

**ECONOMIC COMMISSION FOR AFRICA**

**ECA AND AFRICA'S DEVELOPMENT  
1983 - 2008**

**A preliminary perspective study**

**Addis Ababa**

**April 1983**

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## INTRODUCTION

1. In commemorating its 25 years of service to the African region, the Economic Commission for Africa is convinced that it is not sufficient to outline the successes and failures of the past. The history that mankind makes can and must be used to avoid pitfalls and to map out a better future. Consequently the present study was undertaken as a preliminary prospective view of the future of the African region 25 years from now. But since the African Heads of State and Government have already laid down the philosophy for Africa's future in the Lagos Plan of Action for the Implementation of the Monrovia Strategy and the Final Act of Lagos, the present preliminary perspective study aims not at repeating the goals, objectives and means of the Lagos Plan of Action, but rather at (a) highlighting some of the problems which led to and continue to validate the proposals for a regional strategy; (b) illustrating the orders of magnitude of the efforts that are required if the Lagos Plan of Action is to be implemented faithfully and successfully and; (c) anticipating the role and evolution of the Economic Commission for Africa in the next crucial 25 years.

2. It will of course, be understood that the preliminary estimates of the study cannot be taken either as forecasts or predictions of Africa's future by the year 2008. The nature of development is too complex to conform to clear-cut mathematical or even economic laws. But in making a preliminary and tentative exploration of an unknown and uncertain future, it is believed that the study will contribute to the thinking of all the people of the region and to decision-making among Africa's leaders at the national, subregional and regional levels.

3. The time horizon of 2008 was based on the necessity of having a period long enough to highlight the importance and implications of structural changes in the production patterns and the lifestyle of a people. Indeed, 25 years is a period in which one can reasonably assume a total transformation of a society. At another level, it was felt useful for the Economic Commission for Africa at its Silver Jubilee to contemplate its Golden Jubilee in the year 2008.

4. Since development - genuine development - cuts across all spheres of life, the scope of a study on the future of Africa would have to cover the social, political, cultural, technological, ecological and economic aspects of the African region. However, in the present preliminary and very exploratory study, the approach has been predominantly socio-economic although every effort has been made not to lose sight of the other equally important aspects of a future of a region like Africa. Nevertheless, even in the socio-economic framework, the future of Africa by the year 2008 has been analysed by probing into a few but critical areas namely demography, human resources, food, energy, industry, transport and communications and trade, money and finance. Since a prospective study would have to bring out the interdependence of variables among themselves and with the actors-leaders, consumers, traders, etc., - the present study has combined the analysis of specific areas with some interrelationships in a development process. The study also covers the major macro-economic aggregates which form the background to the orders of magnitude of the variables in the selected critical areas.

5. While the problems of any development process are complex and vast, the methods and analytical tools available for depicting and projecting development are still frail. The availability of relevant and reliable data also constrains the use and undermines the credibility of many of

the statistical quantitative relationships. Thus, the present study's methodology is limited to a combination of econometric approaches and other simple socio-economic or technical relationships based on solid sectoral or macro-research and studies. Further, extensive use has been made of the available studies or projections in the fields analysed in the study. The ECA secretariat will, hopefully, continue to sharpen the tools of analysing the region's development process so that the present very preliminary prospective study will be improved and expanded.

6. The study is divided in four parts. Part I tries to give a snap-shot of the African condition today, which forms the platform for analysing the future of Africa. Part II analyses the future of Africa by the year 2008 under the continuation of present socio-economic trends and patterns at the national, regional and international levels. Part III assesses the nature and content of a normative development scenario by the year 2008 while part IV synthesises the implications and choices for a new future for Africa.

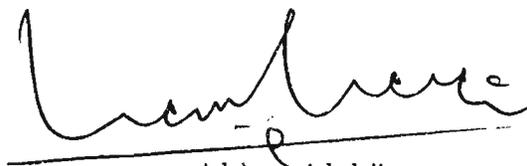
7. The picture that emerges from the brief analysis of Africa's present condition is already well known. But, the future that emerges from the historical trends scenario of part II is horrendous. To imagine that the African region will be more dependent on other regions in all critical areas is a cause for alarm. To take but a few examples: The region as a whole would require more food imports and perhaps would have to depend on more food aid. Over 90 per cent of all the capital goods required for development would still have to be imported from outside the region after nearly half a century of independence. Critical intermediate goods like fertilizers and cement would still have to be bought from outside Africa. On the social side, all services would deteriorate in terms of quantity and quality. A smaller portion of the population would be able to have access to education, health or water. Cities would become overpopulated shantytowns as housing would become less available. As a result of such socio-economic difficulties, the political situation would worsen. Then, riots, crimes and misery would be the order of 2008 if present trends continue without conscious change. With the weak and fragile socio-political systems, the sovereignty of African States will, then, be at stake. As such, self-reliance and independence will, to the generation of 2008, sound slogans of the past.

8. It therefore becomes clear that another future must be designed. Hence, the normative development scenario tries to outline a possible alternative - an alternative that will ensure the future of a brand new generation of free and happy children and adults, of prosperity and modernity, of full political, social and economic independence, of self-determination, self-confidence, collective self-reliance and self-sustainment. This "willed future" is seen as what we can proudly and triumphantly bequeath to our children and grand children by the year 2008. Indeed, it is their inalienable right to find Africa a better place and it is our fundamental duty to set out to build that place. Given the limits to any expansion the normative scenario of 2008 does not pretend to create a new Eden in Africa. There are heights that the African region will not be able to reach in the next 25 years. But while the region as a whole will have to import some capital goods, it should have reached a level of self-sufficiency in the basic intermediate goods. The energy balance will have improved with more utilization of coal, hydropower and other renewable sources of energy. The transport network will be more integrated with faster and freer movement. Monetary constraints which bedevil the capacity of the African countries to trade with each other will have been overcome. Such are the promises of a will to establish, today, a genuine development process.

9. What then are the lessons to be drawn from the two scenarios? The first lesson to emerge is that Africa has to tighten its belt and fight valiantly against hunger, against inappropriate education systems, against all inhibitions and complexes in society that retard the growth of the region. The historical trend scenario demonstrates that present development concepts and approaches cannot bring about any improvement in the quality of life of the African people. A second major lesson that emerges from the analysis is that the development scenario can be

achieved if, and only if, (a) the region succeeds in internalizing the development process, in the spirit of collective self-reliance and self-sustainment; (b) the development process is democratized at all levels so that the factors of development - human, capital and natural resources - can effectively and productively interact; and (c) subregional and regional co-operation is strengthened *inter alia*, to overcome the present balkanization of the region and to permit a proper and co-ordinated exploitation and utilization of Africa's vast human, mineral and energy resources. Lastly, the study draws attention to the link between Africa's development and the international environment. The continent has to strengthen its role in influencing the international scene so that peace prevails and a new international economic order emerges.

10. In addition, it is important to draw attention to other non-quantitative factors that are perhaps implicitly covered in the study. Since, to achieve the normative scenario, the population would have to play a prominent role, there is an essential need to evolve development-oriented leadership. The organization of all social, cultural or economic activities will have to be development-centred so that every activity, every thought, every step of the people contributes to the consolidation of the region's development. Finally, the analysis of the normative scenario cannot be taken in isolation of the required degree and efficiency of management of all the region's resources - human, natural and financial. If policy and management organs do not function properly, then the path to the normative scenario will not be on solid ground.



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## A. DEMOGRAPHIC SITUATION

1. The estimated population of the African region <sup>1/</sup> (medium variant) was 439 million by mid-1980. Relative to the 257 million estimated for mid-1960, The regional annual growth population rate during that period was 2.9 per cent as against 2.3 per cent for all of the developing world, 2.6 per cent for Latin America and 2.1 for all Asia during the same period. The major factors accounting for the rapid population growth rate as observed around 1980 in the African region were the high and fairly constant fertility level and a declining infant mortality rate. Both of these factors combined to produce a young population and a concomittantly high dependency ratio for the region. By 1980, 44 per cent of the estimated total population comprised children under 15 years of age. For every 100 active persons, there were 92 non-active dependents. Over all, as at 1980, the estimated life expectancy at birth was 47 (males) and 50 (females) and the completed average family size was in the range of 6 or 7 children. However, although Africa covers a quarter of the earth's land mass, it is sparsely populated; its 1980 population density was only 16 persons per square kilometre of land.

2. By 1980, about 72 per cent of the total estimated population in the region lived in rural areas. Nevertheless the region recorded the world's highest rural-urban migration rate during the 1960/1980 period. From a level of less than 20 per cent in 1960, the African region was nearly 30 per cent urbanized in 1980 implying an annual growth rate of about 5 per cent or almost double the growth rate of the total population. But even at this rate of urbanization, Africa was in 1980 the world's least urbanized continent. Less than 20 cities in the region were estimated to have at least a million inhabitants around 1980. Furthermore, the region's pattern of population distribution (1980) was characterized by (i) disproportionately large size and rate of growth of the metropolitan centres; and (ii) diminutive size and rate of growth of population within the remaining components of the urban system. The major problems associated with the observed population distribution patterns around 1980 which caused concern to African Governments included the high urban growth rates, imbalances between population and resource distribution, areas where density was too low to support development infrastructure and international migration. Besides rapid population growth rates, urbanization/migration and population distribution, other identified population problems in the region around 1980 included low fertility in the Central African subregion, housing/education/employment bottlenecks, refugees and the brain drain.

## B. SOCIAL CONDITIONS

3. In 1980, the average *per capita* income of the African region was only \$US 741 as compared with a *per capita* GNP of \$9,684 in the industrialized countries. But this crude measure says little about the sad realities of life in Africa. One such reality is that even the low *per capita* income is not evenly distributed. The low-income sub-Saharan African countries had, in 1980, a *per capita* income of only \$239. Another reality is that in Africa there is a high incidence of un-

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<sup>1/</sup> All references to the African region in this study refer to the present 50 ECA member States unless otherwise stated.

employment, underemployment and increasing mass poverty. For example, out of a total of 33 million people that were added to the African labour force during the 1970s as much as 15 million found no access to remunerative employment. The high level of unemployment is further compounded by an unequal distribution <sup>2/</sup> of already low income and by a high dependence ratio of nearly three persons per employed person. The result is that about 70 people out of every 100 African persons were, in 1980, either "destitute" or on the verge of poverty. <sup>3/</sup>

4. Another sad reality is that, while a lot of investments have been made in education such that the region achieved by 1980 enrolment levels of over 70 per cent of Africa's primary school age children, 14 per cent of the secondary school age population and 1.8 per cent for universities and higher institutions, the orientation of education and the trained manpower mix have failed to respond to Africa's needs and aspirations. Besides, while millions of dollars are spent on "experts", a large portion of the trained sons and daughters of the continent are serving outside the region. At home, as Africa turns out more primary and secondary school leavers, it is, at the same time, increasing the mass of the educated unemployed.

5. Health conditions have happily improved. The number of persons per doctor dropped from 10,000 in 1970 to less than 6,500 in 1980. But, again, health facilities are concentrated in urban areas. The larger part of the rural population has only limited access to health care. Further, with policies emphasizing curative rather than preventive measures, diseases like malaria, trypanosomiasis, bilharzia, etc. still afflict a fairly large part of Africa. The availability of water also still remains critical. For the African region as a whole only one in four persons has access to clean water. Over all, however, the African family still maintains tremendous resilience with regard to social stability and security. Indeed, culture is still the glue of the African system despite the communication barriers that the region faces in terms of unintegrated transport networks, the multiplicity of languages and a high illiteracy rate of over 60 per cent.

### C. FOOD CRISIS

6. Africa's food situation is by now the single most critical area of concern in the region. For the whole decade of the 1970s when the African population was expanding at an average annual rate of around 2.8 per cent, total food production in the region as a whole was rising by no more than 1.5 per cent. By 1980, food self-sufficiency ratios had dropped from 98 per cent in the 1960s to around 86 per cent implying that, on average, each African had around 12 per cent less home grown food in 1980 than 20 years earlier. Production of cereals increased by a mere 1.2 per cent annually over the two decades reaching only 58.4 million tons in 1980. The amount of roots, tubers and pulses produced in 1980 totalled only 88.2 million tons while production of meat averaged 4.7 million tons or only 11 kilogrammes for each person and per year during the 1978-1980 period. But, while Africa's overall food production trend stagnated for almost ten years, growth in food demand kept pace with population expansion. Demand for cereals, for example, increased steadily throughout the 1970s to reach about 72 million tons in 1980. To cover the widening food deficits, Africa has had to import increasing amounts of food or receive aid therefore. Between 1970 and 1980, the volume of total food imports increased by an average annual rate of 8.4 per cent. Food aid to Africa reached 1.5 million tons in 1980. Imports of food grains alone reached a total of about 20.4 million tons in 1980. In one year, 1980, such a volume of cereal imports cost the African region more than \$5 billion excluding the heavy ocean

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<sup>2/</sup> In Africa as a whole, the richest 20 per cent of the population have an income of four times the income of the poorest 40 per cent.

<sup>3/</sup> The poverty line for the seriously poor in Africa was equivalent to a *per capita* income of \$115 at 1972 prices while the "destitutes" are those with *per capita* income under \$59.

freight costs. More seriously, the increasing reliance of the African region on food aid and imports threatens to create a new and dangerous structural dependence on cereals like wheat which cannot be easily grown in many parts of the African region. Stress should also be placed on the fact that massive food aid and large food imports often leave the majority of the African people still undernourished since such foods do not reach the urban and rural poor. Indeed, despite the recorded increases in food imports, the African region still remains calorie deficient with over 20 per cent of the present population having an energy intake below the critical minimum limit. <sup>4/</sup> Average *per capita* food consumption in Africa in terms of calories remained almost stagnant at about 2,197 calories in the mid-1970s as compared with 2,115 calories in the early 1960s.

7. The disappointing performance in agriculture and food production must be judged against the fact that Africa's potential arable land is estimated at about 1.7 hectares for each African person while only about 0.55 hectares per person is being utilized at present. <sup>5/</sup> Thus the causes of the food crisis, besides the exogeneous problems of drought and desertification are to be found in the fact that, Africa's agriculture has suffered from low productivity rates especially per unit of land, inadequate investment outlays in agriculture, poor incentives to farmers, fragmentation and subdivision of holdings, inadequate land tenure systems, limited agricultural research, rural-urban migration and institutional constraints. For example while the world average for the output of cereals is about 2,000kg per hectare, Africa's average is around only 1,090 kg per hectare. For all roots and tubers, average productivity per hectare has remained stagnant at around 7 tons compared to a world average output of over 11 tons per hectare. Africa's fertilizer consumption levels stand at only 3 kg per hectare of agricultural area while fertilizer consumption in Latin America and Asia is respectively over 8 kg and 26 kg per hectare of agricultural area.

#### D. ENERGY PROBLEMS

8. Africa's reserves of energy resources, both traditional and non-traditional, are quite substantial. The latest information available indicates that Africa has some 55 billion barrels of crude oil (8.5 per cent of world proven reserves), 208,470 billion ft<sup>3</sup> of natural gas (7.9 per cent of world proven reserves), 88.5 billion tons of coal reserves <sup>6/</sup> (between 1.16 and 3.05 per cent of world's estimated coal reserves), 1.7 million tons of uranium (some 25 per cent of world resources) and 200,000 MW of potential hydro-capacity (35.4 per cent of world's potential hydro-capacity). <sup>7/</sup> In addition, Africa has an appreciable potential in new and renewable sources of energy such as solar, wind, biogas, geothermal and ocean energy. However, these substantial energy reserves are not evenly distributed between subregions and countries. Petroleum deposits are mainly concentrated in North Africa, hydro-electric resources in Central Africa, geothermal potential along the Rift Valley in East Africa and coal deposits in the Southern and south-eastern regions of the continent.

9. African production of primary energy resources registered, in recent years, a steady growth, increasing by 12.3 per cent yearly in coal equivalent from 65 million tons in 1960 to 589.4 million tons in 1979. As a percentage of world energy production, Africa's share increased from:

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<sup>4/</sup> The critical minimum limit is estimated at 1.2 BMR (Basal metabolic rate).

<sup>5/</sup> FAO, Agriculture: Toward 2000, 1979, table 4.5.

<sup>6/</sup> For coal, South Africa accounts for about 81 per cent of Africa's reserves.

<sup>7/</sup> Status of energy resources in Africa, ECA, December 1982.

1.4 per cent in 1960 to about 5.8 per cent in 1979. Hydrocarbon production expanded slowly between 1975 and 1979 at only 4.8 per cent, reaching an annual output level of 300.3 million tons. In 1980, the production of natural gas reached 25017.6 million m<sup>3</sup> while that of hydropower was 56 641 GWE. It should, however, be noted that only a small fraction of the vast resources of hydropower in Africa is being exploited in spite of the substantial growth in recent years. Fuelwood production in Africa continued to increase being, in 1979, 22 per cent higher than at the beginning of the decade. The increase was, of course, to meet the growing consumption needs of households, especially in rural areas since their income as well as the low level of rural electrification prevent them from having access to the main commercial energy resources. This trend has very serious implications on the region's forest reserves. Data on the other sources of energy such as solar, wind, biomass and ocean energy are not readily available. However, many African Governments are becoming increasingly aware of the enormous possibilities of new and renewable sources of energy and are putting more and more efforts into harnessing such sources in view of their potential advantages, especially in urban areas. Over all, the present pattern of energy production in Africa especially since the mid-1970s shows a significant shift away from crude petroleum towards other forms of energy, mainly hydropower, a trend which may be related to high oil price increases. However, the increasing number of petroleum producers in Africa is likely to maintain crude oil as one of the region's main energy resource together with hydropower.

10. Africa's consumption of energy increased tremendously during the 1970s at a rate of 6.4 per cent per annum, in spite of higher energy prices. As a result the elasticity of energy consumption with respect to GDP rose from 1.0 in 1960s to 1.33 in the 1970s. In coal equivalent, the total consumption of commercial energy in Africa rose from 99.6 million tons in 1970 to 139.4 million tons in 1975 and 185.1 million tons in 1979. The main components of Africa's commercial energy consumption are crude petroleum and liquid gas which, in 1980, accounted for 44 per cent of the total energy consumption of developing African countries or 59.8 million tons. However, in 1979, only 21.1 per cent of Africa's total production of crude oil was consumed within the region. The consumption of coal and natural gas in Africa is generally low because of low industrial demand and lack of transport and storage facilities. Hydro-electricity consumption of 55 084 million kWh in 1979 closely follows the production levels. However, up to now the bulk of the population of the African region consumes mainly fuelwood in the form of charcoal and firewood. This pattern constitutes a serious threat to forest resources and environment especially in the Sahelian and drought-prone areas.

11. Africa's energy balance sheet shows that the region could largely meet its energy requirements. However, oil which is the major component in Africa's energy consumption is at present produced in only a few countries. As of now, only eight countries are net oil exporters. <sup>8/</sup> The largest part of the region depends on oil imports in the range of 26 and 86 per cent of the commercial energy requirements of the individual countries. As a result and especially since the oil crisis, Africa's oil import bill has posed severe constraints on the development of the region as a whole. Indeed, in many countries an increasing number of productive activities and services are almost at a complete halt because of energy shortages and balance-of-payments difficulties. It must, however, be emphasised that the African region has a total crude oil deficit because of the large proportion of production which is exported outside the region. In 1980 crude oil production in Africa amounted to 314.1 million tons, of which 267 million tons were exported. Hence, since crude oil consumption was 72.4 million tons, the region as a whole had a deficit of 25.3 million tons of crude oil which had to be imported from outside the region.

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<sup>8/</sup> Algeria, Angola, the Congo, Gabon, the Libyan Arab Jamahiriya, Nigeria, the United Republic of Cameroon and Zaire.

## E. THE INDUSTRIALIZATION DILEMMA

12. As of now, the industrialization process in Africa has relatively speaking failed to provide the dynamic forces for the structural transformation of the African economy to attain self-sustainment. The sector remains small and enclaved accounting for only 9.8 per cent of the region's GDP. Relative to world manufacturing output, Africa had a share of manufacturing value added of only 0.9 in 1980 as compared to a share of 2.7 per cent and 6 per cent for South and East Asia and Latin America respectively. Thus, Africa was by 1980 still the least industrialized region in the world. The region's industrial sector is not only small but also characterized by an inflexible structure, concentrated in a small number of countries and limited to only a few lines of production. Except for the production of a narrow range of intermediate goods, the sector is characterized by light industries producing consumer goods and by a crude and relatively weak degree of processing and semi-processing of mineral and agricultural raw materials, mainly for export. Further, the existing production structure is based on small size plants with little in terms of economies of scale. Heavy industries are rudimentary and have been attempted coherently in only a few countries. Therefore, the production of capital goods is only marginal in the region as a whole and, as a result, Africa remains one of the world's major importer of capital goods with imported equipment and machinery accounting for over 35 per cent of the total annual investments of the region.

