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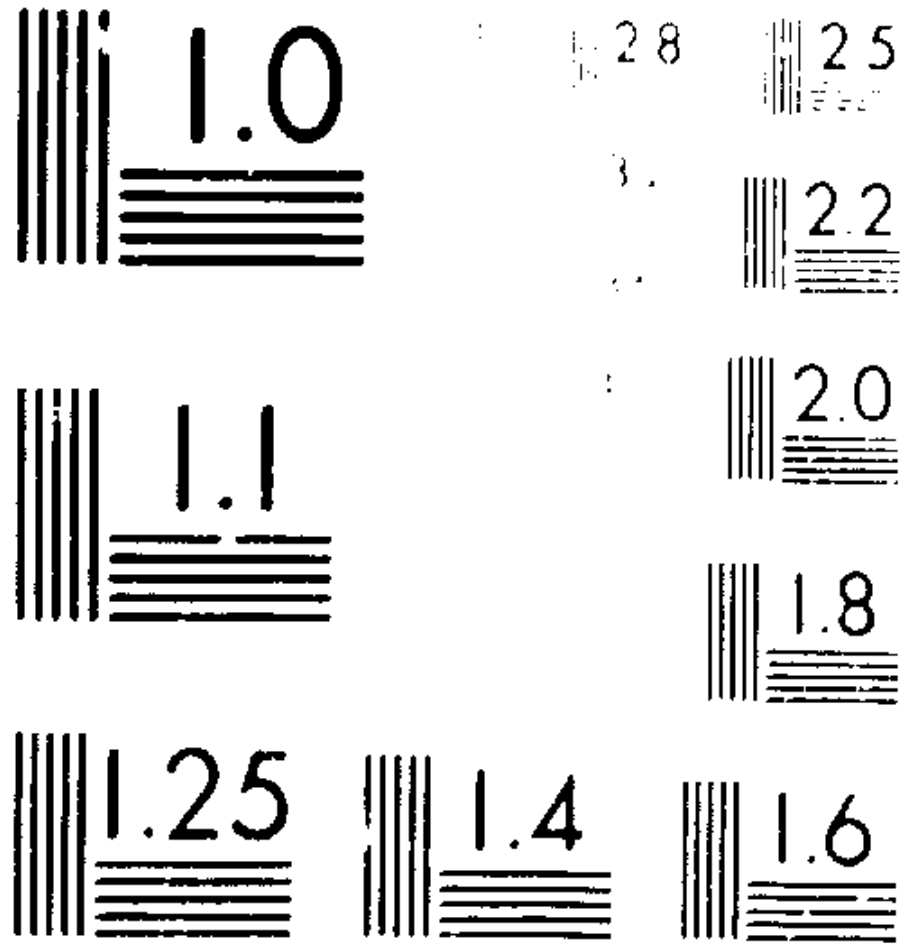
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GLOBAL SOCIO-ECONOMIC DEVELOPMENT IN 1978

Social Aspects of Industrialization
Working Paper *

prepared by the
Global and Conceptual Studies Branch
Division for Industrial Studies

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GLOBAL SOCIO-ECONOMIC DEVELOPMENT IN 1978

FOREWORD

As a reflection of deliberations at the Third General Conference of UNIDO in New Delhi in 1980, a recurring theme at recent sessions of UNIDO's Industrial Development Board has been the need to give proper attention to the examination of the social aspects of the industrial development process. Specifically, it has been stressed that successful industrialization requires a concomitant programme of socio-economic development and progressive socio-economic change. On the one hand, it is recognized that the economic growth resulting from industrialization can promote social progress by creating the means to meet socio-economic needs, including education, nutrition, health, housing and communications. On the other hand, socio-economic development can serve as an input into the industrialization process, and therefore can be a mechanism for fostering industrial development.

While continuing to examine the social aspects of industrialization as an integral part of a number of UNIDO research projects, a specific research programme in the area was instituted in 1982 which in its present phase has adopted the concept of socio-economic indicators as a means for providing a composite picture of the process of socio-economic development.* The process is currently being investigated at the global level in both cross-section and time-series analyses.** These global analyses are also being complemented with a number of case studies - for the least developed countries of Africa, for a group of NICs in Asia and Latin America***, and for the countries of the EC and the European CMEA.

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* Studies undertaken by UNIDO on social aspects of industrialization. Report by the Executive Director on the Follow-up to the Third General Conference of UNIDO and the Eleventh Special Session of the General Assembly. (UNIDO/B/295/Add.1)

** Industrial Development Strategies and Policies and Socio-economic Development in the Developing Countries. (UNIDO/IS.380)

*** Comparative Socio-economic Development in the Newly Industrializing Countries. (UNIDO/IS.356)

The objective of the present study is to compare the state of socio-economic development ir the world, developed into eleven regions, at the end of the 1970s. Initially three indicators of the result of previous policies on socio-economic develcpment - life expectancy, infant mortality, and literacy - are examined, and then alternative indicators of the level of inputs into each of six dimensions of socio-economic development - health, education, housing, nutrition, communication, and employment - are examined. Within this analysis comparisons are made both between indicators for the same dimension of socio-economic development (i.e., between daily caloric supply and daily animal protein supply for nutrition) as well as between dimensions (i.e., between health and education).

On a regional basis the comparison is made both within and between the five developed and six developing regions, with an attempt being made to pinpoint those countries and regions in the developing world where distinct trends, patterns, or factors affecting socio-economic development can be discerned. Finally an attempt is made to assess the resulting picture of the interrelationship at the global and regional level between economic and socio-economic development at the end of the 1970s.

This study was prepared by the UNIDO Secretariat, with research assistance from A. Ertenü and G. Brennand.

INTRODUCTION

It is very clear that the process of development involves an extremely complex interaction of economic and social factors. It is a basic fact that improvements in the degree of satisfaction of the needs of individual members of the community and the degree of social development in the community as a whole will contribute to the process of economic growth, as well as raising the level of welfare of the society as a whole. It is also fundamentally true that the basic justification for economic development in its narrow sense should be that it generates the means which would allow a greater satisfaction of the needs both of the individuals and of the community as a whole for raising the level of their social welfare.

While not presuming to be able to give a definitive answer in any way to the question of the precise direction of causation between the economic and the social forces which interact in the development process - if only because it is not a dynamic analysis - it is hoped that this present work, by focusing on the statistical relationship between economic factors and social factors in the development process at the end of the seventies, will improve our understanding of the nature of this interaction. More importantly, it is hoped that the research, when combined with work which focuses on the development process over several different time periods for a number of different regions and which explores groups of countries at similar levels of development, will give us a better picture of the nature of the interrelationship between the economic and social factors and will provide clues as to how the forces of economic development can be directed for accelerating the level of social development in the different regions of the world.

Examining countries as different as the Republic of Korea and Romania, one sees countries where the result of extremely rapid real rates of per capita economic growth (at an average annual rate of 6.4 per cent and 7.4 per cent over 1960-1970 1/ and 8.1 per cent and 9.6 per cent over 1970-1978 2/) have

1/ World Bank, World Bank Atlas 1978. (Washington, D.C.: World Bank, 1979), p.6.

2/ World Bank, World Bank Atlas 1980. (Washington, D.C.: World Bank, 1981), p.6.

provided the fuel for the process of socio-economic development. As a result of this economic development Romania was able to reduce the rate of infant mortality by over 60 per cent over the period and produce a society with universal literacy, 3/ while the Republic of Korea increased the life expectancy of their population by almost a fifth and literacy by over a quarter.

At the same time the role of social and socio-economic development as a means for fostering economic development is indisputable. This was indeed the case with Japan, which in 1960 had a level of per capita income that was at least a quarter 4/ (and by some estimates three-fifths 5/) lower than that of Venezuela. But it also had almost universal literacy, very low levels of infant mortality, and levels of health care in general and school enrollment approaching the highest levels in the world, while Venezuela in 1960 still had a third of its population illiterate, an infant mortality rate nearly twice as high as in Japan, and an education enrollment half that of Japan. Thus was it possible for Japan to attain its fantastic rate of economic development over the last two decades, while Venezuela grew less than a third as quickly.

THE NATURE OF THE PRESENT STUDY

The purpose of the present investigation, then, is to identify some of the most important characteristics of the process of socio-economic development in countries at different levels of socio-economic development, with the objective of providing information to policy makers to assist the setting of national goals and targets. In order to try and capture as many sides of the process of socio-economic development as possible, the process has been divided into eight different dimensions, or target areas, and for each of these dimensions data on generally three different aspects of socio-economic development have been collected. This generates a total of some seventeen

3/ According to official Romanian data. In fact there clearly exists in Romania a marginal elderly rural population that would not qualify as being literate on Western European or North American definitions. All investigations such as that reported in this paper are forced to rely on the data produced by national governments (and supplied to the respective international organizations).

4/ The World Bank, World Tables. (Washington, D.C.: World Bank, 1980), pp. 210, 250.

5/ D.V. McGranahan et al., Contents and Measurement of Socio-economic Development. (New York: Praeger, 1972), pp. 26-7.

different socio-economic indicators which are available for the vast majority of all of the 149 countries investigated for the year 1978 (the most recent year for which reasonably complete data are available), with the countries of the world divided into 11 regions - five for the developed countries and six for developing countries.

Having painted a picture of the process of socio-economic development in 1978, the study will then compare this state of socio-economic development with the level of economic development attained in the same year and attempt to assess the relative degree of achievement of the individual regions in each of these separate aspects of the total development process. Cross-section analysis will then be used to explore the relationship between the relative performance of the countries in the individual regions on economic indicators such as GNP per capita, manufacturing value added per capita, and exports of manufactures per capita; and to assess their performance on the key indicators of the results of the process of socio-economic development (life expectancy, infant mortality, and the literacy rate).

Companion studies will explore the nature of the inter-temporal relationship between economic and socio-economic development over the period of the sixties and the seventies as well as examine these interrelationships in more detail in special studies on the African least developed countries, as did a recently completed study on the newly industrializing countries (UNIDO/IS.356). Further development of UNIDO's work on the social aspects of industrialization (initiated in UNIDO/IS.380) will entail the statistical examination of the relationship between a selected group of socio-economic indicators and a number of economic variables for the period up to 1978. If satisfactory relationships are determined, the functions derived will be used to supplement the economic scenarios from the UNITAD model by determining the expected level of the individual social indicators (and hence of socio-economic development) that would result from alternative patterns of economic development over the 1980s (including that contained in the International Development Strategy of the Third Development Decade).

It is crucially important to realize, when embarking on any investigation of socio-economic development that uses socio-economic indicators, that "any discussion on social indicators has to accept not only the absence of a theoretical or conceptual framework in which it can take place, but also the

lack of any generally accepted convention as to their definition and uses." 6/ Thus, an OECD-sponsored meeting on social indicators in developing countries could not even agree on the definition of a social indicator. 7/

For the purposes of this investigation, the starting point will be to delineate a number of dimensions of socio-economic development - dimensions that encompass the area between the confines of narrow economic concepts such as savings or consumption and the very broad purview of the degree of participation of the population in decisions that affect them. This dividing line between the too-narrow economic and the too-wide social indicators is necessarily a subjective one, with the existing methodology unable to give satisfactory guidance in this matter. An example of this grey area is the question of the indicator of employment (or, more relevantly, unemployment): in this work it has been excluded as being too economic, whereas the percentage of the labour force made up of women has been included as a true socio-economic variable. But one could clearly argue the case for including the former (as socio-economic) or excluding the latter (as too social).

Having selected these dimensions of socio-economic development, one then turns to the question of selecting specific socio-economic indicators. In some cases it is not possible to find a suitable indicator for international usage. For the dimensions of socio-economic development employed here - as opposed to dimensions such as recreation, social security, or human freedom for example - it is generally possible to find acceptable indicators, though the standards of data acceptability imposed meant that, while data on income distribution for example were collected, the decision was made not to include them both because of the paucity of data as well as because of doubts about their reliability.

This has the implication, however, that all the socio-economic indicators employed are expressed in the form of country-wide averages and that there is no distribution or access information inherent in any of the indicators. There is also the fact that data are not collected on a regular and comprehensive basis for many indicators - this being primarily a problem for the dimension of housing (e.g., access to safe water, to piped water, or to

6/ OECD, Social Indicators in Developing Countries. (Paris: OECD, 1978), p.8.
7/ Dorothy Walters, "Report of the Meeting". In: Ibid., p.11.

electricity). Moreover, the missing data are not spread uniformly across all countries but are concentrated in specific (groups of) countries. Specifically, this is unfortunately the case for the (least developed) countries of Africa.

The procedure utilized in the analysis is to first examine those indicators that can be seen to be the result of the long-term process of socio-economic development - life expectancy, infant mortality and literacy - and then examine a small set of indicators that can be considered inputs into each of six different dimensions of socio-economic development. All of these input indicators can be influenced, directly or indirectly, by government economic policy and thus provide the mechanism whereby policy makers can make their priorities regarding both the desired level and pattern of long-term socio-economic development felt.

GLOBAL SOCIO-ECONOMIC DEVELOPMENT IN 1978 - A NORTH-SOUTH OVERVIEW

By 1978 the developed countries of the world had reached a level of socio-economic development, as measured by indicators of life expectancy, infant mortality and literacy, that is difficult to improve upon. An average life expectancy of 71.7 years and infant mortality below 25 per thousand is nevertheless more impressive than the average rate of literacy of 89.4 per cent. At the same time there exists a diversity of experience within the developed countries that should not be ignored. For example, while most countries of Western Europe achieved almost universal literacy, Yugoslavia had 85 per cent, Portugal 70 per cent and South Africa 57.

With little objective evidence of what amounts to a satisfactory level of inputs, the performance of the North must be compared with that of the South. In each dimension, the level of the indicators for the developed countries far exceeds the lesser developed group: health care inputs for the South average just over 20 per cent of those for the North, and communications indicators average less than 30 per cent of the North. The nutritional averages for the North are all well above the FAO 'requirement level', and safe water supply and combined primary and secondary enrollment ratios are both close to 100 per cent for developed nations. The picture is clearly healthy for the North.

Averages for the South are far more dangerous to deal with than for the North, since the levels of both inputs and outputs of the socio-economic process vary widely between developing countries. Thus, although average health care inputs are 20 per cent of the North, this ignores, for example, an average physicians ratio of 0.08 per thousand population for the Sub-Saharan countries and an average nurses ratio of 0.14 per thousand population for South Asia, representing 4.5 per cent and 3.0 per cent of the developed averages, respectively.

Despite these distributional problems involved in interpreting average values, the South, on average, fails to attain levels of protein or animal protein intake per capita that meets the FAO requirement levels. The nutritional disparity between the North and South is thus clearly a major problem facing any efforts geared to improving global socio-economic welfare.

Within the education dimension we observe what is probably the South's best relative socio-economic performance, attaining an average primary enrollment ratio of 81.8 per cent; this, however, does not carry over to secondary levels, where the rate falls to less than 30 per cent. A similarly disparate experience occurs within the goal area of communications, where radio receivers seem to have been reasonably well emphasised - average South levels are over 30 per cent of the North - yet average newspaper circulation is below 15 per cent of the developed group. Finally, there is clearly a very poor relative performance in the housing goal area for the South, where over half of the dwellings are without safe water.

Turning to the result indicators for the South we get the clearest picture of the disparity in socio-economic development between the North and South. People from the South live, on average, 17 years less, and remembering once more the variety of experience within the South, this picture is bleak. Furthermore, almost five times as many infant deaths occur in the South, with the extreme values again being in Sub-Saharan Africa and South Asia, with maximum infant mortality figures of 211 deaths per thousand live births (Upper Volta) and 205 deaths per thousand (Afghanistan), respectively.8/ Add to this

8/ These are figures for 1980; data shortages for Sub-Saharan Africa for the year 1978 lead to a large understatement of the infant mortality average for the South.

the indication that half of the South is illiterate and the bias in global socio-economic development becomes very clear.

Figure 1 provides a useful summary of this gap in development, with the performance of the South in primary school enrollment rates standing out as the region's best relative achievement. It should be remembered that the nature of the North-South division necessarily understates the development disparity; Turkey, for example, is included in the North, but has performance levels close to averages for the South. Thus including this country in the South in the analysis would raise North averages considerably, thus accentuating the development gap.

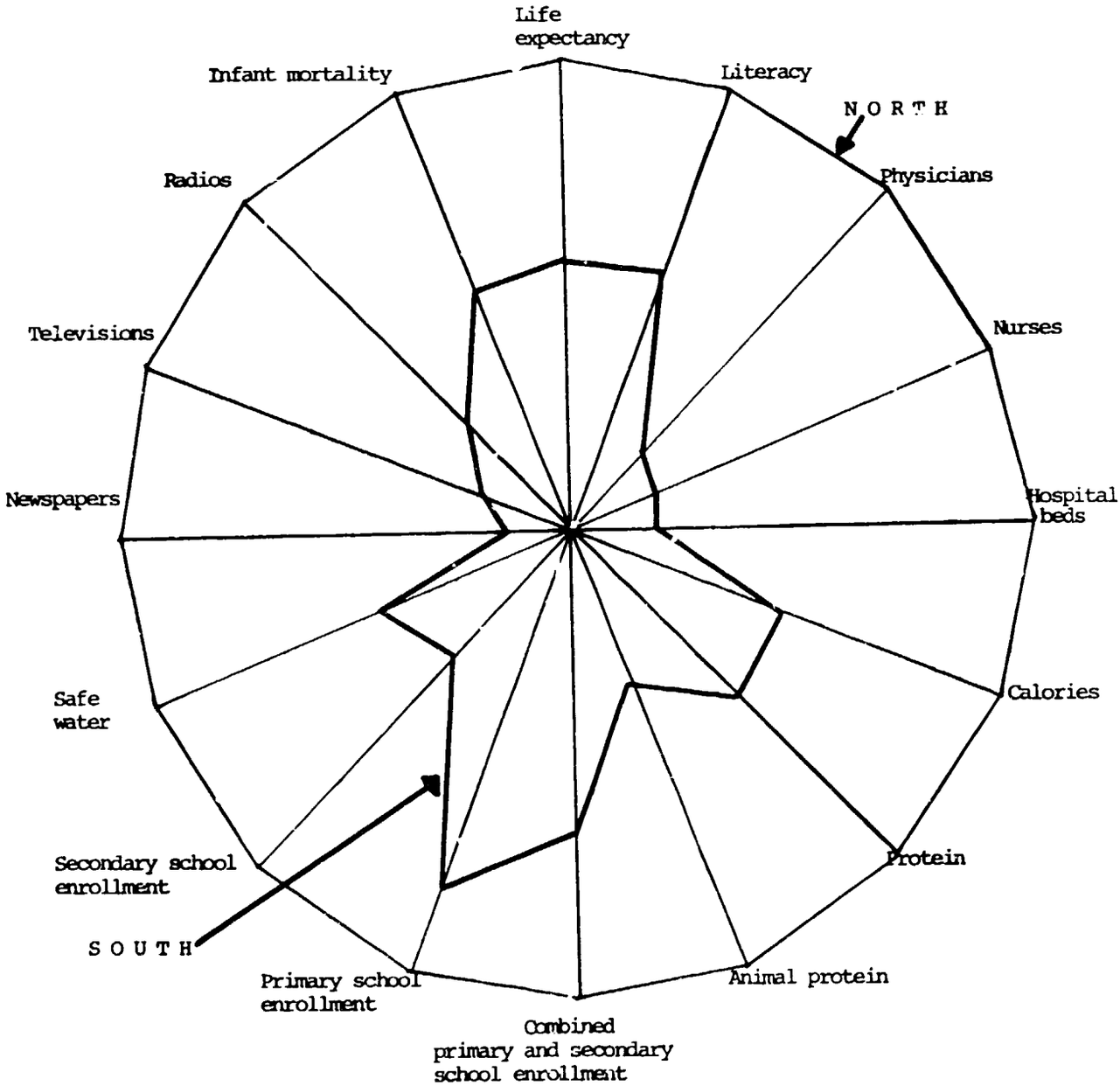
THE DIMENSIONS OF GLOBAL SOCIO-ECONOMIC DEVELOPMENT IN 1978

As an introductory assessment of the relative performances of the different regions of the world, the average of five socio-economic input indicators and the three result indicators was calculated for the developing regions and expressed as a percentage of the average performance of the developed countries (North America, Western Europe and Japan). Figure 2 summarises these relative values.

