, the goal is not reasonably attainable within the next three decades, much less, of course, immediately.

Even assuming that political, ethical and ideological considerations would not constitute formidable obstacles to

^{10/} "Population Stabilization". Chapter 10 of the Report of the Commission.

^{11/} Coale, Ansley. "Alternative Paths to a Stationary Population". Paper submitted to the 1971 Meeting of the Population Association of America.

^{12/} Club of Rome, Project on the Predicament of Mankind.

the adoption of a world population stabilization policy,^{13/} the built-in potential for growth present in most of the world population for reasons of its age structure makes it impossible to attain stabilization without profound demographic disturbances which no population would stand, not even in the face of coercion. Just for illustrative purposes Bourgeois-Pichat found that to attain stabilization by the year 2000 and retaining it, fertility in Mexico would have to fluctuate from 0,6 birth per woman in 1995-2000 to 3,8 in 2040-45, when measures would have to be taken to reduce fertility again. In the same manner the age structure would show tremendous oscillations. These can be appreciated more clearly in certain functional age groups. The school age population, for example, would grow from 4,7 million in 1960 to 7,2 in 1975 to decrease to 2,0 million in 2010 when it starts growing again until it reaches 6,2 million in 2055. Similar fluctuations would occur in the economically active ages and in the population over 65.

The US Commission on Population Growth and the American Future arrived at the same conclusion when searching for "criteria for paths to stabilization". In this regard it stated that "While there are a variety of paths to ultimate stabilization, none of the feasible paths would reach it immediately. Our past rapid growth has given us so many young couples that, even if they merely replaced themselves, the number of births would

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^{13/} For/rather poignant examination of these aspects, see the comments made by Paul Demeny as discussant of Notestein's paper on ZPG, published in Population Index (see footnote 3).

still rise for several years before leveling off. To produce the births consistent with immediate zero growth, they would have to limit their childbearing to an average of only about one child. In a few years, there would be only half as many children as there are now. This would have disruptive effects on the school system and subsequently on the number of persons entering the labor forces. Thereafter, a constant total population could be maintained only if this small generation in turn had two children and their grandchildren had nearly three children on the average. And then the process would again have to reverse, so that the overall effect for many years would be that of an accordion like continuous expansion and contraction"^{14/}. After these considerations, while the Commission chose not to recommend any specific path, it has shown in the Report that an "optimal path" would be that leading to stabilization 50 years hence, that is to say, in 2020, when the US population would have reached 330 million.

With a younger age structure and a higher level of fertility, both producing a larger growth potential, it is easy to conclude that the ZPG goal would entail much more difficulties in the less developed areas. Now, if the prospects under present demographic conditions are for continued growth and the possibilities of attaining its stabilization seem somewhat removed in time, we have to reach the inevitable conclusion that

^{14/} "Population Stabilization". Chapter 10 of the Report of the Commission.

the world will have to accomodate many million more. It is precisely at this point that environmentalists claim that mankind is faced with its gravest predicament because population growth accelerates the destruction of the human environment, the depletion of which -they say- have already reached levels endangering the continued survival of man in this planet. With no intention of inviting complacency in dealing with future population growth, I postulate that it still remains to be shown how much and in what ways the depradation to which the human environment has been and continues to be subjected can be attributed mainly to the sheer increase in the numbers of its occupants. Clarifying this, would indeed contribute to chart the way to a sounder policy of environment conservation.

IV. MAN AS PREDATOR OF HIS ENVIRONMENT

Whether one chooses to define human environment in the rather restricted sense of traditional ecology or with the more ample meaning now been attached to it, one has to accept that as far as history can record, man has plundered the earth in every conceivable way and that it is not at all easy to find a direct relationship between the increase in size of a population and the pace at which destruction and depletion of the environment has proceeded. In fact, history tells of utter mismanagement of the natural milieu when population size, density and rate of growth were considerable lower as compared with

present day levels. The classical example frequently cited is that of Mesopotamia, where an ancient civilization flourished having decayed later, mainly because of unforeseen consequences of the agricultural exploitation: irrigated lands had to be laid to waste due to their salinization and irrigation canals had to be abandoned due to silt accumulation.^{15/} The inability of the State to cope with the demands placed upon it for the conservation of the land while at the same time protect the nation from invaders and internal conflicts, is the reason most frequently cited for the degradation of the agricultural lands. Population size and density seem to have played only a minor role.

