



**ANNEX 5**  
**TO THE MINUTES OF THE JAKARTA MEETING**

**POPULATION, ENVIRONMENT AND SUSTAINABLE DEVELOPMENT**  
**(WCED/85/2)**

WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT

SECOND MEETING  
Jakarta, 27-29 March 1985

WCED/85/2

Item 5.1 of the Provisional Agenda

PAPER ON POPULATION, RESOURCES, ENVIRONMENT  
AND DEVELOPMENT

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## POPULATION, RESOURCES, ENVIRONMENT AND DEVELOPMENT

### Note by the Secretary General

Population has been identified by the Commission as one of the key determinants of future conditions of environment and development and of their interrelationships. This note touches upon some of the issues that the Commission will have to take into account in trying to devise its approach to the subject matter.

#### 1. The Issue

- 1.1. The problem of rapid world population growth has preoccupied the international community and the national policy makers for a considerable time now. It was one of the issues that figured prominently in the deliberations of the 1972 UN Stockholm Conference on the Human Environment. Shortly thereafter, in 1974, the World Population Conference was held in Bucharest, which represented the first major attempt by the governments to approach the problem of population in an integrated manner, taking fully into account the variety of views and recommendations of how to deal with the challenge.
- 1.2. In the ten year period since the Bucharest Conference, world population has continued to grow from approximately 4 billion to 4.8 billion, which represents roughly a 20% increase. According to the current projections of the United Nations, and taking a medium variant, the world population will reach 8.2 billion by the year 2025, exceed 9.5 billion by 2050, and ultimately stabilize at 10.5 billion towards the end of the 21st century, (see Annex 1 on Major Demographic Indicators).

1.3. Whether or not these projections will materialize could be a matter of considerable argument and discussion, mostly unnecessary because five, ten or twenty years from now a different set of figures will apply. The real value of current projections lies not in trying to predict the future, but simply in pointing out what could happen to the size of world population if the present demographic trends were to continue.

1.4. The projections thus highlight a two-fold challenge for humankind at the present juncture in its history:

- a) ensuring that social conditions are created which would make it possible for the society of the future to meet the needs of the peoples of the world, whose total number may double in 50 years from now, and whose aspirations and requirements will be much higher and diverse on a per capita basis, generating major increases in, and diversifying demands and pressures on, the global environment and the natural resource base;
- b) stabilizing the world population at an earlier point in time and at a lower total figure than the current projections indicate.

## 2. The Controversy and the Evolving Discussion within the UN

2.1. The role of the population factor in the population-resources-environment relationships has been a subject of interest, controversy and important research and study effort. Any attempt to summarize could not begin to do justice to the complexity and richness of the ongoing international debate. Several aspects of this debate need to be highlighted for the initial discussion of the Commission,.

2.2. A good deal of controversy and confusion has stemmed from the initial formulations of the problematique. Put in simplest terms, the argument went that the increasing world population would place progressively greater pressures on the environment and natural resource base, which, unless things were to change, would eventually become untenable, exceeding the carrying capacity of the resource base and leading to serious societal crises and eventual collapse. While the essence of this

argument could be broadly endorsed by almost everybody. There was little agreement when it came to recommendations of how to deal with emerging issues.

- 2.3. The initially formulated recommendations originated mainly in the North. They focussed on curbing population growth, primarily through family planning methods in the Third World where the bulk of the world population was, and where high rates of population growth were being registered. Naturally, this resulted in considerable annoyance on the part of the developing countries who generally felt that demographic transition would come primarily through and accompany development, social and economic progress and change.
- 2.4. Moreover, they felt that focussing on population growth and on the poor as the chief culprit of existing and future resource and environmental problems, pressures and constraints, was an unbalanced and uni-dimensional approach. It seemed deliberately to overlook the pressures generated by the well-off populations of the industrialized countries, which both on per capita and in absolute terms accounted for by far the largest share of such pressures. (Though global figures and indicators of differences in pressures on the natural resource base between countries and different social groups were not readily available in those early days, public opinion was influenced by studies which showed that the requirements of a US citizen were 30-50 times higher than those of someone from India, or that a consumer from the North may require on average 3/4 tons of grain and 15-30 barrels of oil per year as compared to 1/4 ton of grain and 1 barrel of oil for a person from the Third World.) Furthermore, the developing countries suspected that the concern with population growth and the focus on curbing such growth in the Third World, was, at least in part, motivated by the desire of the rich countries to preserve their situation and not to see the availability of global resources on a per capita basis diminish on account of a population surge in the South.
- 2.5. One of the results of this was an ideologized, often mutually-exclusive, polarization of views, with those assigning the primordial importance in the emerging crisis to the population factor pitted against those denying its importance per se and arguing for a more comprehensive approach to the issues at stake.