The first striking feature is that the ordering of performances for each region is preserved for each result indicator (i.e., for infant mortality, life expectancy, and literacy), so that there is no imbalance inter-regionally in any particular indicator. On the other hand for three of the input indicators considered - physicians per thousand, animal protein supply, and the percentage of dwellings with piped water - the characterization of relative performance becomes more complex due to the emphasis on different types of socio-economic development in the different developing regions.

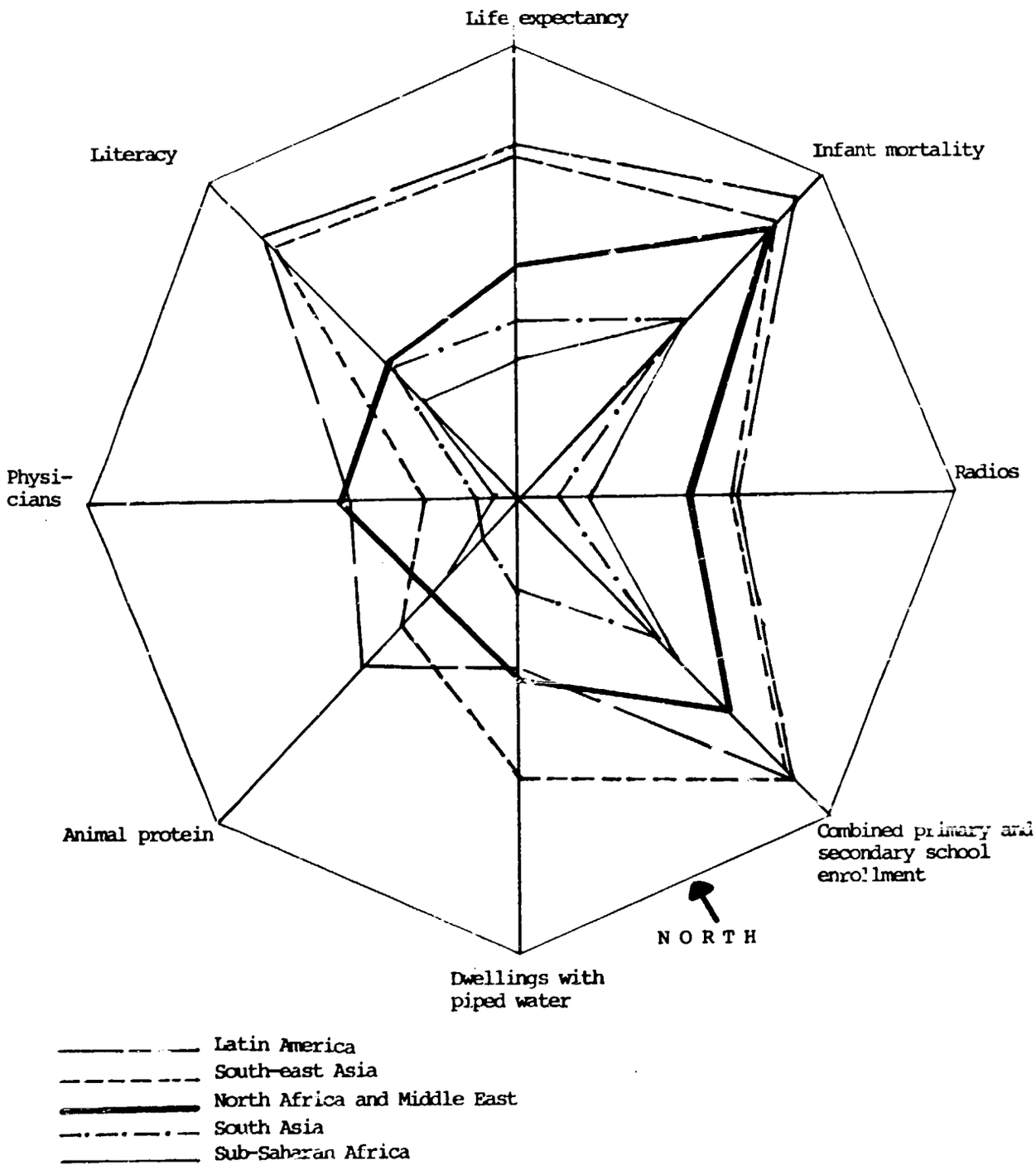
Thus, for example, whereas Latin America has a higher nutritional performance than either South-East Asia or North Africa and the Middle East, both of the latter regions have a higher percentage of dwellings with piped water, while North Africa and the Middle East also performs better on the physicians ratio. This appears to be evidence both of varying elasticities for socio-economic goods and services in the developing world as income levels rise, and also of the varying "production functions" between inputs and outputs that exist between these regions.

Figure 1. SOCIO-ECONOMIC DEVELOPMENT IN THE SOUTH AND IN THE NORTH: 1978



Sources: ILO, Basic Needs Data Bank, 1980.

FIGURE 2. COMPARATIVE SOCIO-ECONOMIC DEVELOPMENT IN THE SOUTH: 1978



It therefore appears appropriate to explore the nature of global socio-economic development for each of the different dimensions of socio-economic welfare. This will be followed by a section attempting a fuller understanding of the nature of the development process through a regional analysis of relationships amongst socio-economic variables, and between economic and socio-economic variables.

DEMOGRAPHY

By their nature the demographic indicators - life expectancy and infant mortality - represent the ends of the long-term process of socio-economic development. The attainment on each of these two result indicators reflects the interaction of a set of governmental measures, these in turn being reflected in the value of input indicators such as education, nutrition and communication, etc.

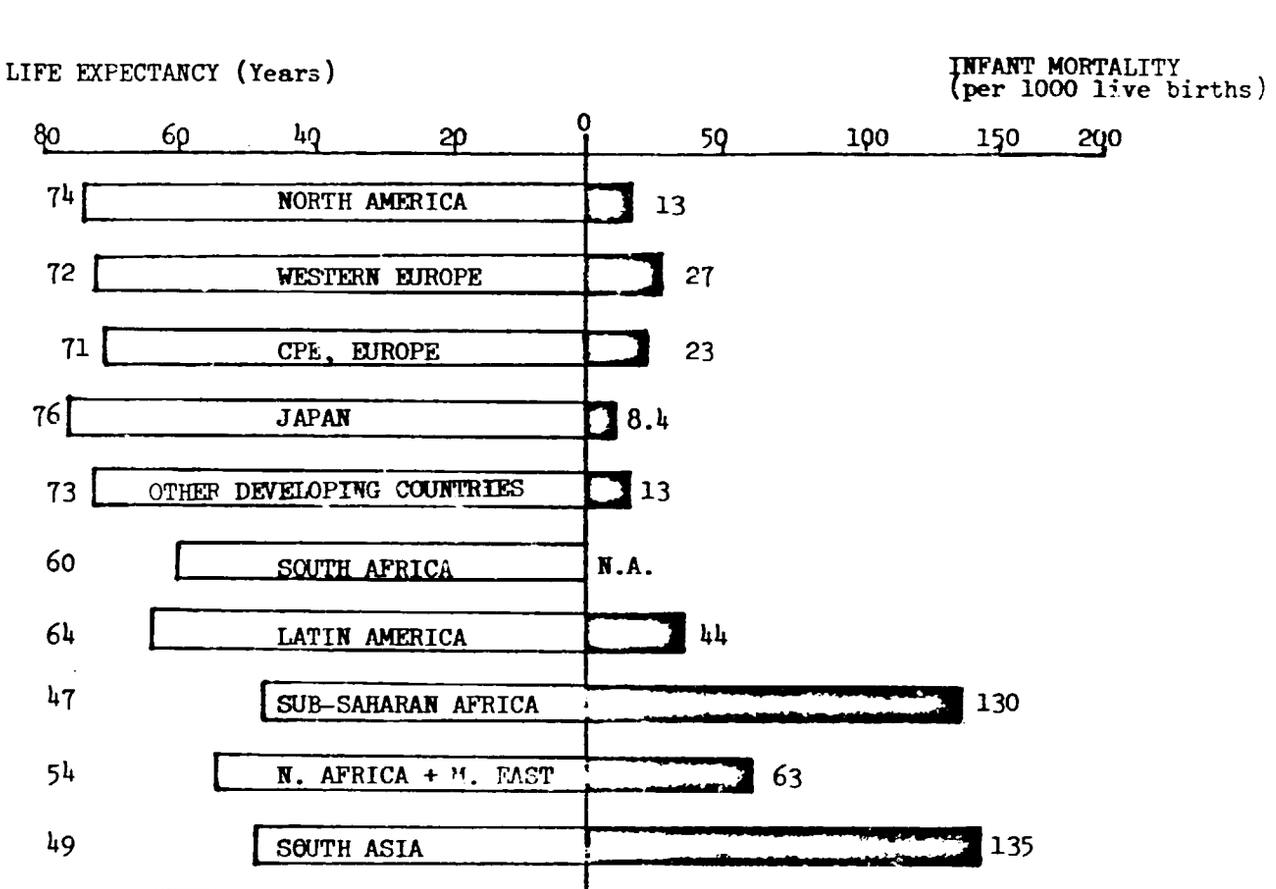
Life expectancy

Life expectancy at birth of both sexes is one of the most frequently used and widely available socio-economic indicators. While it has the highest correlation of any health indicator with other health indicators, it should be noted that the published statistics on life expectancies are often estimates derived from a specific model of the United Nation's Population Division. 9/ In comparison with other social indicators it embraces several dimensions of socio-economic development and can be used as a general measure of socio-economic progress, particularly for developing regions where life expectancy averages less than 55 years.

Regionally, the highest life expectancy in the world, as shown in Figure 3, is in Japan (76 years) and the lowest in Sub-Saharan Africa (47 years). Average values in the Scandinavian countries (75 years) are also notably high, the world average being 63 years. Ethiopia and Yemen share the lower end of the range at 39 years, with extremely low performance levels on most of the other socio-economic indicators. Among the developing regions, Latin America and South-East Asia achieved the highest life expectancies at 64 years.

9/ See the discussion in: UNRISD, "Measurement and Analysis of Socio-Economic Development", Geneva, June 1981, pp. 2-20. (UNRISD/81/c.16)

FIGURE 3. DEMOGRAPHIC RESULT INDICATORS BY REGION: LIFE EXPECTANCY AND INFANT MORTALITY



Sources: World Bank, World Development Report 1981. (Washington, D.C., World Bank, 1981).
World Bank, World Tables, op.cit.
World Bank, World Economic and Social Indicators 1980. (Washington, D.C., World Bank, 1980).

Infant mortality

Infant mortality is defined as the number of deaths of infants less than one year old, per thousand live births.10/ Statistics on infant deaths are dubious in quality. The published figures may not always be reliable because people responding to surveys may be reluctant to report the deaths of their children at birth. Further, as reported by UNRISD, the infant mortality rates can also be overestimated when in some countries, particularly in Latin America, infant deaths are registered more accurately than infant births.11/ Although the data on infant deaths for 1978 are incomplete for some regions, infant mortality can be considered as one of the better health indicators, conveying the results of improvements in health care, nutrition, education, environmental sanitation and so forth.

Extremely high infant mortality rates in developing countries remained one of the greatest health problems. Again, in South Asia and Sub-Saharan Africa the number of infant deaths is the highest in the world (135 and 130 per thousand live births, respectively). Japan and the Scandinavian countries share the lower end of the range at about 8 infant deaths per 1000 births. Figure 3 shows clearly that while regions with high life expectancy (developed countries) also have low levels of infant mortality, the regions with a poor performance on life expectancy (developing countries) tend to have large numbers of infant deaths.

LITERACY

While most of the developed countries are assumed to have attained universal literacy and no longer record this indicator, it is an indicator of interest for developing countries. The rate measures the results of educational input parameters (i.e., primary school attendence, adult literacy programmes), thereby showing the effectiveness of general education. Improving literacy rates can have far reaching implications in that, for example, it may enable individuals, especially in developing countries, to acquire knowledge and skills for better feeding and personal-hygiene practices. Further benefits may also be realized through increased knowledge in the areas of water use, environmental sanitation and fertility control.

10/ UNRISD, Research Data Bank of Development Indicators, Vol. IV, (Geneva 1977, UNRISD), p.31.

11/ Ibid., pp.31-32.

Usually, the literacy figures are the results of censuses. However, this way of obtaining data has two major drawbacks. First, the definition of literacy varies from country to country: while, for instance, statistics for most countries cover reading or writing skills for the population of 15 years or above, some countries include a range of from 5 to 14 years of age. This, of course, makes international comparisons all the more difficult. On the other hand, several countries differentiate the reading ability from writing with respect to literacy, and define it either in terms of reading only or writing only.12/ Second, literacy rate data may not be very recent since censuses are often held at long time intervals - e.g., every 10 or 20 years. Furthermore, during censuses there are frequently no questions asked on literacy. A study carried out by UNESCO has attempted to estimate literacy rates world wide,13/ although it was only possible to obtain estimates for 1970.

While Western Europe and the centrally planned economies of Europe both had average literacy rates of 94 per cent, North America, Japan and other developed countries achieved 99 per cent literacy. Only a few countries in the developed regions deviated appreciably from these levels (e.g., in Turkey the rate was 60 per cent, in Portugal 70 per cent).

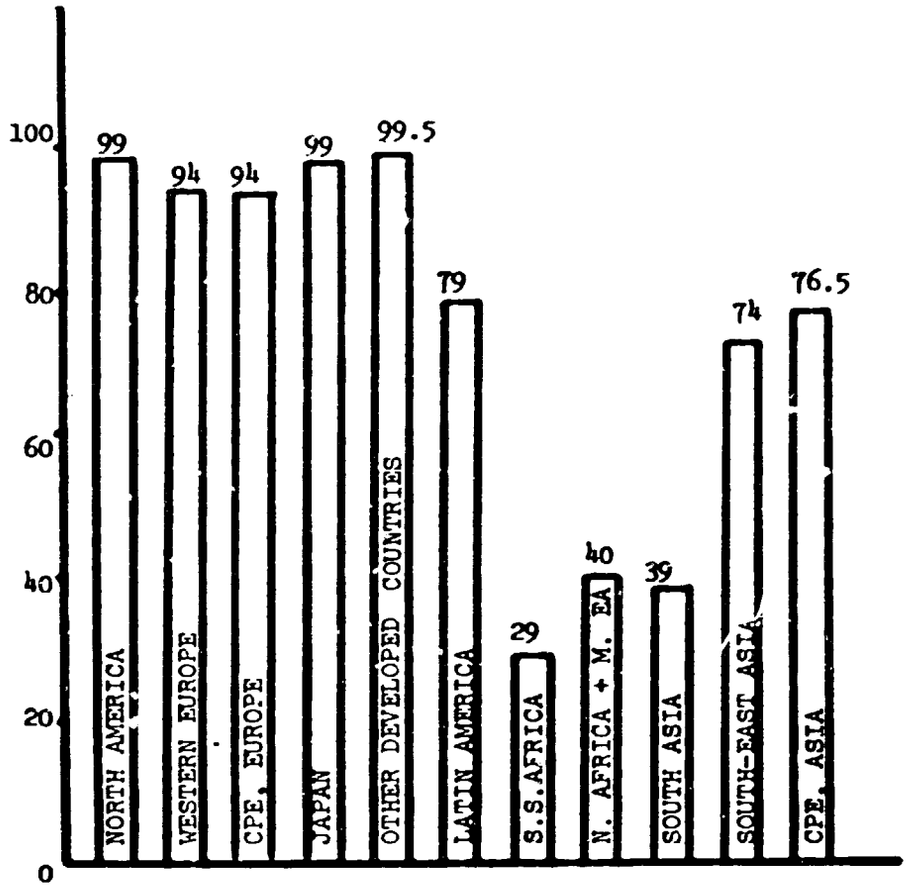
On the other hand, about half of the population in the developing regions is illiterate. The lowest average rate of literacy in the world is in Sub-Saharan Africa at 28.83 per cent, the second lowest being 38.43 per cent in South Asia. Of all the developing regions, Latin America has the highest literacy rate at 78.77 per cent, closely followed by the centrally planned countries of Asia with 76.5 per cent. (See Figure 4.)