13. The overwhelming dependence on imports of capital goods has had serious repercussions on Africa's cost structure, production efficiency, exploitation of natural resources, development of domestic technology and the comparative advantage of surplus labour relative to capital. The inappropriate acquisition of capital goods at high cost on account of the technology market imperfections has led to the emergence of high-cost enterprises, many of which are economically not viable. Most of the capital goods acquired are neither consistent with the factor endowment of the African region nor oriented to its basic needs. The situation has become worse since the development of the technology markets in advanced countries favours the production of technology for labour-saving machines and equipment. On the other hand, the development of domestic technology is constrained by lack of capital, appropriate skills and entrepreneurial capabilities.

14. Africa's industrial base is also hardly oriented to the production of intermediate goods because domestic production of intermediate inputs is characterized by weak forward and backward linkages between the industrial structure and the natural resource base. As a result, despite abundant reserves of phosphates, limestone, iron, bauxite, etc., the region continues to import fertilizers, cement and iron and steel, aluminium, etc. Even the import-substitution strategy which was adopted in the majority of African countries with a view to orienting industrial activities to the advantage of processing for a readily available domestic market and to ease balance-of-payment pressures seems to have been ineffective. While the strategy was successful in creating a sizeable consumer goods industry, it failed to stimulate the development of key industries with strong domestic linkages. The production of consumer goods, which constitutes about 68 per cent of Africa's total value added in manufacturing, was heavily oriented towards the production of food, beverages and tobacco. Basic consumer goods like clothing, pharmaceuticals, paper, etc. are still being imported. But the import-substitution strategy did not only fail to produce the desired developmental effects, it also raised a range of economic and structural problems such as the installation of large production capacities in countries with small market sizes, the considerable drain on the scarce foreign exchange reserves owing to the excessive dependence on imported inputs, etc. Moreover, the tendency of creating capital-intensive import-substitution industries with a high unit cost of investment and with no relationship to Africa's factor mix has distorted the region's cost structure. Thus, in quite a number of instances, domestic production costs tend to be higher in terms of foreign exchange than the cost of the imported final product.

15. Export-oriented industrial production has also met with limited success in the region as a whole. The manufactured exports of the region have suffered from severe competition from other developing countries in terms of quality and prices, the high import content in producing the manufactured goods for exports, the low levels of capacity utilization, etc. Worse still, the recession in the developed countries has resulted in a sluggish export market as more of these countries have adopted protectionist policies and quota restrictions on labour-intensive products from developing countries. Thus, Africa's exports in manufactures have grown more slowly relative to the growth in manufactured imports. Indeed, the share of manufacturing exports in total exports of Africa has declined over the whole period of the 1970s.

#### F. THE TRANSPORT AND COMMUNICATIONS BOTTLENECK

16. The inadequacy and poor conditions of Africa's transport and communications infrastructure coupled with the inefficiency of the services remain major obstacles to the general economic and social development of the region. With respect to road transport, earth roads account for a considerable proportion of the road network, but most of them are generally operable only during the dry season, in spite of the fact that they provide the only access to villages, agricultural and other productive areas and are the main traffic feeders to primary and secondary roads. Primary and secondary roads represent less than 50 per cent of the total African road network. Moreover, the average road density in developing Africa is only 0.05 km/km<sup>2</sup> which is far below the average of developing countries as a whole. As for vehicles, there were, by 1981-1982, only 9.2 vehicles per 1,000 persons or about 109 persons per vehicle. In addition a large proportion of the fleet remains immobilized for long periods, a situation which adversely affects the overall economic performance of developing Africa.

17. With respect to railway transport, the total network of Africa was about 80,706 km giving a very low average density of only 2.78 km per 1,000 km<sup>2</sup>. In addition, the African railway system is composed of several short independent national systems of different gauges, which makes it difficult to promote socio-economic integration at the national, subregional and regional levels. Also, because of the old age of the rails, the poor alignment and the low construction standards, the average operating speed of the African railways system is only about 40 km/h and the axle loads vary from only 5 to 28 tons per axle. The railway traffic is also very low, with only 1.8 per cent growth in passenger-kilometres in 1981 and a decrease of about 3 per cent in 1980 for ton-kilometres. In the area of air transport, while 40 foreign airlines and 51 African airlines serve the continent, only 20 per cent of the total air transport operations involve direct links among African countries. The trend in air traffic is also very slow with, in 1981, an increase of only 2.2 per cent in passengers traffic and 0.3 per cent in cargo freight. In maritime transport, the volume of Africa's seaborne trade has increased only marginally, being in 1980 560.5 million tons. The region's shipping capacity was 7.2 million dwt in 1981 (including 3.4 million dwt for tankers) which constitutes only 1 per cent of world tonnage as compared to 10 per cent for developing countries as a whole. The low level of the shipping capacity of Africa explains the very large share of Africa's seaborne trade handled by foreign vessels.

18. The development of the telecommunications system in Africa has been considerably extended and improved since 1977 as a direct result of the activities of the United Nations Transport and Communications Decade in Africa (UNTACDA) and the Pan-African Telecommunications Network (PANAFTEL). However, in spite of the recent rapid growth of 14 per cent per annum between 1977 and 1981, the overall average telephone density in Africa is only 76 phones per 1,000 persons, which is still below the target of 1 telephone per 100 inhabitants by the end of UNTACDA in 1988. Moreover, the telephone density is not evenly distributed. The North African density ranges from 13 to 637 per 1,000 persons while sub-Saharan Africa has a telephone density in the range of less than one to 29 telephones per 1,000 inhabitants. Finally, in addition to the PANAFTEL network, many African countries have developed transmission

facilities with satellite communications mainly for international services directed towards Europe and America and most of the intra-African telephone calls are still made via developed countries.

#### G. AFRICA'S UNEXPLOITED NATURAL RESOURCES

19. Africa is known to possess vast reserves of natural resources in the form of minerals. For example, Africa's share of reserves in the total known reserves of the world is 8.5 per cent for oil, 25 per cent for uranium, 21 per cent for bauxite, 45.2 per cent for cobalt and 67 per cent for phosphorites. But even these figures might mask the actual potential of the region since Africa remains largely unexplored and, therefore, lacks concrete information on its total natural resources endowment. However, the exploitation of the known reserves has, thus far, not led to the integration of the natural raw material base in the region's economic structure. Hence, while the minerals currently exploited continue to play vital strategic roles in the industrialized countries, the African region itself remains unable not only to utilize but even to process the minerals. Further, the levels, rates or the range of mineral exploitation by the region itself are difficult to control since most of the ongoing exploitation remains, as of now, in the hands of foreign transnational corporations.

20. The trend of mineral production in Africa in the 1970s was disappointing and, as of 1980, the situation had reached alarming proportions. In 1980, production of iron ore, chromite, nickel, zinc and diamonds was below the level recorded in the mid 1970s. Poor demand resulting from the world recession and depressed prices have also adversely affected export prospects such that many promising projects in mineral exploitation have had to be abandoned. Further the industrialized countries that have been importing Africa's mineral output seem to be looking for other sources.

#### H. EXTERNAL TRADE AND FINANCE IMBALANCES

21. The early development of foreign trade in Africa was sporadic. Momentum was gained in the 1960s and thereafter trade expanded from \$US 4.9 billion in 1960 to \$89.6 billion in 1980. Nevertheless, Africa's share in world exports declined from 3.9 per cent in 1970 to 3.4 per cent in 1979 owing not only to the spectacular increases in world exports but also to the slow expansion of the region's exports. The exports of the African region are typified by an inflexible export structure with heavy concentration on only a few primary agricultural and mineral commodities. Such export dependency on primary raw materials has had negative effects on Africa's export earnings because of the high inelastic supply of primary products and the price instability in international markets. In addition, performance of the export sector has been sluggish with a growth rate of 0.6 per cent in real terms during 1970-1980 as compared to 6 per cent attained during 1965-1970. The causes behind such a deceleration include the fast growth in the technologies of synthetics and other substitutes, increasing trade barriers especially quota restrictions, declining agricultural productivity, and increases in prices of imported inputs.

22. While real imports of developing African countries continued to increase by 5.8 per cent yearly between 1970 and 1980, the structure of imports in terms of commodity composition has remained fairly constant. Imports of consumer goods continue to account for the largest share in Africa's total import bill being in the range of 35 per cent to 45 per cent. However, in many countries especially those which are drought-prone, the food import bill has become a major component in the total value of imports. The fast growth in imports, unmatched by corresponding increases in exports, has resulted in a huge accumulation of deficits on the visible trade balance amounting to \$8.9 billion for the group of non-oil exporting African countries in 1980. Another important phenomenon is that of Africa's terms of trade which have significantly moved against the region throughout the 1970s. Not surprisingly, the balance-of-payments position worsened throughout the 1970s owing to such structural imbalances as the continuous

declining agricultural output, the low level of exploitation of mineral resources, escalating oil prices, galloping world inflation and high interest rates in the international capital markets. Consequently, Africa has suffered a continuous drain on foreign exchange reserves. The malaise was even further compounded in recent years by the insufficient growth in the capital flows and official transfers. The total outstanding debt in 1980 amounted to \$77.5 billion and, given the increasingly worsening terms and conditions of loans especially at a time of bad export performance, repayment commitments have become a burden as the debt servicing ratio has reached around 12 per cent of total exports.

23. The direction of trade continued along the same patterns of exchange as in the colonial era. While developed market economies continued to be Africa's major trading partners mainly as a result of the long-standing political and commercial links, the African region's trade with other developing countries stagnated. Africa's volume of trade with the countries of the centrally planned economies has actually declined. Most serious is the present stagnation or decline in the growth of recorded intra-African trade mainly because of the poor transport and communication system, inadequate financing and credit facilities and an increasing volume of unrecorded trade between African countries.

### I. INSTITUTIONAL INADEQUACIES

24. Although developing African countries have made steady progress in building national, subregional and regional institutions for promoting and monitoring their economic development, most of these institutions have proved ineffective and, in some cases, even counter-productive. At the national level, the central Governments and the various financial institutions have, in many ways, failed to mobilize effectively domestic and national resources for development. In many countries the planning machinery still concentrates on merely collecting projects for submission to potential funding sources. Few planning agencies can adequately handle project identification, formulation, evaluation and implementation. In some cases even the formulation, follow-up and evaluation of development plans is not yet as strong as it should be. The reliance of African development plans on external resources detracts from the effectiveness of the planning exercise as a means of co-ordinating national medium- and long-term socio-economic activities and ensuring intersectoral linkages for the achievement of self-sustained and self-reliant development. National development support institutions have, in many cases, also been unable to provide the necessary incentives to increase production and promote local entrepreneurship in areas like agriculture and the informal sector. More generally, therefore, there remains a need to restructure and redesign much of Africa's institutional framework.

25. At the subregional and regional levels, the various institutions that have been established - all at the request of African Governments - in fields such as planning and economic development, natural resources, science and technology, trade, industry, training and human resources, transport and communications, have all suffered from, *inter alia*, a lack of political will on the part of African countries. The net result is that the growth of such institutions is stifled and, as disillusionment sets in, the collective self-reliance of African countries is undermined. In sub-regional economic groupings which are steadily increasing as a result of the growing awareness of African countries of the necessity for closer economic co-operation, not enough focus is put on issues crucial to development such as joint and co-ordinated productive activities, financial and monetary arrangements, human resources and skill development in science and technology and exploitation and uses of natural resources. Political consideration and administrative procedures have also often hampered the development of some of these institutions.

26. It must be further recognized that one major reason for the present institutional inadequacy has been the failure of African countries to realize that multinational economic co-operation and integration is an absolute imperative, and this has, in turn, led to a lack of political will to sup-

port the creation and sustenance of regional and subregional co-operative institutions. Economic co-operation and integration, like political will or the will to develop, is a qualitative attribute of immense significance which cuts across all the development scenarios under discussion. It can, therefore, be said that its absence or ineffectiveness is an inherent part of the development problem that Africa faces today - a problem in which both ignorance and mental attitudes constitute powerful institutional barriers to the creation and sustenance of viable co-operative groupings. Indeed to a very large extent, practically all the problems discussed elsewhere in this section, including the food crisis, the energy problem, the low level of industrialization, poor transport and communications, the low level of exploitation of natural resources, the insignificant level of intra-African trade and the high burden of external indebtedness, are, in the ultimate analysis, the result of the failure by African countries to embrace a truly collective self-reliant strategy of multinational co-operation.

#### J. THE OVER-ALL MACRO-ECONOMIC SET-UP

27. From the above review of the critical areas in Africa today, it is clear that the African economy is still basically underdeveloped. At the macro-economic level, the structure of production is grossly dominated by agriculture, mainly peasant agriculture and services, which together account for 73 per cent of the total gross domestic product of the region as a whole. The industrial base is small, fractured and only minimally linked to the region's natural resources base. The share of manufacturing in total output for the entire region is less than 10 per cent. Mining output, mainly for export, is a mere 6.6 per cent of GDP while the generation of energy and construction contribute only 1.3 per cent and 2.3 per cent respectively to total output. In addition to such internal structural imbalances, the African economy remains the most exposed in the world. External trade constitutes the single major stimulus to Africa's internal socio-economic progress in spite of the narrowness of export commodities and the dramatic shifts in the prices and the inherent technological content of imports.

28. The expenditure of the region's total income is characterized by a high consumption rate of 82 per cent of GDP in 1980. The consumption of African Governments, which continue to be seriously strained in terms of providing services to the African population, is as high as 19 per cent of Africa's total income. At such consumption levels, Africa's saving rate stood at around only 18 per cent while the share of investments in total GDP was as high as 25 per cent. Thus Africa in 1980 had a resource gap of nearly 7 per cent of the region's total income. To fill the gap, the region has had to resort to massive borrowing and foreign aid. By 1980, the indebtedness of the region as a whole was as much as \$77.5 billion. With such a level of debts, the region continues to suffocate under the burden of debt servicing. In 1980 alone, the region as a whole spent \$11 billion to service its debt.

Table 1. Selected indicators on Africa and other country groupings

	<i>Developing Africa</i>	<i>Low income economies</i>	<i>Middle income economies</i>	<i>Developed market economies</i>
Population (millions) mid 1980	439	2 160.9	1 138.8	714.4
GDP growth 1970-1980 (per cent)	5.2	4.6	5.6	3.2
<i>Per capita</i> growth 1960-1980 (per cent)	2.9	1.2	3.8	3.6
Agricultural growth 1970-1980 (per cent)	1.3	2.2	2.9	1.4
Manufacturing growth 1970-1980 (per cent)	5.5	3.7	6.4	3.2
Investment growth 1970-1980 (per cent)	10.0	4.8	7.8	1.6
Export growth 1970-1980 (per cent)	2.1	-0.4	3.9	5.8
Import growth 1970-1980 (per cent)	5.9	3.1	4.2	4.4
Investment rate 1980 (per cent)	25.7	25.0	27.0	23.0
Saving rate, 1980 (per cent)	18.3	22.0	25.0	22.0
Government consumption rate, 1980 (per cent)	19.0	11.0	14.0	17.0
<i>Per capita</i> income (US dollars) 1980	741.0	260.0	1 400.0	10 320.0
Population per physician 1977	6 500	5 810	5 840	620.0
Adult literacy rate (per cent) 1977	38	50	65	99
Life expectancy at birth (years) 1980	49	57	60	78
Urbanization rate (per cent) 1980	27	17	45	77
<i>Per capita</i> energy consumption (kg of coal equivalent) 1979	361	421	965	7 293

Source: ECA secretariat and World Development Report, 1982.

## K. BACKGROUND TO A FUTURE

29. Before moving into the perspective of the African region by the year 2008, it is pertinent to reflect on how Africa reached the present sombre situation and to identify certain areas which, given the nature of things, are likely not to change significantly in the next 25 years. Today, there is little doubt that the colonial heritage, the present world economic order and the region's difficult geographic and ecological characteristics have contributed, in many ways, to the present problems of the African region. However, one must not lose sight of the fact that Africa's domestic order involving unfavourable development perceptions and patterns, static taboos and traditions, political and economic mismanagement, etc., is one of the major contributory factors to the socio-economic malaise in the region.

30. Most African countries suffered from the effects of colonial domination for decades and, in some cases, for centuries. Throughout these long periods, the economic activities of the African countries, by the design of the colonial Powers, concentrated on the exploitation of the region's natural resources for the development of the metropolitan centres. With such forced and un-

healthy integration of the African region in the mainstream of the coloniser's social and economic order, the African economy was derailed and disoriented into (a) overspecialization in raw material production; (b) overdependency on external markets in a South-North framework; and (c) development of enclaves in the economies of the individual African countries. In the social field, the development of human resources in terms of education, training and skill development, health and other basic services was entirely neglected, thus crippling the very foundation of the development of the region. More tragically, the colonial domination left undesirable scars on the psychology of the African people resulting, *inter alia*, in a deep-seated loss of self-confidence and pride. Finally, the parcelling of the region by the colonial Powers into a large number of small States has, up to today, implied that many African economies are weak and unviable, thus reducing the ability of the region to gather the necessary momentum for socio-economic take-off.

31. While, through strenuous efforts, political independence was attained by the present 50 States members of the Economic Commission for Africa, socio-economic disengagement from the post-war world economic order (the so called the Bretton Woods order) has remained illusory. This world order has implied for the African region such tenuous characteristics as (a) perverse international financial and monetary arrangements; (b) increasing domination of the developed countries through, *inter alia*, transnational corporations; (c) monopolistic technology markets; and (d) stagnant or declining prices of raw material exports from the developing countries while prices of manufactured imports from the developed countries are continually increasing. The cumulative effects of such an order on the African region has been that Africa can hardly get the equity it deserves. The African economy remains, overly dependent on foreign trade, foreign capital, foreign technology, foreign expertise, etc.

32. Nature's designs on the African region in terms of geographic conditions and climatic changes have also often been calamitous. Floods, drought, desertification, tropical diseases and intense heat, etc. afflict a fairly large part of the African continent. More generally, the geographic location, the topography and the ecology of the region impose severe physical limits on the efficient exploitation of the region's natural resources. Furthermore, the African region has had to use machinery, equipment and basic materials - developed and produced in the temperate regions - which are not suited or adapted to the African tropical climatic conditions. As a result, the region's capital stock cannot easily be maintained within its normal economic life, implying chronic breakdowns and high obsolescence rates.

33. No doubt, the proper development of any region is also dependent on the domestic order which sets the preconditions for progress and acts as the catalyst to further advancement. The Herculean task of moving a people from the depths of poverty, backwardness, ignorance and disease to the heights of prosperity and modernity has never been achieved except through domestic efforts in a conducive domestic and international environment. In this context, it is disheartening to note that the development perceptions, concepts, attitudes and habits in Africa have tended merely to mimic other foreign patterns. Thus, the production structure and lifestyles in Africa have both contributed to the retardation of the region's growth. Over-all, production in Africa is dominated by services designed to promote mass consumption of foreign goods as is illustrated by the luxurious and conspicuous consumption of the African people as well as the many non-productive prestigious projects undertaken by Governments at the expense of productive sectors like agriculture. Indeed, most of the region's domestic resources - financial and human - continue to be diverted into speculative activities while areas that constitute the very bases for development and progress receive only slogans and promises. Within such an environment, the thinkers, planners and policy-makers in the African region have persistently marginalized the potential of and interplay between culture, traditions and development. Simple examples include the very large part of the population left out of the mainstream of Africa's development and the ignored potential of the region in areas like traditional medicines, technology, etc.

34. At the management level, Africa has so far been unable to achieve a social, political and economic environment conducive to the socio-economic welfare of the African population. Given the psychological distortions inherited from the colonial era, the present political structures still have problems in ensuring freedom and social justice commensurate with the needs of the region. The failure to democratize the overall development process has, therefore, grossly undermined the mass participation of the region's most important resource - its people. The development of entrepreneurial capacities and operational planning and implementation machinery is also jeopardised. Often, nepotism and corruption, coupled with a lack of trained manpower, have led to rampant mismanagement of crucial and key activities and services. Finally, the political tensions in the region have generally brought about misallocation of resources involving, in particular, massive defence expenditures.

35. In the assessment of Africa's perspectives as described in the scenarios in the following two parts, efforts have been made to contemplate the likely changes in Africa's future. However, it has to be emphasized that there are certain areas beyond the control of the African region alone. Thus, in assessing the two scenarios, one has to keep in mind that certain limits are imposed on the region by factors like the international economic order, natural phenomena, etc. But, whatever the case, the future evolution of the external and domestic conditions outlined in this part will necessarily have important implications on the evolution of the African region in the next 25 years.

**PART II**

**THE AFRICAN REGION BY THE YEAR 2008 UNDER A HISTORICAL  
TRENDS SCENARIO**

## A. BACKGROUND

36. The preliminary projections presented in this part are intended to highlight the situation that the African region could find itself in by the year 2008 if most of the external and domestic elements outlined were to remain unchanged. The scenario is, therefore, presented under the assumption of a continuation of historical trends in some selected critical areas like demography, human resources, food, energy, industrial products transport and trade. <sup>9/</sup> Efforts have, however, been made not merely to extrapolate past growth rates up to the year 2008. To a large extent and whenever historical data were available and reliable, the variables treated in the scenario have been projected on the basis of simple but well established economic and technical relationships. In addition, to ensure that the scenario has an internal coherence and consistence, all the critical variables have been projected and integrated within an overall macro-economic framework summarized at the end of this part.