- 2.6. The projection of trends, and the conclusions drawn from them, gave further reason for controversy. The initial scenarios and relatively crude projections, which were often used as a basis for alarmist and doomsday predictions, did a good deal to discredit this type of work. Many of these predictions were unpleasant to listen to and appeared far-fetched; and most of the projections moreover turned out to be wrong even in the short-term period of ten years or so.
- 2.7. The quantitative data on resource availability similarly gave rise to clashes of different views, with the resource pessimists on one side arguing the imminent depletion and exhaustion of different resources, while the resource optimists spoke of a millenium, both in terms of availability of resources and the ability of man, science and technology to overcome the emerging problems and of scarcities.
- 2.8. One of the basic lessons drawn from this initial dichotomizing and inevitable over-simplification of issues, in particular when it came to considering the global scene and to relating the uncontestable quantitative trends with the more uncertain and controversial issue of society's response, and the ability and resilience of the environment to accommodate its demands, was that there was a need to devise an integrated approach to this prima facie systems problematique. This process was initiated during the preparations for the 1972 Stockholm Conference on the Human Environment. To reflect the complexity of the issues involved and following the recommendation of the 1974 Bucharest World Population Conference, the problematique has been called the "inter-relationships between population-resources-environment-development", or PRED for short, and was placed by the 1974 General Assembly on the agenda of the UN system as an item of continuous study
- 2.10. The UN system has been seized with the subject for more than a decade now. The undertaking has been a difficult one because of the conceptual and operational difficulties of dealing with it, in particular when it comes to the global level. These difficulties arise on account of multi-disciplinary, multi-sectoral, inter-jurisdictional and longer-term characteristics of the problems, all embedded in the volatile combination of competing world views and

ideologies, policy conflict, unequal access to resources of groups and strata of population, nationally and especially globally between the industrialized North and the developing South, conflicting national interests, etc. The undertaking in the UN has also been a difficult one because of the standard sensitivities exhibited by governments to deeper probes in international fora of socio-economic root causes of many of the problems at stake, and of possible approaches that might be suggested to deal with them.

- 2.11. Difficulties notwithstanding, important advances were made both in elaborating an integrated framework for dealing with the issues, and in considering possible action. From the policy point of view, the most useful contribution of the study and its discussion in the UN has been to reduce the initial polarization of views on the population issue, and to lead to a general acceptance of the important role that it plays. First, by bringing into the picture the whole issue of development as it concerns the population, resources and environment relationships and thus providing a basis for a more balanced approach to population growth, and second by highlighting the effects of resource intensive, often inefficient and even wasteful, styles of life and systems of production and consumption in the North, which are also diffused globally and are embraced by rapidly increasing numbers of middle and upper-class strata in the rest of the world.

### 3. PRED Relationships on the Agenda of WCED

- 3.1. The Commission will have accessible for reference a sample of arguments from the two-decade old study, and the basic elements of the substantive framework on interrelationships which has been crystalizing in international discussions on the subject. Likewise, the Commission may find it useful to have a sample of figures and projections, not so much to discuss and evaluate their validity, accuracy and value, but as a means of illustrating both the difficulties inherent in such work and the issues that will have to be faced by the international community, nations, and ultimately peoples and individuals of the world.
- 3.2. Indeed, the Commission may decide not to get pulled into a discussion on technical quality and accuracy of trends and projections, and may content itself with a broad qualitative