HEALTH

The number of physicians, nurses and hospital beds per thousand indicates the availability of health care throughout the region or country. These figures, however, do not specify the degree of concentration of health services in rural or urban areas. Reaching people in rural areas, for example, is slower, more expensive, and administratively more difficult than in urban areas. As a result the majority of medical personnel and modern health care facilities are concentrated in highly populated cities or their

12/ UNRISD, "Measurement and Analysis ...", op.cit., p.21.
13/ UNESCO, Estimates and Projections of Literacy 1978, (Paris: UNESCO)

FIGURE 4. ADULT LITERACY RATE AS PERCENTAGE OF POPULATION AGED 15 AND OVER BY REGION



Sources: World Development Report 1981
World Bank, World Tables 1980

peripheries. Statistics on medical personnel and facilities can therefore be misleading. Furthermore, UNRISD 14/ pointed out the major weaknesses of such data: First, the aforementioned indicators do not show the quality of health services. They do not, for instance, indicate how well-trained or motivated the physicians or other personnel are, or how well-equipped the medical facilities are. Secondly, the statistics on physicians or nursing personnel may be inaccurate because these figures are based on registered professionals, and changes for reasons of death or retirement are made irregularly, if at all. Finally, there is no universally accepted definition of nurses and hospital beds, making the data incomparable for different countries.

The centrally planned countries of Europe account for the highest number of physicians in the world, with 2.07 per thousand of population. With respect to nursing personnel, the region is only the third best (4.42 nurses per 1000), and Australia and New Zealand plus North America achieved by far the highest figures on nursing - 6.67 and 7.18 per thousand, respectively. While South Asia had the worst performance in the world for nursing at 0.14 per thousand people, Sub-Saharan Africa had the worst supply of physicians at 0.08 per thousand.

The gap between the developed and developing regions, as can be seen in Figure 5, is extremely wide - especially for hospital beds. While, for example, Australia and New Zealand achieved the highest number of hospital beds with 11.33 beds per 1000, CPE Asia, the best performer on this target area among the developing countries, could provide its population with only 3.67 beds per thousand.

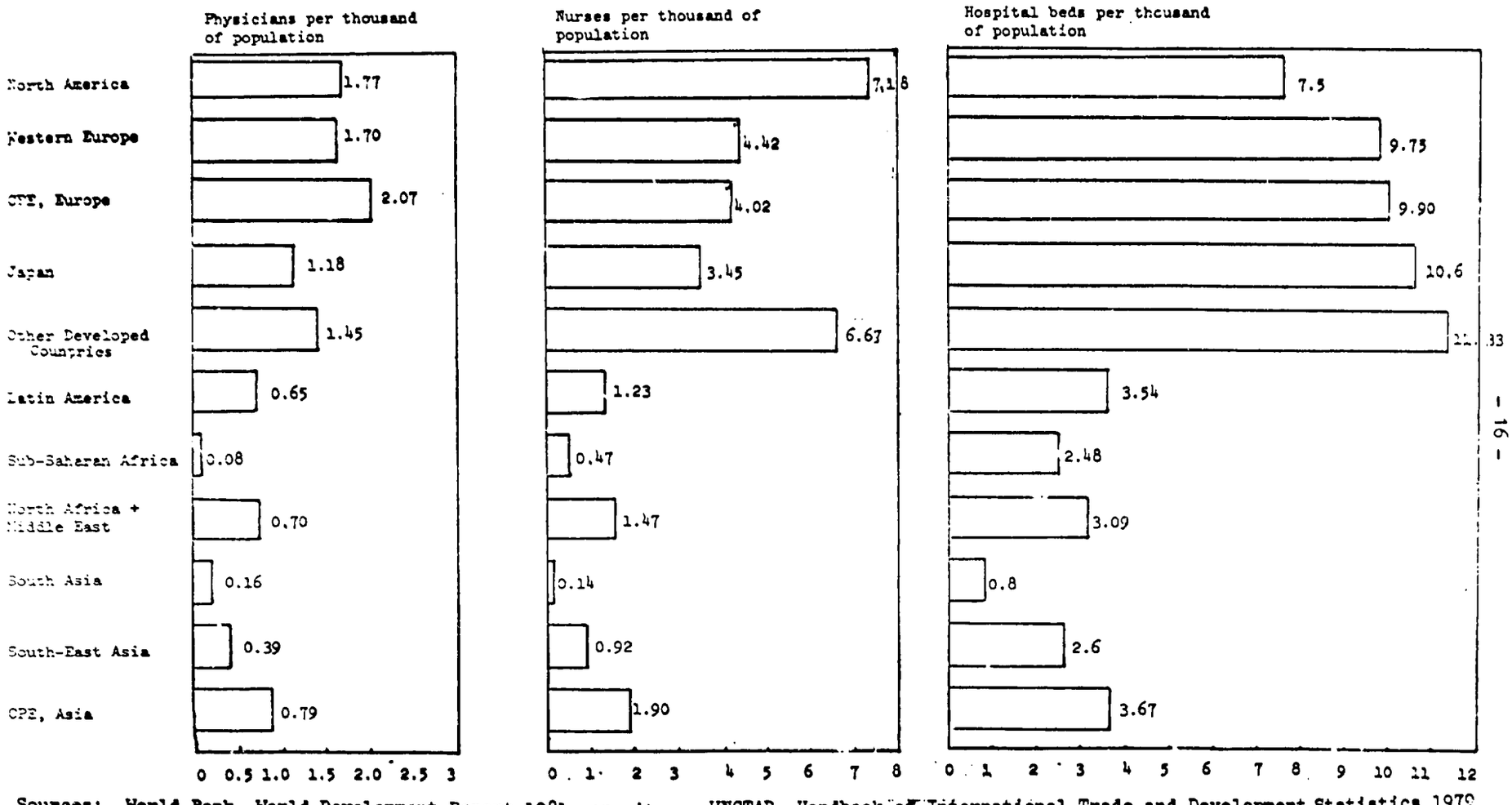
NUTRITION

The concept of minimum daily food consumption is controversial. While, for example, in developing countries protein deprivation was considered to be a more serious problem than caloric inadequacy, recent evidence suggests that the caloric deficiency is of greater importance.15/ In any event, three

14/ UNRISD, Research Data Bank ..., op.cit., pp.43-44.

15/ Kocher, J. and A.R. Cash, Achieving Health and Nutritional Objectives within a Basic Needs Framework, Development Discussion Paper Nr. 55, March 1979, Harvard Institute for International Development, p.9.

FIGURE 5. HEALTH RELATED INDICATORS BY REGION



Sources: World Bank, World Development Report 1981, op.cit.
World Bank, World Tables, op.cit.
WHO, World Health Statistics 1981. (Geneva: WHO, 1981).
UNCTAD, Handbook of International Trade and Development Statistics 1979 (New York: UN, 1979).

nutritional indicators appear to be useful: daily per capita calorie supply, total protein supply and animal protein supply. Although data availability is good, there are other problems: first, figures do not indicate any possible losses of nutrients during transporation, storage, or preparation; secondly, nutritional indicators are given in terms of supply, rather than in terms of actual consumption; thirdly, the figures do not show the percentage of the population with sufficient food. Nevertheless, these indicators reveal the average nutritional status of a given country and provide insight into relative nutritional developments.

The highest daily per capita calorie supply is in North America (3503 calories), and the lowest in South Asia (1938 calories). Those two regions have also the highest (128 grams) and the lowest (47.56 grams) average supply of protein. South Asia achieved the lowest levels of animal protein consumption per capita at 7.04 grams; indeed, Sub-Saharan Africa, North Africa and the Middle East have twice as much animal protein in their diets as South Asia. In calorie supply the centrally planned economies of Asia did not perform much better than South Asia, achieving the second worst levels of food supply with 2100 calories per capita.

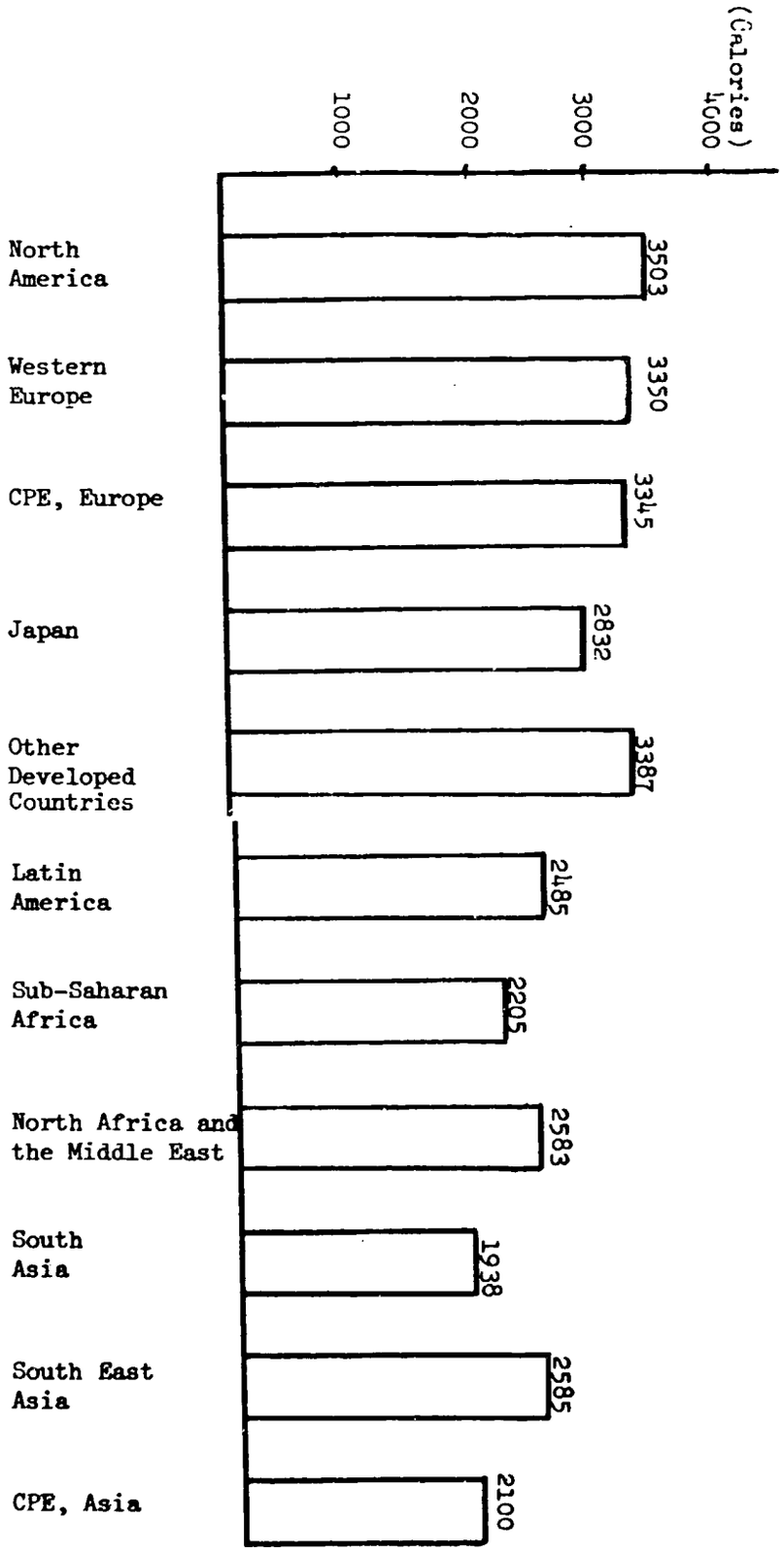
Figure 6 shows clearly that the developed regions have an average supply (of 3283 calories per capita) far greater than the 2019 calories of the developing regions. At the same time it should be noted, however, that low body weight and height require lower calorie and protein supplies and may, in part, explain the low levels in South Asia.

EDUCATION

Enrollment rates at primary and secondary schools plus the combined primary and secondary enrollment as per cent of age group reflect only the quantity of education, thus making it difficult to determine the quality (e.g., with respect to availability of facilities, teachers and reading or writing materials). Unfortunately, it seems that there is no better way of measuring the quality of education internationally.16/ Furthermore, the average age group given for a particular level of education differs from

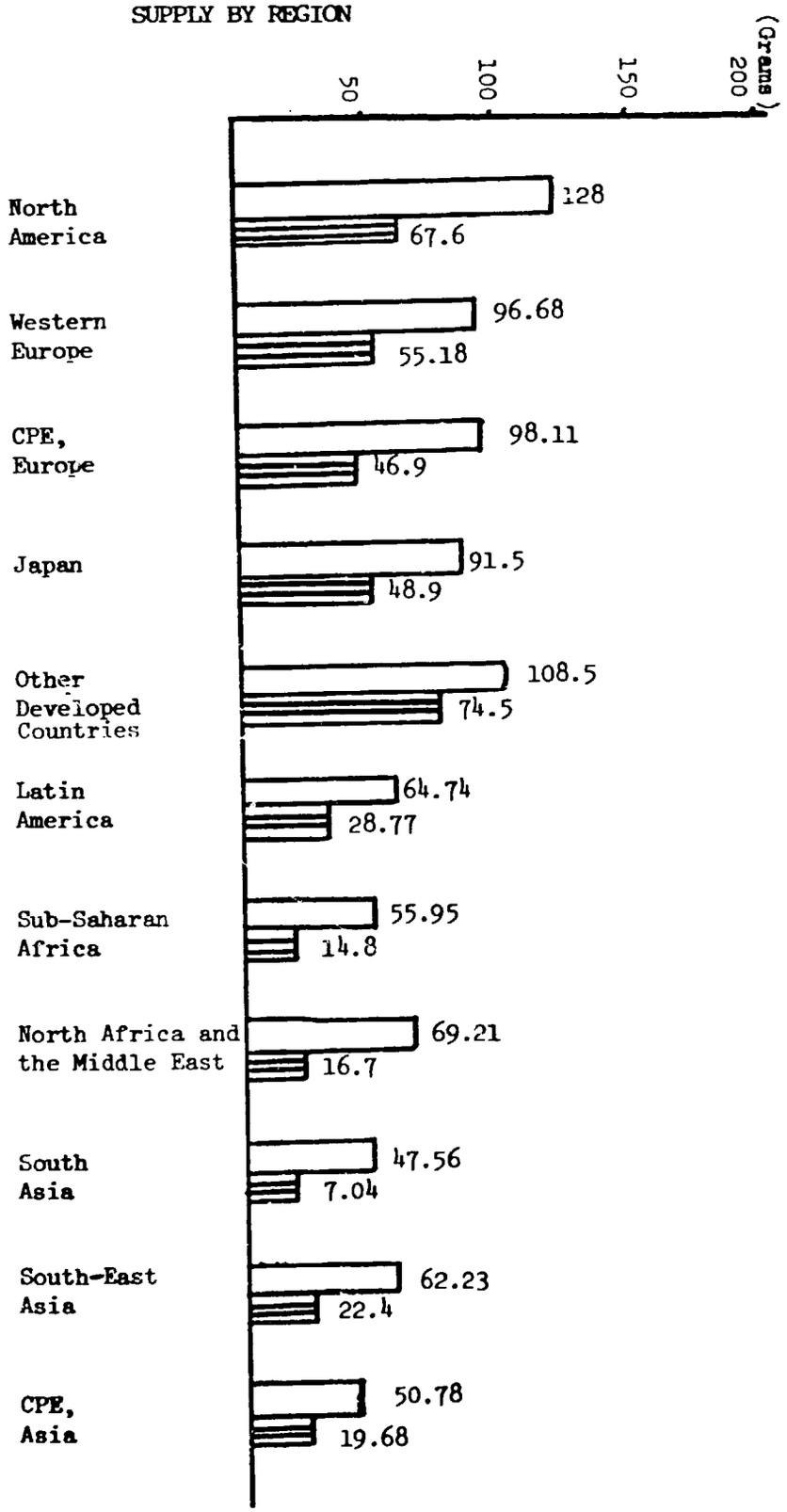
16/ UNRISD, Research Data bank ..., op.cit., p. 80.

FIGURE 6. FOOD CONSUMPTION: DAILY PER CAPITA CALORIE SUPPLY BY REGION



Source: FAO data bank.

FIGURE 7. FOOD CONSUMPTION: DAILY PER CAPITA TOTAL AND ANNUAL PROTEIN SUPPLY BY REGION



Total Protein
Annual Protein

Source: FAO data bank.

country to country (primary enrollment rates therefore frequently exceed one hundred per cent). Also, pupils enrolled at school may not necessarily attend classes and eventually even drop out (the case in many developing countries), and the length of schooling at primary and secondary levels also varies between different countries.

These three indicators, however, seem to be superior to other education indicators. In particular, the combined primary and secondary enrollment rate appears to be a useful indicator since, of seven education indicators, it had the highest correlation with the other six indicators.17/

The developed regions achieved universally full enrollment in primary education. While combined rates are also impressive and do not fall below 88 per cent, the secondary enrollment ratios vary considerably from region to region, being the highest in North America at 93 per cent and the lowest in Eastern Europe at 72 per cent.