37. It is normal that some variables have to take into account other variables which might constitute physical or other limits to expansion. Thus, even in the historical trends scenario, physical limits to certain viables such as land and reserves of natural resources have been taken into account. But, disasters such as wars, floods and drought have not been envisaged in the scenario as these, naturally, lie beyond the realm of the present perspective analysis which deals mainly with seeing how Africa could manage the possible. The population variables have been treated as exogeneous to all the variables of the scenario. The population projections have, however, been derived from an independent population model established by the ECA secretariat. For the historical trends scenario, the high variant of the population projections was used.

## B. DEMOGRAPHIC SITUATION IN 2008

38. The estimates of the mid-1980 demographic indicators presented in the first part of this analysis were based on the medium variant which allowed for declines in fertility and mortality with a nil or negligible net flow of migration outside the region during the 1960/1980 period. The corresponding indicators presented in this second part of the analysis for the year 2008 are based on the high variant assumptions which allow for higher fertility and lower mortality levels than were assumed for the medium variant again with a nil or negligible net flow of migration. The high variant projections of the demographic indicators are summarized in table 2. The data indicate that, on the basis of the observed levels in fertility and mortality around 1980, the total African population will be about 1.1 billion by the year 2008, implying an annual growth of 3.2 per cent during the next 25 years (1983-2008). The associated numbers of urban dwellers will be 472 million; children (0-14), 479 million; active population (15-64), 564 million; the aged (65+), 34 million; and school age, 1978 million (primary), 152 million (secondary), and 124 million (higher).

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<sup>9/</sup> While it is appreciated that the scope of Africa's development is very wide, the perspectives presented in this study have been limited to only a few critical areas believed to be of paramount importance to and having the major developmental and growth effects on Africa's future. In addition, owing to the heterogeneity of some components in each of the critical areas, only some representative variables have been analysed and/or projected.

**Table 2. Selected demographic indicators for Africa, 2008 (high variant scenario)  
(in millions unless otherwise indicated)**

<i>Demographic indicators</i>	<i>1980</i>	<i>2008</i>	<i>Annual growth rate</i>
Total population	440	1077	3.2
Urban population	120	472	4.9
Rural population	320	605	2.3
Population aged 0-14	199	479	3.1
Population aged 15-64	228	564	3.2
Population aged 65+	13	34	3.4
Population aged 6-11 (primary education)	80	178	2.9
Population aged 12-17 (secondary education)	65	152	3.0
Population aged 18-23 (higher education)	58	124	2.7
Life expectancy at birth - males	50.1	60.5	-
Life expectancy at birth - females	53.4	64.1	-
Average completed family size	5.1	4.8	-
Dependency ratio	94	91	-
Net migration (in thousands)	22	0	-

Source: ECA projections, 1983.

39. In appraising the demographic indicators presented in table 2 under the historical scenario, this analysis calls attention to the fact that rapid population growth rates have serious implications on the economic growth of any region because they slow down efforts to achieve rapid socio-economic development. Increased demand for food supplies and agricultural production tends to constrain the allocation of resources to other economic and social sectors. Unemployment and underemployment also become serious problems because the number of people seeking employment is larger than the number of available jobs. Because an ever increasing number of workers cannot be absorbed in the modern sector, they are either forced into unproductive service occupations or back into the traditional sector with its low productivity and bare subsistence wage levels. This large supply of cheap labour tends to hold back technological change; industrialization is slowed down by mass poverty, which in turn reduces the demand for manufactured goods. Thus widespread poverty, low productivity of labour, the growing demand for food and slow industrialization distort and degrade the international trade of the countries with rapidly growing populations. Worse still, essential services such as education, health and housing fail to keep pace with the population's requirements, resulting in social unrest. The projections presented in table 3 summarize the orders of magnitude of the employment and education problems that Africa could face by the year 2008 if present trends of very rapid population expansion continue.

### C. THE DIFFICULT HUMAN RESOURCES SITUATION IN 2008

40. The labour force projections were made by applying cut-off points at ages 15 and 65 years and adjusting the population within this age group to exclude those not in the labour force, i.e. those in penal, medical and educational institutions as well as those in the armed forces. These number approximately 5 per cent of the total population within the age group 15 - 65 years. The total labour force is then distributed between rural and urban areas using the same ratio of labour

force to population in both areas. Since the age composition of the projected population and the school enrolment ratios are shown to be virtually constant over time, no significant changes in the ratio of the labour force to population is anticipated. In other words, labour force growth rates are projected to remain constant over time. Over all, the present projections show that by the year 2008 the African region will have a total labour force of 510.3 million with 286.8 million in the rural areas and 223.5 million in the urban centres.

41. To arrive at the magnitude of open unemployment, it was assumed that the phenomenon would continue to be negligible or non-existent in rural subsistence agriculture where the problem would be more one of underemployment. Open unemployment would therefore be confined to the formal wage economic sector. The average ratio of unemployed to the formal wage labour force in Africa is approximately 20 per cent (high variant). These ratios are applied to project the size of unemployment. A further adjustment is made to reflect the impact on employment of aggregate employment demand brought about by the projected growth in GDP. For Africa, an average incremental output to employment ratio (IOER) of 2:1 <sup>10/</sup> was used to adjust for employment elasticities with respect to projected GDP growth rates. It is assumed that unemployment in the informal sector is non-existent and that labour force participation in that sector is exclusively in the form of employment. On the other hand, underemployment is taken to affect mainly the rural subsistence sector because of the seasonal factor in agricultural production and low productivity of factor inputs. It is currently estimated to affect 40 per cent of the rural African labour force and to be growing at an average annual rate of 4.2 per cent per annum. In the wage economy, it is more difficult to identify underemployment. The study has, therefore, used a proxy rate of 20 per cent (Chile, 1968) for the historical scenario to estimate and project the magnitude of underemployment in the African formal wage sector.

### 1. Open unemployment

42. Open unemployment has been plaguing the formal wage sector of African economies for quite some years now. It has been aggravated by worsening climatic, agricultural and overall socio-economic conditions in the rural/subsistence sector, which have propelled the drift of workers from rural to urban/formal sector wage employment markets. In addition, the declining growth of African economies has made it impossible for a large proportion of the labour force to be fully employed in wage-earning activities, the rapid expansion of the labour force resulting from high population growth rates having overtaken the economy's demand for labour. Another cause of open unemployment is the growing number of new entrants to the formal wage employment market from African educational systems. These young school leavers, aged between 15 and 24 years, come mainly from the first level of education (primary school) with very little by way of skills that could be utilized in economic activities. They are currently estimated to represent 22 per cent of all new entrants in the labour force. By the year 2008, this share is projected to rise to as high as 41 per cent.

43. The problem of open unemployment is confined more to formal wage labour markets. It is negligible in the rural/subsistence sector. However, since African formal wage labour markets are relatively small, the openly unemployed are very conspicuous. They number 13.3 million persons today, but will grow to 44.7 million workers by 2008. The unemployed in 2008 will amount in effect to a very large number of socially and economically unproductive persons. As a result, the dependency ratio will increase, thereby depressing the level of real earnings and incomes, exacerbating poverty and increasing crime and lawlessness. The strain on social services will also be immense. Hospitals, mental institutions, prisons etc. will have to grow in capa-

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<sup>10/</sup> The incremental output to employment ratio in Africa varies between 1.4: for Ghana and 1.6:1 for Zambia, to as low as 4:1 for Egypt.

city to meet this undesirable, and perfectly avoidable, psycho-social situation that unemployment will bring about. Political stability will also be undermined, as will democracy and human rights.

## 2. Underemployment

44. Underemployment falls into three broad categories:

(a) *Visible underemployment*, which includes a large number of workers in subsistence agriculture activities, where, especially in monoculture economies, the seasonal nature of production is such that more time than is desirable is given to leisure or non-economically productive activities. Most of the underemployed represent those whose production activities require less than 40 hours of labour per week;

(b) *Disguised underemployment*, which includes the employed but whose labour can be released without affecting production levels if there are simple changes in methods of production without any additional increase in capital and other inputs;

(c) *Hidden underemployment*, which applies to workers engaged in second-choice employment activities because jobs of their preference are not available at their level of skills or their desired wage rate.

45. Visible and disguised underemployment are prevalent in the rural/subsistence agricultural sector. Hidden underemployment is more concentrated in the urban informal sector as well as in public services in the formal sector. Disguised underemployment is increasingly becoming a problem in government and the public sector of African economies. Rural underemployment is at present estimated to affect 40 per cent of the labour force or 63.6 million workers. And if present trends continue, population pressure on the arable land will depress *per capita* agricultural output which, coupled with the probability of increased mechanization in agriculture, will adversely affect worker productivity in subsistence agricultural activities. Underemployment will therefore increase at approximately 4.2 per cent per annum to reach 70.8 per cent of the rural labour force, or 203 million workers by 2008.

46. Much of the cause of open unemployment and underemployment can be corrected through education and training. A good number of the unemployed fall into this category because they lack the necessary relevant skills as illustrated by the fact that, while industries and services in African economies continue to rely heavily on imported skilled manpower, there exist within these same economies large and growing numbers of "educated" unemployed persons. Through curriculum development, reorientation of subject structures and course offerings in formal educational institutions, it should be possible to redress the skills shortages and respond more directly to the needs of the employment market.

47. At the sectoral levels, extrapolations of the present trends indicate that there will be critical shortages of manpower in the key production sectors of the economy. Iron and steel projects will suffer from a shortage of engineers and high-level technicians. The need for metallurgists, mechanical, civil, electrical design instrumentation and other key engineering categories will grow substantially. A similar situation will apply to fertilizer, food and agro-industries, cement, all engineering industries, chemicals and pharmaceuticals industries. Thus, there is a need for education and training systems to grow both quantitatively and qualitatively in order to preempt the disaster facing Africa's human resources.

### 3. Education

48. In the education field, the projected rapid increase in the school-age population implies that there will be increased pressure on the education services. The projected gross enrolment levels for the first, second and third levels are fairly high and consequently the implied burden would be almost impossible to sustain. By the year 2008 total gross enrolment for primary school is estimated to reach around 176 million children while secondary school enrolment would amount to 70 million pupils. For higher institutions gross enrolment would be nearly 9 million students. In terms of teachers that have to be produced, the number of new schools that have to be built and the education materials that have to be provided, the education services would be strained and, most likely, educational standards would fall.

**Table 3. Human resources: Education and employment in 2008**  
(in millions)

	2000	2008
Education enrolment	190.5	243.6
First level	136.9	175.9
Second level	49.0	70.0
Third level	5.6	8.7
Labour force a/	383.8	510.3
Rural	219.5	286.8
Urban	164.2	223.5
Wage employment b/	131.6	178.8
Open unemployment c/	32.7	44.7
Underemployment d/	166.3	238.8
Rural	140.0	203.0
Urban	26.3	35.8

Source: ECA projections, 1983.

a/ Excluding those in full-time education, medical and penal institutions as well as those in the armed forces (approximately 5 per cent of the age group 15-65).

b/ Representing workers engaged in the formal wage sector of the economy for no less than 15 hours a week for pay.

c/ Representing all those looking for work in the formal, informal or subsistence sector of the economy without success.

d/ All those in employment whose productivity because of health, personality or technical reasons, is lower than what is possible given the existing production conditions.

#### D. DETERIORATING SOCIAL CONDITIONS

49. If the present rates of rural-urban migration are assumed to continue over the next 25 years, the African region would, by the year 2008, be about 44 per cent urbanized. However, unless this urban rate is to be accompanied by a very fast expansion in urban services like water and sewerage, transport, health, housing and marketing, the largest part of the projected urban population of 472.1 million persons would be living in conditions of squalor. Housing requirements would reach unprecedented levels of over 220 million units by the year 2008 assuming that the average family would consist of around five persons. In the urban areas, where the tendency for single occupancy is higher, the housing problem will be even worse. For the region as a whole a total of over 115 million housing units would be required to house the urban population. By the year 2008 the major cities in Africa today would all be congested, with some of them like Cairo having a projected average population of over 10 million persons. Indeed, the projections show that, to absorb the projected urban population by the year 2008, a total of 72 African cities will each have to plan for an average population of 1 million or more.

50. But the conditions will not be hard only in the urban areas. The rural population will also face, in addition to a low income level and the deficient services, gigantic problems with respect to the land available for carrying the subsistence farming and the cash-crop production that generates rural income. Bearing in mind that as of now 44 per cent of the land in Africa is subject to drought and that the deserts in Africa are encroaching on useful agricultural lands at the rate of 60,000 to 70,000 km<sup>2</sup> a year, it is projected that the pressure on the arable land of the continent will be of the order of magnitude of about 400 persons per km<sup>2</sup> on the average. This would imply that, unless more land is urgently brought into use, an average family of four persons will have on average only 1 hectare of arable land on which to subsist.

51. The above problems will be further compounded by a low and more unevenly distributed total income by the year 2008. The total domestic income of the African region is projected to grow by an average annual rate of 5 per cent, reaching a level of \$1,386.3 billion at 1980 constant prices by the year 2008. At this level the average *per capita* income for the region as a whole would be only \$1,287.7 at 1980 constant prices. However, even this relatively low level of domestic income would exaggerate the real *per capita* level of the region given that, if historical trends continue, the region as a whole will have a net outflow of income transfers implying that the gross national product of the region as a whole would be less than the projected gross domestic product. Assuming that the present trends of increasing income disparities among the population of the African region will not worsen further during the 25 years between now and the year 2008, the poorest 40 per cent of the population will have a total gross domestic income of about \$205.2 billion at 1980 constant prices or about 63 per cent of the total GDP in 1980, 25 years earlier. On the other hand, the richest 5 per cent of the population would have a total gross domestic income of around \$332.7 billion at 1980 constant prices which is more than the total GDP of the whole of Africa in 1980. Further, if development activities which generate the wealth of countries continue to be biased against the rural areas and concentrated in urban centres, the African socio-economic structure will worsen in terms of the disparities between the rural and urban incomes. On basis of past and recent historical trends it is tentatively projected that by the year 2008 the rural-urban differentials on a *per capita* basis will be almost twice as bad as their present levels.

#### E. A CONTINUING FOOD CRISIS

52. In this study, the food situation by the year 2008 has been analysed and projected on the basis of three basic food commodity groups for the African region, namely cereals, roots, tubers

and pulses and meat. Each of these food groups plays a specific and particularly important role in the African food situation today. Cereals continue to be the most important food item in which the region as a whole has a large deficit and, therefore, it is important to see to what extent the region will be self-sufficient in this particular food component by the year 2008. Roots, tubers and pulses are in many parts of Africa important food crops especially in the rural areas, where many people subsist on food crops like cassava, yams, peas, beans, etc. Meat, on the other hand, is one of the major sources of proteins in the region as a whole. The projections of each food group are detailed below in table 4.

**Table 4. African food balance: Some selected food commodities by 2008 under the historical trends scenario (in millions of tons)**

	1978-1980 a/	2008
<b>A. Cereals</b>		
Total cereal demand	74.8	203.1
- Food	59.9	159.0
Industry	0.2	1.6
Feed	5.3	17.9
Seed	2.6	4.3
Waste	6.8	20.3
Total domestic production	58.4 b/	144.2
Imports	20.9 b/	58.9
<b>B. Roots, tubers and pulses (in million tons)</b>		
Total demand	85.1	216.1
Food	64.6	164.7
Industry	0.1	0.4
Feed	1.8	5.6
Seed	4.8	9.7
Waste	13.8	35.7
Total domestic production	88.2 b/	216.5
Imports		
<b>C. Meat</b>		
Total meat demand	4.7	13.6
Total production	4.3	13.7
Beef	2.3	5.0
Mutton	1.0	3.7
Pork	0.2	0.8
Poultry	0.8	4.2

**D. Self-sufficiency ratio (in percentage)**

SSR in cereals	75	71
SSR in roots, tubers and pulses	100	100
SSR in meat	93	100

**E. Per capita food consumption levels  
(in kg)**

Cereals	142.1	147.8
Roots, tubers and pulses	153.3	153.3
Meat	11.1	12.6

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Source: ECA projections, 1983, and FAO printouts, January 1983.

a/ The 1978-1980 figures are based on the FAO estimates of 40 African countries, except those figures with a symbol.

b/ Which apply to 50 countries for 1980 only. The 10 remaining African countries not included in the FAO study are Cape Verde, Guinea-Bissau, Sao Tome and Principe, Equatorial Guinea, Seychelles, Lesotho, Swaziland, the Comoros, Djibouti and Botswana.

**1. Projected consumption and production of cereals in 2008**

53. The projections of the total demand for cereals for the region as a whole were based on *per capita* consumption of cereals for food and levels of cereals post-harvest waste and demand for animal feed, for industrial use and for cereal seeds. In 1978-1980, the average *per capita* food consumption of cereals was about 142.1 kg per person. On the basis of the FAO historical trends projections 11/, which show a marginal increase in the *per capita* consumption of cereals, it was projected that by the year 2008 the *per capita* food consumption of cereals would be around 147.8 kg per person. With a projected population of around 1.1 billion in 2008, the projected *per capita* consumption of cereals would be 159 million tons. In addition to the projected food consumption of cereals, FAO projections for 2000 12/ were used to estimate the likely demand of cereals for industrial consumption, for animal food and waste by the year 2008. Thus the percentage of cereal wastage, industrial consumption and feed in total demand by 2008 would be about 10 per cent, 0.8 per cent and 8.8 per cent respectively. On this basis, the projections show that developing Africa as a whole would require a total of 203.1 million tones of cereals by the year 2008.

54. The projections of the production of cereals in developing Africa were based on the cereal self-sufficiency ratio of 71 per cent in 2008 estimated from FAO projections under scenario B. Consequently the total projected output of cereals by the year 2008 is 144.2 million tons, implying a relatively high average annual growth rate of about 3.3 per cent yearly in the next 25 years as compared to a mere 1.2 per cent recorded between 1970 and 1980. The implied cereal deficit of 58.9 million tons would have to be covered by imports, implying that cereal

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11/ Based on FAO computer printouts, 11 January 1983.

12/ Scenario B, FAO computer printouts, 11 January 1983.

imports would increase at an average annual rate of 3.8 per cent yearly. However, this rate of growth in cereal imports is less than the rate of 10.8 per cent recorded in the 1970s. But even at this slower rate, the food import bill in 2008 would be shattering. Using the 1980 unit value of cereal imports of \$239 per tons, the cereal import bill to cover the projected deficit in 2008 would amount to \$14 billion at 1980 constant prices.

## 2. Projected consumption and production of roots, tubers and pulses in 2008

55. At present, the region is self-sufficient in roots, tubers and pulses. The projected consumption of roots, tubers and pulses is based on the *per capita* consumption levels which, according to FAO projections <sup>13/</sup>, will remain stable up to the year 2000. Owing to the large deficit projected in cereals it is reasonable to assume that for the region as a whole, the rate of substitution resulting from an increase in income from the more traditional foods (roots and tubers) to cereals will be very limited. Thus, in the historical trend projections the *per capita* consumption level of about 153.3 kg was taken for the year 2008 resulting in a total requirement of 164.7 million tons of roots, tubers and pulses. Owing to the fact that, historically, the African region has had a very large percentage of food losses in the roots, tubers and pulses commodity group, total demand is very much higher than the consumption levels. For example, FAO projections show that waste in roots, tubers and pulses would be about 16.5 per cent of total demand in 2000. On the basis of the FAO projected shares of industrial consumption, feed and seed by the year 2000 a total of 51.4 million tons were projected to be part of the demand in 2008 for seeds, animal feed and waste. Therefore the total demand for roots, tubers and pulses is projected to amount to 216.1 million tons by the year 2008. On the basis of the self-sufficiency ratio of 100 per cent in roots, tubers and pulses projected by FAO in 2000, the production of roots, tubers and pulses is projected to reach about 216.5 million tons.

## 3. Projected demand and output of meat and poultry in developing Africa in 2008

56. Under the historical trend scenario which assumes a slight improvement in the *per capita* consumption of meat by the year 2008, the projections show that developing Africa as a whole could maintain self-sufficiency in meat. The demand for meat was based on recent trends in the *per capita* consumption of beef, mutton and pork and poultry. From recent trends, the African region has shown a relative stagnation in terms of *per capita* consumption of non-poultry meat, while the *per capita* consumption of poultry has been growing very rapidly with an elasticity of nearly 3.0 with respect to *per capita* income. However in the present scenario it was projected that *per capita* poultry consumption would by 2008 reach to around 3.7 kg per person annually. *Per capita* consumption of meat (other than poultry but excluding camel meat) is projected to average about 9 kg per person in 2008 implying a total meat *per capita* consumption of 12.7 kg.