judgement of what some of the existing trends portend for the near and more distant future. As an example, one could say that the increasing world population numbers, growing national incomes, per capita incomes and per capita uses and requirements of natural resources, and especially energy, and food, will inevitably lead to greater demand for both renewable and non-renewable natural resources. Whether this will also lead to a diminished per capita availability of resources is largely a question of social re-organization, new scientific knowledge and technology, and the tapping of new, unknown or previously unusable natural resources and sources of energy. It is certainly going to lead to increased competition for, access to and control of, resources within nations and internationally, a trend which, when super-imposed on the already unbalanced control over, and use of, global resource base, is likely to aggravate existing international tensions, including those between the developed and the developing countries. (World oil production per capita is an instance of this. According to one projection, it is supposed to decline from 5.23 barrels in 1978 to 3.55 barrels in the year 2000. See Annex 2.)

- 3.3. The real challenge for the Commission lies not so much in formulating a set of general statements and diagnoses, similar to the one sketched in the preceding paragraph, but rather in how to devise and recommend responses to these challenges, while keeping in mind the policy and conceptual framework on PRED interrelationships, and relating it meaningfully to situations in the field and to the present socio-economic setting.

#### 4. Global Issues and their Concrete Reflections

- 4.1. It is true that the systems nature of the issues, especially when considered at the global level, can appear quite overwhelming and often hard to grasp in all of its implications. It is also true however, that with certain basic referents in mind, many of possible responses become much clearer, and acquire policy and operational meaning when one moves from the global aggregate level to concrete situations and the field level. Thus, for example, the fact of decreasing availability per capita of arable land and the issue of increasing pressures on such land has very concrete and location-specific manifestations, let us say, in a fertile valley somewhere in the Andean region.

4.2. Usually, the situation happens to be much more complex than one would deduce simply by looking at the ratio between fertile land and population numbers in the valley. Thus, it could turn out that the best land in the valley happens to be occupied for growing crops for export, ranging from flowers to more traditional cash crops, or for grazing cattle whose meat and milk may be destined for consumption in the big cities, or for export. This land is usually held by big landowners, or by companies which are occasionally controlled by foreign interests. Thus, in fact, the per capita availability of land in the valley happens to be even less favourable than the overall figures imply. The peasants of the valley move to the slopes and to marginal land, causing soil erosion and undermining their own sustenance. Their families grow-up in conditions of rural poverty and ignorance. The living standards decrease. The eco-system becomes endangered.

4.3. Blaming "population pressures" for what is happening in the valley and recommending family planning as a way out of the predicament obviously does not do justice to the complex situation of causes and effects, and would probably do little, if anything, to alleviate these pressures and the ensuing environmental degradation. A strategy to cope with the mounting tension between population and resources in the valley can assume many varied forms, and can attempt to use a variety of levers to address both causes and their symptoms, to cope with the existing situation and to avoid major breakdowns and social crisis. It might thus include the following mutually supportive and complementary actions:

- a) direct family planning programmes and interventions to reduce the fertility rate in the valley;
- b) support for rural development programmes aimed at diversifying the economic basis of the local peasantry;
- c) distribution of land from large landholdings to the peasants;
- d) revival of terracing and other traditional technologies for agricultural use of steep slopes;
- e) diversifying the exports of the country as a means for reverting the use of fertile land from export crops to products needed locally;
- f) establishment of local industries as a means of additional employment in and development of the valley; etc.

4.4. The mix of possible measures and of their specific effects and importance can vary greatly. The degree of difficulty of implementing each measure will also vary; obviously, instituting a family planning programme or trying to revive the traditional knowledge about terracing are considerably simpler than trying to redistribute land, or change land-use from export crops to food needed locally, or change the impacts of the international economy on the situation in the valley. The choice and the alternatives that are available will depend on the local situation, on the country in question, and on the international setting. The more deliberate and comprehensive the action, the easier it will solve the local problem, and thereby contribute to the global objective of attaining a sustainable relationship between population, resources and the environment, and of improving global trends and indicators.