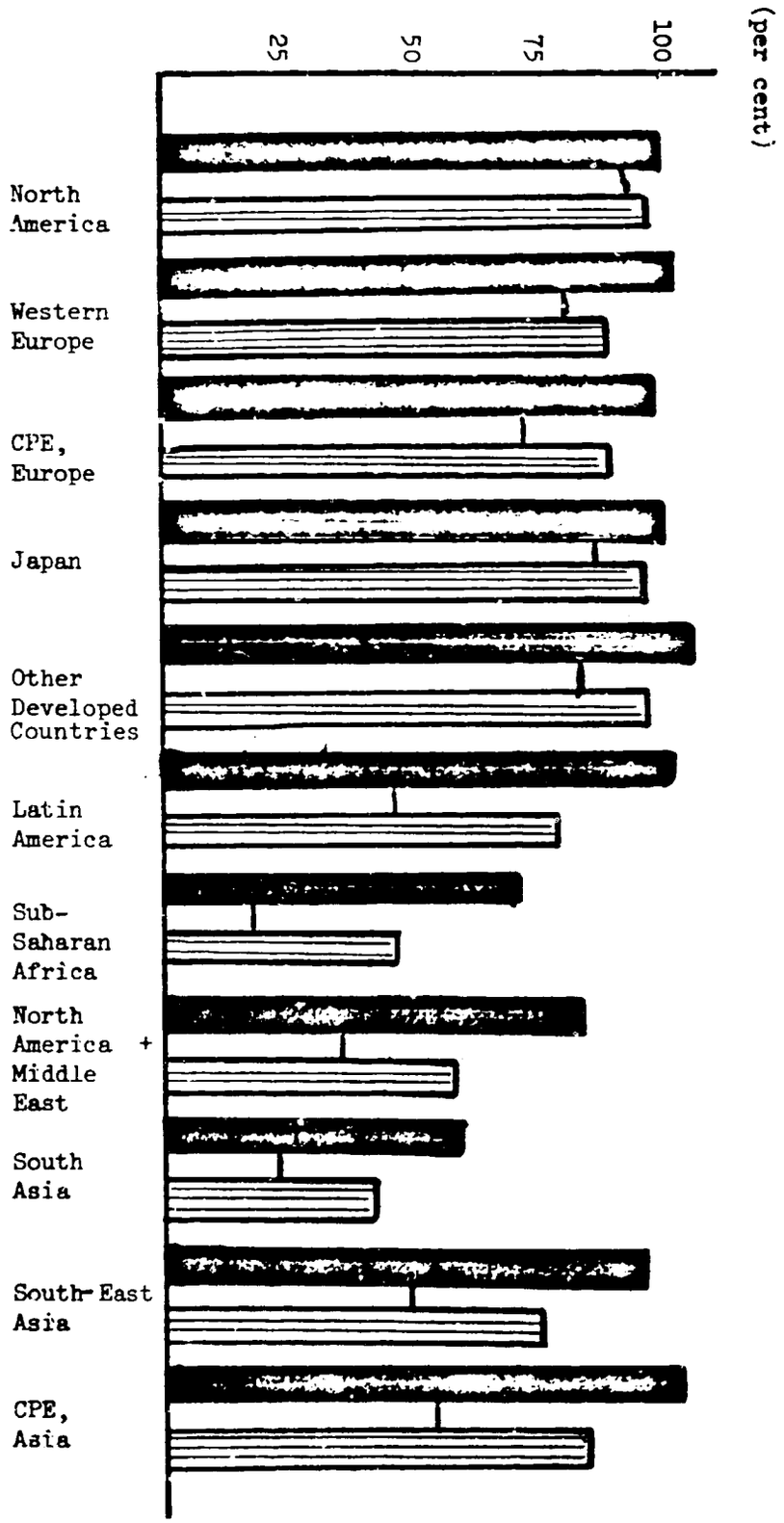
Two developing regions achieved universal primary education: Latin America and the centrally planned countries of Asia. Figure 8 illustrates all three of the educational parameters and it can be seen that South-East Asia also achieved almost universal primary education (97 per cent). In secondary education, in descending order, the centrally planned countries of Asia, Latin America and South-East Asia achieved again the highest levels among the developing regions. In primary education, Sub-Saharan Africa and South Asia have the worst performances at an average of 64 per cent. In secondary education, in ascending order, Sub-Saharan Africa, South Asia and North Africa and the Middle East attained extremely low levels, averaging 25 per cent.

HOUSING

The 1978 data on housing such as dwellings with piped water or electricity are almost non-existent. The only information in this area refers to "access to safe water", which is identical to the term "safe water supply" and includes treated surface waters or untreated but uncontaminated water such as water from protected bareholes, springs and sanitary wells. Other waters of doubtful quality are qualified as unsafe. Despite problems of definition

17/ Ibid., p.80.

FIGURE 8. EDUCATION: ENROLLMENT RATES BY REGION



Number Enrolled in Primary School as Percentage of Age Group

Number Enrolled in Secondary School as Percentage of Age Group

Combined Primary and Secondary Enrollment as Percentage of Age Group

Source: UNESCO, Statistical Yearbook 1981 (Paris: UNESCO, 1981).

and estimation, this indicator has proved to be highly correlated with other indicators of health and of development in general. It does not, however, serve as a development indicator for developed countries, where the only values available are 100 per cent.18/

Data for 1978 on safe water are not available for the developed regions. It is, however, generally assumed that most of the developed countries have at least 99 per cent access to safe water. Although some countries within the developed regions may not have full access to drinkable and uncontaminated water, due to lack of data for 1978 such intra-regional comparison are not possible.

Again, Sub-Saharan Africa and South Asia have the worst supply of clean water at about 27 per cent. Figure 9 shows the percentage of population in developing regions with access to safe water. North Africa and the Middle East and Latin America provide more than half of their population (about 61 per cent) with safe water, and half of the population of South-East Asia has such access.

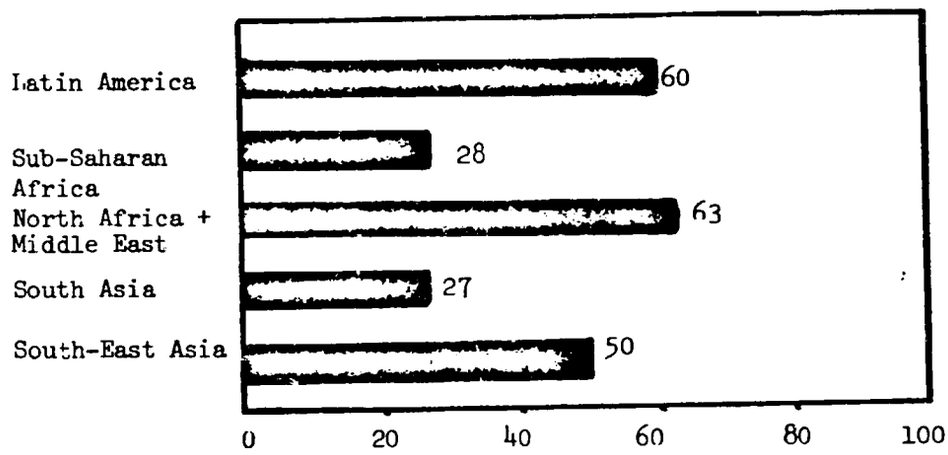
COMMUNICATIONS

Communications include three indicators: newspaper circulation, radio and television receivers per thousand of population. Although UNESCO Statistical Yearbooks provide data for almost all of the countries, there are problems with the reliability of these figures. For example, the number of circulated newspapers does not indicate the distribution within rural or urban areas. For radios and televisions, statistics are sometimes compiled according to licensed units, which may not correspond to the actual number of receivers. Moreover, transistor radios do not require registration, making the estimation of total supply difficult.

Among the developed regions, Japan achieved by far the largest circulation of newspapers at 555 per 1000 people. North America, Western Europe and Eastern Europe appear to have similar circulations, ranging from 249 to 298 newspapers per thousand. For televisions, North America has the largest supply with 352 television sets per 1000 people. It also has the largest

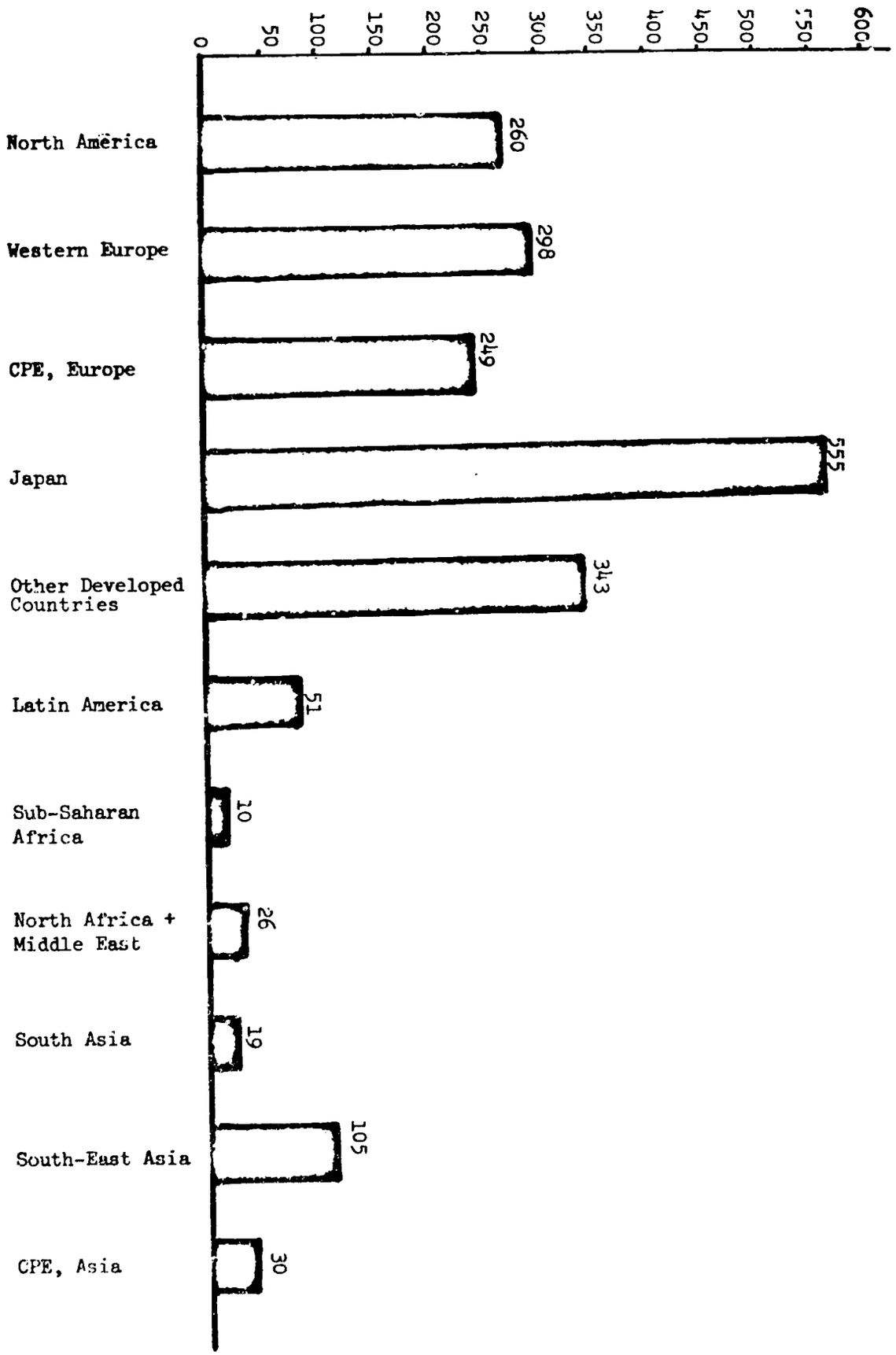
18/ UNRISD, Research Data Bank ..., op.cit., pp. 90-100.

FIGURE 9. HOUSING: PERCENTAGE OF POPULATION WITH ACCESS TO SAFE WATER IN DEVELOPING REGIONS



Sources: World Bank, World Development Report 1981, op.cit.
World Bank, World Tables, op.cit.

FIGURE 10. COMMUNICATION: NEWSPAPER CIRCULATION PER THOUSAND OF POPULATION



Source: UNESCO, Statistical Yearbook 1981, op.cit.

number of radios per capita in the world - 1571 radios per thousand. Other developed countries achieved the next best levels at 962 radios per thousand.

In newspapers, as can be seen in Figure 10, South-East Asia and Latin America have the largest circulations among other developing regions (105 and 51 per 1000, respectively). While the newspaper circulation in North Africa and the Middle East was very low (26 per thousand), the supply of televisions is the highest for developing regions (86 per thousand), indicating the availability of funds for one of the most expensive forms of communication. Again, Sub-Saharan Africa and South Asia achieved extremely low levels on each of the three indicators. However, the centrally planned countries of Asia achieved even lower television receiver rates at 3 televisions per 1000 of population (see Figure 11 for an illustration of radio and television supplies in 11 regions).

FEMALE EMPLOYMENT

International comparability of the rate of female participation in the total labour force is impaired by the fact that its significance varies with the degree of industrialization, urbanization and culture in developed and developing countries alike. Nevertheless, the data reveal that the centrally planned countries of Europe and Asia have the highest rates of female participation in the world (45 and 42 per cent, respectively). Not surprisingly, North Africa and the Middle East has only 9 per cent of the total labour force made up by women, the lowest in the world. (See Figure 12). This, of course, is mainly due to Islamic tradition's strictures on the participation of women in the work force.

FIGURE 11. RADIO AND TELEVISION RECEIVERS BY REGION

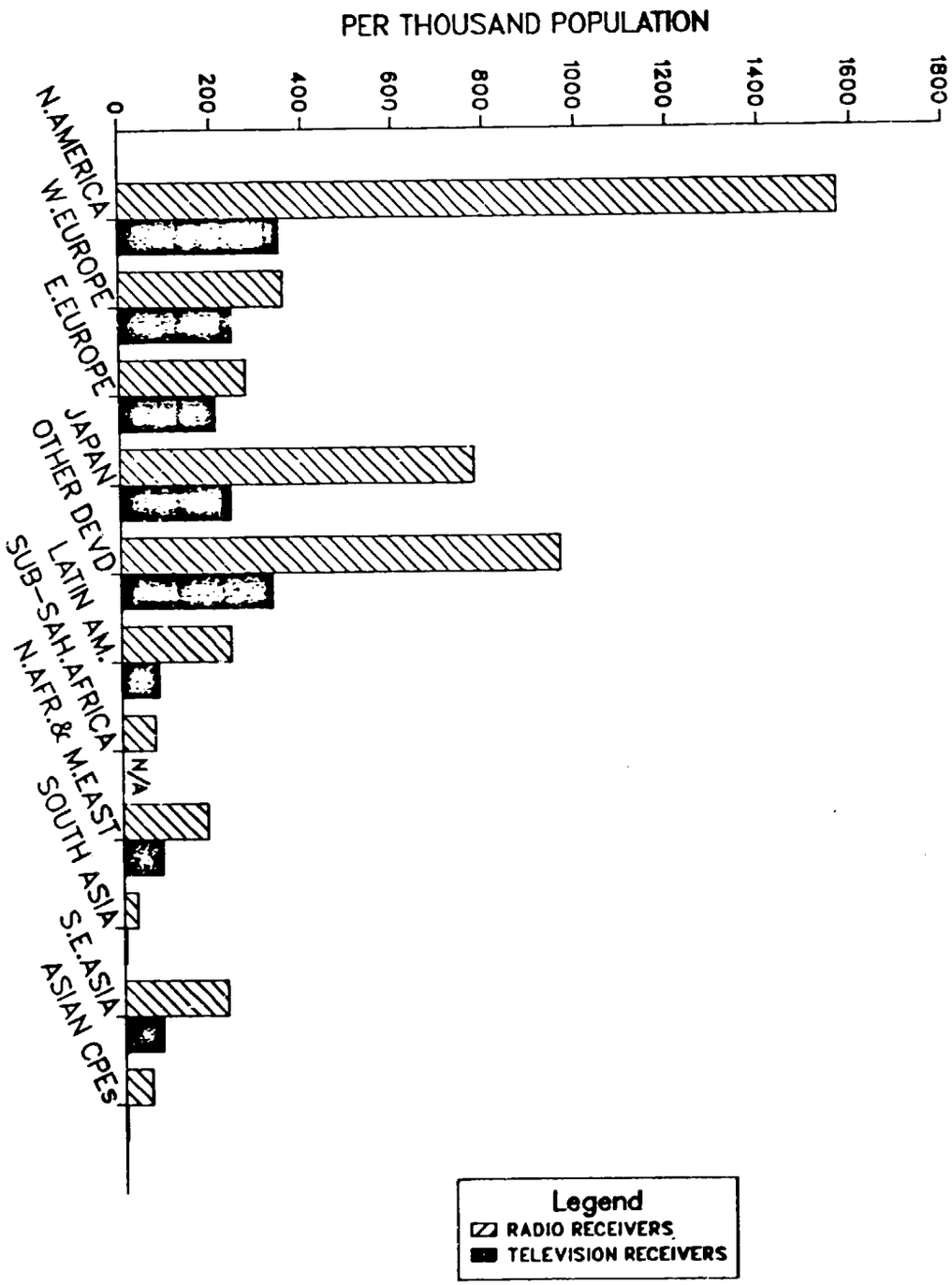
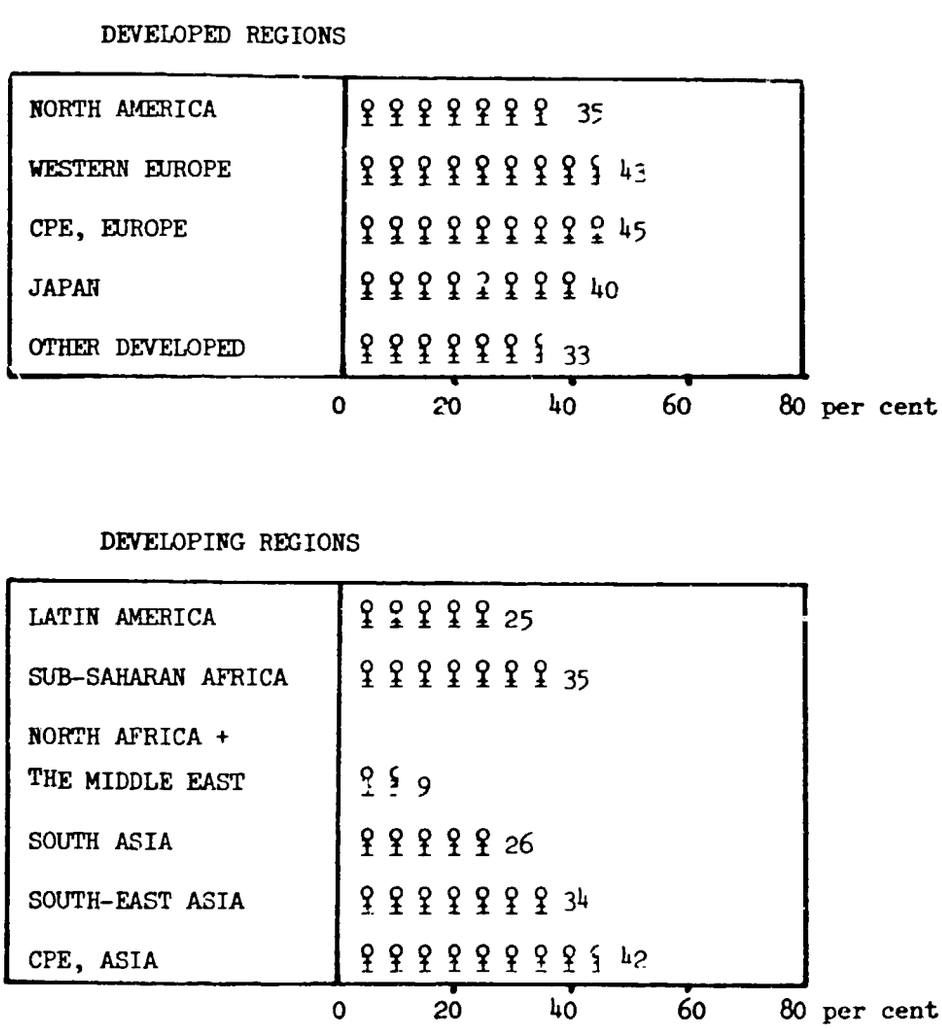


Figure 12. EMPLOYMENT: PERCENTAGE OF WOMEN IN TOTAL LABOUR FORCE BY REGION



Note: ♀ = 5 per cent.