57. On the basis of historical trends the output of meat was projected using offtake ratios that take account of Africa's cultural patterns in the keeping of herds and chickens and applying a certain average carcass weight for each category of herd. The output pattern shows that in general beef production will increase by about 4.8 per cent between 1980 and 2008 while poultry meat will increase by over 6 per cent annually in the same period. At this rate, beef production is projected to amount to around 3.7 million tons and poultry meat would total 4.2 million tons representing 27 per cent and 30.7 per cent respectively of total meat supply in the year 2008.

<sup>13/</sup> Ibid., p. 31.

## F. INCREASING ENERGY SHORTAGE

58. In analysing the energy prospects of Africa under the present historical trends scenario, four categories of energy resources have been taken into account, namely crude oil, electricity (both thermal and hydro), coal and natural gas. In spite of the endowment of the African region in other forms of energy resources, particularly uranium and new and renewable energies, it is believed that the selected four categories will continue to be dominant in the coming 25 years. Also, though fuelwood now constitutes the most important share of consumption, the lack of accurate data and the probable shift to commercial energy resources as a normal and, indeed, necessary trend have made it impossible to make a long-term assessment of fuelwood consumption and supply.

59. For the projections of demand and supply of the four selected types of energy the years from 1978 to 1980 were used as base years depending on the availability of the relevant data. Generally, the two components of the projections (i.e. demand and supply) were treated separately and the balance used to determine the exports or the necessary imports net of stocks. In some cases and depending on the type and utilization pattern of a given energy resources, supply was derived from the demand projection.

### 1. Projections of crude oil in developing Africa by 2008

60. African crude oil consumption grew on the average by 8.7 per cent per annum during the period 1970-1979 with, however, a sharp deceleration to about 4.9 in the second half of the 1970s, as a consequence of the increasing energy prices and the shift, albeit slow, towards other forms of energy. In *per capita* terms, real consumption increased from 81.6 kg/person in 1970 to about 131.6 kg/person in 1979, an average annual growth rate of 5.4 per cent although the growth was only 2 per cent per annum during the period 1975-1979. Over all the elasticity of *per capita* consumption of crude oil to *per capita* income in the 1970s averaged between 2.2 to 2.3 but dropped substantially to about 1 in the second half of the decade.

61. However, the present oil glut resulting from oversupply of the oil market has led, since 1980, to a substantial reduction in oil prices which is believed to be a long-term trend according to various sources. Hence, the historical elasticity of Africa's *per capita* oil consumption in the 1970s was assumed to prevail for the next 25 years. Accordingly Africa's consumption of crude oil was projected to reach about 536.7 million tons in 2008 or an average annual increase of 7.9 per cent per annum as against 8.7 per cent yearly during the period 1970-1979. In other words, future growth, although relatively lower than in the past, would still be high, and would maintain crude petroleum as the most consumed commercial energy in the region. The corresponding level of *per capita* consumption in 2008 is estimated to be about 498.6 kg/person, or an annual average increase of 4.7 per cent from the 1979 level. It should be noted that, in spite of the rapid growth of Africa's crude oil consumption, the level of *per capita* consumption in 2008 would still be lower than the world's average in 1970 estimated at 645 kg/person.

62. On the supply side, projections were based on recent studies of energy resources of Africa <sup>14/</sup> which generally pointed to continued slow growth in Africa's production of crude oil in the coming years. Actually the growth rate of crude production is expected to remain at the level of about 2 per cent per annum in the 1980s followed by a deceleration to 1.5 per cent yearly in the 1990s and beyond. Assuming such a trend, the production of crude oil in 2008 was estimated to be around 508.7 million tons in the year 2008, implying an average annual increase of 1.9 per cent from the 1979 level. This relatively pessimistic projection is based mainly on

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<sup>14/</sup> Energy resources in Africa, OAU/ECA secretariats, March 1980 p.57.

(i) the increasing problems in the world oil market resulting particularly from the industrialized countries' policies of substitution and conservation which would significantly reduce the growth of demand for crude petroleum; and (ii) the present pattern of production in the African oil-producing countries which rely mainly on the demand in the developed countries.

63. According to the same sources, Africa's crude oil exports expressed as a percentage of total production dropped from about 90 per cent in 1975 to about 85 per cent in 1980. Such a trend is projected to continue to reach about 65 per cent in 2000 and 50 per cent in 2008. Hence the export volume of crude oil of Africa would be about 254.3 million tons in 2008 or an average annual decrease of 0.3 per cent from the 1979 level. As a result, Africa's crude oil imports (net of stocks) will amount to about 282.3 million tons in 2008 or an average annual growth of 6.1 per cent in the 1979-2000 period. Such a growth in imports would imply a relatively high elasticity of about 1.2 with respect to gross domestic product.

64. In conclusion, the situation of the continent with respect to crude petroleum would not improve in the next 25 years since all oil imports would still represent more than 50 per cent of total consumption in 2008 in spite of a substantial drop from the level of 84 per cent in 1979. As a result, oil imports will continue to have serious effects on the balance-of-payments situation of oil-importing African countries. To reverse such a disastrous trend it is imperative to intensify intra-African co-operation in order to ensure safe oil supplies to African oil-importing countries. In that respect, the continent's oil resources should primarily meet Africa's need and a suitable legal, financial and commercial framework would have to be worked out, as recommended in the Lagos Plan of Action.

## 2. Future trends in electricity demand and supply

65. During the period 1970-1978, *per capita* consumption of electricity in developing Africa grew at an average annual rate of 4.6 per cent. During the second half of the 1970s, the growth in *per capita* consumption of electricity registered a substantial drop to only 2 per cent as a consequence of increasing energy prices and increasingly difficult domestic conditions. The deceleration in the growth of *per capita* consumption stems also from the substantial reduction in industrial activities in recent years in many developing African countries. Actually, frequent breaks in electricity supply were registered in a large number of African countries because of fuel shortages, poor maintenance of the production, transport and distribution equipment and lack of spare parts. In some other countries supply in electricity is no longer determined by demand. On the contrary electricity producers deliberately discontinue to supply of electricity to some consumers so as to cater for specific priority sectors such as hospitals, schools, airports, telecommunications and other strategic activities.

66. As a consequence of such a declining trend, the elasticity of *per capita* consumption to *per capita* GDP dropped sharply from 3.1 in 1970-1975 to only 0.7 in 1975-1978 although, on the average, the elasticity of *per capita* consumption of electricity with respect to *per capita* GDP was about 2 during the period 1970-1978. If recent trends continue the average *per capita* potential demand in developing Africa in 2008 would not be more than 687.2 kWh/person which implies an average annual growth rate of about 5 per cent from the 1978 level of 159 kWh/person. In other words, the average *per capita* potential demand of electricity in developing Africa in 2008 would be only slightly over the 1979 *per capita* consumption of Zimbabwe estimated to be about 659 kWh/person.<sup>15/</sup> The total electricity potential demand of developing Africa was projected to be around 739,771 GWh in 2008 or an average increase of 9 per cent from the 1978 level, which is almost the same trend as in 1970s.

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<sup>15/</sup> United Nations, Yearbook of World Energy Statistics, 1979.

67. Although the level of potential demand for electricity is moderate, the supply projections show that the demand might not be met if current trends were to continue. In developing Africa, the rate of increase in the production of thermal electricity was about 7 per cent per annum in the 1970s. Historical projections on the basis of past trends point to an average annual growth of about 6.8 per cent between 1978 and 2008 which implies a total thermal production of about 161,601 GWh. Hydroelectric production, which in 1978 had a share in total production of developing Africa of about 68 per cent, has registered a substantial increase in the 1970s with an average annual growth rate of about 9.6 per cent during the period 1968-1978. <sup>16/</sup> However, recent trends show a decline in the growth of hydroelectric production mainly because of technical as well as financial factors. It is well known that in addition to the long time required for studying and harnessing water resources, hydroelectric installations are highly capital intensive and the financial resources required are difficult to raise by any developing African country, especially in the present context of rampant financial crises, high interest rates and reduced financial flows to developing countries including official development assistance. Taking into account the above factors, hydroelectric production was, therefore, projected to grow at an average annual rate of about 8 per cent which implies a total production of 478,500 GWh in 2008. Over all, total electricity production in Africa would be about 604,104 GWh in 2008 under the scenario based on the continuation of historical trends and patterns, or an average annual increase of 7.4 per cent.

68. The above projections of electricity production show that, unless developing African countries increase and diversify their productive capacity, the relatively moderate projected historical demand would have to be substantially curtailed to match available supply. The frustrated demand by 2008 would amount to 135,667 GWh or twice total electricity consumption in 1978. The implications of such a situation are quite disastrous as (i) an increasing number of households would have to live much below the minimum standard of living; (ii) rural electrification would be seriously jeopardized as would, in consequence, productivity in the agricultural sector; and (iii) a growing number of industrial activities would continue to be negatively affected by energy shortages. Indeed, if actual consumption in 2008 would have to be limited to available supply, the level of *per capita* consumption in 2008 would be only 561 kWh/person, which corresponds to the 1979 *per capita* consumption of the Libyan Arab Jamahiriya.

69. Assuming that the average use of installed capacity in developing Africa would increase to about 5,000 hours from the 1978 level of 3,569 hours, the projected electricity production level, although modest compared with the projected potential demand, would imply installed capacities of about 95,700 MW and 32,300 in hydroelectric and thermal plants respectively by 2008, or a total installed capacity of 128,000 MW. The cumulated additional capacity that would have to be installed from 1978 to 2008 would therefore be about 109,000 MW or an average of 363 MW per year. Over all, the average annual growth rates of installed capacities would be 7.5 per cent and 4.6 per cent for hydroelectric and thermal plants respectively. Such increases would require substantial investment amounting to about 200 billion 1980 United States dollars on the average or 6.7 billion 1980 constant United States dollars per year which represents about 9 per cent of the total investments of developing Africa in 1980.

### 3. Future trends in coal production and consumption in Africa

70. As indicated earlier, developing Africa's share in the coal production and consumption of total Africa (including South Africa) is very small. In 1978, developing Africa's coal consumption and production were only 6.8 and 4.8 million tons respectively which implies a deficit of about 2.0 million tons, covered by imports. While Africa's total consumption and production

<sup>16/</sup> Energy resources in Africa, OAU/ECA, March 1980.

(including South Africa) grew at average annual rates of 4.6 per cent and 5.9 per cent respectively during the 1970s, developing Africa's rates of growth were only 1 per cent and 0.2 per cent during the same period. However, such trends in developing Africa's consumption and production of coal might be reversed since relatively high petroleum prices might induce more African countries to exploit more of their coal resources for both domestic consumption and export. Another reason which could be advocated for a faster growth in coal consumption and production is the possibility of its distillation to obtain synthetic petroleum.

71. According to relevant sources <sup>17/</sup>, a number of African countries have already started research and intensified exploration and exploitation of their coal resources which might, in the long term, bring about a relatively fast increase in developing Africa's consumption and production of coal. It was therefore assumed, given present trends, that coal production and consumption of developing Africa could increase at annual average rates of about 1.3 per cent and 2.5 per cent respectively. Consequently, developing Africa could by 2008 be self-sufficient in coal with a slight surplus as compared to the 1978 situation when imports represented about 30 per cent of total coal consumed. Such improvement in the coal sector would undoubtedly relieve the burden on the balance-of-payments of countries with coal deposits such as Zimbabwe, Swaziland, Botswana, Mozambique, the United Republic of Tanzania, etc. However the prospects could be significantly improved if more intensive exploration and exploitation were to be undertaken in the 1980s and 1990s.

#### 4. Historical projections of natural gas demand and supply in developing Africa

72. As indicated above, Africa's consumption of natural gas is very low as a result of the low demand both for household and industrial uses, amounting to only 6.7 billion m<sup>3</sup> and 7.4 billion m<sup>3</sup> in 1978 and 1979 respectively. However, natural gas consumption has grown relatively fast especially in the latter half of the 1970s because of increasing use in two main producing countries, namely Algeria and Nigeria. Actually, in addition to the small, but growing household consumption, these countries are orienting some of their industrial activities towards using natural gas, especially in thermal power plants and steel production. Therefore, in the historical scenario, it was assumed that natural gas consumption will continue to grow, particularly in oil-producing countries, at an average annual rate of 6.2 per cent, which is the trend of the late 1970s. Consequently, the projected domestic consumption of natural gas in 2008 could be about 40.7 billion m<sup>3</sup>.

73. As the supply of natural gas is generally demand-determined and taking into account recent trends showing an increasing share of domestic consumption in total production, it was assumed that by the year 2008 domestic consumption of natural gas would represent about 40 per cent of total production as against 32 per cent in 1978. Hence total production in 2008 would be about 101.8 billion m<sup>3</sup> and export would account for about 61.1 billion m<sup>3</sup>. At present, Algeria is exporting about 70 per cent of its production of natural gas, mainly to developed countries, and Nigeria is also planning to export part of its production to the industrialized countries where demand is increasing rapidly. However, over the 25 years between now and 2008 the European market might be oversupplied mainly because of the volume of natural gas production in Soviet Union and the recent trade arrangements between this country and other European countries. The growth of natural gas exports have, therefore, been projected to slow down in the next 25 years to about 5.1 per cent per annum. But if exports of natural gas cannot maintain the 5.1 per cent growth, African producers might have to reduce their production of gas or increase their domestic consumption of natural gas.

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<sup>17/</sup> Energy resources in Africa, OAU/ECA, March 1980.

**Table 5. Selected commercial energy types - Africa 2008 under the historical trends scenario**

	1978 a/	2008	Average annual growth
<b>A. Crude oil (million tons)</b>			
Total production	289.7	508.7	1.9
Exports	279.0	254.3	-0.3
Imports b/	50.1	282.3	6.1
Apparent consumption	59.8	536.7	7.9
<b>B. Electricity (GWh)</b>			
Potential demand	69 985 c/	739 771	8.2
Installed capacity (in MW)	19 121	128 000	1.1
- Thermal	8 298	32 300	4.6
- Hydroelectric	10 823	95 700	7.5
Total production	69 985	604 104	7.4
<b>C. Coal (million tons)</b>			
Total consumption	6.8	10.1	1.3
Total production	4.8	10.2	2.5
Net imports b/ (exports)	2.0	(-0.1)	
<b>D. Natural gas (billion m3)</b>			
Total demand	6.7	40.7	6.2
Total production	20.0	101.8	5.6
Net exports	13.6	61.1	5.1
<b>E. Per capita demand level</b>			
Crude oil (kg/person)	131.6	498.6	4.7
Electricity (kWh/person)	159.0	687.2	5.0

Source: ECA secretariat projections, 1983.

a/ The figures for crude oil refer to 1979.

b/ All import figures are net of stocks.

c/ Actual consumption

#### G. WORSENING INDUSTRIAL DEPENDENCY

74. In projecting the trend in Africa's industrial development by the year 2008, three basic areas have been covered namely (a) capital goods, (b) intermediate goods and inputs, and (c) manufactured consumer goods. In each of these areas some representative and crucial product groups have been taken and projections made for both supply and consumption of each group by the year 2008. In the capital goods sector two product groups are considered: (a) tractors and animal trac-

tion from the agricultural machinery and implements group and (b) passenger cars and commercial vehicles from the transport equipment group. In the intermediate goods sector three critical inputs - fertilizers, cement and iron and steel - are dealt with. Finally, textiles and pharmaceuticals have been chosen among the consumer goods, to illustrate the special paradox of Africa's continued consumption of what it does not produce and the rejection of what it produces.

75. The overall picture of the projections of the above industrial product groups on the basis of a continuation of present trends in Africa's industrialization process shows that the region as a whole will, by the year 2008, continue to be highly dependent on the industrial products of other regions. This disturbing situation is projected without taking into account the rate of technological change in the industrialized countries which, if accounted for, would imply an even worse dependence. According to the projections, if the present industrial trends persist for the next 25 years, the African region would still have to import over 97 per cent of its tractor requirements, over 96 per cent of the region's projected demand for passenger and commercial vehicles, 37 per cent of fertilizers, 12.3 per cent of cement and 59 per cent of iron and steel. This situation would, no doubt, imply that the African region would, if present trends continue without drastic industrial structural changes, remain unindustrialized even by the year 2008. The details of the projections for each industrial product analysed are outlined below.

#### 1. Selected capital goods from the agricultural machinery and transport equipment groups

##### (a) Tractors

76. The historical scenario is based on the trend of an annual growth rate in the number of tractors in use in developing Africa of 3.88 per cent between 1969 and 1979 and the growth elasticity of tractor utilization with respect to the growth in total GDP. With the historical elasticity of 0.8 and the projected growth in total GDP of around 5.3 per cent during the period 1980-2008, the growth rate in the number of tractors in the next 25 years is estimated at 4.2 per cent per annum. Using this trend and assuming a replacement rate of 10 per cent, the region as a whole would need an annual increase in the number of tractors in use by the year 2008 of about 113,830. Assuming the present level of domestic production in a few countries <sup>18/</sup> the supply of tractors is extrapolated to reach an additional 570 tractors per year in the year 2008. Given that the utilization of tractors affects the rate of agricultural and food output, a continued low level of tractor supply would have serious implications on the region's overall economic development. Agriculture and the related industries will suffer severe production setbacks and the severe food crisis would worsen with a tremendous drain on the already depressed foreign exchange reserves and foreign exchange export earnings.

##### (b) Animal traction equipment

77. In the absence of reliable data on the 1970s, the historical projection of the demand for animal-traction was based on the number of draught animals. The demand for animal traction is projected to reach 1.1 million units for the region as a whole by the year 2008. <sup>19/</sup> It should be noted that this projection reflects the slow change towards the modernization of the agricultural sector. Since imports are not generally involved in animal traction equipment, self-sufficiency has been assumed. In this sense, the projected total requirements determine the required level of domestic production which also is usually undertaken by the informal sector.

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<sup>18/</sup> Production in Africa is mainly in the form of assembly only. This was converted into an equivalent number of tractors produced.

<sup>19/</sup> This estimate is based on the projections of FAO: Agricultural mechanization and demand for agricultural machinery and equipment to the year 2000.

*(c) Projections of passenger cars for the African region in 2008*

78. The historical demand projections for passenger cars have taken into account the needs of the population. The rate of change in the number of persons per car has been estimated from the number of passenger cars in use between 1970 and 1978 at -4.6 per cent yearly. On the basis of this rate which reasonably reflects the likely income effects on increased demand for passenger cars with an elasticity of -1.9 with respect to *per capita* income, the number of persons per car by the year 2008 is projected to drop significantly to 36 from a level of 124 persons per car in 1978, implying a total number of passenger cars in use of 29.9 million. Using the average annual growth of 7.7 per cent in the number of passenger cars together with an estimated replacement rate of about 7 per cent, the annual increase in passenger cars by the year 2008 will reach 4.4 millions.

79. It should of course be stressed that, despite the severe foreign exchange shortages being experienced by developing African countries, the past trends show that a very considerable amount of resources continue to be spent on imports of transport equipment. As the domestic production of passenger cars in developing Africa consists basically of assembling imported parts, a ratio of 10 per cent was estimated to represent the value of the domestic component in the total value of the assembled car. With the assumption that the region will assemble about 30 per cent of its total requirements of passenger cars, <sup>20/</sup> the total production of passenger cars by the region is projected to reach 132,000 in vehicle equivalent by the year 2008. It is apparent that the high tendency to conspicuous consumption particularly in the form of expensive private cars would reflect seriously on the region's economic growth especially in terms of the level of savings to be attained and the shortages of foreign exchange resources for productive activities.

*(d) Projected demand and supply of commercial vehicles in Africa in 2008*

80. The demand and production of commercial vehicles in the historical scenario are estimated on the basis of growth elasticities. The observed growth rate of commercial vehicles in use of 8.2 per cent and of total GDP of 5.2 per cent between 1970 and 1978 implies an elasticity of 1.6 which gives a growth in commercial vehicles in use of 8.5 per cent between now and the year 2008. Using this growth rate, the projected number of commercial vehicles in use by the year 2008 is about 200 million. Taking account of the replacement rate, the total annual requirement of commercial vehicles for developing Africa as a whole, is estimated to reach 3 million vehicles by 2008. However, it should be kept in mind that such projected increases in the demand for transport equipment have to be accompanied by substantial increases in the establishment of the necessary transport services.

81. On the side of supply, it is known that in many countries of the region commercial vehicle bodies are domestically built as some of the basic components are locally available. Thus, to estimate the level of domestic supply by the year 2008, a ratio of 2 per cent representing the domestic contribution to the supply of commercial vehicles was used to obtain domestic production in vehicle equivalent. <sup>21/</sup> If the ratio is applied to the total number of commercial vehicles required then the domestic production of the region will supply only about 60,000 vehicles by the year 2008.

<sup>20/</sup> On the basis of the historical trends in car assembling in Africa, this assumption would seem relatively moderate. For example, the number of cars assembled in developing Africa increased from 36,700 in 1970 to 101,200 in 1977. However, even this moderate share of assembled cars in total annual demand of cars by 2008 would represent about 1.3 million cars produced elsewhere but merely assembled in Africa.