4.5. The problem of rapidly increasing population in a major metropolitan area in the Third World, of course, presents itself in quite a different light than the one in the valley mentioned above. It is not necessary to elaborate on the difference; the point being made is the specificity of given situations, and the variety of angles that the issues can be approached from, all of which contribute and add up to the global trends.

## 5. Focussing the Deliberations of WCED

5.1. The Commission will thus have to keep in mind different levels of analysis and the distinctions characterizing different situations in the field. Moreover, it should also keep in mind that the acceptance of the systemic conceptual framework for the treatment of the population-resources-environment-development relationships does not mean that one has to undertake, or indeed can undertake, actions on all fronts at the same time, or wait until this becomes possible. Such a framework is essentially a policy and paradigmatic construct, to advance knowledge and sharpen analysis, to help orient and promote action, and to show both the socio-economic and institutional causality of problems under consideration, and the role of society, its structures and organization in devising responses to these challenges.

5.2. In trying to focus on problem clusters as a basis of action, the Commission might look at the following:

a) Population.

Policies aimed at reducing population growth and stabilizing world population will have a central role to play in those developing countries and regions of the world where high rates of population growth continue to be experienced. (Among developing countries that may have to adopt a one-child family goal to avoid a decline in living standards, are such relatively populous ones as Bangladesh, Nigeria, Pakistan, Iran, India, Mexico and the Philippines). In a number of metropolitan areas concentrations of populations have by far exceeded the capacity of the urban environment to provide a decent and healthy habitat for the great majority of those living there. Such concentrations of urban population represent neuralgic spots on the map of the world, where complex social responses, involving also rural hinterland, will have to be devised to relieve the pressures of human numbers and to meet their needs. Among these measures, and depending on the metropolitan area in question, family planning programmes also have an important role to play.

b) Carrying Capacity

Physical and biological carrying capacity is being strained in a number of locations around the world, in part due to population pressures and the nature of the eco-system and the natural resource base, yet primarily due to existing social relations, levels of underdevelopment, lack of technologies and resources, and so on. Solutions to such problems have been suggested through establishing an equilibrium between local population numbers and the local natural resource base, essentially through control of population growth, by resettlement, or by containing the local development process. Quite obviously, such solutions are hardly acceptable to those who have to live in such locations. A positive and dynamic development response to dilemmas caused by the strained carrying capacity is therefore required. "Expanding carrying capacity" offers such an approach. The mix of

solutions will depend on the locality in question, and will subsume both the efforts to organize the local community to cope with the new requirements (an increase in social carrying capacity), and to expand the physical and biological carrying capacity of the local resource base through development, financing, technologies, etc. Identifying the more important cases of strained carrying capacity around the world, and devising location-specific sets of measures and responses may be one of the promising concrete approaches to global objectives regarding PRED interrelationships.

c) Development Styles

The term "development styles" is used to subsume all those measures and actions related to increasing energy and resource efficiency of technological and production processes, of transportation systems, of patterns of production and consumption and of given products; it also refers to measures aimed at reducing wastefulness and negative impacts on environment of individual styles of life and modes of social organization, including human settlements. Actions in this domain, which concern primarily the industrialized North, but also the Third World, are certain to result in considerable relief of pressures on the environment and natural resource base, a relief which should not imply any reduction in standards of living and well-being, but changes in how things are done, better and different organization, new social priorities, considerable effort and investment into devising new scientific and technological responses that will be needed, etc.

- 5.3. The above foci would make it possible for the Commission to give action-oriented meaning to its possible recommendations. The three clusters encompass a large number of issues that make up the PRED problematique and thus can also serve as a useful source of empirical data for feeding a more comprehensive, general discussion on the subject.
- 5.4. Quite obviously, the entire working agenda of the Commission is also very relevant to PRED relationships. Its discussion and recommendations on such issues as energy, industry, agriculture, human settlements, international economic relations and

environment, will be supportive of analysis and action on PRED. In this context, it will be necessary to link them up and to give them a systems perspective required by the PRED problematique.