Source: World Bank, World Tables, op.cit.

REGIONAL SOCIO-ECONOMIC DEVELOPMENT IN 1978

NORTH AMERICA

Canada and the United States of America experience the second highest life expectancy (of 73.5 years) and the second lowest mortality rates (of 13 per thousand live births) in the world. This can be attributed in part to the synergistic relationships between universal education (99.5 per cent primary school enrollment, 93 per cent secondary school enrollment and 99 per cent literacy rate), health care systems (1.77 physicians, 7.18 nurses and 7.5 hospital beds per 1000 of population) and the high standards of nutrition (3508 calories and 102.8 grams of protein per day and capita).

Life expectancy in North America is 27 years longer than in Africa and higher than in any other region of the world except Japan. While 135 infants (aged 0-1) per thousand live births are expected to die in the Indian Subcontinent, only 13 infants are not expected to survive in North America.

The universal adult literacy rate of 99 per cent as an output variable of education attests to the fact that an effective educational system has been established. Broad based access to basic education enables the region to reach such high literacy rates. This, of course, can be attributed to availability of funds for large expenditures on education.

North America has the second highest per capita provision of physicians in the world, the 1.77 medical doctors per thousand persons being exceeded only by Eastern Europe's 2.07. There are, however, a number of individual European countries - Eastern and Western - that appreciably exceed this level: e.g., the USSR has 3.47, Israel 3.23, Austria 2.33 and Belgium 2.27 physicians per thousand inhabitants. North America's relative high provision of physicians is combined with the world's largest number of nurses - 7.18 nurses per thousand of population in both countries. The supply of hospital beds in North America (7.5 hospital beds per thousand of population) is, however, smaller than the average in Western Europe (9.75), Japan (10.6), and Australia and New Zealand (11.32).

At this point, two important caveats should be posted. First, the definitions of nursing personnel and hospital beds may vary from country to country. 19/ Second, in general, the quality of health care in highly developed countries such as the US or Canada may not be directly comparable with that in developing countries. Therefore, comparisons that employ data on the quality of health care must be regarded with caution.

Average North American values for all the nutritional indicators - 3508 calories, 102.8 grams of protein and 67.6 grams of animal protein per day/capita - are higher than in any other region. It should, however, be noted that excessive levels of food consumption may have harmful effect; Moltar's research, for example, has shown serious health problems resulting from very high levels of food consumption in the United States. 20/ This, in turn, raises the question of whether there is a monotonic relationship, particularly at high levels of calorie intake, between per capita calorie intake and welfare.

The educational parameters such as the primary and secondary enrollments as the percentage of age groups indicate excellent average values - 99.5 per cent and 93 per cent. Although high enrollment rates may not necessarily lead to high rates of economic growth and are poor indicators for the quality of education, it is plausible to assume that in North America they have created economic and social conditions contributing to the furtherence of socio-economic development. 21/

As a general proposition for all country groupings, but ironically particularly for the developed countries, the availability of data in the area of housing is limited. The only available data for this region are the percentage of dwellings with piped water, and the value of 98 per cent of dwellings with piped water for the countries of North America can perhaps be considered, in practical terms, a maximum for countries with extensive rural areas.22/

19/ For a detailed discussion of indicators and their definitions, see "Research Data Bank ..., op.cit.

20/ Molitar, Graham T.T., "Agribusiness - Its Impact on our Livelihood and Life: World Food, Population, Affluence, Diet/Health Trends". Washington, D.C. 1977 (mimeo).

21/ For a discussion of the relationship between educational and economic performance indicators, see Psacharopoulos, G. and Lee, K-H., "International Comparisons of Educational and Economic Indicators, Revisited", World Development, Vol. 7 (1979), pp.995-1004.

22/ Figures for Canada are for 1975 and for USA 1970, and therefore are underestimates for 1978.

North America has clearly attained the highest level of communication in the world in terms of the number of televisions (551.5 per thousand of population) and radios (1570.5 per thousand of population). Indeed, further increases in these values could only be expected to generate extremely small increases in welfare. In terms of the average number of newspaper circulation, however, these countries did not achieve the same performance levels: while in North America only 259.5 newspapers per thousand persons are circulated, the figure for Western Europe is 298, in Australia and New Zealand 342.5, and in Eastern Europe 249.

The possible explanations for this difference are diverse and range from the purely economic - newspapers are very highly subsidized in Eastern Europe - to the cultural - different people have very different prefered patterns of assimilating information. There is also the quality problem, since a 'newspaper' can be perceived as a very different product designed to serve very different purposes in different political and economic systems.

The labour force participation rate for women is 34.95 per cent, and while this figure is slightly above the world average (33.13), North America ranks relatively lower on this indicator than on any of the seventeen other specific indicators of socio-economic development. It could well be expected that changing societal attitudes to female employment in North America will create new opportunities for female employment, and thereby increase the relative position of North America in global rankings. At the same time, increased emphasis on industrialization at the expense of agriculture in many developing countries may act as a force to reduce the degree of female employment, since a large share of the women formerly employed in the agricultural sector will find it difficult to find employment in the industrial sector.

WESTERN EUROPE

The average West European life expectancy is 72 years, with a range of 69-75 excluding Turkey and 61-75 including Turkey. Such extreme values reduce the homogeneity among the countries of a given region (here West Europe), and particular attention must be given to countries which differ significantly with respect to the structure, growth and level of their socio-economic development from the dominant pattern of the region.

For infant mortality, Turkey's 118 infant deaths per thousand live births are twice as much as the world average, and its inclusion raises the West European average from about 16 (SD = 8.99) to 19 (SD = 22.80).23/ At the same time, the region includes the Scandinavian countries, where in most of the countries life expectancy is the highest in the world after Japan and where one also has almost the lowest infant mortality rates in the world.

The proportion of illiterate people is high only in two Western European countries: in Turkey 40 per cent and in Portugal 30 per cent of the population do not have the skills to read or write. Another group of countries, including Greece, Cyprus and Malta do not have universal literacy, but on average there is a high proportion that is literate (85 per cent). The rest of Western Europe has attained universal literacy.

In measuring the state of the socio-economic development in terms of the life expectancy, infant mortality and literacy rates that have resulted as an output from the entire process of development, one observes similar values for most of the countries in Western Europe. This similarity does not appear in measuring the development process from the input side which includes factors that contribute to the process of raising the level of socio-economic development. Thus, as just one example, the range of the number of physicians per thousand inhabitants is between 0.56 in Turkey and 3.23 in Israel - the former figure having been sharply influenced by emigration, the latter by immigration.

It is interesting to observe that the Scandinavian countries, having the highest life expectancy and lowest mortality rates in Western Europe, do not have a commensurately large number of medical doctors. After Israel, a group of countries - including Austria, Belgium, the Federal Republic of Germany and Italy - achieved the next best levels with an average of 2.23 physicians per thousand inhabitants. On the other hand, Scandinavians experience very high levels of nursing services and hospital beds: in Norway 10 nurses per 1000 of population, in Finland 9.09 and in Sweden 7.69; in Finland 15.31 hospital beds per thousand population, in Sweden 14.9 and in Norway 14.82. This, in turn, suggests that not only is improving the nursing services and the number of

23/ Data for Turkey refer to the most recent estimate between 1974-1977. SD is the standard deviation.

hospital beds cheaper to bring about and easier to provide because of shorter periods of training, but that it also may in certain circumstances be more important than increasing the number of doctors for the purpose of improving health care.

Excluding Turkey, the lowest per capita calorie supply is found in Iceland (2996 calories) - the country with the highest animal and total protein supply in Western Europe (116.7 grams of protein and 91.8 grams of animal protein). This specific pattern of food consumption - also found, for example, in Japan - raises interesting questions about the impact of different consumption patterns on indicators such as life expectancy and infant mortality rates since, for instance, both Iceland and Japan have long life expectancies although they consume much lower levels of calories than other developed countries.

It is also interesting to note that the lowest nutritional supplies in Western Europe - 2955 calories, 82.2 grams of protein and 19.1 grams of animal protein - are found to be in Turkey, a country which is self sufficient in food. This suggests that in analyzing unsatisfactory nutritional values, the interaction of many factors should be taken into account, such as transportation problems, low quality preparation of food, inefficiencies in the agricultural sector and disparities of purchasing power in different regions of the country. Cyprus (3184 calories, 93.5 grams of protein and 41.9 grams of animal protein) and Portugal (3231 calories, 86.8 grams of protein and 36.1 grams of animal protein) also fall for short of the average figures in Western Europe, especially in terms of animal protein supply.

Almost all Western European countries achieved universal primary education.24/ The secondary school enrollment rates, however, indicate differences among some countries. For example, while Turkey (34%), Israel (68%), Malta(70%), Austria (72%) and Italy (73%) share the lower end of the range, the Scandinavian countries - Sweden (84%), Norway (92%), Finland (89%) and Iceland (83%) - are again found to be at the upper end of the scale. For the region as a whole, however, the mean level of combined primary and secondary education enrollment as a percentage of the age group is an impressive 88 per cent.

24/ The enrollment rates may exceed 100 per cent because some pupils may be below or above the primary-school age.

The average number of the circulated newspapers in Western Europe (298 per thousand of population) exceeds other regions, except Japan (555) and Australia and New Zealand (342.5). This figure, however, is based on a wide range (41-612) with a standard deviation of 168, indicating large disparities among countries. But it is also another case of possible inadequacies in the data, since it is difficult to conceive how Portugal, attaining only 70 per cent literacy and 55 per cent secondary enrolment, could have the world's highest newspaper circulation of 612 per 1000 inhabitants 25/ - especially since at the same time Portugal attained the second lowest figures on televisions and radios (76 and 159 per 1000 of population). These doubts are reinforced by the contrast with the case in Turkey, a country often indicating similar patterns of development as Portugal, which attained the lowest figures in West Europe on all areas of communication (41 newspapers, 44 television receivers and 98 radio receivers per 1000 of population).26/

In general, countries which showed consistently low levels on other socio-economic indicators (especially, Turkey, Cyprus, Portugal, Greece and Spain) can also be grouped as low achievers in communications - with the exception of Israel and Italy which have higher levels of socio-economic development. Conversely, countries which consistently attained the highest levels on other indicators, such as the Scandinavian nations, achieved very high levels of communication.

Western Europe has the second highest average female participation rate (after Eastern Europe) in the total labour force with 42.98 per cent among the developed regions. It is important, however, to note that Eastern Europe has a considerably lower standard deviation (2.85) than Western Europe (52.19), indicating the existence of appreciably larger relative disparities among the countries of Western Europe.

Examination of individual country data makes it clear that the evolution of female participation rates has not taken place in parallel with that of economic development. Thus, for example, Turkey has a 37.3 per cent female participation rate in the total labour force, which is similar to Scandinavian levels (Finland 42.1, Denmark 37.2 and Sweden 36.6), while at the same time

25/ Data Source: UNESCO, Statistical Yearbook 1981, op.cit.
26/ The 41 newspapers refer to 1975 data.

Spain (20.6) and Portugal (25.5) - at the same level of development as Turkey - indicate much lower female participation rates. It can thus be seen that the causation underlying female participation rates is a very complex one, with diverse factors, including the social-cultural structure of the country, playing key roles.

EASTERN EUROPE

Although the values for the majority of indicators of inputs into socio-economic development in the East European countries vary widely, indicators relating to life expectancy and infant mortality rates present a homogeneous picture. East Europeans have a life expectancy on average about 2 years shorter than West Europeans (70,5 years) and infant mortality rates (23 per thousand live births) in Eastern Europe indicate values some 15 per cent above those in Western Europe.

All of the Eastern European countries approximated universal literacy, though there are clearly still isolated rural problem areas. 27/

There is a wide range in the number of doctors per thousand of the population (1.04 - 3.45) in the region, this extremely large variation being due to the high population of physicians (3.45) in the USSR. Taking an unweighted average, however, the Eastern European countries as a whole attained the largest supply of physicians in the world: 2.07 doctors per thousand inhabitants. Even when excluding the USSR from the calculation, the average of 1.86 doctors per thousand persons is higher than the figures in Western Europe or the USA.

This superior performance of the USSR in the number of physicians employed is not evident in respect to nurses and hospital beds; in the case of hospital beds per thousand, Czechoslovakia (12.29) exceeded to the Soviet value (12.13), and in the case of nursing personnel Czechoslovakia and Hungary both attained higher levels (6.25 and 5 nurses per thousand, respectively) than the USSR's 4.76. In nursing Romania - with 1.56 per thousand - and in hospital beds Albania - with 6.24 per thousand - achieved the worst performance levels within the region.

27/ Data for Albania are not available.

In calorie and protein supply, Eastern European countries attained on average 3345 calories and 98.11 grams of protein. In animal protein Eastern Europe has clearly failed to reach satisfactory levels (46.9 grams), judged either internationally or in terms of the aspirations of the population. High calorie intake without much animal protein in Eastern Europe is an indication of an imbalanced diet based on carbohydrate rich food, i.e., bread and potatoes.

Nutritional indicators are lowest in Albania (2781 calories, 79.6 grams of protein and 20.6 grams of animal protein), a country with a relative nutritional status in Eastern Europe similar to that of Turkey in Western Europe.

As with literacy rates, East European countries also experience universal primary education (97 per cent of age group). On average, 72 per cent of children of the relevant age group attended secondary schools, not far below the results in Western Europe (of 79 per cent). Note however, that the observed homogeneity of Eastern Europe in literacy and primary school education is not evident with respect to secondary school enrollment. While, for example, Western Europe had a standard deviation of 13.41 on secondary education, Eastern Europe, comprising far fewer countries, has 26.66. Czechoslovakia and Hungary both account for the lowest rates of secondary enrollment; Poland reached slightly higher levels; and the group including USSR, Romania, GDR and Bulgaria account for the highest levels. The region's performance on the combined primary and secondary enrollment is impressive - 89.29 per cent.

Albania and Romania follow a similar pattern in communications, in that both countries indicate lower levels of development than other Eastern European countries. Thus, while only 44 newspapers are circulated in Albania and 156 in Romania, the region as a whole has a much higher average value for newspapers in circulation - about 249. Also, while Albania has 1.9 televisions per thousand persons and Romania 156, East Europe has, on average, some about 207 television receivers per thousand people. Furthermore, there are only 77 radio receivers per thousand people in Albania and 144 in Romania, falling far short of the region's average at 274 radios. As a general proposition, it is clear that for each of the three goal areas of communication Eastern Europe has the lowest figures among developed regions.

The average female participation rate in the total labour force is 45 per cent - 2 per cent above the Western European average - and it is much more homogenous in Eastern European countries (SD = 2.85) than in Western European countries (SD = 52.19). Both of these facts reflect the premises regarding the key role of female employment in the process of economic development that are basic to the political economic system in the region.

OTHER DEVELOPED COUNTRIES AND JAPAN

The average values for goal areas in this region cannot be compared with the averages for other regions because, while Australia and New Zealand have a similar economic and social structure, South Africa presents a radically different and imbalanced pattern of socio-economic development. It is therefore appropriate to examine the process of socio-economic development in two groups: in Australia and New Zealand, and in South Africa alone. Furthermore, because of the fact that in many dimensions Japan, Australia and New Zealand have achieved roughly similar levels of development, Japan will be discussed in the group of other developed countries.

Japan has attained the longest life expectancy (of 76 years) and lowest infant mortality rates (of 8.4 per thousand live births) in the world, and there is only one group of countries - the Scandinavian countries - which has performed at a similarly high level in this target area of development.

Australia and New Zealand have the same life expectancies (73 years) and almost identical infant mortality rates (12.8 and 13.8 per thousand live births) - levels about the same as in North America. In contrast to the long life expectancies Australians and New Zealanders experience, South Africans expect the shortest life (60 years) among the developed countries, this short life expectancy being an average of the life expectancy of one group of the population with European expectations and another group with expectations more similar to the average for Sub-Saharan Africa.

Within the regions of Japan and New Zealand and Australia, there is practically no difference in literacy - about 99 per cent. Recent data for South Africa are not available, although a 1960 figure of 57 per cent indicates a consistently poor relative preformance.

In health care large variations of performance again appear within this region: while there are 1.45 doctors, 6.67 nurses and 11.33 hospital beds per thousand inhabitants in Australia and New Zealand, and 1.18 doctors, 3.45 nurses, and 10.6 hospital beds per thousand in Japan, there are only some 0.50 doctors, 2.27 nurses and 6.57 hospital beds per thousand persons in South Africa.28/

It should also be noted that in South Africa between 1962 and 1973 - the latest year with comparable data - the number of doctors per thousand of population decreased from 0.52 to 0.50, a development in part due to the immigration of physicians to other countries. It is also clear that South African values for nursing personnel fit at the lower end of the range among developed countries of Western Europe, say Portugal (2.00) and Yugoslavia (2.44), and that with 6.57 hospital beds per thousand inhabitants South Africa is again below average in the group of developed countries.

Nutritional indicators for Japan (2832 calories, 91.5 grams of protein and 48.9 grams of animal protein) are lower than the average common to North America, Western Europe, Eastern Europe and Australia and New Zealand. Thus, the Japanese expect to live longer and have the lowest infant mortality rates with both lower levels of per capita daily calorie and protein supply as well as with fewer physicians and nurses than in other developed countries.

The average daily calorie supply for Australia and New Zealand (3387 calories) is almost as much as in North America (3503 calories), while South Africa has the lowest daily per capita calorie intake among the developed regions. In Australia and New Zealand the levels of protein supply are fairly high and uniform (102 grams in Australia and 114 grams in New Zealand), figures corresponding to some of the highest levels of protein consumption attained by the developed countries. South African daily protein supply of 74.4 grams still falls for short of that attained in the majority of developed countries.

28/ Data for hospital beds in South Africa refer to 1975, and those for physicians to 1973.

Excluding South Africa, the region has the highest average annual protein supply among all other regions (73.4 grams), and this is even more animal protein than the United States (72.5 grams) or Canada's (62.7 grams), though less than Iceland's 91.8 grams. South Africans on the other hand have somewhat less animal protein (26.8 grams) in their diet than Latin Americans do (28.7 grams).