<sup>21/</sup> On the basis of the historical trends in commercial vehicle assembling in Africa, the proportion of vehicles assembled to total vehicles acquired has declined. While in 1970, 22,600 commercial vehicles were assembled in the region, only 16,900 commercial vehicles were assembled in 1977.

**Table 6. Selected capital goods: Africa by 2008 under the historical trends scenario**

	1980	2008
<b>A. Tractors:</b>		
Tractors in use ('000s)	253.3 a/	801.6
Annual demand for tractors ('000s)	7.0 a/	113.8
Domestic supply	n.a.	0.6
Imports	n.a.	113.2
<b>B. Passenger cars:</b>		
Number in use (millions)	3.3 a/	29.9
Number of cars per 1,000 persons	8.0	28.0
Annual increase (millions)	0.4	4.4
Domestic production (millions) b/	n.a.	0.1
Imports	n.a.	4.3
<b>C. Commercial vehicles:</b>		
Number in use	1.7 a/	19.9
Annual increase (millions)	n.a.	3.0
Domestic production ('000s) b/	16.9	60
Imports (millions)	n.a.	2.9

Source: ECA projections, 1983.

a/ Data refer to 1978.

b/ The figures refer to value added equivalent in the total number of vehicles assembled.

## 2. Selected intermediate products

### (a) Projections of demand and supply of fertilizers in developing Africa by 2008 under historical trends

82. Fertilizers, together with pesticides, constitute the major agricultural chemicals. Fertilizers are among the most expedient inputs for increasing agricultural, particularly food productivity, in the short and long term and their role in mitigating the worsening food crisis in Africa will be increasingly crucial. It is therefore apparent that the development of agriculture, and food in particular, determines the demand for fertilizers. In other words, demand for fertilizers can be projected using parameters related to agriculture in addition to those based on the historical trends. These include (i) *per capita* fertilizer consumption, (ii) per hectare fertilizer application, and (iii) desired food production levels. In view of the food crisis, projections based on increased food production to improve the food situation appear to be the most realistic approach. This approach was used in the present study. Thus, on the basis of the projected level of food production by the year 2008, the level of total fertilizer requirements by the year 2008 was projected to reach about 7,880 thousand tons.

83. The projections of the supply of fertilizers under the historical trends scenario were based mainly on the observed self-sufficiency ratios in fertilizers of the 1970s. A review of the gap between total fertilizer consumption and production reveals that the self-sufficiency ratio recorded a pronounced decline from an average of 78.6 per cent in the first half of the 1970s to 63.2 per cent in the second half. On the basis of the average self-sufficiency ratio observed in the second half of 1970s, the supply of fertilizers was determined from the projected consumption level in the year 2008. Thus, domestic production was projected to reach 4,980 thousand tons or average annual rate of increase of 4.6 per cent. None the less, the projected rate of increase in Africa's production of fertilizers is apparently on the high side compared to the recorded historical rate, mainly because the self-sufficiency ratio has been assumed to stay at the level of the mid-1970s whereas it has been declining throughout the decade. However, even with this optimistic assumption, the projected overall deficit of 2,900 thousand tons to be met by imports to satisfy the growing consumption requirements in the year 2008 will have serious implications for the scarce foreign exchange reserves of the region. But, if the region is to avoid the chronic calamities of food shortages, particular attention has to be placed on arresting the trend of declining agricultural productivity.

*(b) Projections of cement in developing Africa by 2008 under the historical trends scenario*

84. The basic determinant of the demand for cement is construction activity which covers not only housing but also public, commercial, industrial and social infrastructure. Cement consumption has been increasing especially in the second half of the 1970s as a result of the boom in construction activity. For the African region as a whole the average annual growth rate of *per capita* cement consumption in the second half of the 1970s was 2.5 per cent with an elasticity with respect to *per capita* income of 1.1. With a projected *per capita* GDP growth of 2.1 per cent in the next 25 years, the *per capita* consumption of cement was projected to grow at an average annual rate of 2.3 per cent between now and the year 2008. The corresponding level of cement consumption by the year 2008 would therefore amount to 130.3 million tons implying an average annual growth rate in total consumption of 5.6 per cent between 1980 and 2008. This would imply a doubling of cement consumption every 18 years. <sup>22/</sup> Nevertheless, the *per capita* consumption of cement, which is projected to increase substantially from 64 kg in 1980 to 121 kg in 2008, would still be lower than the 1980 *per capita* cement consumption in developing countries like Argentina (194 kg) or Turkey (174 kg).

85. Historical trends show that the supply of cement has been growing faster than the demand implying a narrowing of the gap between the demand and supply of cement. Hence, the supply of cement in the historical trend scenario assumes a continued narrowing in the share of the gap relative to total output from 18 per cent in 1980 to around 14 per cent by the year 2008, giving a total production level of 113.9 million tons in the year 2008 and an overall deficit of 16.4 million tons to be covered by imports. The region as a whole will, therefore, have to continue to depend on cement imports.

*(c) Iron and steel projections for the African region in 2008*

86. The projections of iron and steel consumption have been based on the iron and steel intensity as the consumption of steel is closely related to the development of the economy as a whole. Steel consumed in the steel-using industries has been related to GDP to derive the historical growth of iron and steel intensity which comes to around 1.9 per cent per annum. The steel

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<sup>22/</sup> Some historical data on cement consumption have shown a doubling in cement demand every 10 years.

intensity per dollar of GDP was estimated at  $0.218 \times 10^{-3}$  tons by the year 2008 which gives a total consumption level of iron and steel in the African region as a whole of 97 million tons in the year 2008. This level implies a growth in steel usage in developing Africa of 7.3 per cent per annum which is a reasonable estimate in comparison with other developing regions. <sup>23/</sup>

87. The projections of iron and steel supply have been based on historical capacities. From the available data of the 1970s, it has been observed that domestic production of iron and steel meets about 8.2 per cent of the region's total requirements. However, this is a very conservative estimate in view of the capacity planned to be installed in some countries of the region, namely Nigeria, Algeria, Egypt, the Libyan Arab Jamahiriya, Morocco and Kenya. As a result a significant improvement in steel production has been assumed in the projections of the supply of iron and steel under the historical scenario. Thus, a five-fold increase in present capacities <sup>24/</sup> is

Table 7. Selected intermediate products: Africa by 2008 under the historical trends scenario

	1980	2008
<b>A. Fertilizers (thousand tons)</b>		
Total demand	2 278	7 880
Total production	1 422	4 980
Balance	-856	-2 900
<b>B. Cement (million tons)</b>		
Total demand	28	130
Total production	23 a/	114
Imports	n.a.	16
<b>C. Iron and steel</b>		
Steel intensity (tons/\$ of GDP $\times 10^{-3}$ )	0.129	0.218
Total direct and indirect demand for iron and steel (million tons)	13.4	97.0
Total production (million tons)	6.5 b/	39.8
Imports (million tons)	n.a.	57.2

Source: ECA projections, 1983.

a/ Data refer to 1979.

b/ Installed capacity.

<sup>23/</sup> The growth rate is higher than the 4 per cent estimated by UNIDO in the low growth scenario because of differences in the projected GDP growth. See 1990 Scenario for the iron and steel industry, IO/WG.374/2A and addendum 1.

<sup>24/</sup> This assumption is not on the high side as quite a number of developing African countries produced steel which constituted about 10 to 20 per cent of their national requirements in the 1970s.

projected which would imply a growth of 10.9 per cent per annum in steel production in the next 25 years. The level of iron and steel production in developing Africa would reach 39.8 million tons by the year 2008. This, however, would imply that developing Africa would still remain a heavy importer of iron and steel since about 57 million tons or to 59 per cent of the total direct and indirect requirements of iron and steel would be imported.

### 3. Selected consumer goods

#### (a) *Future trends in textile fabrics*

88. In the historical scenario, the projections of demand for textile fabrics was based on a projected growth of *per capita* income of 2.3 per cent yearly and an elasticity of 0.83 of *per capita* consumption of fabrics. On this basis the *per capita* consumption of textile fabrics is projected to increase from a level of about 2.0 kg in 1980 to 3.2 kg in 2008. The projected *per capita* consumption is still lower than in some developing regions such as Latin America which has a *per capita* consumption of over 4 kg of fibre in the 1970s. Thus the projected total textile consumption by the year 2008 is 3.4 million tons.

89. The supply of textile fibres has been projected taking into account the trend of concentrating on the development of cotton fabrics for which Africa has an advantage over man-made fibres. Using the share of cotton processed out of the total cotton lint produced and applying the technical conversion factor of cotton to fabrics estimated at 0.85, total domestic production was projected to amount to about 2.5 million tons. However, as past indications show, Africa has not always consumed a large share of its production of cotton. For example in 1980, the region as a whole consumed only 52 per cent of its total output of cotton lint. For this scenario the projected production of fabrics corresponds to 60 per cent of the total production of cotton lint by the year 2008 which leaves a balance of 1.9 million tons of cotton lint for export as compared to an export level of about 0.6 million tons in 1980. However, a balance of 0.9 million tons of fabrics would have to be covered by imports of synthetics. If such dependence on imported man-made fabrics were to continue without corresponding efforts to initiate import-substitution programmes, the African region would face unwarranted foreign exchange losses which could easily be alleviated by persuading the African population to consume more of the cotton fibres which it can produce.

#### (b) *Projected trends in pharmaceuticals*

90. Factors determining consumption of pharmaceuticals include Government policies and programmes, personal disposable income, availability of drugs at reasonable prices, availability of and access to health service facilities, population size, type and prevalence of diseases, etc. In this connection, it should be noted that pharmaceuticals form an essential component in WHO's Health for all by the year 2008 programme.

91. Statistics on pharmaceuticals are not readily available particularly in quantity terms. Resort had therefore to be made to estimating the apparent consumption in value terms. Such consumption was estimated on the basis of imports, exports and production. Export and production in terms of active ingredients are negligible at present and probably limited to vegetable alkaloids and derivatives, glycosides, glands, sera and vaccines. On the basis of historical data, a relationship between *per capita* pharmaceutical consumption and *per capita* income <sup>25/</sup> gave an estimate

<sup>25/</sup> See *Pharmaceuticals in Africa* (E/CN.14/INR/217), August 1976.

of \$7.3 billion at 1980 prices as the level of pharmaceutical consumption in the African region by the year 2008. Because of margins of importers, formulators, wholesalers and retailers, the likely apparent consumption on the basis of pharmaceutical sales would at least be double the c.i.f. values.

92. With regard to supply, indications are that about 20 per cent of the pharmaceutical consumption is formulated in the region. As the bulk drugs for formulation are imported, the self-sufficiency ratio for modern drugs is likely to be close to zero. Historical trend would then imply continuing complete dependency on foreign supply of pharmaceuticals.

Table 8. Selected consumer goods: Africa by 2008 under the historical trends scenario

	1980	2008
<b>A. Textiles</b>		
Total demand (million tons)	0.8	3.4
<i>Per capita</i> consumption (kilograms)	2.0	3.2
Exports (million tons of lint)	0.6	1.9
Imports (million tons of man-made fabrics)	n.a.	0.9
Total production	0.3 a/	2.5
<b>B. Pharmaceuticals (in billions of \$ at 1980 constant prices)</b>		
Demand based on c.i.f.	1.1 b/	7.3
Demand based on sales	2.2	15.6

Source: ECA projections, 1983.

a/ Data refer to 1979.

b/ Data refer to 1978.

#### H. TRANSPORT INFRASTRUCTURE IN 2008 UNDER THE HISTORICAL TRENDS SCENARIO

93. Owing to the paucity of data relating to the main transport indicators, the quantitative projections have been limited to a few modes of transport namely air and maritime. Even in these selected fields, the orders of magnitude indicated in the scenario (table 9) should be interpreted only as broad indications of the likely transport situation in Africa if present trends were to continue up to the year 2008. However, two other important transport modes critical to the development of the region, namely roads and railways, have also been qualitatively analyzed in the framework of the on-going United Nations Transport and Communications Decade (UNTACDA) and beyond. More specifically, the planned Trans-African Highways and their feeder links have been taken into account with respect to their role in ensuring an integrated African transport network.

94. It should be noted that, in the overall perspective of the transport sector in Africa by 2008, the primary development focus, based on UNTACDA, has to be on (a) the promotion and development of integrated infrastructures; (b) formulation and implementation of harmonized

transport and communications regulations and rules on a subregional and regional basis; (c) minimization and facilitation of procedures to permit easier access to land-locked countries and other isolated regions and the faster movement of persons and goods; (d) promotion of the development of basic communications and transport industries in Africa; (e) important relationship linking the productive sectors of agriculture, mining and industry to the development of road, railways and air transport modes; and (f) political will to integrate the African region not only in terms of infrastructure, production and trade but also in terms of the social structure of its people. Such elements are at the very core of all the on-going African efforts to establish sub-regional co-operation structures.

### 1. Maritime transport

95. The importance of maritime transport in Africa is reflected firstly by the fact that more than 95 per cent of the total volume of the region's trade (imports and exports) is seaborne. Secondly, maritime transport is of vital importance to the island countries of the African region. Thirdly, the African region, as of now, spends over \$6 billion on freight payments. In terms of volume, the seaborne trade of Africa amounted to 560.5 million tons and 571 million tons in 1980 and 1981 respectively. Crude oil has been the major component of the region's seaborne trade accounting for about 70 per cent of all the region's merchandise carried by sea. However, the share of the actual freight transported by Africa's own fleet in the total seaborne trade of Africa is only about 1.6 per cent since the region as a whole has a vessel capacity of only 7.2 million dwt from a fleet of about 290 vessels.

96. On the basis of the projected growth of Africa's exports and imports under the historical trends scenario, the total seaborne trade of Africa is expected to more than double in the next 25 years to reach 1.35 billion tons in 2008. Assuming that the share of seaborne trade transported by Africa's fleet will not increase significantly given the scarcity of resources and the fact that the efficiency of the fleet and port operations will be at the low levels recorded in the past, the total volume of seaborne trade that would be transported by Africa's fleet is projected to around 27 million tons in 2008 as against 9.1 million tons in 1981 which implies a near trebling in the next 25 years. In terms of vessel capacity in dead weight tonnage (dwt), the region as a whole would need an additional capacity of about 14 million dwt equivalent to about 570 vessels.

### 2. Air transport

97. In 1980 the total volume of Africa's air transport amounted to 3.5 billion ton/kilometres for freight and 29.3 billion passenger/kilometres as compared to a world total of 130.6 billion ton/kilometres and 1,008 billion passenger/kilometres. <sup>26/</sup> However, it must be emphasized that the air transport operations involving direct links among African countries constitute only about 20 per cent of the total traffic implying a high polarization of Africa's air traffic towards other regions, mainly Europe which absorbs over 70 per cent of Africa's passenger traffic.

98. The projections of air traffic outlined below are based on a recent study on perspectives for air transport in Africa. <sup>27/</sup> Consideration has also been given to projected economic activity and increased intra-African trade. Overall, Africa's total air freight is projected to grow at an average

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<sup>26/</sup> It should be noted that the volume of traffic is not evenly distributed as over 60 per cent of the passenger traffic is concentrated in North and Southern Africa.

<sup>27/</sup> Réalités et perspectives du transport aérien en Afrique, Etudes ITA, 1982/No.1.

annual rate of 7.6 per cent to reach 35.5 billion ton/kilometres in 2008 assuming that there is no likelihood of traffic substitution between air and surface modes. In addition, it is believed that there will be no drastic changes in world commodity prices relative to air tariffs which would influence the trends in the volume of air freight. Although recent trends show a sharp increase in passenger traffic of over 10 per cent yearly, it has been projected that such a trend will decelerate slightly after the 1980s owing to factors like a slowdown in tourism, foreign exchange constraints and increased indigenization of African businesses. The total passenger traffic by 2008 is projected to reach about 232 billion passenger/kilometres compared with the 1979 world level of 431.6 billion passenger/kilometres.

Table 9. Selected transport indicators for Africa, 1981-2008

	1981 (actual)	2008	Average annual increase in percentage
Seaborne trade (million tons)	571.0	1 346.3	3.2
African fleet (million dwt)	7.18	21.2	4.1
Air freight (billion ton-km)	4.9	35.5	7.6
Air traffic passenger (billion passenger-km)	32.0	232.5	7.6

Source: ECA projections, 1983.

### 3. Development of roads and railways in Africa under present trends and on-going projects

99. As of now, it is estimated that the total length of Africa's road network is about 1.3 million kilometres, giving a road density of about 0.05 km/km<sup>2</sup>. Of the total road network, primary roads constitute only 20.5 per cent which demonstrates the underdeveloped state of the road infrastructure in the African region. Secondary roads, which serve most inter-urban areas and play a major role in commercial, industrial and passenger traffic, constitute only about 27 per cent of the entire network. With respect to the trans-African highways, there are as of now, five major projects in progress, namely (i) the Trans-Saharan Road; (ii) the Mombasa-Lagos Trans-African Highway; (iii) the Dakar-Ndjamena Trans-Sahelian Highway; (iv) the Lagos-Nouakchott Coastal Highway; and (v) the Cairo-Gaborone Trans-East African Highway. These five Trans-African Highway projects are at very different stages of development but are estimated to cover a total length of 33,089 kilometres and have feeder links amounting to a total length of 41,273 kilometres.

100. In a perspective assessment of the African road network, it should be emphasized that this transport mode will constitute the major infrastructural basis for Africa's socio-economic integration. In addition, the development of road infrastructure is of crucial importance for the opening up of the 15 land-locked or semi-land-locked African countries. Although it is difficult to capture the evolution of African roads in quantitative terms, it should be stressed that the successful implementation of UNTACDA would bring about a marked improvement in the road network and consequently in the road density. Firstly, there will be increased connections between countries, substantially increased feeder roads within individual countries and easier

access to the sea. Secondly the quality of roads is likely to be significantly upgraded such that a large proportion of the African network by the beginning of the next century will be bitumen-surfaced or paved.

101. Historically, among all transport modes in Africa, railways have seriously suffered from neglect through lack of investment and poor maintenance. In addition the entire railway structure continues to be characterized by the colonial set up where railway lines were built to permit the exploitation of Africa's resources by the metropolitan Powers. Thus, the railway system is composed of unintegrated, disjointed parallel lines. Against this poor background, the perspectives of the African railway system in the next 25 years are gloomy unless significant changes are made. However, on the basis of existing data and assuming that historical trends in trade will continue, it is estimated that railway cargo could increase at an average annual rate of about 5 per cent while railway passenger traffic could expand at a rate of about 6 to 7 per cent yearly for the region as a whole.

102. Over-all, however, the African region would have to make increased efforts to (a) rehabilitate and modernize the existing railway infrastructure; (b) change the tractive power so as to, *inter alia*, increase the speed of railways; (c) improve railway management; (d) increase the efficiency of operations so as to achieve higher frequencies and turnover for cargo and passengers; and (e) focus attention on the production of wagons so as to make the development of railways in Africa less dependent on the outside world. It should be emphasized that, according to present estimates, rehabilitation of railways in Africa can bring about an immediate increase of 40 per cent in the cargo capacity and 34 per cent in the passenger capacity for the African railway network as a whole.

## I. THE EXTERNAL TRADE AND FINANCE TRAP

103. The external trade and financial situation of the African region has been projected on the basis of some major and significant commodities including those which have been analysed in the previous key sectors. Given the fact that the exports of the African region are limited to a few commodities, the selected 10 export items represent about 75 per cent of Africa's total exports of goods and non-factor services. The groups of export commodities which have been analysed include cash crops (coffee, cocoa, cotton, tobacco and tea), minerals (copper, iron ore and bauxite) and main primary commercial energy resources (crude oil and natural gas). However given the heterogeneity of the region's import, the items analysed have been confined only to those which are treated in the key sectors of food, energy and industry. It should be noted that the order of magnitude in quantity and value for the different export and import commodities relate only to trade outside the region as a whole, although the macro-economic analysis results with respect to external trade include intra-African trade in total exports and imports of goods and services. To maintain coherence, the projections of trade in the selected commodities have been integrated with relevant macro-economic parameters. In addition, the external resource gap is derived and related to the trends in the financial flows of the region.

### 1. Exports projections under the historical trends scenario

#### a) *Exports of selected cash crops*

104. The prospects of cash crop exports by the year 2008 were based on FAO historical trends projections, which show, except for cotton, relatively slow annual growth rates of about 1.5 to 3.5 per cent. Such moderate export performance is explained mainly by the present and probably continuous fall in world demand especially for coffee and cocoa. The share of these two commodities in total exports of the five leading cash crops will consequently drop from 64 per cent in 1980 to about 48 per cent in 2008. In addition to the projected slow increase in the

volume of agricultural exports of the African region it is likely that the overall agricultural export performance will be further adversely affected by (a) the unstable or decreasing world market prices for agricultural primary products; (b) the protectionist measures that are likely to persist in the developed countries; (c) the development of substitutes for industrial agricultural raw materials.