- 5.5. In search of nodal points for discussion and analysis of PRED, the Commission, by necessity, will have to preoccupy itself with matters which are primarily within the national domain. At the same time, however, it will also have to address the global scene, and in particular, the international political and economic relations and structures. It will likewise have to make problem clusters interrelate with each other, and to make continuous reference to questions of global equity and equity within nations, as these are among the critical underlying determinants of the evolving situation.
- 5.6. Finally, the Commission will also have to face the issues likely to arise in the near or more distant future. Its main task will be to contribute to a clear formulation of the problems and of an explanatory framework needed to orient thought, policy and action. It need not concern itself excessively with projecting trends, deciding about scenarios that it may wish to endorse, or predicting the future. Such exercises usually become quickly obsolete, and consume a lot of time and effort. On the other hand, it may wish to consider ways and means to improve the tools and indicators that are internationally available to deal with these issues. Such tools and indicators will gain importance and will become indispensable, not just for study and analysis, but also for informed discussion and for the formulation of strategies policies and decisions, in particular those that will have to be undertaken jointly by governments on a regional and global scale.
- 5.7. The Commission will have a set of qualitative and normative policy and strategic issues to address, including the nature of general trends and their implications for man, society, and the community of nations. Generally, an innovative way to look at the medium-term and longer-term prospects would be to focus on the transition phase to a new and different world that part of mankind is entering into, while the majority still remains in the era of human misery, poverty and degradation.

5.8. The Commission has an opportunity to analyze the problems involved and the options available, and to give a more representative airing of views on the subject than has been the case so far. From its vanguard position of analyzing on behalf of the international community the environmental perspective for the year 2000 and beyond, it has a unique chance to take a penetrating, frank and balanced look at population, resources, environment and development relationships, a subject which is decisively going to affect a good deal of what happens to mankind as it enters the third millenium of its contemporary history.

Source: Review and Appraisal of the World Population Plan of Action  
(UN Doc. E/Conf.76/4, 19 June 1984)