Parallel to Japan's universal literacy rate of 99 per cent of the population aged at 15 and over, the educational parameters present very high values: primary education, with a 99 per cent enrollment rate and secondary education with a 91 per cent enrollment rate provide Japan with an almost universal basic education.

Australia and New Zealand have achieved universal primary education, with the number of pupils enrolled at secondary schools in Australia slightly higher than in New Zealand - 87 and 80 per cent of the age group, respectively. The combined primary and secondary school enrollment rate in Australia and New Zealand corresponds on average to 96.5 per cent, which is about the same average as North America (97 per cent) and Japan (96 per cent).29/

Japan has the third largest circulation of newspapers in the world with 555 per thousand of population, following Portugal and Iceland, corresponding to the strong emphasis placed on access to information in Japanese society as a whole. The number of televisions is only 242 per thousand, a low figure compared to the relatively high numbers common to the rest of the developed regions (e.g., North America's 352 or West Europe's 247 televisions per 1000 of population).

Although 775 radios per thousand of the population represents a level which can be considered adequate in a highly developed society, one should note that each Canadian is expected to have a radio while each American is expected to have two radios.

29/ No recent data are available for South Africa.

There are also large performance variations between Australia and New Zealand and South Africa in the area of communications: in South Africa there are only 70 newspapers per thousand of population,30/ whereas in Australia and New Zealand there are on average 343 newspapers, and in South Africa there are 94 radios per thousand of the population, while there are in New Zealand 885 and 1039 in Australia. Australia and New Zealand thus have the best performance of all regions on both newspapers and radios, and are also on the upper end of Western Europe's range on TVs.

The 39.6 per cent female participation rate in Japan indicates a similar figure to that in other developed regions, but it is clear that a figure at this level can have widely varying causes and hence very different implications for socio-economic development. Thus, the Turkish females participation in the labour force is quite high (37.3 per cent), because the economy is based on a large agricultural sector, whereas the Japanese female participation rate is based on a large industrial sector. Similarly, the 34 per cent participation rate in South Africa reflects an entirely different socio-economic status of women than the 34 per cent in Australia or the 30 per cent in New Zealand. 31/

SUB-SAHARAN AFRICA

Life expectancy is 47 years in Africa. This average is the lowest level attained in the world. While Ethiopians expect the shortest life of 37 years, the great majority of African countries can be placed at the lower end of the range from 39 to 67 years; for example, the average life expectancy in a group of countries, comprised of Angola, Gambia, Guinea-Bissau, Mali, Mauritania, Niger, Senegal and Upper Volta, stands at 47 years. Only the six countries - Kenya, Lesotho, Namibia, Uganda, United Republic of Tanzania and Zimbabwe - are expected to reach their early 50s.

30/ Data for 1976.

31/ A recent UNIDO study on "The Structure of Australian Industry - Past Developments and Future Trends" (1982) reports about 43.8 per cent female participation rate in the Australian labour force.

Mauritius achieved the highest life expectancy of 67 years and, in general, also high performance levels for all socio-economic indicators. Similar patterns are observed in Reunion, where the average life expectancy is estimated to be 65 years.

Available data indicate that between 1974 and 1977 Gambia, Lesotho, Swaziland and United Republic of Tanzania appeared to have on average 153 infant deaths per 1000 live births. Mauritius and Reunion perform better than the average on this indicator with 33.9 and 18.3 infant deaths per thousand.

A recent World Bank study on Sub-Saharan Afria reported that on average 150 infants per thousand live births do not survive mainly because of insufficient sanitation, malnutrition or infections and parasitic diseases,32/ and the World Health Organization has estimated that about half of the infant mortality cases are caused by contaminated water and poor sanitation.33/ Clearly, improvements in access to safe water, hygiene, education and sanitation are imperative in Africa.

Data for adult literacy rates in Africa are not widely available mainly because questions on literacy are often not asked during censuses.34/ Available data for 1977 indicate that only 29 per cent of the population of Africa is literate. This is the lowest figure in the world, and represents a fundamental impediment to the further development of the countries of the region. Only a handful of countries achieved levels over 50 per cent - Mauritius, Swaziland, Lesotho, and Somalia.

Although the majority of available physicians and medical facilities are located in urban areas, only 20 per cent of Africans live in the cities.35/ Access to health care thus becomes a major problem. Ethiopia seems to suffer the most in Africa from severe shortcomings of a health system, with only 0.01 physicians, 0.19 nurses and 0.30 hospital beds per thousand population. However, many other African countries experience similar levels of health

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32/ The World Bank, "Accelerated Development in Sub-Saharan Africa", Washington D.C. 1981, p.87.
33/ Ibid., p.89
34/ UNRISD, "Research Data Bank ..., op.cit., p.75.
35/ Ibid.

care: e.g., Chad, Malawi, Niger and Upper Volta have on average 0.02 physicians per thousand of their populations.

The region as a whole has only 0.08 physicians per thousand people. A group of countries, including Ghana, Liberia, Madagascar, Swaziland and Zambia, slightly exceeds the regions average with 10.20 physicians per thousand people. By far the largest supply of doctors is in Mauritius - 0.39 physicians per 1000 people - and Gabon and Equatorial Guinea, with 0.21 doctors per thousand, account for the second largest number of physicians.

Discrepancies also appear in nursing, the lowest figure being 0.10 nurses per thousand of the population in Rwanda and the highest being 1.16 in Mauritius. Swaziland and Ghana are among the few other countries of Africa with one or more nursing personnel per thousand. The African mean value of 0.47 nursing personnel per thousand is much lower than the world's average of 2.90 and only South Asia's average of 0.17 is worse.

The region also has the second lowest per capita provision of hospital beds in the world: Africa's 2.48 beds per 1000 exceeds South Asia's 0.8 and roughly equals South-East Asia's 2.6. The top of the scale for beds includes the Congo, Equatorial Guinea, Gabon, Mauritius, Reunion and Swaziland, ranging from a low of 3.46 in Swaziland and to a high of 11.11 in Equatorial Guinea. The lower end of the scale includes a group of countries - Chad, Central African Republic, Mali, Mauritania, Niger and Upper Volta - which repeat their low performance on other health-related indicators, and which therefore urgently demand assistance.

No African country supplies her population with 3000 daily per capita calories, a level which would be typical for most of the developed countries. The highest levels of nutrition are achieved in the Ivory Coast, Mauritius and Reunion with 2583, 2679 and 2649 calories, respectively, and the region as a whole has on average 2205 calories per person.

Six countries attained nutritional levels that are considerably below 2000 calories: in Chad 1805, in Ethiopia 1730, in Mauritania 1985, in Mozambique 1905 and in Zimbabwe and Uganda 1901 calories. Relatively high levels of calorie supply are found in Gabon (2841 calories), in Mauritius (2676 calories), and in Reunion (2649 calories).

The six aforementioned countries with less than 2000 calories per capita consumption improve their nutritional status in terms of protein intake relative to the African average; their mean value of protein supply per person - 58.83 grams with a standard deviation of 6.45 - exceeds the African average by about 3 grams. However, such a low level of protein supply - developed countries consume on average about 100 grams protein per capita - is not sufficient to solve the problem of undernutrition, especially if coupled with the fact that animal protein supply is extremely low in these countries (13.64 grams). Only Gabon, Namibia, Somalia and Lesotho, which consume on average 76 grams of protein, achieve levels close to that of the world's average protein consumption of 77 grams

In respect to animal protein supply, Africa's 14.80 grams is double that of South Asia, the world's worst. Rwanda has the worst achievement in animal protein with 3.3 grams, while Somalia and Namibia have the highest levels of the region with 46 and 45 grams, respectively (compared with the world average of 35.6 grams).

The 67 per cent of all African children of primary school age enrolled at school is the lowest achievement in the world. And several countries, such as Burundi, Ethiopia, Malawi, Mali, Niger and Upper Volta, have only 25 per cent primary school enrollment.

Although some countries attained universal primary school education (Cameroon, Kenya, Lesotho, Mauritius, Mozambique, Swaziland, Tanzania, Togo and Zambia), no country provides universal secondary education. Mauritius is the only one country achieving 50 per cent enrollment at second level education, while Ghana, Zimbabwe and Swaziland achieved the next best levels of 36, 32, and 29 per cent, respectively. In all other remaining countries, the secondary enrollment rate is 20 per cent or below. On average, about 13 per cent of all pupils of secondary school age are in school. The secondary education in many countries of Africa is almost non-existent: one group of eleven countries, for example, has on average of only 5 per cent secondary enrollment.36/

36/ Burundi, Chad, Comoros, Ethiopia, Malawi, Mali, Rwanda, Tanzania, Uganda, Upper Volta and Zimbabwe.

In combined primary and secondary education the region achieved about 44 per cent. 37/ These low enrollment rates at all levels of education demonstrate that there is a substantial need to extend and improve the quantity of education. It can be expected that African countries will make larger improvements in primary education because initial improvements are cheaper and benefits of general education at the primary level are widely recognized.38/ Moreover, educational expansion at the primary level may bring significant improvements in health care, nutrition, sanitation and fertility, especially if more women can be educated. Studies in developing countries indicate that children are less likely to die, families are better fed and fertility rates are easier to control - the higher the mother's education.39/

Although the number of observed countries is small and the data are mainly for 1975, the figures for housing used can provide sufficient information to form a judgement about the general availability of safe water. Thus, while access to treated and uncontaminated water is a major concern of most of the countries in Sub-Saharan Africa, housing data for 1975 indicate that only 28.79 per cent of the population have access to safe water. This is comparable to South Asia's 28.29 per cent, and corresponds to the worst performance levels on this indicator in the world.

Ethiopia, Guinea and Mali repeat their poor performance - 6 per cent, 9 per cent and 10 per cent of their population have access to safe water, and Chad, Lesotho and Zaire comprise another group which indicates that approximately 20 per cent of the population had access to clean water. Once again Mauritius notably exceeds the African average value by achieving 60 per cent, while Comoros and Botswana provide about half of their people with safe water.

37/ UNRISD argued for the acceptance of this indicator over indicators involving primary and secondary enrollment alone "because of the variations from country to country (and across time) in lengths of primary and secondary schooling in relation with each other and difficulties of getting age breakdowns other then the standard five year intervals". UNRISD, Research Data Bank ..., op.cit., pp.79-80.

38/ The World Bank, World Development Report 1980, op.cit.

39/ Ibid., p.50.

Africa attained the smallest circulation of newspapers in the world. The average circulation is about 10 per thousand people. As a result of educational inadequacies, the extent of circulated newspapers is adversly affected. In 1978 the size of the circulation ranged from 0.2 in Upper Volta to 92 in Mauritius. The lowest levels of circulation exist in Benin, Ethiopia, Lesotho, Mali, Mauritania and Niger (on average 0.87 newspapers per thousand people, SD = 0.88). After Mauritius and Reunion, Ghana and Botswana achieved the next best levels (31 and 23 newspapers per thousand of population, respectively). Excluding these two former French colonies, therefore, would reduce the circulation range appreciably to 0.2 to 31.

How much weight the governments of Africa can attach to increasing the level of communications by television varies according to the circumstances of the country concerned. Most of the countries in the region are poor with deficiencies in educational and institutional infrastructures. Also a large proportion of the population live in rural areas where transmitting TV programs are costly. These obstacles of development, among others, result in 13.95 television receivers per thousand people in 23 African countries. This figure drops sharply with the exclusion of 3 countries - Ivory Coast, Reunion and Mauritius - (with 51, 138 and 74 receivers per thousand of population, respectively) to 3.65 televisions per thousand. A group of countries - Benin, Ethiopia, Mozambique, Niger, Senegal, Swaziland, Togo, Tanzania and Zaire - have an average of 0.31 televisions per thousand people (SD = 0.22).

Recent data for radios are widely available and the overall picture of communication in Africa reveals that radios play the important role in disseminating information. For example, on average, 10.11 newspapers and 13.95 televisions per 1000 people appear to be a great deal below that of 72.27 radios per thousand people. Surprisingly, the highest provision for radios, 208 per thousand population, is found in Togo - which has low performance levels on most other indicators. The next best figure is 202 radios per thousand people in Reunion. Four countries - Equatorial Guinea, Gabon, Liberia and Mauritius - are ranked closely behind Togo and Reunion, with an average of 178.50 radios per thousand of the population (SD = 1.73). Once again, Ethiopia, Mali, Rwanda, Upper Volta and Zaire achieve the lowest levels in Africa, with 12.40 radios per thousand of the population.

For female employment rates, cross-country analysis shows large disparities among the countries of Sub-Saharan Africa, due to the existence of economically, politically and culturally very diverse societies. In a group of 5 countries, including Angola, Equatorial Guinea, Guinea Bissau, Mauritania and Niger, the average percentage of women in total labour force is only 6.26 per cent. Those countries do not, however, demonstrate a strong common pattern of development, except that Niger and Mauritania register low performance levels on the remaining indicators.

The average rate for female employment in the region stands at 34.42 per cent - a figure to be compared with North America's 34.95 per cent, and the second highest rate among all developing countries. It is also interesting to note that some countries in the low achievers group for other indicators have a jump in the percentage of women in work. For instance, while Niger and Mauritania achieved low employment rates for women (10.1 per cent and 4.3 per cent, respectively), Benin, Central African Republic, Madagascar, Mali, Rwanda and Upper Volta (on average 47.89 per cent) achieved very high rates. Botswana reached the highest female participation rate of 52.1 per cent.

NORTH AFRICA AND THE MIDDLE EAST

The region's life expectancy is 53.74 years, ranging from a low of 39 in Yemen to a high of 69 in Kuwait. The highest average life expectancy (60 years, SD = 6.19) is found in a group which also includes some - but not all - of the Arab countries, with the highest per capita income (including Kuwait, Bahrain, Lebanon, Syria, Jordan, Iraq and Saudi Arabia), while the northern-tier of Arab countries on the African continent (including Tunisia, Algeria, Libya, Morocco, Egypt and Sudan) has an average of 54 years. Iran can also take a place in this "middle" group at 52 years. Qatar, United Arab Emirates, Oman, Democratic Yemen and Yemen reveal the lowest levels of life expectancy at 45 years (SD = 3.83). It is clear that in many of the aforementioned countries the life expectancy is lower than what might have been expected from their high income levels, implying that there is an appreciable time lag in the process of creating the conditions for prolonging life expectancy.

Data on infant mortality in the region are sparse. The available data indicate that in 1978 Egypt, Jordan and Tunisia had an average of 90 infant deaths per 1000 live births. On the other hand, some of the oil-rich countries (Iraq, Kuwait and Libya) where the last decade witnessed impressive progress in infrastructure, health care and education had, on average, 36 infant deaths for every thousand births.

About 40 per cent of the population in Africa and the Middle East is estimated to be literate, this reflecting the level of educational inputs, especially at the primary and to a lesser extent at the adult educational levels. Again, as with life expectancy, progress is less impressive than might initially have been expected due to the fact is taking time to make use of the increased financial capacity of the Arab world to improve education and literacy rates.

Jordan, Kuwait, Lebanon and Tunisia attained the highest levels of literacy at an average of 70 per cent (SD = 7.75), ranging from 60 in Kuwait to 88 in Lebanon. A group of countries - including, in descending order, Democratic Yemen, Morocco, Iraq, Saudi Arabia, United Arab Emirates, Iran, and Sudan - achieved an average of 22.43 per cent. Yemen has extremely low literacy at 13 per cent.

North Africa and the Middle East experiences generally high levels of health care by the standards of developing countries. The capital surplus Arab countries (Kuwait, United Arab Emirates, Libya, Qatar and Saudi Arabia), whose per capita income approachs levels close to that of the wealthiest developed countries, have excellent health care as measured by the number of doctors, nurses and hospital beds.

There are, however, wide disparities within the region. For example, the region as a whole has about 0.7 medical doctors per 1000 population within a range of 0.08 - 4.16. Even the difference between the highest (4.16 doctors per thousand people in United Arab Emirates) and the next highest values (1.27 for Kuwait) is quite large. Saudi Arabia achieved the lowest figures on health care among the rich countries, due at least in part to the fact that the great majority of the population live in rural areas so that access to health personnel becomes a problem.

While a group of countries - including Sudan, Syria and Democratic Yemen - performed poorly on each of the three health indicators (on average, 0.21 physicians, 0.55 nurses and 1.19 hospital beds per thousand), Yemen appears to achieve even lower levels (0.08 doctors, 0.18 nurses and 0.5 hospital beds). Another oil-rich country of the Middle East, Iran, also attained levels below the region's average at 0.39 physicians, 0.52 nurses and 1.53 hospital beds per thousand.40/

The region as a whole reached a fairly high average value for food supply at 2582 calories, which is slightly above that of Latin America (2485 calories) and slightly below that of South-East Asia (2585 calories). At the same time, daily per capita protein supply (69.21 grams) is the largest among the developing regions. In animal protein (16.70 grams), the region falls far short of Latin America, South-East Asia and the centrally planned countries of Asia (28.77 grams, 22.21 grams and 19.68 grams, respectively).

While average nutrition levels do no indicate very large disparities within the region, Sudan, Yemen and Democratic Yemen - non-oil producers - make up the group with lowest nutritional status (2200 calories, 67.77 grams of total protein and 17.23 grams of annual protein). On the other hand, Egypt, Iran, Libya, Saudi Arabia, Syria and Tunisia make up the group with high nutritional status (2891 calories, 75,65 grams of protein and 18.65 grams of animal protein).

Substantial increases in oil revenues have allowed many Arab countries to import a large portion of their food, and therefore to very quickly increase food supply in the oil producing countries of the region. These countries then stand in stark contrast to other Arab countries without oil such as Sudan, Yemen and Democratic Yemen who have serious difficulties in food supply. This dichotomy is illustrated by comparing daily caloric supply in the country with the highest level in the region (Libya, 3362 calories) with that in the country with the lowest level in the region (Democratic Yemen, 1945 calories). 41/

40/ The data refer to 1974-1977.

41/ The data are for 1977.

Although education has a very high priority in Arab countries, the region as a whole did not achieve universal primary education (79.93 per cent). It may be expected, however, that the enrollment ratios will improve because of direct and indirect effects of recent income growth. It is also known that the gap between male and female education is larger in North Africa and the Middle East than in any other region, although it is closing rapidly.42/ As indicated previously, the women's education is particularly relevant to reduction of the infant mortality rates. Yemen (29 per cent) and Sudan (50 per cent) achieved the worst primary enrollment ratios as a percentage of age group, the financial constraints being the major obstacles for better education in these countries.