105. In general, agricultural prices relative to the international price level have shown a very consistent tendency to decrease over the long term, especially for commodities like coffee, cocoa, tobacco, tea, cotton, etc. The factors behind such decreasing price trends have included the relative low income elasticity of demand of agricultural primary products and the technological improvement which reduces the agricultural raw material inputs per unit of industrial output. Although efforts are being made to enlarge and liberalize existing compensatory financing facilities (e.g. IMF compensatory facility, STABEX scheme, etc.), it is distressing to note that there is very little progress towards the establishment of adequate mechanisms like the Common Fund and new International Commodity Agreements (ICAs). Secondly the developed countries' protectionist policies such as trade barriers, import quotas, minimum price provisions and discretionary import licensing procedures, will continue to affect the volume of agricultural exports of the region adversely. The development of technology of industrial substitutes for agricultural commodities like rubber and cotton will also continue to dampen the region's exports. It therefore seems very likely that Africa's export earnings from agricultural primary products will continue to fluctuate but with a decreasing trend in the next 25 years if present structures and patterns of production and direction of trade continue.

106. Besides the above factors relating to the external demand for Africa's agricultural exports, some important supply considerations are also likely to affect the overall performance of the region's agricultural exports. The difficult climatic conditions would for example necessitate large investments in irrigation schemes, as well as expanded research for more appropriate crops and cropping patterns. Also the physical and institutional infrastructure will continue in the next 25 years to be critical for the expansion of the agricultural production. If for example the present trends in the development of feeder roads, storage facilities and marketing systems were to continue without much changes in the next 25 years, the export performance could be even lower than what has been projected on the basis of demand parameters. Other important supply elements that would affect Africa's agricultural export performance relate to (a) the insufficient incentive policies which, without significant improvement, will continue to constrain the domestic supply response; (b) inordinate concentration of the region on only a few primary agricultural commodities which makes it difficult for African countries to adjust to changes in international markets of agricultural commodities.

*(b) Selected mineral exports*

107. Projections of mineral exports by 2008 under the historical trends scenario have been based on trends in world demand for individual mineral products, <sup>28/</sup> using past elasticities of Africa's exports with respect to total world exports. For three minerals, projections of trends in world demand show disparate average annual growth rates of 2.6 per cent of copper, 2.9 per cent for iron ore and 7.1 per cent for bauxite. With the historical elasticities of Africa's mineral exports with respect to world demand estimated at 0.6, 0.4 and 0.2 for copper, iron ore and bauxite respectively, it is projected that the volume of exports would, by the year 2008, reach

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<sup>28/</sup> See for example table 3.6 of Accelerated development in sub-Saharan Africa: An agenda for action, World Bank, 1981.

about 1.6 million tons for copper (blister and refined), 36.6 million tons of iron ore and 19.3 million tons of bauxite. As a result the relative weight of the three leading minerals exports in total exports of the 10 selected commodities will not change significantly.

108. As in the case of agricultural exports, Africa's export earnings from minerals are also likely to be adversely affected by the uncertainties in the world market and therefore in export prices. Indeed, if present trends in developed market economies (e.g. recession, protectionism, financial uncertainties, etc.), were to continue and assuming that African countries will not drastically improve the rate of absorption and processing of their mineral products, the prospects for mineral exports are very bleak. Such bleak prospects would be further aggravated if the present domination of the transnational corporations in mineral production continues since investment, technology, marketing and pricing policies would remain outside the control of the African mineral producing countries.

*(c) Exports of mineral fuels*

109. As indicated earlier, exports of crude oil and natural gas under the historical trends scenario were projected at nearly 254.3 million tons and 61.1 billion m<sup>3</sup> respectively by the year 2008. The projected decline in crude oil exports is based mainly on the trend of decreasing world demand resulting from conservation measures and the development of alternative sources of energy. Similarly the rate of increase in natural gas was projected to decelerate in the next 25 years. In terms of value, crude oil and natural gas exports will remain dominant in the total exports of the region as a whole. However, if recent trends in world oil prices persist over a long period, earnings from crude oil exports will fall substantially and the relative importance of this commodity in Africa's total exports would decline. In addition, the region's total export earnings would be far below the level required to sustain the projected overall growth rate under the historical trends scenario.

*(d) Overall exports*

110. Overall total exports of goods and services outside the region are projected to grow at a dismal rate of about 1 per cent not only because of the projected decline of crude oil exports which represented over 60 per cent of total exports in 1980, but also because of bleak prospects in exports of services, particularly tourism. It should also be noted that the overall structure of exports of the region will not change significantly. For example, the 10 analysed commodities would by 2008 still represent over 70 per cent of the total exports of the region as against about 75 per cent in 1980. However, while the share of crude oil exports in total exports will decline, the share of agricultural raw material exports would increase. The relative importance of mineral exports is projected to stagnate at about the same historical level.

111. In addition to the projected continuation of product concentration of Africa's exports, the direction of trade is not projected to change significantly under the historical trends scenario. For example intra-African trade, which has been declining during the 1970s, is projected to pick up only marginally. Also an extrapolation of historical trends shows that exports to centrally planned economies and other developing countries will not increase significantly. Such a lack in market diversification coupled with protective measures taken by the industrialized countries is likely to diminish any prospect of expanding Africa's export.

112. From the projected slow growth of total exports in both volume and value, the continued dependence on few commodities and the polarization of Africa's export towards a diminishing market clearly imply that export-led growth policies now pursued in Africa have to be very carefully examined at the national, subregional, regional and international levels. This would call for new dimensions and approaches such as (a) commodity diversification including appro-

priate product specialization among countries of the region; (b) market diversification, particularly in intra-African trade and trade with other developing countries; (c) joint policies at the subregional and regional levels; (d) improving the quality and competitiveness of the region's export through more processing and increased productivity; (e) restructuring of the international trade with a view *inter alia* to reversing the trends of protectionism; and (f) enforcement of "disciplines of an open trading system governed by multilateral agreements". 29/

## 2. Import projections under historical trends scenario

113. As indicated above, import projections have been limited to the commodities analysed in the previous sections of this part (tables 4 to 8). For cereals, it has been projected that, under the historical trends scenario, Africa would have to import about 33.6 million tons by 2008 in order to fill the food gap resulting from increasing demand and the near stagnation of domestic food production. It should be noted that, during the next 25 years, the volume of cereal imports would grow at an average annual rate of 3.8 per cent which is above the rate of population growth implying that the *per capita* consumption of imported cereals will be growing at an average annual rate of around 0.6 per cent, bearing in mind that the majority of the African people are under-nourished and that *per capita* consumption has been stagnant during the last decade.

114. Imports of crude oil are also projected under the historical trends scenario to continue to increase at an average annual rate of 6.1 per cent which is higher than the growth rate of total imports of goods and services. This implies that, in real terms, crude oil would, by 2008, account for a larger proportion of total imports of the region as a whole than it does at present. Since crude oil imports are for oil-importing countries, the projected growth of crude oil imports implies an increased oil bill burden for these countries, thus aggravating their balance-of-payment problems. This trend points to the need for African oil-importing countries to pursue further conservation measures and to develop alternative sources of energy. This is particularly important given the tendency to increase consumption as a result of the decline in crude oil prices.

115. For manufactured goods, Africa will still have to import almost all of its capital goods requirements in the next 25 years. Machinery and transport equipment would, by the year 2008, constitute the largest component of imports of manufactures since, under the historical trends scenario, no important changes in the production of capital goods have been projected. For example, the production pattern of transport equipment, which is merely assembling imported parts, coupled with the conspicuous consumption pattern of the region, would imply that annual imports of passenger cars in 2008 would be over 4 million units. Worse still is the fact that the prospects with respect to intermediate goods are also gloomy since the region will have to import an increasing amount of basic inputs such as fertilizers, pesticides, cement, iron and steel, etc., even though the region has the potential to achieve self-sufficiency in many of these products. Given the projected slow growth of exports under the historical trends scenario, the high dependency on imports of intermediate goods will further worsen the already very low utilization of industrial capacity. Imports of man-made fabrics are projected to reach 900,000 tons on the assumption that, even under the historical trends scenario, some progress will be made in consuming domestically produced cotton fabrics. Another frightening trend relates to pharmaceutical imports which are projected to jump significantly from \$1.1 billion in 1980 to \$15.6 billion in 2008 at 1980 prices.

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29/ Common crisis - North-South: Co-operation for world recovery, Brandt Commission, 1983.

116. Overall, total imports of goods and services from outside the region are projected to increase at an average annual rate of about 5.4 per cent. At this rate, the trade gap will reach about 25 per cent of gross domestic product, which is clearly unmanageable. This implies that, unless sound and efficient import substitution policies are implemented and exports diversified in terms of both products and markets, the projected historical growth of GDP might not materialize. The areas of particular importance and urgency for import substitution in the next 25 years include food, particularly cereals, energy, intermediate inputs, especially fertilizers, cement, iron and steel, chemicals and pharmaceuticals. In addition vigorous efforts should be made drastically to cut imports of services so as to reduce the deficits in the invisible account and the foreign exchange leakages that occur through shipping and insurance, import overinvoicing, export underinvoicing, banking services, tourism, consultants and management services, etc. <sup>30/</sup> Finally attention has to be drawn to the financial strains brought about by huge expenditure on armaments all of which is imported.

### 3. External finance and aid

117. The present international financial system is in a state of flux with many consequential financial distresses for the developing countries. In addition to the increasing privatization of the international financial system, the relatively high interest rates as well as the variability of exchange rates implying increased financial insecurities and uncertainties for investment and foreign trade have brought about serious distortions in the development path of developing regions. The debt burden has also reached alarming levels with debt service ratios amounting to about 20 per cent in developing countries. According to various sources, <sup>31/</sup> aid as a proportion of donors' GDP has also fallen from about 0.5 per cent in early 1960s to about 0.35 in the 1970s as against a target of 0.7 per cent which most donors had committed themselves to for the Second and Third United Nations Development Decades. The quality of aid has also worsened with increasing conditionality from bilateral and multilateral donors and deteriorating trends in aid modalities.

118. For the African region the prospects for inflow of foreign resources in the next 25 years would therefore be bleak if the above trends were to continue. Indeed the rate of increase of total inflow of resources to developing Africa dramatically slowed down in the late 1970s to only 6.1 per cent per annum in current terms as against over 20 per cent in the first half of the last decade. In real terms, aid to the African region has therefore been falling both for concessional and non-concessional finance. With respect to debt service, it is distressing to note that the rate of increase has been well over that of the inflow of foreign resources in recent years. It is therefore evident from an extrapolation of the trends of resources inflows and outflows, including leakages, that it will be impossible to cover the region's mounting external deficit projected by the year 2008 under the historical trends scenarios. Indeed if such trends were to continue without structural changes domestically and internationally, African countries would undoubtedly collapse under the implied debt burden.

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<sup>30/</sup> For more details on financial leakages see the Report of the Workshop on leakages in African economies, SERPD/WLAE/83/3.

<sup>31/</sup> See for example Common crises - North-South, op.cit.

Table 10. Projections of selected commodity exports outside the region  
under the historical trends scenario

	1980		2008		Average annual growth rate (percentage)
	Quantity (thousands of tons)	Value at 1980 prices (million \$)	Quantity (thousands of tons)	Value at 1980 prices (million \$)	
<b>Cash crops</b>					
Coffee	957.0	3 177.2	2 324.9	7 718.7	3.2
Cocoa	837.0	1 944.3	1 568.8	3 642.7	2.3
Cotton	622.0	2 101.7	3 098.7	10 470.5	5.9
Tobacco	148.0	340.4	245.2	563.5	1.8
Tea	177.0	658.4	483.3	1 251.7	3.6
<b>Minerals</b>					
Copper a/	980.5 b/	2 137.5	1 578.6	3 441.3	1.6
Iron ore c/	26.2	461.0	36.6	644.2	1.2
Bauxite c/	13.1	539.7	19.3	795.2	1.4
<b>Energy</b>					
Crude oil c/	279.0 b/	66 067.2	254.3	60 147.2	-0.3
Natural gas d/	13.6 b/	2 448.0	61.1	10 998.0	5.1

Source: ECA secretariat projections, 1983.

a/ Blister and refined.

b/ Figures refer to 1978.

c/ In million tons.

d/ In billion m<sup>3</sup>.

## J. A GLOOMY OVERALL MACRO-ECONOMIC PICTURE

### 1. Brief review of the past economic parameters in developing Africa

119. The overall macro-economic set up, briefly presented in part I, is the result of a moderate growth of about 5.2 per cent in the 1970s with a disappointing performance in the agricultural sector which grew by only 1.3 per cent during the same period. What is more disheartening is the wide disparity in growth performance among groups of countries. While the African least developed countries registered a mere 3.1 average annual growth rate, with a negligible *per capita* increase, the major oil exporting countries have been growing at around 7.9 per cent on the average with, however, poor agricultural performance and increasing social distress. On the expenditure side, while domestic saving increased substantially in major oil-exporting countries, the 21 least developed countries <sup>32/</sup> registered a negative growth in their saving rate which was only 8.4 per cent of GDP in 1980. Investment rate expanded steadily from 16.1 per cent of GDP in 1960 to cover 26 per cent in 1980 although the expansion in the level of investment was not accompanied by increases in efficiency in capital use. With regard to the external sector the performance for the African region as a whole also showed a deterioration in the 1970s, with the volume of exports increasing by only 2.1 per cent per annum while imports increased by 5.9 per cent yearly in the same period. Consequently, the external deficit of developing Africa widened substantially, reaching in some countries more than 50 per cent of GDP.

120. The above performance of the African region was used to project the overall macro-economic picture by the 2008. The macro-picture was, in turn, used in some cases to determine the key variables analyzed in the preceding sections. In the present scenario, the main macro-economic variables were projected using a system of relationships linking these variables. The main results are briefly presented below.

### 2. Historical projections of GDP by industrial origin

121. Gross domestic product in developing Africa as a whole is projected to grow at average annual rate of 5.3 per cent per annum during the period 1980-2008. The sectoral growth rates that are consistent with the projected GDP growth are not at all satisfactory, with agriculture growing by only 2.3 per cent per annum relative to a population growth rate of over 3 per cent. Also, the projected growth of the manufacturing sector, of about 6.3 per cent per annum, does not portray a very happy picture especially in terms of overall structural change that can usher in a steady industrialization process in Africa by 2008. The services sector, will continue to be the main component of GDP with an average annual growth rate of 5.7 per cent between 1980 and 2008.

122. Projections under the historical scenario show that Africa's growth will continue to rely mainly on external financial flows. Given the present deepening world recession, developing African countries might face a tighter situation as regards export prospects (especially for oil-exporting countries) and consequently, development financing will become increasingly difficult. Hence, even the projected moderate GDP growth might be relatively optimistic if the recent development trends and patterns persist for a long time. Since most of the key variables dis-

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<sup>32/</sup> The present study included only the 21 African least developed countries of 1982. Five additional African countries were however added to the list of LDCs by the United Nations General Assembly at its thirty-seventh session in December 1982.

cussed earlier are closely related to overall economic performance, such a gloomy prospect would have disastrous implications on the food and energy situation as well as on social conditions such as education, health, housing, etc.

### 3. Projection of GDP expenditure in developing Africa

123. On the expenditure side, the variables of major concern are private consumption and total investment expenditures reflecting the standard of living and the growth stimulant respectively. These two elements are projected to grow at the average annual rate of 5.5 per cent and 7 per cent and investment would be a rise in imports which are projected to grow annually at a steady rate of 5.6 per cent as against a quasi-stagnation of export growth rate at only 1.2 per cent per annum.

124. The above factors imply another macro danger to the economy of the region as a whole, namely the growth in the absolute level of the trade gap as well as the expansion of the share of the trade deficit in total GDP projected to rise from 7.7 per cent in 1981 to an unsustainable level of about 25 per cent in 2008 at 1980 prices. As indicated earlier, such a situation will further tie African growth to the apron-strings of uncertain foreign donors and link its consumption, including food, to uncertain food assistance. Such prospects are clearly undesirable and would undoubtedly necessitate new genuine and dedicated efforts to implement the strategies and approaches outlined in the Monrovia Strategy, the Lagos Plan of Action and the Final Act of Lagos.

125. One must not lose sight the fact that the quantitative variables which characterize the historical trends scenario and which form the basis of the projections to the year 2008 depend for their magnitude on specific, if unstated, assumptions regarding the behaviour of particular qualitative or non-quantifiable variables, of which by far the most important is probably the degree of economic co-operation and integration. The gloomy overall macro-economic picture for the year 2008 painted by the historical trends scenario implies, for example, that current efforts at strengthening existing or creating new economic integration groupings and technical co-operation institutions will continue to confront the same uncertainties and fluctuating fortunes that have been responsible for the ineffectiveness or collapse, of such institutions in the past. Certainly, the assumptions of the historical trends scenario effectively exclude any spectacular success in the present endeavours to establish subregional common markets and a regional economic community by the year 2000 as required in the Lagos Plan of Action. All the same, the scenario does not presuppose a complete failure of current regional and subregional economic co-operation and integration efforts; there is no doubt that, if total failure (including disintegration of existing groupings) were to be assumed, the resulting macro-economic picture for the year 2008 would be even more dismal than the one depicted here.

**PART III**  
**PERSPECTIVES OF THE AFRICAN REGION BY THE YEAR 2008**  
**A NORMATIVE DEVELOPMENT SCENARIO**

## A. BACKGROUND

126. While the historical trends scenario described in the preceding part assessed the perspective of the African region without major changes in both domestic and external environments, the preliminary projections presented in this part are based on a normative willed future in the coming 25 years, with explicit or implicit important and major transformations in the African economies as recommended in the Monrovia Strategy and the Lagos Plan of Action. <sup>33/</sup> It will be recalled that the Lagos Plan of Action adopted in April 1980 at the second extraordinary summit of African Heads of State and Government laid down the basic guidelines for self-reliant and self-sustained development. In a nutshell, these include (i) the use of Africa's vast resources to meet the needs and aspirations of the people; (ii) a change from total reliance on export of a few raw materials to a growth path based on a combination of natural resources, entrepreneurial, managerial and technical resources, and the restructuring and expansion of the domestic market; (iii) the mobilization of all Africa's human and material resources for industrial development, the outside contributions being only supplementary to domestic efforts; and (iv) the promotion of African economic integration in order to create a continent-wide framework for economic co-operation for development based on collective self-reliance.

127. It should be noted at the outset that the development scenario analysed and described in this part is not a futuristic adventure. In essence, the scenario is based on a will not only to survive but to reach greater heights. No doubt the efforts implied to attain all the goals - quantitative and qualitative - outlined are tremendous. But the exercise takes special note of the ongoing efforts to make Africa a better place. Thus, recent and ongoing efforts in the fields of transport, industry, co-operation, etc. have given a sound basis for believing that change is desirable and possible. In a way, the scenario sums up the success of such noble endeavours as the United Nations Transport and Communication Decade in Africa, the Industrial Development Decade for Africa, the Preferential Trade Area for Eastern and Southern Africa, the Southern African Development Co-ordination Conference, the Economic Communities of West African States and of the Countries of the Great Lakes, etc.

128. The above broad guidelines as well as the present encouraging efforts and increasing awareness of Africa's problems have been translated into specific quantitative assumptions and qualitative policy changes regarding the relationships among development variables and the links between the different critical variables analysed. To get an integrated and coherent perspective of the development scenario, all analyses have been interlinked with a macro-economic framework to simulate some important behavioral patterns such as income effects, product substitution, etc. The macro-economic framework was projected to the year 2008 on the basis of the targets indicated in chapter 13 of the Lagos Plan of Action. In some cases normative sectoral projections

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<sup>33/</sup> It has also been generally assumed that the efforts of the developing countries to change the international economic order, especially in the fields of trade, finance and technology will result in some improvement in the external international environment.

have been made separately although the final results, with the necessary adjustments, have been integrated with the over-all framework of the development scenario. Since most of the projections under the normative scenario assume a steady and sometimes radical improvement in the behaviour of the key variables and the macro-economic framework, the projected figures have been consistently checked against physical limits such as the nature and levels of reserves of natural resources that the region has. Like in the historical trends scenario, the population variables included in the normative scenario are obtained exogenously from a population model. However, the figures provided by the population model under the scenario in this part are different from those used in the historical trend scenario, being based on a medium variant of population growth in Africa.

129. Finally, along with the projections of the key variables and the macro-economic framework, an analysis of major implications is also provided especially with respect to domestic policies required. More specifically, some changes in African consumption and investment patterns have been simulated and the results analysed with respect to their implications on the growth and structure of the African economy as well as on the standard of living of the African people in the next 25 years.

## B. OUTLINE OF A NEW DEMOGRAPHIC SETTING IN AFRICA IN 2008

130. The brief analysis in part II examined some very serious implications of a continuation of past demographic trends in the African region. This part is intended to assess the prospects of a new and better demographic setting that will not bring about unsustainable pressures and tensions but will rather ensure the progress and prosperity of all African countries. It has, however, to be emphasized that, given the young structure of the African population as of now, drastic structural changes in the demographic situation of the region cannot occur just within the next 25 years of the present perspective study. Indeed major changes in population take a long time. But a first step has always to be made and the normative demographic scenario described in this part should be seen as the necessary transition towards the desirable changes in Africa's population trends and patterns in the coming century. Such changes, of course, include not only a more balanced expansion in the population but also, and perhaps more importantly, a better utilization of the population as a resource dialectically directed towards its own self and its own development and welfare.