Table 1 Major demographic indicators

| Region,<br>years $\pm$      | Population<br>size<br>(millions) | Annual<br>rate of<br>change $\pm$ /<br>(percentage) | Crude<br>birth<br>rate $\pm$ /<br>(per 1,000<br>population) | Crude<br>death<br>rate $\pm$ /<br>(per 1,000<br>population) | Total<br>fertility<br>rate $\pm$ | Life<br>expectancy<br>at birth $\pm$ | Infant<br>mortality<br>rate $\pm$ /<br>(per 1,000<br>births) | Urban<br>population<br>(percentage) | Number of<br>cities of<br>4 million<br>or more |
|-----------------------------|----------------------------------|---|---|---|----------------------------------|--------------------------------------|--|-------------------------------------|--|
| <b>World</b>                |                                  |   |   |   |                                  |                                      |  |                                     |  |
| 1974                        | 3 994                            | 2.03  | 32.7  | 12.7  | 4.5                              | 55.4                                 | 94   | 38.0                                | 28   |
| 1984 (medium)               | 4 763                            | 1.67  | 27.3  | 10.6  | 3.6                              | 58.9                                 | 81   | 41.2                                | 41   |
| (high)                      | 6 367                            | 1.74  | 25.9  | 8.7   | 3.3                              | -                                    | -  | -                                   | 69   |
| 2000 (medium)               | 6 127                            | 1.52  | 24.1  | 9.1   | 3.0                              | 63.5                                 | 58   | 48.2                                | 66   |
| (low)                       | 5 899                            | 1.29  | 22.3  | 9.4   | 2.7                              | -                                    | -  | -                                   | 64   |
| (high)                      | 9 185                            | 1.33  | 20.9  | 7.7   | 2.8                              | -                                    | -  | -                                   | 150  |
| 2025 (medium)               | 8 177                            | 0.93  | 17.6  | 8.4   | 2.3                              | 70.0                                 | 31   | 62.5                                | 135  |
| (low)                       | 7 278                            | 0.59  | 15.0  | 9.2   | 2.0                              | -                                    | -  | -                                   | 107  |
| <b>Developed countries</b>  |                                  |   |   |   |                                  |                                      |  |                                     |  |
| 1974                        | 1 085                            | 0.89  | 17.0  | 9.2   | 2.2                              | 71.4                                 | 21   | 68.3                                | 13   |
| 1984 (medium)               | 1 166                            | 0.64  | 15.5  | 9.6   | 2.0                              | 73.0                                 | 17   | 72.0                                | 14   |
| (high)                      | 1 316                            | 0.71  | 15.5  | 9.2   | 2.3                              | -                                    | -  | -                                   | 16   |
| 2000 (medium)               | 1 276                            | 0.52  | 14.1  | 9.4   | 2.0                              | 75.4                                 | 12   | 77.8                                | 16   |
| (low)                       | 1 238                            | 0.34  | 12.7  | 9.6   | 1.8                              | -                                    | -  | -                                   | 15   |
| (high)                      | 1 536                            | 0.58  | 15.3  | 10.2  | 2.3                              | -                                    | -  | -                                   | 26   |
| 2025 (medium)               | 1 397                            | 0.29  | 13.5  | 11.0  | 2.1                              | 77.2                                 | 8  | 85.4                                | 21   |
| (low)                       | 1 275                            | 0.0   | 11.6  | 11.9  | 1.9                              | -                                    | -  | -                                   | 15   |
| <b>Developing countries</b> |                                  |   |   |   |                                  |                                      |  |                                     |  |
| 1974                        | 2 909                            | 2.46  | 38.7  | 14.0  | 5.5                              | 52.7                                 | 106  | 26.8                                | 15   |
| 1984 (medium)               | 3 597                            | 2.02  | 31.2  | 11.0  | 4.1                              | 56.6                                 | 91   | 31.3                                | 27   |
| (high)                      | 5 050                            | 2.02  | 28.8  | 8.6   | 3.5                              | -                                    | -  | -                                   | 53   |
| 2000 (medium)               | 4 851                            | 1.79  | 26.9  | 9.0   | 3.2                              | 61.8                                 | 65   | 40.4                                | 50   |
| (low)                       | 4 660                            | 1.56  | 24.9  | 9.3   | 2.9                              | -                                    | -  | -                                   | 49   |
| (high)                      | 7 649                            | 1.48  | 22.1  | 7.2   | 2.8                              | -                                    | -  | -                                   | 124  |
| 2025 (medium)               | 6 780                            | 1.06  | 18.5  | 7.8   | 2.4                              | 68.9                                 | 35   | 57.7                                | 114  |
| (low)                       | 6 003                            | 0.72  | 15.7  | 8.5   | 2.0                              | -                                    | -  | -                                   | 92   |



Table 1 (continued)