But we do not have to resort to history in search of evidence that other factors are indeed much more important than population size and growth in precipitating negative impacts on the environment. In the less developed areas the destruction, depletion and deterioration of the human environment have been underway through many diverse forms and long before modern pollutants would have created the alarm on which the present crusade "to save the environment" is based.

The following remarks while primarily based on Latin America are in more or less degree generally applicable to other areas.

^{15/} Stallings, J.H. Soil Use and Improvement. Prentice Hall, Inc. Englewood Cliffs, N.J., 1957.

Outside of the cities, the indigenous population, frequently sparsely settled in the territory, is an active agent of environment destruction. The continuous clearing of lands for subsistence shifting agriculture, with its indiscriminate destruction of forests has long been an important source of ecological imbalances. These practices, though, have little to do with the size and the rate of population growth. ^{They} ~~is~~ ^{are} more directly related to the social organization, especially land tenure systems and levels of education of the agricultural producers.

There is no denying that an increased number of subsistence farmers might accelerate the destruction of woods and forests, but, even at the risk of sounding platitudinous, one has to say that reducing their fertility would accomplish very little in the direction of protecting the environment. It might very well be that an increasing density of this type of farmers would contribute to reduce aggression against the ecosystems. Ester Boserup^{16/} postulates that "sustained demographic growth among primitive people does not always result in deterioration of the environment, because the possibility exists that the population, when it outgrows the carrying capacity of the land with the existing subsistence technology, change over to another subsistence system with a higher carrying capacity". In other words, in this situation, which have actually existed in backward areas of Latin America, Africa

^{16/} Boserup, Ester. "Environment, Population and Technology in Primitive Societies". Inedited article.

and Asia, demographic trends have acted as an adapting factor, forcing developments which otherwise might have not occurred.

A measure which would indeed contribute to bettering the lives of the subsistence farmers, even under present social organization, while at the same time protecting the forests and with them all the other resources (climate, soils, water deposits, etc.) so dependent on them, would be a drastic attack on the massive felling of trees for commercial purposes, which much more rapidly and much more completely have already irreversibly destroyed innumerable portions of the territory of the less developed areas. This spoliation started long before the so called "population explosion" and threatens to continue unless strong coercive measures are applied.

Overgrazing is also blamed for soil deterioration, with its concomitant influences upon environment, but very seldom are the rapidly increasing number of peasants the owners of the herds causing the destruction. It is a well known fact that the cattle raisers, usually belonging to the most favored strata of society and because of that contributing in lesser degree to the high level of fertility, occupy the lowlands, drawing the subsistence farming to the highlands with the consequences described earlier. Paradoxically, these lowlands have been more rapidly destroyed in the face of the decreasing human population density being replaced by a growing cattle density.

Some of the evils just mentioned refer to what might be called traditional agriculture. The introduction of modern agricultural technology, highly dependant on chemicals, is a relatively recent addition to the threats to environment in the less developed areas. Not unrelated to the need of feeding a growing world population it is only indirectly connected with the increasing size of the native populations which continue to be underfed, while certain developed nations pay their farmers for maintaining idle vast extensions of agricultural land.

Similar remarks as those just made would apply mutatis mutandi to the exploitation of aquatic resources. Aside from the ill effects caused in rivers and seas by soil degradation and forest destruction there are the added consequences of man's fishing activities. Here again some vernacular catching methods, such as the use of explosives, are extremely detrimental to the conservation of certain species. But much more harmful is the over-fishing practiced with large fleets and "modern techniques". It could be argued that these activities have been carried out in such manner to respond to the increasing demands of a growing population. It could probably be easily demonstrated that the reasons for the use of such environment destructive practices are more related to increased financial benefits than to population growth per se.

If we would turn to the exploitation of the other natural resources, especially minerals, usually undertaken

in the less developed areas by foreign enterpresis, one would find that also here human environment has been the subject of massive and, in many cases, irreparable damage. The extraction of minerals which, like bauxite, requires the prior removal of the top soil, and the selective extraction of high grade ores, are only two examples of land degradation. These activities are also an important source of water pollution with all its attendant consequences. An important portion of the industrial production based on these minerals is being diverted to increase the per-capita consumption levels in the highly affluent societies and not necessarily used to responde to the demands of the growing number of inhabitants of the less developed regions.