131. Under the medium variant of the population projections by the ECA secretariat, the population of the region could be maintained at a slightly slower annual growth rate of around 2.9 per cent between now and the year 2008, so that it could just about double from the estimated 1983 level of 482 million to 997.3 million. At this slightly lower population growth rate as compared to that of 3.2 per cent projected on the basis of a continuation of recent historical trends, the region as a whole could probably ensure better welfare of its people especially if the economic performance can be put into a much higher growth gear as described in the other sections of this development scenario. As regards the structure of population, the medium-variant projections show that even with changes in the demographic trends in the next 25 years, the African population will still be one of the youngest in the world by the year 2008. The children in the 0-14 age group would represent about 41.6 per cent of the entire population as compared to a projected 44 per cent if present fertility and mortality rates continue. The percentage of the active population in the 15-64 age group would be higher than the 52.4 per cent projected under the historical trend scenario representing about 55.1 per cent of the whole population in 2008. With this improvement in the population structure, although small, the burden on the active population will drop from the 92 per persons in the historical trends scenario to over 80 dependants per 100 active persons in 2008.

132. The distribution of the population between the rural and urban population depends a lot on the distribution of opportunities for progress which attract people. Assuming that, under the development scenario described in this part of the paper, African Governments will pay the necessary attention to the rural sector in terms of provision of essential services and creation of productive and remunerative employment opportunities for the rural people, then, no doubt the rural - urban exodus will slow down. With such policies in mind, it is projected that the population distribution would reach a much better balance. The rural population would represent about 53.4 per cent of the entire population, amounting to about 531 millions, while the urban population would total about 464.3 million. It is interesting to note that, because of the slower population growth, the lower urban population level would not mean a lower overall urbanization rate. Indeed the region as a whole would be about 50 per cent urbanized as compared to an urbanization rate of 44 per cent projected on the basis of a continuation of recent trends. The overall population setting is summarized in table 11 below.

133. Although it is culturally and generally accepted in Africa that population growth is not the cause of the region's stagnation, a new awareness is starting to emerge that, especially in some small countries, population growth cannot be left to expand *ad infinitum*. Thus, although elaborate population programmes are not yet seen as urgently necessary, there is an increasing number of countries pursuing some policies to keep the population growth on an even keel. But, while it can generally be assumed that socio-economic changes in the course of fast development would ultimately reduce fertility rates, some other areas in population might require more conscious programmes. Reducing mortality and morbidity is an area to which increasing attention had to be paid. Emphasis has also to be placed on rural-urban integrated development schemes to stem the rural-urban drift. Income distribution programmes are also necessary because of their important, albeit diffuse, effects on the dynamics of population as a whole.

134. The implications of the slowdown in the rate of population growth contrast with the disastrous problems that result from a population explosion. However, even with a slower population growth, improved services have to be aimed at. It does not therefore directly follow that the slower population growth projected in the present development scenario would necessarily or automatically mean a corresponding slowdown in the provision of essential services. On the contrary, while the historical trend scenario concentrated on the orders of magnitude of the services needed for a highly expanded population, the development scenario is concerned with both the quantity and the quality of the basic services for a smaller population. For housing, for example, it is estimated that if Africa's population growth could be maintained at the projected normative scenario rate, the total number of housing units required for the region as a whole would amount to about 914 million units, assuming a slightly reduced family size. However, if the standard of living of the people is to improve significantly, the quality of housing has to improve markedly in terms of the materials used and the actual house space per occupant. Thus while the number of housing units required in the normative scenario is less by about 6 per cent relative to the projected requirements under the scenario of a rapidly expanding population, the actual burden is not any smaller if housing conditions are to improve.

## C. HUMAN RESOURCES : EDUCATION AND EMPLOYMENT BY 2008

### 1. Employment

135. Employment is the basis for any region's prosperity and continued improvement in the welfare of its people. It is, therefore, of paramount importance to have a preliminary perspective of how, by the year 2008, the African region would perform in this field under a development

**Table 11. The normative demographic situation in Africa by 2008**  
(in millions and percentages unless otherwise indicated)

<i>Demographic indicators</i>	<i>1980</i>	<i>2008</i>	<i>Annual growth rate</i>
Total population	439	997	2.9
Urban population	120	464	4.8
Rural population	319	533	1.8
Population aged 0-14	198	415	2.6
Population aged 15-64	228	550	3.1
Population 85+	13	32	3.2
Population aged 6-11 (millions) (primary school age group)	73	160	2.8
Population aged 12-17 (millions) (secondary school age group)	59	139	3.1
Population aged 18-23 (millions) (higher education age group)	48	120	3.3
Life expectancy at birth - males	50.1	58.2	-
Life expectancy at birth - females	53.1	61.7	-
Average completed family size	5.1	4.6	-
Dependency ratio	94	82	-
Net migration (000s)	22	0	-

Source: ECA projections, 1983.

scenario. The first thing to note is that even in the next 25 years, the agricultural sector will remain the biggest employer of Africa's strong and able bodied people. A second important aspect of overall employment prospects in Africa by the year 2008 relates to the limited capacity rate at which the Government sector can continue to expand and absorb enough labour force. Thus while outlining the employment situation in Africa in 2008 under a development scenario, emphasis should be placed on the need to democratize the African economy and to expand output and employment opportunities in sectors outside government such as private industries, large-scale agriculture and mining. A large number of entrepreneurs should thus be developed who, in the process of creating employment for themselves, will also provide employment opportunities for others in the critical productive sectors.

136. The population projections under a development scenario indicate a slower rate of population growth which will have a favourable impact on the size of the labour force by 2008. The percentage of labour force to population will decline from 43.4 per cent in 1985 to 39.9 per cent in 2008 on account of the slower rate of natural increase and slightly higher school enrolment rates depressing the number of new entrants in the labour force. In spite of this, however, there will be more people in the labour force (397 million). A total of 212 million persons will constitute the rural labour force as against 185 million in the urban wage labour force. Comparing the development and the historical scenarios, the rural labour force would have decreased by 74 million persons. This should not have an adverse effect on productivity in agriculture, since it is assumed that increased mechanization and provision of other factor inputs would have compensated for labour loss and the higher skill levels envisaged would have increased worker productivity. Such a decrease will also reduce the rate of rural underemployment from a high level of 70.8 per cent in

the historical trend projections to only 49.7 per cent under the development scenario, affecting 105 million workers in that sector.

137. With the projected increased aggregate output in the economy over the years, the formal wage sector of African economies is projected to be able to provide employment to 158 million workers, leaving 27 million or only 14.6 per cent of the wage labour force openly unemployed. This improvement would result not only from a much healthier performance of the region's economy but also from the developments in education and training systems which would result in a correction of the imbalance between the skill needs of African economies and the skills outputs from education and training systems. Table 12 summarizes the improvements in respect of the African employment situation under a development scenario.

Table 12. Labour force, employment and unemployment in Africa under a development scenario in 2008

	<i>(in millions)</i>
Labour force	397.0
Rural	211.8
Urban	185.2
Wage employment	158.9
Open unemployment	27.2
Underemployment	135.5
Rural	105.5
Urban	30.0

Source: ECA projections, 1983.

## 2. Education

138. In the field of education the normative scenario projects by the year 2008 enrolment ratios of 83 per cent for the primary school children, 55 per cent for secondary level education and 16 per cent at the higher level (table 13). The primary school enrolment ratio implies a total of 155.5 million children which in turn would imply a minimum of 80,000 primary schools with each one large enough to educate an average of 2,000 pupils in a year. Similarly, assuming that the student-teacher ratio which can ensure proper education is around 40 students per teacher, then the region as a whole would have to have as many as 4 million teachers by the year 2008. But, in addition to such numerical magnitudes it must be stressed that the African region will have to face the challenge of transforming its education system. The region as a whole will have to create a new generation of school leavers not composed of the "educated elite" but the "trained worker". The inherited tendency of training an agricultural officer merely to administer the peasants or an engineer to manage the factories has to be overhauled. From the grassroots, the African student would have to be trained and reoriented in such a way that he or she could positively render productive services for the regeneration of agricultural output, the transformation of industry, the indigenization of the economy in all fields, etc. It is only with such a conscious change that the region as a whole will develop and efficiently utilize the skills of its people. But, to bring about such a change and reorientation in education, a start is imperative now in terms of concrete manpower policies and drastic revisions of existing school curricula.

**Table 13. Magnitudes of growth in education in Africa by 2008  
under a development scenario**

<i>Areas</i>	<i>(millions)</i>	<i>Percentage</i>
<b>Gross enrolment a/</b>		
1st level	150.3	97.0
2nd level	63.9	46.0
3rd level	7.8	6.5
<b>Enrolment</b>		
1st level	133.40	83.0
2nd level	76.4	55.0
3rd level	19.1	16.0
<b>Primary schools</b>	0.80	
<b>Total teaching staff</b>	4.0	

Source: ECA projections, 1983.

#### **D. BRIGHTER FOOD PROSPECTS IN AFRICA BY 2008**

139. In projecting the food prospects in Africa by the year 2008 under the development scenario, the major objective has been to assess whether and how the African region can, by the year 2008, achieve the fundamental goal of self-sufficiency in food. Thus, throughout the analysis of the development scenario in the context of food self-sufficiency, food consumption levels commensurate with the envisaged overall level of development were first projected. Corresponding to the food requirements in each food commodity group, production levels have been determined on the basis of an assumed self-sufficiency ratio for the region as a whole by the year 2008. This assumption is based on the objective of the Lagos Plan of Action "to lay the foundation for the achievement of self-sufficiency in cereals, livestock and fish products" over the period 1980-1985. <sup>34/</sup> It is therefore believed in the normative scenario that the African region as a whole should aim at achieving the objective of food self-sufficiency by the year 2008.

140. Caution should be exercised concerning two elements in the present study. Firstly the food self-sufficiency projections presented in this part are mainly quantitative. It would have been desirable to make projections of food self-sufficiency not only with regard to the balance between the volume of food produced and consumed but also with regard to the type of diet that the projected food would offer to the population as a whole. In this way it would have been possible to project the changes that would be required so as to produce the most nutritionally optimum food commodity mix. Secondly, care should be taken in interpreting the projected food self-sufficiency for the region as a whole. Given that the continent is large, the weather conditions are varied, the soil endowments differ from country to country and the cultural backgrounds are diverse and heterogeneous, the patterns of food consumption and production differ from one subregion to another. Thus while one subregion could have surpluses in one food commodity, another subre-

<sup>34/</sup> A/S-II/24, annex I, chapter 1, paragraph 20.

gion might have serious deficits in the same commodity. This aspect has an important implication especially at the national and subregional levels. It implies on the one hand that national efforts have to be directed not only to achieving self-sufficiency at the national level but rather to ensuring that some surplus can be produced so as to maximize the comparative advantages that different countries have for the different food crops. On the other hand, countries should conceive their food production plans in such a way that there is some complementarity with other neighbouring countries. In this respect, it could be underlined that the idea of food exchanges being one of the cornerstones of a future African common market might not be far-fetched.

### 1. Projections of improved self-sufficiency in cereals by 2008

141. The projections for the total demand of cereals under a development scenario was based on three major premises: (a) a possible structural shift in the food consumption patterns of the African population as a whole resulting from *inter alia*, rapidly increasing incomes and high urbanization rates; (b) a long-term improvement in *per capita* cereal consumption levels to ensure better nutritional levels and (c) the amount of food losses, feed seed and industrial cereal consumption which enter into the overall demand for cereals.

142. As can be seen from table 14, the projected *per capita* consumption of cereals in 2008 is 171.4 kg as compared to the present *per capita* level of 140.6 kg. This *per capita* level was based on a relatively conservative elasticity of cereal consumption with respect to the growth of *per capita* income. The elasticity taken was around 0.16. The low elasticity was, however, based on the consideration that cereals, like rice, maize, millet and sorghum, are already staple foods in many parts of the African region implying that changes in income are unlikely to cause a very dramatic rise in the people's consumption of those cereals that they have been consuming for a long time. At the same time, in those areas where cereals might be quickly substituted for other traditional foods, as a result of income rises, it was felt that the effect would be most important in the urban areas and that, even in this case, it would asymptotically taper off after any initial rises. Thus using the *per capita* level of 171.4 kg it was projected that total cereal consumption would amount to 170.9 million tons by the year 2008 which would imply an average annual rate of growth of 3.8 per cent in the consumption of cereals for food in the region as a whole.

143. On the basis of the projected demand for cereals for food, and applying the shares of feed, seed, industrial demand and waste projected by FAO for the year 2000 under Scenario A <sup>35/</sup>, the total demand for cereals in the year 2008 was estimated to reach around 224 million tons. Relative to the projected demand of 203.1 million tons under the historical trends scenario, the normative demand is 10.3 per cent higher mainly as a result of a faster growth in the *per capita* income projected for the region as a whole in the normative scenario.

144. Since the development scenario aims at an overall food self-sufficiency for developing Africa by the year 2008, it was assumed that the region would have to produce an increasing share of its cereal requirements. On the basis of the increased self-sufficiency ratio in cereals projected by FAO by the year 2000 <sup>36/</sup> total output was projected to have to reach about 190 million tons by the year 2008 or about 85 per cent of total demand. No doubt, to achieve this

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<sup>35/</sup> The shares out of total cereal demand derived from the FAO computer printouts for the year 2000 for 40 African countries under scenario A were 76.3 per cent for food, 0.8 per cent for industry, 10.8 per cent for feed, 2.2 per cent for seed and 9.9 per cent for waste.

<sup>36/</sup> The self-sufficiency ratio in total cereals derived from FAO Computer Printouts was 75.0 in 1980 and 80.7 in 2000.

projected level of cereal production specific policies will have to be pursued in the African region in the next 25 years. Most of the necessary policies have been well articulated in the African Food Plan, the Lagos Plan of Action and Agriculture towards 2000. By way of emphasis, some of the policies are outlined in paragraphs 147 to 151 below.

## 2. Increased production of roots, tubers and pulses

145. In the development scenario, projections have been made on the basis of continued self-sufficiency in the roots, tubers and pulses commodity group. However, it has to be pointed out that the *per capita* consumption of roots, tubers and pulses would soon reach a stable point whereby increases in *per capita* income would imply a reduction in the consumption of roots, tubers and pulses only because of a preference for cereals, meat or fish. However, realism made it imperative to acknowledge the fact that the *per capita* income of the region is now very low while, at the same time, many essential needs remain unsatisfied. It was therefore believed that, on the basis of FAO projections under scenario A, that the region will, despite some substitution effects resulting from higher *per capita* income, still maintain a fair level of *per capita* consumption of roots, tubers and pulses projected to be at around 152.5 kg.

146. The total consumption of roots, tubers and pulses for food is then projected to reach a level of 152.1 million tons by the year 2008. It will be noticed that the projected total food requirements in the form of roots, tubers and pulses is less than the level projected in the historical trends scenario. This is due to two main factors, namely the change in the overall population level by the year 2008 under the two different scenarios and the expected substitution in favour of cereals as a result of income effects and higher urbanization. In addition to food demand and on the basis of FAO projections, the requirements of roots, tubers and pulses to satisfy demand in the industrial sector and for animal feed and seed as well as some level of inevitable post-harvest losses is projected to be about 50.2 million tons, thus implying a total demand for roots, tubers and pulses of 202.3 million tons by the year 2008. Taking into account the FAO projected self-sufficiency ratio of 100.6 in this food commodity group, total domestic production is projected to amount to 203.5 million tons by the year 2008.

147. In general the three main areas of decision influencing strategy choices for crop production are (a) area expansion versus intensified land use; (b) cropping patterns; (c) alternative technologies for increasing yields and the associated choices of input mixes. It is expected that intensification of production will account for 73 per cent of production growth as compared to 23 per cent from area expansion. Cropping patterns are not likely to change very much over the next two decades and the mainstay of production strategies must be heavy reliance on yield increases. Over all to achieve considerable improvement in the situation of African crops by the beginning of the twenty-first century, the policies below have to be emphasized.

### (a) *Broadening the production base*

148. About 45 per cent of the 638 million hectares of potential arable land of Africa are classified as problem areas and 38 per cent as good rainfall land. It is expected by the year 2000 to bring about an additional 38 per cent of the land under cultivation. The cropping intensity rates should increase from 101 in 1980 to 114 in year 2000 for irrigated areas, and from 53 to 64 for rainfed agriculture. For these goals to be achieved, some tenurial and agrarian reforms may be necessary in many countries.

### (b) *Irrigation, drainage and land improvement*

149. Major changes in the use of irrigation and drainage are not expected by the year 2000 or 2008. The share of irrigated land as a percentage of the total arable area was 2 per cent in 1980

and will reach 3 per cent by the year 2008. In addition, it is estimated that about 55 per cent of total land in Africa is likely to be affected by desertification, and appropriate policies should be introduced to reduce land and water degradation.

*(c) Increasing yields*

150. It is widely recognized that yield increases can be most effectively achieved through the application of balanced packages of inputs which include water inputs, fertilizers, improved seeds, plant protection and power inputs. The consumption requirement of NPF-fertilizer in 2008 is estimated at 7.9 million tons with an annual growth rate of 4.5 per cent between 1980 and 2008. Seeds are assumed to be the focal point around which yield development strategies can be built. Africa will require about 9.6 million tons of seeds by 2008, 38 per cent of which should be of the improved types. Greater efforts should be made to protect plants and products from losses inflicted by pest, diseases and weeds before and during growth and after harvest. The growth rates in total use of pesticide excluding herbicide is estimated at 4.9 per cent per year. The bulk of power input would still come in year 2000 from human labour and draught animals. As indicated in the analysis of capital goods, regional co-operation in agricultural machinery, especially tractors, could substantially reduce African countries extraregional dependence on imports.

*(d) Reduction of post-harvest losses*

151. Post harvest losses are estimated at about 10 to 15 per cent of total production. Major efforts are expected to be taken to improve the handling of stored commodities and to generate better storage facilities at all levels that will help not only to reduce waste but also to carry stocks and seeds for later planting without undue losses between good and bad year.

### 3. Continued self-sufficiency in meat

152. In the historical trends scenario, it was indicated that the prospects for meat are the best in the food perspective of the African region as a whole. Similarly, the projections of meat prospects under the normative scenario show that the region as a whole can easily maintain and even improve upon the levels of consumption and production outlined in the historical trends scenario. *Per capita* consumption of all meats, excluding camel meat for which data was not available is projected to increase relatively fast to reach a level of 18.4 kg by the year 2008 as a result of the projected fast growth in the *per capita* income of the region as a whole (table 14). Out of the total *per capita* meat consumption level, poultry consumption is projected to represent 5 kg per person while meat would contribute about 13.4 kg per person. However, the fastest growing meat items will continue to be poultry which, both historically and in the present projections, has a much higher consumption growth elasticity with respect to *per capita* GDP growth. Thus while *per capita* poultry consumption is projected to increase by nearly 2 per cent yearly up to the year 2008, the *per capita* consumption of non-poultry meat is projected on the whole to increase by only about 1.4 per cent. Such trends could, to a large extent, be attributed to some cultural factors which tend to inhibit a high rate of slaughter of cattle and domestic animals like goats and sheep since, in parts of the region, the keeping of a large herd is one of the major symbols of wealth and an insurance for the rural families. Other factors like religion would tend to favour a higher rate of poultry consumption since the pork component in the overall meat consumption of some regions is non-existent. In total, meat demand is projected to reach 18.4 million tons.

153. Although the production of meat was projected to cover the domestic meat requirements of the region, the potential for export cannot be discounted especially if certain cultural barriers can be transcended. The cattle herd is projected to increase at about the rate of 2.6 per cent yearly as in the historical trend scenario mainly because of the problems of overgrazing which are

likely to put a brake on a rapid expansion of cattle in the region as a whole. However, the sheep and goat herd is projected to grow slightly faster at about 2.7 per cent yearly while pigs would increase at only 1.3 per cent. However, a significant increase of around 10 per cent over the 1980 average carcass weight of cattle has been projected. Offtake ratios have been kept at conservative levels except the pig offtake ratio which is assumed to increase mainly as a result of increased processing of pork. Under these basic parameters, the production of all the different types of meat was projected to more than double between now and the year 2008.

154. Livestock production systems will have to undergo radical changes if the projected targets are to be fulfilled. The strategies in this sector would have to include (a) major structural changes in the composition of livestock; (b) integration of livestock and crop production activities; (c) progressive substitution of red meat for white; and (d) changes in technologies. The main inputs will have to increase rapidly for the high growth production targets to be met. The first major input is animal feed including both roughages and concentrates and the second is veterinary services and medicines. For the ruminant species (cattle, buffalo, sheep and goat), the bulk of feed requirement will come from roughages in the form of grazing, crop byproducts and fodder grown specifically for feeding. Veterinary services should be concerned predominantly with preventive medicine, mainly with control of major diseases. Emphasis should be put on raising the average level of staff training and improving the organization and management of the animal health systems.