| Region,<br>years a/     | Population<br>size<br>(millions) | Annual<br>rate of<br>change a/<br>(percentage) | Crude<br>birth<br>rate a/<br>(per 1,000<br>population) | Crude<br>death<br>rate a/<br>(per 1,000<br>population) | Total<br>fertility<br>rate a/<br>(per 1,000<br>population) | Life<br>expectancy<br>at birth a/<br>(years) | Infant<br>mortality<br>rate a/<br>(per 1,000<br>births) | Urban<br>population<br>(percentage) | Number of<br>cities of<br>4 million<br>or more |
|-------------------------|----------------------------------|--|--|--|--|--|---|-------------------------------------|--|
| <b>Major regional:</b>  |                                  |  |  |  |  |  |   |                                     |  |
| <b>(medium)</b>         |                                  |  |  |  |  |  |   |                                     |  |
| <b>Africa</b>           |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 537                              | 3.01   | 46.4   | 16.5   | 6.4  | 49.7   | 114   | 31.4                                | 2  |
| 2000                    | 877                              | 3.05   | 42.6   | 12.1   | 5.8  | 55.7   | 84  | 42.2                                | 11   |
| 2025                    | 1 643                            | 1.96   | 26.7   | 7.1  | 3.2  | 64.9   | 47  | 58.3                                | 36   |
| <b>Latin America</b>    |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 397                              | 2.30   | 31.8   | 8.2  | 4.1  | 64.1   | 63  | 68.1                                | 7  |
| 2000                    | 550                              | 1.85   | 25.5   | 6.7  | 3.1  | 68.3   | 44  | 76.6                                | 11   |
| 2025                    | 787                              | 1.17   | 18.8   | 7.0  | 2.4  | 72.2   | 27  | 84.2                                | 21   |
| <b>Northern America</b> |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 261                              | 0.89   | 16.0   | 9.1  | 1.9  | 74.1   | 12  | 74.2                                | 4  |
| 2000                    | 298                              | 0.74   | 14.3   | 8.7  | 2.1  | 76.2   | 8   | 78.0                                | 4  |
| 2025                    | 347                              | 0.49   | 13.5   | 10.2   | 2.1  | 77.5   | 6   | 85.8                                | 8  |
| <b>East Asia</b>        |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 1 239                            | 1.14   | 18.2   | 6.8  | 2.3  | 68.0   | 36  | 28.7                                | 8  |
| 2000                    | 1 470                            | 1.11   | 18.2   | 7.1  | 1.9  | 71.4   | 24  | 34.2                                | 10   |
| 2025                    | 1 696                            | 0.40   | 13.1   | 9.1  | 1.9  | 75.2   | 12  | 51.2                                | 18   |
| <b>South Asia</b>       |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 1 539                            | 2.20   | 34.9   | 12.9   | 4.7  | 53.6   | 109   | 27.3                                | 12   |
| 2000                    | 2 074                            | 1.65   | 26.1   | 9.6  | 3.2  | 59.8   | 76  | 36.8                                | 20   |
| 2025                    | 2 771                            | 0.86   | 16.6   | 8.0  | 2.1  | 68.7   | 37  | 55.3                                | 41   |
| <b>Europe</b>           |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 490                              | 0.33   | 14.0   | 10.7   | 1.9  | 73.2   | 16  | 72.8                                | 6  |
| 2000                    | 513                              | 0.26   | 13.0   | 10.4   | 1.9  | 75.4   | 11  | 79.0                                | 7  |
| 2025                    | 527                              | 0.06   | 12.6   | 12.0   | 2.1  | 77.3   | 7   | 85.9                                | 8  |
| <b>Oceania</b>          |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 24                               | 1.50   | 21.1   | 8.4  | 2.7  | 67.6   | 39  | 71.7                                | 0  |
| 2000                    | 30                               | 1.27   | 18.8   | 7.8  | 2.5  | 71.7   | 25  | 73.1                                | 1  |
| 2025                    | 40                               | 0.88   | 15.8   | 8.3  | 2.3  | 75.7   | 11  | 78.5                                | 1  |
| <b>USSR</b>             |                                  |  |  |  |  |  |   |                                     |  |
| 1984                    | 276                              | 0.95   | 18.8   | 9.3  | 2.4  | 70.9   | 25  | 65.7                                | 2  |
| 2000                    | 315                              | 0.76   | 16.3   | 8.7  | 2.3  | 74.0   | 17  | 74.3                                | 2  |
| 2025                    | 367                              | 0.56   | 15.2   | 9.6  | 2.3  | 76.7   | 10  | 83.4                                | 2  |

Sources: United Nations Population Division, World Population Prospects: Estimates and Projections as Assessed in 1982 (to be issued as a United Nations publication); and United Nations Population Division, Estimates and Projections of Urban, Rural and City Population, 1950-2025: the 1982 assessment (to be issued as a United Nations publication).

a/ The figures shown for the specified years refer to the following time periods: (a) 1974 is for 1970-1975; (b) 1984 is for 1980-1985; (c) 2000 is for 1995-2000; and (d) 2025 is for 2020-2025, with the exception of population size, urban population and the number of cities of 4 million or more, which refer to specified years.