The prime mover for the concern about environment has been the rapidly increasing tempo of ^{urba} ~~organ~~ization, both in the more developed as well as in the less developed areas. In the former regions what appears to be at stake is the "quality of life"; in the latter, the quest is just for mere "survival", for the larger fraction of the urban population. For the rest, the fight is against the perils of industrialization. In other words, the urban settlements of the developing regions suffer the evils of development without receiving an equivalent fraction of its benefits. Herein lies the greatest difficulty of turning conservation of the environment into an appealing goal to the majority of the urban masses. When they have to struggle

for adequate water supply; when their health is under continuous threat due to the absence of the most elementary sewage and waste disposal systems; for lack of safe methods of food manipulation or because of the invasion of rats and other equally pernicious animals; when they suffer from unemployment and are sick, undernourished, ill fed and ill dressed, it is indeed almost impossible for them to comprehend why resources which could be used to better their lot, should now be channeled to clean the air and purify the water. There is no doubt, though, that urbanization -more a problem of population distribution than of population growth- is creating very critical problems all over the world. Agglomeration in the cities, with its sequelae of marginal unhealthy settlements at their peripheries, is causing, among other things, the rapid destruction of agricultural lands which were once the source of agricultural produce consumed by the city dwellers. The high agricultural productivity levels prevailing in the more developed countries, coupled to the fact that they are importers of food items, reduces the negative impact of this process. The voracious spreading of city boundaries in these countries, much more than anything else, is the cause of concern for the disappearance of leisure and recreation areas. In the less developed countries the continuous physical expansion of cities, besides adding to the problems of providing badly needed infrastructure, imposes further limitations to the possibilities of a balanced urban-rural development. In summary, any campaign addressed at promoting the

conservation of the environment in urban areas of the less developed countries would have to be based in the search of solutions which would maximize the enjoyment of the benefits of industrialization, while minimizing its perils.

The preceding discussion was not intended as an exhaustive examination of all possible sources of environment destruction which are only indirectly related to population growth. No mention has been made, for example, of the lethal effects on people and environment as a result of massive bombing and the use of chemicals in warfare which has now reached unprecedented levels. The cases described here are drawn mostly as illustrations of the risks involved in taking the simplistic position of attributing to the sheer increase in numbers the main responsibility for the recently discovered environmental crisis. The predatory nature of the "homo oeconomicus" more than his reproductive urge seem to account for his suicidal efforts in subduing the environment beyond reason. Forms of social organization, land tenure systems, levels of literacy, national and international industrial and trading practices, to mention only few, are important intervening factors which merit extensive consideration. Appealing to the need of population control as a mean of environment conservation without accompanying it with an equally strong plea for drastic measures to change the social and economic conditions which have made possible its massive destruction,

depletion and deterioration could evoke suspicions that the less fortunate inhabitants of this planet are being confronted with a new malthusian argument.

V. THE POTENTIAL CONTRIBUTION OF DEMOGRAPHERS TO A VIABLE FUTURE

Approaching the subject of environment conservation paying due attention to its many ramifications, in no way should be construed as implying that nothing should be done regarding population growth and distribution.

Neither demographic increase nor concentration in cities can go on forever. *"Spontaneous" reversal of these trends is not to be expected. Therefore* Policies are being applied in an attempt to modify ^{them} these trends and new ^{more effective} measures would have to be devised. It is here that demographic surveillance and research could play a very valuable role. The early detection of new population trends; the guidance in the collection of needed data; the interpretation of the demographic impact of alternative policies; the projection of expected population evolution; the feasibility of attaining specific demographic goals and the measuring of the attendant consequences; the elucidation of the interrelations of demographic variables with other social and economic factors, and the explanation of past demographic behaviour as a means of understanding that prevailing today and of chartering future potential evolution; *these, and many others,* are tasks being

developed today by demographers the world over. These activities will necessarily have to be incremented in the coming years if demography, as a science, is to contribute to the harnessing of the forces impeding the access to well-being and happiness to the majority of mankind. The forthcoming UN World Population Conference should serve to focus population in its right perspective vis-a-vis economic development and environment conservation.