In secondary education the region has an average of 33.57 per cent, ranging from a low of 4 per cent in Yemen to a high of 73 per cent in Kuwait. At the combined level, North Africa and the Middle East have 59.60 per cent enrollment, and Iraq, Jordan and Kuwait share the upper end of the range for combined enrollment ratios (with an average of 87 per cent). Oman and Sudan both achieved only 35 per cent, and once again Yemen experienced the worst performance at about 19 per cent.

Access to safe water in North Africa and the Middle East (60 per cent) shows considerable room for improvement, particularly in light of the accelerated process of urbanization in oil-producing countries. The data for 1975 reveal that only Libya provides its population with 100 per cent access to safe water. Kuwait and Algeria achieved the next best levels, 89 per cent and 77 per cent respectively. Again, the situation is considerably worse in Yemen (4 per cent) than in other countries of the region, and Sudan has the next lowest level.

In newspapers, the region's performance is a good deal below most other developing regions, but slightly better than in Sub-Saharan Africa and South Asia. The average circulation is 25.94 newspapers per thousand. The shortfalls are the greatest in Sudan (1 newspaper per 1000 of population) and in Saudi Arabia, Syria, Yemen and Democratic Yemen (on average 10 newspapers per thousand). The largest circulations exist in Kuwait and Lebanon at 86 and 92 newspapers per 1000 of population, where also the highest literacy rates were found.

42/ World Bank, World Development Report 1981, op.cit., p.92.

North Africa and the Middle East has the largest number of televisions - 86.06 per thousand - among all developing regions. The relatively small but wealthy countries of the region have the highest levels: for example, in Kuwait 450, in Bahrain 180 and in Lebanon 166 televisions per thousand of their populations. Sudan and Democratic Yemen achieved 6 and 18 televisions per thousand, respectively. 43/

The region has an average of 183 radios per thousand with a range of 18-581. Again Lebanon achieved the highest level at 581 radios per thousand of its population. Kuwait and Qatar follow closely with 417 and 472 radios respectively, while at the other extreme Yemen achieved only 18 radios per thousand people.

North Africa and the Middle East achieved the lowest female employment rates in the world with an average of 8.76 per cent and a range of 4.2 - 19. The highest female participation rates are found in Lebanon and Morocco - on average 18.70 per cent (SD = 0.42). A group comprised of Iran, Sudan and Syria represents the middle levels at 11.80 per cent (SD = 1.59), and the remaining countries account for an average of 5.86 per cent (SD = 1.62). Although the female participation rates in the labour force could be expected to increase with further industrialization, the development of the orthodox Islamic movement within the region may directly affect such developments.

LATIN AMERICA

In 1978 Latin America's record on life expectancy is the highest (64.22 years) among all developing countries. This figure, however, is significantly at variance with the developed region's 73.3 years. A group of five countries (Haiti, Bolivia, Nicaragua, Peru and Honduras) achieved the region's lowest levels of life expectancy, ranging from a low of 51 in Haiti to a high of 59 in Nicaragua. A larger group of countries, comprised of Argentina, Barbados, Costa Rica, Cuba, Jamaica, Panama, Trinidad and Tobago and Uruguay, achieved an average life expectancy of between 70 and 72 years.

The rates for infant mortality are particularly disturbing in Bolivia (158 infant deaths per thousand live births), in Haiti (150) and in Peru (86).44/

43/ Data for Yemen are not available.

44/ Also note that the life expectation of population in these countries is extremely low. Data for Bolivia refer to 1974-1977, and for Haiti to 1975.

The lowest estimated number of infant deaths are found, in ascending order, in Jamaica, Costa Rica, Cuba, Panama, Trinidad and Tobago and Barbados, with a range of 16 and 29 per thousand live births.

While the region as a whole has similar demographic values as the South-East Asian region, two countries - Bolivia and Haiti - indicate values at the levels found in the Sub-Saharan African region. The societies of perhaps the most industrialized countries in Latin America - Brazil and Mexico - have life expectancies (of 62 and 63 years) and infant mortality rates (of 82 and 43 per thousand births) which only corresponds to the region's average,45/ clearly emphasizing the complexity of the factors influencing life expectancy and infant mortality.

In literacy, Latin America has the highest average value among the developing regions at 78.46 per cent, slightly exceeding the world's average of 75.15 per cent; and a few countries - including Argentina, Barbados, Costa Rica, Cuba, Panama, Trinidad and Tobago and Uruguay - achieved literacy rates comparable to those of the developed countries. The poorest country of the region, Haiti, achieved an extremely low literacy rate of 23 per cent, and Bolivia, Dominican Republic, El Salvador, Guatemala and Honduras also had relatively poor literacy rates (of some 62.8 per cent).

Although slightly surpassed by the centrally planned countries of Asian and by North Africa and the Middle East, compared to other developing regions Latin America achieved very high levels on the supply of medical doctors, nurses and hospital beds. As on almost all indicators, Haiti has the worst performance levels on health indicators in the region, with 0.17 physicians, 0.34 nurses and 0.82 hospital beds per thousand persons.

As was the case with Japan, Jamaica has much smaller supply of physicians (0.28 per thousand population) than what would have been expected from its impressive levels of demographic indicators (high life expectation and low infant mortality rates). However, the large supply of nursing personnel and hospital beds (1.82 and 3.82 per thousand people, respectively) again demonstrates the substitution possibilities of health workers (e.g., nurses and social workers) and better infrastructure (e.g., hospital beds and medical equipment)

45/ Data for infant deaths in Brazil refer to 1975.

Similarly, Cuba does not seem to have large numbers of medical doctors (0.90 per thousand), but still achieved the highest life expectancy at birth in Latin America with 72 years. Moreover, Cuba reached good performance levels on the health related indicators (2.1 nurses and 4.13 hospital beds per thousand of population).46/

Bahamas and Barbados appear to outperform most of the countries of the region on health indicators with about 0.68 doctors, 2.62 nurses and 6.31 hospital beds per thousand people. Among the larger countries of Latin America there are three countries which have more than one physician per thousand of their population: Venezuela (1.08), Uruguay (1.43), Argentina (1.90).47/ Conversely, a group of smaller and poorer countries of Central America, including Guatemala, Honduras and El Salvador, has on average only 0.27 doctors per thousand.

In nursing, Bolivia lags behind other countries of the region with only 0.28 nurses per thousand. At the other end of the spectrum, Costa Rica, Chile, Cuba and Venezuela appear to provide at least two nurses per thousand of their population.

In hospital beds, Barbados and Martinique achieved the largest supply with an average of 9 beds per thousand. A group of larger and urbanized countries, including Argentina, Cuba and Uruguay, plus Guyana attained the next best average of about 4.71 hospital beds per 1000 people (SD = 0170). Another group of countries where hospital beds are sparse (on average 1.58 beds per thousand), consists of both the small and poor countries of Central America (El Salvador and Honduras), and the large but rural countries of Latin America (Bolivia and Paraguay).

Latin America has the second highest food supply among the developing regions with 2485 calories per capita, closely following North Africa and the Middle East's 2582 calories. Argentina and Barbados achieved the best nutritional status of the region (3383 and 3062 calories, respectively), and Paraguay and Uruguay rank next (with 2893 and 2808 calories, respectively). Examples of low achievers (besides Haiti) are Bolivia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras and Peru (averaging 2120 calories).

46/ Data on nurses are for 1974.
47/ Figures for 1973 and 1975.

With respect to protein supply, Argentina (113.7 grams), Barbados (84.9 grams) and Uruguay (82.7 grams) have the best performance levels in Latin America. The protein situation in the six countries (Bolivia, Colombia, Dominican Republic, Ecuador, Haiti and Honduras) which consistently attained the lowest levels on socio-economic indicators in Latin America is precarious, at 48 grams (SD = 3,51).

The countries falling into the group of high achievers in calorie and protein supply also reach high values on animal protein: for example, the average for animal protein supply in Argentina is 76.3 grams, in Barbados 51.6 grams and in Uruguay 52.9 grams. The lowest level of animal protein is found in Haiti at 8.6 grams per capita daily, followed by, in ascending order, Honduras, Guatemala, Dominican Republic, Bolivia, El Salvador and Peru, ranging from a low of 13 grams to a high of 19.3 grams (SD = 2.54).

SOUTH-EAST ASIA

As a result of the strong emphasis given to education in South-East Asia, the average literacy rate is fairly high, though still far short of universal, at 74 per cent. While the newly industrializing countries for the region, relatively well equipped with financial and educational resources, are expected to have further rises in literacy, increasing the literacy rates in, say, Papua New Guinea (32 per cent) entails amounts of financial resources which are not readily available.

The results in health care do not reflect the rapid growth of economies of South-East Asia, and in comparison with other developing regions, South-East Asia achieved only medium performance levels (0.39 physicians, 0.92 nurses and 2.6 hospital beds per thousand of population). The extent to which this is simply a question of a gestation lag as opposed to an indication of an over-concentration of economic of policy on too few areas can only be determined with further research.

In Indonesia and Papua New Guinea, the stock of physicians is well below the norm for the region - 0.11 doctors per thousand of population. Both of the "city states", Hong Kong and Singapore, achieved the largest number of physicians - on average 0.83 doctors per thousand. The average supply of nursing personnel stands at 0.92 nurses per 100 of population. Again,

Singapore achieved by far the best levels with 2.63 nurses and the Republic of Korea follows next with 1.82 nurses per thousand. Indonesia represents the worst case, with 0.11 nurses per thousand.

In hospital beds, Indonesia again keeps its rank at the lower end of a development scale with only 0.6 beds per thousand. Although Papua New Guinea has serious shortages in human capital inputs in the health care area (0.07 doctors and 0.52 nurses per thousand people), it has surprisingly the greatest supply of hospital beds within the region at 4.55 per thousand - another example of the substitutability among health care techniques (and further warning against excessive relevance on any one indicator).

The calorie supply in South-East Asia is higher than in any other developing region (2585 calories). While newly industrializing countries in the region have attained good nutritional levels - the average daily calorie supply for Hong Kong, the Republic of Korea, Singapore and Taiwan Province is 2863 calories (SD = 118), just above the average in Japan - some lower-income countries - such as Indonesia, Papua New Guinea and the Philippines - are far below the average level in their calorie and protein consumption.

While Hong Kong achieved the highest levels of total protein at 86.2 grams and Singapore the next best levels at 80 grams, Indonesia and Papua New Guinea (again) shared the bottom of the range with an average of 46.4 grams. A similar pattern exists with respect to animal protein. Here, however, there are large variations among South-East Asian countries: thus, Hong Kong attained the largest supply of animal protein at 50.4 grams, while Singapore ranked second with a large gap at 38.6 grams. Further, the Republic of Korea had animal protein intake at 14.7 grams per capita, which is close to the norm for lower income countries, such as Thailand 13.1 grams and the Philippines 18.5 grams. Even Papua New Guinea's (15.7 grams) exceeds the Republic of Korea's performance on this indicator.

Almost all of South-East Asia enjoys universal primary education (with the exception of Papua New Guinea where only 60 per cent of the children in primary school age are in school and, to a lesser extent, Thailand where 82 per cent are enrolled). The relatively high enrollment ratios in secondary education (47 per cent) attest to the fact that most of the countries within the region place heavy emphasis on education. Again, a group of countries

comprised of, in descending order, Thailand, Indonesia and Papua New Guinea appears to have a poor performance on secondary enrollment (with an average of 20.33 per cent). In combined primary and secondary education, the region achieved on average 73 per cent, ranging from a low of 37 in Papua New Guinea to a high of 94 in Fiji.

On average half of the population in South East Asia has access to safe water. The most serious situation exists in Indonesia, Papua New Guinea and Thailand where the availability of uncontaminated water is minimal (12 per cent, 20 per cent and 22 per cent, respectively) and improvements in general health care are imperative. Only Singapore provides its population with 100 per cent safe water, with Fiji and the Republic of Korea achieving the next best levels at 70 per cent.

Compared to other developing regions, the circulation of newspapers is the largest in South-East Asia (105.22 newspapers per thousand of population). This is mainly due to a relatively abundance of well-educated people within the region. However, the size of the circulation varies considerably between countries (with a range of 6 - 368). Again, Hong Kong, Singapore and the Republic of Korea account for the largest circulations at 368, 229 and 173 newspapers per thousand, respectively, while Indonesia and Papua New Guinea report on average 7 newspapers per thousand inhabitants - equivalent to Sub-Saharan or South Asian levels.

In recent years, the newly industrializing countries in South-East Asia experienced tremendous growth in the electronics and communication equipment industries. This trend resulted in the relatively wide access of the population to communications as measured by the number of radios and television sets (82 televisions and 226 radios per thousand people). Thus, Hong Kong achieved by far the largest supply of televisions (217 per thousand) and radios (548 per thousand), followed by the Republic of Korea with 108 televisions and 402 radios per thousand. On the other hand, other developing countries in the region achieved much lower performance levels. For example, Indonesia attained 8 televisions and 36 radios per thousand of population and the Philippines 19 televisions and 43 radios.

With the exclusion of Fiji where the lowest female participation rate (16.8 per cent) exists, the region has an overall average of 34.48 per cent

(SD = 6.34). These levels are comparable to those in Latin America and in some industrialized countries such as in North America, Australia and New Zealand. Thailand, a relatively large and rural country, has the highest female participation rate at 46.9 per cent.

SOUTH ASIA

A qualification is needed with regard to assessing the level of development for this region; since regional averages for socio-economic indicators must be carefully evaluated due to the fact that India's performance usually ranks higher than most of the lesser populated countries of South Asia.

Demographically, South Asia has much in common with Sub-Saharan Africa. The average life expectancy is only 49.75 years (in Africa 46.81 years), and the infant mortality rate is 135.25 per thousand live births (in Africa 130.48). An exceptional case is Sri Lanka. Here life expectancy (69 years) and infant mortality (49 per 1000 births) are not only the best within the region, but also among the best in the developed and developing nations. Sri Lanka's success in development is in part due to extensive governmental interventions in the areas of health, education, nutrition and low defence spending. Burma, Pakistan and India achieved the next best levels on life expectancy (at 52 years) as did Burma and India on infant mortality. Afghanistan, Bhutan and Nepal achieved the worst averages on both life expectancy and infant mortality.

In literacy, South Asia's 38.43 per cent is the second worst rate in the world after Sub-Sahara Afrca's 28.83 per cent. As a result of universal basic education Sri Lanka achieved almost full literacy at 85 per cent of the population aged 15 and over. The literacy rates vary considerably from country to country, and range from a low of 12 per cent in Afghanistan to a high of 85 per cent in Sri Lanka.

South Asia has the second worst supply of physicians in the world with 0.16 per thousand, following Sub-Saharan Africa's 0.08 physicians per thousand. In nursing and hospital beds, the region achieved by far the worst supplies among all regions (0.14 nurses and 0.8 hospital beds per thousand population).

Afghanistan and Nepal both have the lowest number of physicians at 0.05 and 0.03 per thousand, respectively, while India has the highest average at 0.28 physicians per thousand. While in Sri Lanka the medical doctors numbered only 0.15 per thousand, it has the largest supplies of nursing personnel and hospital beds - 0.49 nurses and 2.88 hospital beds per thousand.

Thus Sri Lanka achieved life expectancy and infant mortality rates similar to those of developed countries without as many doctors as in, for instance, Burma, India or Pakistan. This, again, reinforces the importance of physical infrastructure and broad access to basic health care in order to achieve high values on result indicators.

The average calorie supply in South Asia is the lowest in the world (1938 calories), while the protein supply is also the lowest at 47.56 grams for total protein and 7.04 grams for animal protein. In the case of both calorie and protein supply India is slightly above this average. While Afghanistan, Bangladesh and Nepal achieved again the lowest performance levels on calorie intake (on average 1906 calories, SD = 53.39), the food situation in Bhutan is the most precarious in the world (944 calories, 22 grams of protein and 2.4 grams of animal protein).

The primary school enrollment rate is the highest in Sri Lanka, 94 per cent, and this is the only country achieving universal primary education in South Asia, while India attained the second best levels at 78 per cent. The heavy emphasis on higher education in Sri Lanka and India is also reflected in relatively high enrollment ratios at secondary school level (52 per cent and 24 per cent, respectively). Bhutan has tremendously low enrollment for primary (10 per cent) and secondary (1 per cent) education, as well as for the combination of both (6 per cent). The lowest secondary enrollment rates are in Nepal and Pakistan at 16 per cent, and in Afghanistan at 6 per cent.

Only 27.79 per cent of the population in South Asia has access to safe water supplies, a situation similar to that in Sub-Saharan Africa. In 1975, Bangladesh had the greatest access to clean water at 53 per cent. India achieved the next best performance with 33 per cent, and Afghanistan attained the lowest access at 6 per cent.

The number of circulated newspapers per thousand people ranges from 3 in Nepal to 42 in Sri Lanka. Bangladesh achieved the second worst level at 4 newspapers per thousand, and Afghanistan the second best at 27 newspapers.

Data for televisions in South Asia are available only for Afghanistan (0.7 per thousand), India (1.1 per thousand) and Pakistan (10 per thousand), which are of course relatively very low. For radios, Bangladesh, Bhutan and Nepal lay at the bottom of the range with an average of 10.33 radios (SD = 4.51), while Pakistan and Sri Lanka share the top of the range at 57 radios per thousand (SD = 11.31).

The female participation rate in South Asia achieved its highest level (of 40 per cent) in Nepal, while in Pakistan, which follows the Islamic tradition, the rate was only 9.9 per cent (corresponding to the levels found in North Africa and the Middle East). Afghanistan and Bangladesh attained the next lowest levels of 18.3 and 17 per cent, respectively.

CENTRALLY PLANNED ECONOMIES OF ASIA

While the region is composed of low income countries, most of them have life expectancies above the norm for low-income developing countries. The average life expectancy is 57.67, with China having the highest life expectancy within the region (70 years).

Data for the socialist countries of Asia with respect to infant mortality rates are scarce. The only data found are for China and Viet Nam, revealing 56 and 62 infant deaths per thousand live births.

The only data available for the level of literacy within the region are for China (66 per cent) and Viet Nam (87 per cent).