Source: L.R. Brown, Resource Trends and Population  
Policy: A Time for Reassessment, World Watch  
Paper 29, May 1979

(see p. 5, para 3.2)

### World Oil Production, Total and Per Capita, 1950-78

| Year | Population | Oil Production    | Oil Production Per Person |
|------|------------|-------------------|---------------------------|
|      | (billion)  | (billion barrels) | (barrels)                 |
| 1950 | 2.50       | 3.8               | 1.52                      |
| 1951 | 2.54       | 4.3               | 1.69                      |
| 1952 | 2.59       | 4.5               | 1.74                      |
| 1953 | 2.63       | 4.8               | 1.83                      |
| 1954 | 2.68       | 5.0               | 1.87                      |
| 1955 | 2.72       | 5.6               | 2.06                      |
| 1956 | 2.77       | 6.1               | 2.20                      |
| 1957 | 2.82       | 6.4               | 2.27                      |
| 1958 | 2.88       | 6.6               | 2.29                      |
| 1959 | 2.93       | 7.1               | 2.42                      |
| 1960 | 2.99       | 7.7               | 2.58                      |
| 1961 | 3.04       | 8.2               | 2.70                      |
| 1962 | 3.10       | 8.9               | 2.87                      |
| 1963 | 3.16       | 9.5               | 3.01                      |
| 1964 | 3.22       | 10.3              | 3.20                      |
| 1965 | 3.29       | 11.1              | 3.37                      |
| 1966 | 3.35       | 12.0              | 3.58                      |
| 1967 | 3.41       | 12.9              | 3.78                      |
| 1968 | 3.48       | 14.1              | 4.05                      |
| 1969 | 3.54       | 15.2              | 4.29                      |
| 1970 | 3.61       | 16.7              | 4.63                      |
| 1971 | 3.68       | 17.7              | 4.81                      |
| 1972 | 3.75       | 18.6              | 4.96                      |
| 1973 | 3.82       | 20.4              | 5.34                      |
| 1974 | 3.89       | 20.5              | 5.27                      |
| 1975 | 3.97       | 19.5              | 4.91                      |
| 1976 | 4.04       | 21.2              | 5.25                      |
| 1977 | 4.12       | 21.8              | 5.29                      |
| 1978 | 4.21       | 22.0              | 5.23                      |

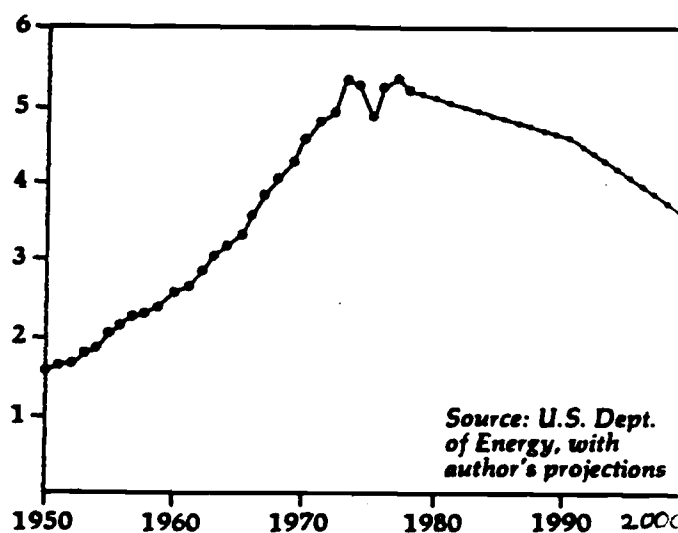
Source: United Nations and U.S. Department of Energy.

### World Oil Production, Total and Per Capita, Projected to 2000

| Year | Population | Oil Production    | Oil Production Per Person |
|------|------------|-------------------|---------------------------|
|      | (billion)  | (billion barrels) | (barrels)                 |
| 1978 | 4.21       | 22.0              | 5.23                      |
| 1980 | 4.37       | 22.3              | 5.10                      |
| 1985 | 4.82       | 23.4              | 4.85                      |
| 1990 | 5.28       | 24.6              | 4.66                      |
| 1995 | 5.76       | 23.4              | 4.06                      |
| 2000 | 6.25       | 22.2              | 3.55                      |

Source: Population projections, United Nations; oil projections, Worldwatch Institute.

Barrels



Source: U.S. Dept. of Energy, with author's projections

World Oil Production Per Capita  
1950-78, With Projections to 2000