The region as a whole appears to have the largest supply of physicians among developing regions, with 0.79 medical doctors per thousand. Exclusion of Mongolia, however, reduces this figure from 0.79 to 0.36 (SD = 0.43), which is the world's third worst level. Similarly, excluding Mongolia in nurses and hospital beds reduces the mean values from 1.90 nurses and 3.67 hospital beds per thousand to 1.20 nurses (SD = 0.84) and 1.92 hospital beds (SD = 1.20), respectively. The Lao People's Democratic Republic achieved the worst levels on all three health indicators (0.04 physicians, 0.4 nurses and 0.98 hospital beds per thousand).

It is important to note that although China seems to have relatively small supplies of both physicians and hospital beds (0.85 doctors, and 1.99 beds per thousand of population), it nevertheless appears to provide an effective health care system, as reflected by impressive life expectancy and infant mortality rates. Thus even the examination of several alternative standard indices for the different dimensions of socio-economic development will still not allow one to capture important factors specific to individual country experience (such as low-cost barefoot doctors in rural areas and traditional medicine).

The most complete data for the region exist in nutrition. The centrally planned countries of Asia have on average 2100 calories per capita, ranging from a low of 1735 calories in Lao People's Democratic Republic to a high of 2722 in Mongolia. Democratic Kampuchea reached the lowest levels in total protein as well as in animal protein, at 42 grams and 6.1 grams, respectively, while Mongolia achieved the highest levels with 102.2 grams and 65.7 grams per capita, respectively.

With the exception of Democratic Kampuchea, all of the region's countries achieved universal primary education. Secondary school enrollments - at 55.75 per cent of the secondary school age group are the most impressive among developing regions . Again, the Lao People's Democratic Republic achieved the lowest secondary educational level at 11 per cent. The region's combined enrollment ratio is the highest among all developing regions (82 per cent).

Mongolia achieved the best performance levels on all indicators of communication within the region (71 newspapers, 3.2 televisions and 81 radios per thousand of population). Conversely, Democratic Kampuchea achieved the lowest values with 10 newspapers and 20 radios per thousand.

In comparison to other developing regions, centrally planned Asia achieved the highest female participation rate at 42.42 per cent, and approached the levels found in the Eastern or Western European countries.

THE INTERRELATIONSHIP BETWEEN ECONOMIC AND SOCIO-ECONOMIC DEVELOPMENT IN 1978

This study has so far concerned itself with the state of development for the different regions of the world and with each of the dimensions of

socio-economic development. This section extends the analysis in two directions: firstly, in a further attempt to establish the nature of the various patterns of global development, an investigation is made of which indicators have improved concurrently, and, conversely, those that have developed more independently. The second direction is similar in nature, looking at the indicators of socio-economic development that have or have not developed in step with increases in GNP per capita. Although this gives no direct indication of causality between economic and socio-economic phenomena, it is useful in as much as it provides further understanding of the ways in which the world is or is not progressing.

For this report the approach adopted for the above considerations is that of rank correlation. A problem which is immediately apparent in a study of this type (in particular, the investigation of interrelationship between economic and socio-economic development) is that it may not be legitimate to assess the degree of correlation between two variables when the countries under consideration have widely varying economic, social, cultural, geographical, political and historical circumstances. To throw all countries into an empirical melting pot in the hope of shedding light upon relationships of variables is to ignore, for example, the various "production functions" that exist globally for converting socio-economic inputs (e.g., physicians, nutrition, housing) into socio-economic outputs (e.g., life expectancy).

Mitigation of this problem thus requires some degree of disaggregation. The level at which this disaggregation should occur is, to an extent, an arbitrary matter, with the extreme case contending that such analyses should be confined to individual countries, thus, preventing the development of a cross-sectoral investigation. The time series data that would be required for such a high level of disaggregation is not only unavailable for most of the world (in particular the developing regions), but also admits the further problem that the nature of the inter-relationships <u>within that country</u> may have changed over time.

The eleven regions of the world that have been considered above are those used for the rank correlations, since the previous discussions have revealed some broad patterns of economic development within the regions. However, it should be remembered that within each region there is still some heterogeneity that tempers all conclusions.

This analysis involves eight indicators of socio-economic performance: the output indicators - life expectancy, infant mortality, and literacy - and five input indicators - physicians per 1000, daily per capita animal protein supply, enrollment ratios for primary and secondary schools combined, percentage of dwellings with piped water and radio receivers per 1000. The choice of specific indicators to represent each dimension of socio-economic development is based upon the methodology used in past publications, whereby the indicator chosen should be that which is most closely related to the other indicators of that dimension of socio-economic development.

The development pattern for Sub-Saharan Africa shows both animal protein supply and radio receivers per 1000 to have developed in a different fashion than other socio-economic indicators. This independence is emphasized by the fact that the relationship between animal protein and GNP per capita is weaker than for any other economic and socio-economic combination. Since nutritional intake is clearly one of the greatest problems facing this region, this is a clear indication of the need to develop over nutritional programmes, rather than rely upon the momentum of broadly conceived development to 'automatically' generate the increases.

The level of physicians per thousand is very closely related to GNP per capita, a healthy sign for this developing region, though this growth in health care inputs in not clearly correlated with the output indicators. The education indicator - the combined primary and secondary enrollment ratio - on the other hand seems to have developed more closely with the result variables.

The rank correlations for North Africa and the Middle East show income levels to be independent of most of the indicators of socio-economic development. Indeed, there are no relationships which are significant at the 1 per cent level. This is a clear illustration of how rapid economic growth need not necessarily be accompanied by immediate socio-economic improvements; at the same it suggests that a deeper study of the nature of the time lags involved would be particularly illuminating if applied to this region.

Animal protein intake is seen once more to have developed independently of other socio-economic variables. Suspecting this to be rooted in religious restrictions, both total protein and caloric intake were also considered. These two indicators confirmed the independency, a particularly surprising

result since nutrition is one area where improvements could occur almost immediately as economic welfare increased. This suggests that for this region there are either more complex lags involved or, more likely, great distributional problems.

Interestingly, as for Sub-Saharan Africa, the education indicator is closely related to literacy (suggesting an effective educational programme) and also to life expectancy and the child death rate. The other indicators suggest little in the way of a pattern of development, with the only relationship significant at the 1 per cent level being a probably spurious one between radio receivers and life expectancy.

The development pattern for Latin America contrasts with that for North Africa and the Middle East, and levels of GNP per capita are significantly related at the 5 per cent level to all indicators considered (except for the percentage of dwellings with piped water).

Although the levels of life expectancy and literacy are both related (at the 5 per cent significance level) to all other indicators, the performance in infant mortality appears to be more independent; excluding housing, infant mortality shows the weakest relationship with all other indicators except with animal protein. The monotonic relationship between infant mortality and nutrition is consistent with standard views on means for reducing the number of infant deaths. Finally, the relationship between literacy and the combined primary and secondary school enrollment ratio is only significant at the 5 per cent level, showing a mildly successful educational system.

Turning to South-East Asia, both education indicators (literacy and the combined primary and secondary enrollment ratio) have developed more or less independently from the other aspects of socio-economic progress. This is perhaps a reflection of the diverse educational programmes that exist in this region.

Excluding these indicators of education, South-East Asia is the region that has expressed the closest thing to a parallel socio-economic and economic development, with all relationships being significant at the 5 per cent level and, indeed, all relationships between GNP per capita and socio-economic

indicators significant at the 1 per cent level. This simultaneous development of economic activity and socio-economic performance makes it very difficult to draw any conclusions about causality; the close relationships between, for example, physicians, and life expectancy may be the result of simultaneous yet non-related development.

The picture for South Asia is interesting but disturbing. Although all result indicators have developed together, they are unrelated to economic activity (at this static analytical level); furthermore, relationships between life expectancy and infant mortality on the one hand, and medical care and nutritional intake on the other are weak or insignificant. It appears, however, that educational inputs and outputs are more closely related here than anywhere else in the world.

A striking feature of this pattern of development is the extremely close connection between GNP per capita and radio receivers per thousand, again the closest relation in the world, although in a milder form such a development also holds for Sub-Saharan Africa. Thus the two least developed regions of the world, both economically and socio-economically, are experiencing a development of their communications infrastructure which appears premature relative to other basic aspects of socio-economic welfare.

The analysis of the centrally planned economies of Europe show income levels to be closely related to nutritional well-being and housing standards, and a weaker connection betwen GNP per capita and radio receivers per 1000 and infant mortality. For the other dimensions no clear pattern of development can be established, probably partly at least a consequence of the generally high levels of development that have already occured.

Finally, Western Europe is considered as the representative of the developed market economies. The levels of physicians per capita and education enrollment ratios are independent of all other activity, inevitably the result once more of having already attained a high level of development, so that further improvements are more likely to be in the quality of the service provided. Despite these generally high levels, there is still evidence that economic improvements are also associated with higher performances in nutrition, housing, infant mortality and radio receivers per thousand similar to the pattern in the centrally planned economies of Europe, although now there is also a suggestion that literacy rates are still related to economic activity as the level of development approaches the world's best.

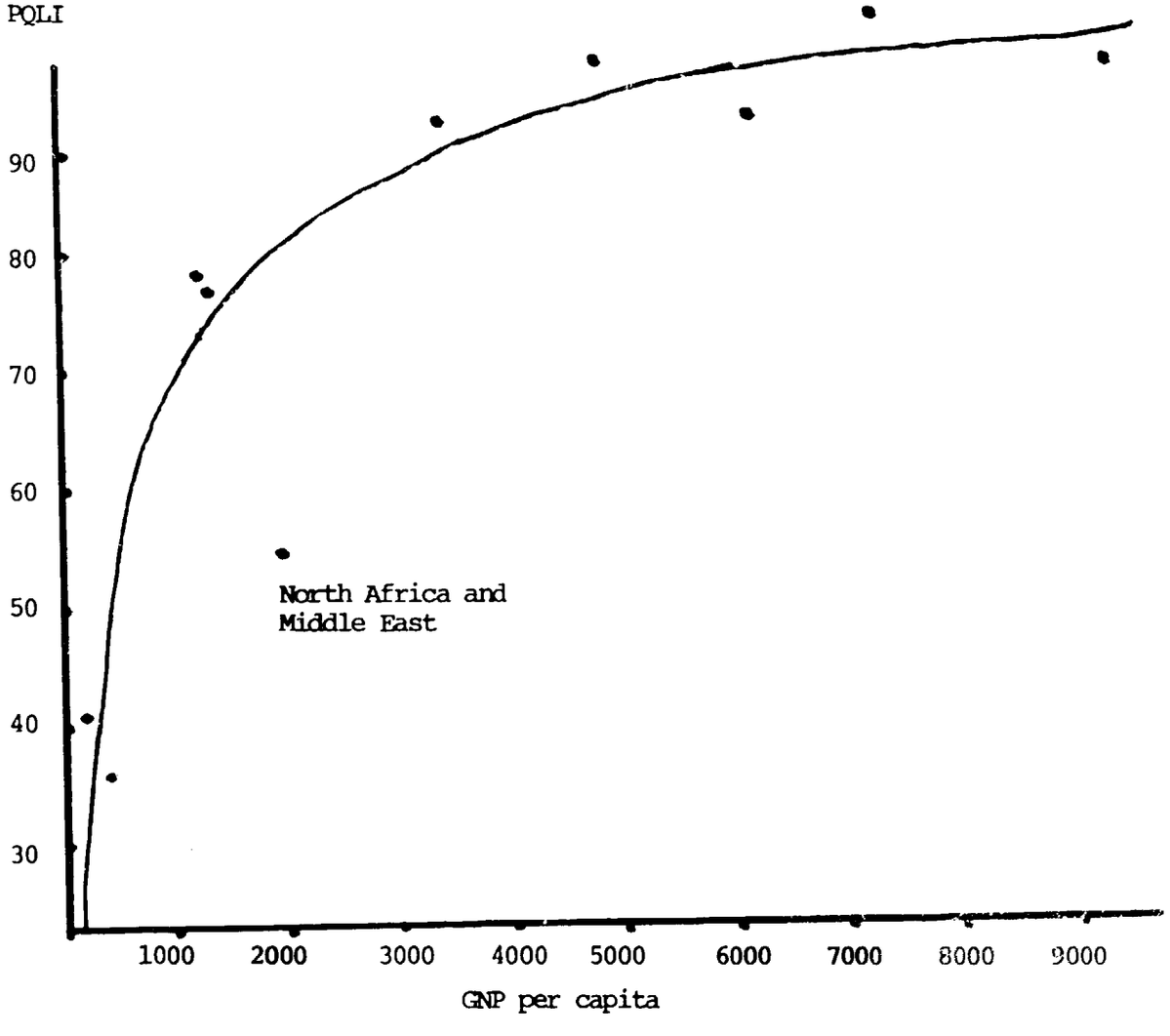
CONCLUSION

The above discussion has shown how the relationship between economic and socio-economic development varies from region to region. A global view of the performance of each region is shown in Figures 13 and 14 (for result indicators and input indicators, respectively), where averages of GNP per capita are plotted against, in the first instance, regional averages of the PQLI 48/ and secondly against the average of an input index for each region. 49/ Although there is clearly a connection between the levels of each type of development, it is clear, particularly in the case of the inputs to socio-economic development, that the relationship is not a simple one, with the simultaneity of economic and socio-economic progress becoming less evident at higher levels of welfare.

The diagrams also illustrate how the North Africa and the Middle East region has levels of socio-economic development that are below those that are warranted by GNP per capita levels. This, as explored above, probably illustrates the lagged nature of the processes of development. More importantly, it reinforces the fundamental point that, given that raising the level of socio-economic welfare is the ultimate aim of the development process and of international oganizations such as UNIDO, policies and strategies for long-term industrialization in the developing countries must be conceived of as a coherent and consistent whole, in which policy makers never lose sight of the ultimate objective of socio-economic development in the broad sense.

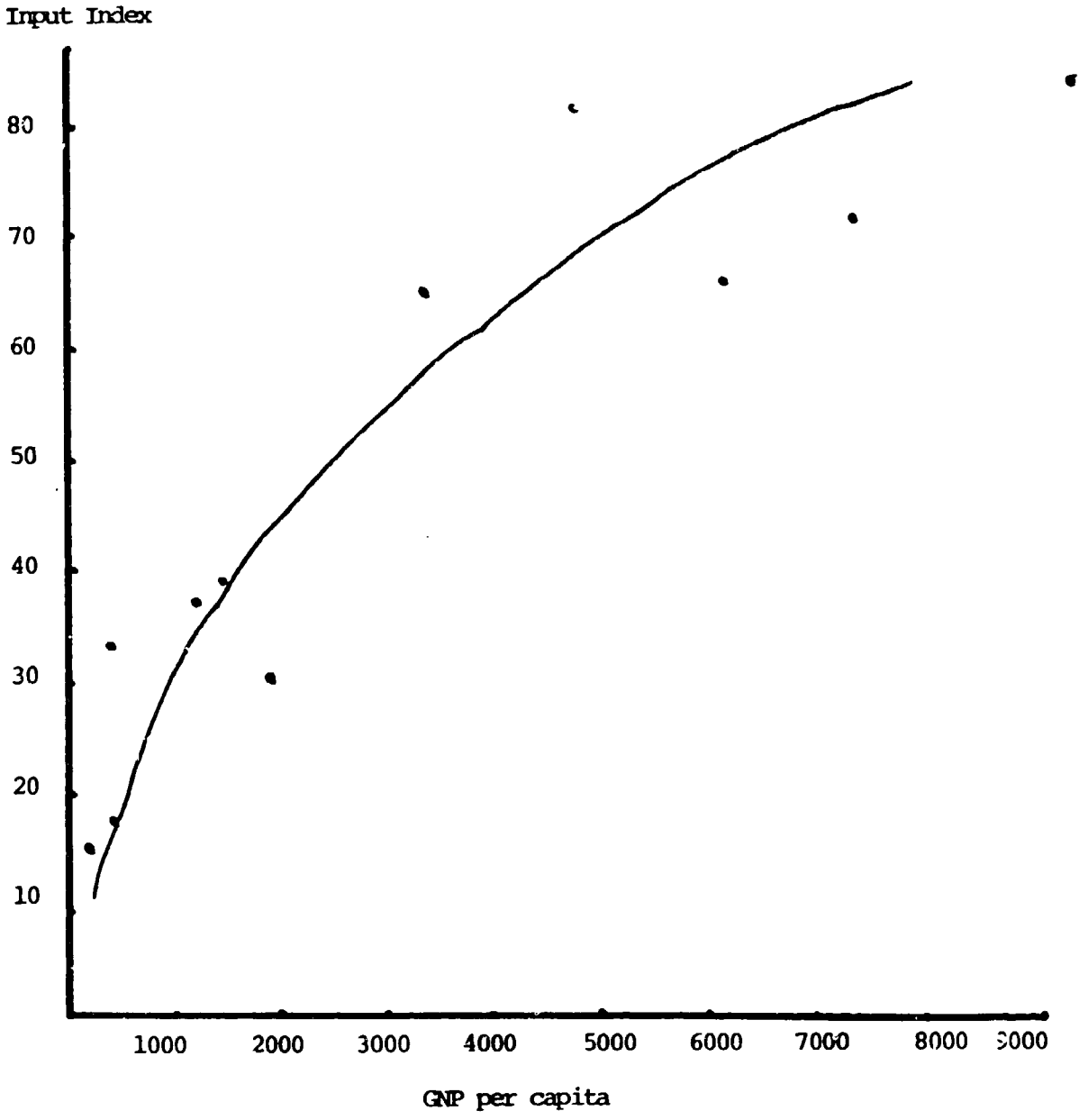
47/ Physicians per 1000 animal protein intake, % piped water
48/ Combined primary and secondary enrollment ratio, and radio receivers per

FIGURE 13. THE RELATIONSHIP BETWEEN ECONOMIC DEVELOPMENT AND AN INDEX OF VARIABLES MEASURING THE RESULT OF SOCIO-ECONOMIC DEVELOPMENT IN 1978.



Sources: As Figures 3 and 4 and World Bank, World Development Report 1982, op.cit.

FIGURE 14. THE RELATIONSHIP BETWEEN ECONOMIC DEVELOPMENT AND AN INDEX OF VARIABLES MEASURING THE INPUTS INTO SOCIO-ECONOMIC DEVELOPMENT IN 1978.



Sources: World Bank, World Development Report 1982, op.cit.;
UNESCO, Statistical Yearbook 1981, op.cit.;
World Bank, World Tables, op.cit.; and the FAO data bank.