#### 4. Some nutritional implications of the development scenario

155. Africa (particularly equatorial forest zones, low lands around the great lakes, and the coastal areas of Western Africa) is particularly vulnerable from the point of view of protein deficiency. This is due mostly to its dependence more on roots and tubers as a source of energy supply. Nutrition programmes will have to be interwoven with the overall development programmes and the initiative for eliminating undernutrition and malnutrition must come from within society. Increasing the income earning opportunities of the poor is often suggested as a way of improving their nutritional status. One general method of raising the purchasing power of the poor is through public works programmes and pricing policies to increase their real income at the farm gate. Nutrition education is necessary to improve food consumption habits. Among the important targets of nutrition education should be popularization of breast feeding among women and elimination of waste which is mainly due to inefficient methods of food preparation. A closely related issue is environmental sanitation programmes with the expansion and up grading of public health services in rural areas, particularly maternity and child care services. Nutritional surveillance should also be an integral part of any applied nutrition programme. It should be based on a set of nutrition indicators on which observations are taken from time to time and for which boundaries of acceptability are defined.

Table 14. Improved food situation in Africa by 2008: A normative scenario

	1978-1980 a/	2008
<b>A. Cereals (million tons)</b>		
Food	59.9	170.9
Industry	0.2	1.8
Feed	5.3	24.2
Seed	2.6	4.9

Waste	6.8	22.2
Total demand	74.8	224.0
Total domestic production	58.4 b/	190.4
Imports	20.9	33.6
<b>B. Roots, tubers and pulses (million tons)</b>		
Food	64.6	152.1
Industry	0.1	0.6
Feed	1.8	7.1
Seed	4.8	9.5
Waste	13.8	33.0
Total demand	85.1	202.3
Total production	88.2	203.5
<b>C. Meat (million tons)</b>		
Total demand	4.7	13.6
Total production	4.3	13.6
- Beef	2.3	5.0
- Mutton	1.0	3.7
- Pork	0.2	0.8
- Poultry	0.8	4.2
<b>D. Self-sufficiency ratios (percentage)</b>		
SSR in cereals	75	85.0
SSR in roots, tubers and pulses	100	100.6
SSR in meat	93	100.0
<b>E. Per capita food consumption levels (kgs)</b>		
Cereals	142.1	171.0
Roots, tubers and pulses	153.3	152.5
Meat	11.1	12.6

Source: ECA projections, 1983.

a/ The 1978-1980 figures are based on the FAO estimates of 40 African countries except those figures with a symbol b/ which apply to 50 countries for 1980 only. The 10 remaining African countries not included in the FAO study are Cape Verde, Guinea-Bissau, Sao Tome and Principe, Equatorial Guinea, Seychelles, Lesotho, Swaziland, the Comoros, Djibouti and Botswana.

#### E. IMPROVED ENERGY BALANCE IN AFRICA BY 2008

156. The historical trends projections have shown that Africa might continue to face major difficulties in meeting the potential demand for energy, especially crude oil and electricity. At the same time, the historical trend scenario pointed to the fact that some energy resources such as coal, natural gas, hydropower and new and renewable energy sources are insufficiently exploited given the known and potential reserves. It was also shown in the historical scenario that the foreign exchange requirements resulting *inter alia* from high import dependency has led the major

oil-producing countries in Africa to export most of their production to developed countries while other African countries are forced to import almost all their oil needs from outside at very high opportunity costs especially in terms of foreign exchange.

157. The normative scenario which is analyzed below attempts, therefore, to project a better balance among Africa's main commercial energy resources (i.e. crude oil, electricity coal and natural gas) in order to make it possible for Africa's resources to be primarily used to meet the needs of its own people. However, the overall normative energy balance derived from the projections of these four commodities should also be seen in relation with other energy resources such as solar energy, wind, biomass and geothermal energy, for which great potential exist, although it is not quantifiable.

### 1. Normative projections of crude oil demand and supply

158. It was pointed out in the historical trend scenario that the growth rate of *per capita* consumption of crude oil dropped substantially in the late 1970s to about 2 per cent per annum. Such a reduction is attributable to the continuous increases in petroleum prices coupled with acute foreign exchange shortages which made it difficult for oil-importing countries to import the required crude oil. In the normative scenario, it is assumed that the growth in *per capita* crude oil consumption will not accelerate in view of the likely conservation measures in the world at large and especially if alternative energy resources were to be developed and the consumption patterns of energy progressively shifted in favour of those resources. It is, therefore, assumed that the elasticity of *per capita* consumption of crude oil with respect to *per capita* GDP would drop to below 1 in spite of a substantial acceleration in the growth of *per capita* income under the normative scenario. Therefore, the overall growth of *per capita* consumption of crude oil would remain at a level of about 4.7 per cent per annum in the coming 25 years which implies a *per capita* consumption of 498.6 kg in 2008 or a total consumption of 497.3 million tons.

159. It should be noted that the total consumption of crude oil in 2008 under the normative scenario would be less than what is projected under the historical trends scenario. In other words, the normative scenario assumes a shift towards other forms of energy equivalent to about 34.9 million tons of oil which, in other forms of energy, is equivalent to 49.9 million tons of coal, 405,814 GWh of electricity or, 43.6 billion m<sup>3</sup> of natural gas. It is therefore clear from the above figures that, the total volume of consumption of other forms of energy as a result of shifts from crude oil would depend on a judicious combination of all the other forms of energy, taking into account the region's endowments and the investment requirements to exploit each type of energy source.

160. The main forces likely to bring about such shifts are varied and could all be contemplated in future perspectives. First, the increased exploitation of Africa's hydroelectric potential could make electricity prices cheaper relative to oil prices. Secondly, rural electrification would imply a shift from paraffin to electricity in rural areas which would reduce the demand for petroleum products and consequently for crude oil. A third is the possibility of exploiting more new and renewable sources of energy especially for domestic uses. Finally, coal is likely to become an important source of energy in view of the growing number of countries that have embarked on coal exploration and exploitation.

161. The projections of crude oil production in developing Africa, under the normative scenario, were based on domestic consumption as well as demand for oil exports. Assuming that the world demand for African crude oil would not be worse than what was projected in the historical trends scenario, the necessary supply of crude oil in order to satisfy total demand was pro-

jected at 751.6 million tons implying a growth of 3.3 per cent per annum between 1979 and 2008, as against 1.9 per cent yearly under the historical trend scenario.

162. From the above results African production of crude oil under the normative scenario assumes a regional self-sufficiency in crude oil. Although such an assumption implies faster growth in production, it is believed that, given the region's endowment in petroleum which is confirmed by the increasing number of African oil producers, it is possible not only to satisfy the domestic demand but also to maintain export earnings at satisfactory levels. Another implication of the projections of demand and supply of crude oil is the necessity for African countries to put into practice the recommendations contained in chapter 11 of the Lagos Plan of Action. These include, *inter alia*, stable and guaranteed supplies of oil to African countries, adoption of a bartering system between oil exporters and oil importers and the granting of preferential tariffs to oil-importing African countries.

## 2. Normative projections of electricity demand and supply

163. The historical trend scenario has shown that Africa's demand for electricity would grow steadily although the elasticity of *per capita* demand with respect to *per capita* income was projected to remain at a moderate level compared with the elasticity recorded in the first half of the 1970s. It was also noted that total projected potential demand of electricity under the historical trends scenario could not be supplied under the present electricity production levels, structures and patterns.

164. The normative scenario assumes therefore that the average elasticity of *per capita* consumption of electricity with respect to *per capita* income in the coming 25 years would not reach the average level of the 1970s which was 1.9. Indeed, it is likely that the expected sharp increase of the elasticity of *per capita* consumption of electricity with respect to *per capita* income in the rural areas would, to some extent, be offset by the expected decrease in the elasticity in urban areas <sup>37/</sup>. Accordingly an average elasticity of 1.5 was assumed which implies an average annual growth rate of *per capita* consumption of about 6.4 per cent during the coming 25 years. Therefore, the *per capita* consumption of electricity by the year 2008 was projected to reach about 1022 kWh per person which, corresponds to a total demand for electricity of 1,019,639 GWh. Overall, the average annual increase of electricity consumption under the normative scenario implies an average annual increase of 9.3 per cent per annum. The total demand for electricity under the normative scenario in 2008 represents an increase of 219,868 GWh with respect to the projected level under the historical trends scenario. Such a difference corresponds to the combined effect of increases in income in both urban and rural areas, and a shift from petroleum to electricity.

165. The production of electricity, under the normative scenario, was based on the objective of achieving overall regional electricity self-sufficiency. The African region has therefore to meet the projected demand which implies a total production of 1,019,639 GWh in 2008 or an increase of 415,535 GWh compared with the projected figure of 604,104 GWh in 2008 under the historical trends scenario. Since crude oil consumption and, consequently, that of petroleum products would have to be reduced by the year 2008 compared with the projected demand under the historical trends scenario, such increases in electricity supply should be provided mainly by hydroelectric plants, coal-fired thermal plants or gas turbines.

166. Given the hydroelectric potential of Africa and the trend in the production of hydroelectricity, the share of hydropower in total electricity production could reach a level of 85 per cent

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<sup>37/</sup> As indicated earlier, the normative scenario assumes a better balance in rural and urban development.

by 2008 compared with the 1978 level of about 68 per cent. On the basis of an improved average use of installed capacity of 6,000 hours per annum by the year 2008 compared with the assumed 5,000 hours under the historical trend scenario, the corresponding installed capacity of hydroelectric plants would be about 144,450 MW. The additional hydroelectric capacity which would have to be installed between 1978 and 2008 would therefore be 133,627 MW. For thermal plants, the required capacity by 2008 would be about 25,492 MW which is lower than the corresponding figure projected under the historical trend scenario, since petroleum-based thermal plants would have to be reduced to take into account the reduction in crude oil consumption. The additional thermal capacity to be installed from 1978 to 2008 would have to be about 17,193 MW with a substantial part coming from coal-fired thermal plants, gas turbines, etc.

167. The implications in terms of investment are estimated at about 295 billion 1980 dollars or an average annual capital expenditure of 9.8 billion in 1980 dollars, which corresponds to about 12 per cent of the 1980 total investment of developing Africa. With increased regional co-operation especially in development financing, such an investment level is within the possibilities of the African region.

### 3. The coal prospects under a normative scenario

168. Since recent trends in coal producing developing African countries have shown a significant improvement in coal consumption and production levels, it seems reasonable to assume, under a normative scenario, that these countries will increase efforts to explore and develop their coal reserves. Such a possibility is likely to occur as the mining technology of coal is well established and its economic competitiveness with other energy resources substantially improved. All these factors would make it reasonable to assume that coal consumption in developing African countries will continue to expand. On the basis of projections already made on coal consumption in Africa including South Africa <sup>38/</sup> and taking into account developing Africa's share in the total consumption of Africa, an average annual growth rate of 4.3 was derived which resulted in a total coal consumption level of about 24.2 million tons by 2008. Such an increase takes into account not only the higher consumption resulting from the increase in income, but also the likely shift from crude oil and petroleum products to coal as well as the potential in using coal in industry especially in the engineering industries.

169. On the supply side, the projections made for all of Africa were used. Assuming that the rate of coal discovery in developing Africa will be able to offset the depletion of reserves throughout the present century, an average annual rate of growth of coal production of about 6 per cent may be safely assumed. At this rate total coal production would reach 27,830 million tons by the year 2008. Hence, in the twenty-first century, Africa would have a surplus of about 3.65 million tons of coal for export.

170. Such relatively bright prospects in coal consumption and production imply, however, more co-operative efforts within the African region with a view to increasing intra-African trade which accounted for only 3.8 per cent of total African coal trade in 1977. Moreover, the coal-producing countries should devise appropriate measures in order to encourage coal consumption. Governments might, in this respect, consider introducing high taxes to discourage the use of other competitive energy resources such as petroleum products. In addition, the necessity for establishing an adequate transport structure to transport coal has to be stressed if the region is to benefit from increased exploitation of the resource.

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<sup>38/</sup> Energy resources in Africa, OAU/ECA, March 1980.

#### 4. Projections of natural gas demand and supply under a normative scenario

171. The natural gas prospects in developing Africa under the present normative scenario could be considered as promising given the large potential of the region (some estimates put the reserves at about 5,900 billion m<sup>3</sup>) and the present low level of exploitation (only 20 billion m<sup>3</sup>). However, given the present energy consumption pattern in African countries, especially in industry, it will take time to implement coherent policies for large-scale use of natural gas even in the producing countries. Moreover, the difficulties in the transportation and storage plus the lack of liquefaction plants would make it difficult for African non-gas-producing countries to import natural gas from the producing African countries.

172. Under such conditions, only a moderate acceleration of domestic consumption was projected on the assumption that the main consumer countries, which happen also to be the major producers, will continue and perhaps increase the shift towards greater utilization of natural gas especially in view of the projected general deceleration in crude oil consumption. On the basis of an average annual increase of about 8 per cent, the total demand for natural gas in developing Africa was projected to reach around 67.3 billion m<sup>3</sup> by the year 2008.

173. Assuming further that the increase in the domestic consumption levels would be coupled with a likely slow down in the world demand for Africa's natural gas, the share of exports of gas from developing Africa by the year 2008 has been projected to decline to about 55 per cent of total production. In other words domestic consumption would account for about 45 per cent of total supply projected to amount to about 100.2 billion m<sup>3</sup> by the year 2008.

Table 15. Selected commercial energy types in Africa in 2008 under the normative trends scenario

	1978 a/	2008	Average annual growth
<b>A. Crude oil (million tons)</b>			
Total production	289.7	751.6	3.3
Exports (including stocks)	279.0	254.3	-0.3
Imports	50.1	-	-
Apparent consumption	59.8	497.3	7.6
<b>B. Electricity (GWh)</b>			
Potential demand	699 85 b/	1 019 639	9.3
Installed capacity (MW)	19 121	169 941	7.6
Thermal	8 298	25 491	3.8
Hydroelectric	10 823	144 450	9.0
Total production	69 985	1 019 639	9.3
<b>C. Coal (million tons)</b>			
Total consumption	6.8	24.2	4.3
Total production	4.8	27.8	6.0
Net imports	2.0	-3.7	

#### D. Natural gas (billion m<sup>3</sup>)

Total demand	6.7	67.3	8.0
Total production	20.0	150.2	7.0
Net exports	13.6	82.9	6.2

#### E. Per capita demand levels

Crude oil (kg/person)	131.6	498.6	4.7
Electricity (kWh/person)	159.0	1 022.0	6.4

Source: ECA secretariat projections, 1983.

a/ The figures for crude oil refer to 1979.

b/ Actual consumption.

#### F. AN INDUSTRIAL TAKE-OFF BY 2008

174. The projections for the selected industrial product groups under the normative scenario are basically conceived so as to highlight the desirable path of industrial development in the African region resulting from some basic structural changes in the policy framework, but account is taken of the fact that the overall interactive effects cannot be systematically detailed as most of the variables are treated under relatively simple relationships. Nevertheless the findings reveal that, unless the region steps up its efforts in pursuing proper industrialization strategies such as those contained in the Industrial Development Decade for Africa, it will continue to depend on imports for its much needed capital goods, industrial intermediate inputs and basic consumer goods.

175. The intermediate goods sector assumes a more acceptable degree of self-sufficiency in some of the critical products analyzed in this study. Unfortunately the heterogeneity of consumer goods precluded any explicit evaluation of the success of future substitution policies. However, indications are that there are no special barriers to attaining self-sufficiency in many of the manufactured consumer goods if a major part of the intermediate inputs can be made within the region. But this will call for innovation and increased entrepreneurial capabilities as well as a change from mimicking whatever is done and consumed outside while ignoring Africa's own products.

##### 1. Establishing a capital goods sector by 2008: Agricultural machinery and equipment

###### (a) Tractors

176. The normative scenario for capital industrial products centred on agricultural machinery, especially tractors, in view of the need to bring about an improvement in agricultural productivity. Bearing in mind the need for extension and intensified use of agricultural land to achieve faster growth in agricultural output, the elasticity of the number of tractors in use with respect to total GDP is assumed to increase to 1.0 as compared to 0.8 in the historical trend scenario. With this elasticity the average annual growth in the number of tractors in use is projected to be 7.3 per cent giving a total number of 1.8 million tractors in use by the year 2008. Assuming a replacement rate of 10 per cent, the region's annual requirement of tractors is estimated to reach 309,700 by the year 2008.

177. The supply of tractors in the normative scenario is based on the targets set in the Lagos Plan of Action which stipulates the achievement of 2 per cent of world industrial production in accordance with the Lima target. Thus, on this basis, the number of tractors to be produced by the African region has been projected taking into account the trends in world production of trac-

tors. The African region would have to produce about 210,000 tractors yearly by the year 2008. This relatively high production figure would still imply that the region has to continue to depend on other regions for about one third of its total requirements in tractors. Nevertheless, broad scope exists for national action by strengthening Africa's engineering core and in joint ventures in the production of agricultural machinery.

*(b) Animal traction equipment*

178. The normative scenario for the demand for animal traction was based on the assumption that in most countries, despite tractorization of large to medium farms, the smaller plots (2 to 5 hectares) will be tilled by animal traction. In 1975 there were about 16 million draught animals. Based on the projected rate of increase of 1.5 per cent per annum projected by FAO for draught animals between 1975 and 2000, the number of draught animals will be about 25,775,000 by the year 2008. Assuming that the implements for each pair of animal will have a replacement factor of 10 per cent, the region will require 1,288,750 pieces of animal drawn equipment annually. The projected level, which takes into account increased mechanization in the agricultural sector, would seem to imply that the rural sector would still continue to use traditional methods. However industrial research would be needed to produce better and more adapted animal traction equipment.

179. The supply of animal traction by the year 2008 will be demand-determined as imports of animal traction equipment are not assumed. However, as the production of agricultural machinery and equipment in Africa is expected to rise to meet the much needed modernization in the agricultural sector, the use of animals will have to be limited to areas of small plots and it could easily be assumed that supply will be able to satisfy the level of demand.

*(c) Passenger cars under the normative scenario*

180. The basic assumption behind the normative scenario for the projection of demand for passenger cars is the need to bring about substantial savings by the African population as a whole through the reduction of conspicuous consumption. This would imply greatly reduced imports of expensive private cars and other durable consumer goods and would in addition ensure that the African market can take pride in consuming its products even though these might be of lower quality. In this context, the elasticity of persons per car with respect to growth in GDP was drastically changed from -1.9 under the historical trend scenario to -0.5 which gives a rate of decline of -3.6 per annum and a number of passengers per car of 44 by the year 2008 <sup>39/</sup>. The implied total number of cars in use by the year 2008 would be about 22.7 million. Assuming a replacement rate of 10 per cent and using the implied average annual increase of 6.6 per cent of the number of cars in use, the demand for passenger cars in 2008 will reach 3.8 million cars.

181. The total number of passenger cars to be produced domestically is also projected on the basis of the Lagos Plan of Action target of 2 per cent of world production by the 2008. On the basis of projected world production by 2008, the African region would have to produce 1.7 million cars by the year 2008. <sup>40/</sup> To attain this target, the investment and manpower require-

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<sup>39/</sup> This level, which implies 23 cars per 1,000 people would seem optimistic since normal trends are for a very fast decrease in the number of persons per car as income rises. For example, Europe had in the 1970s an average of 3 persons per car or 299 cars per 1,000 persons. However, the normative scenario aims at reducing the trend of fast growth in conspicuous consumption.

<sup>40/</sup> The normative scenario assumes no assembling.

ments are estimated to be about \$14.6 billion at 1977 prices and 303,500 persons respectively. Under this scenario, the imports of passenger cars as a percentage of total demand will drop substantially to reach about 55 per cent by 2008 as compared with the projected level of 97.7 per cent in the historical trend scenario. However, even this relatively low import level of passenger cars would constitute a financial burden in terms of foreign exchange not only for the vehicles but also for the spare parts and the fuel to run them. It would therefore seem apparent that clear measures would have to be adopted to curb such increasing conspicuous consumption. Quota restrictions and other controls on imports as well as measures to orient consumption to local production would seem not only desirable but necessary.

*(d) Commercial vehicles under the normative scenario*

182. For commercial vehicles, a slightly higher elasticity of 1.7 of the number of commercial vehicles in use with respect to total GDP has been assumed implying an average annual rate of growth of 11.9 per cent in the demand for commercial vehicles as compared to an annual average growth of 8.5 per cent derived in the historical trends scenario. The corresponding level of commercial vehicles in use by 2008 would be about 49.6 million. The resultant level of demand for commercial vehicles is around 8.3 million vehicles which shows a tremendous increase relative to the level projected under the historical trends scenario. This high growth is predicated firstly on the assumption of increased substitution of private passenger cars by commercial and public transport vehicles. Secondly the completion of the trans-African highways as well as the projected increases in the volume of intra-African trade are all likely to increase the volume of commercial vehicles required for the region as a whole. Thirdly, the rural population will require an increase in the number of versatile commercial vehicles. The projected demand by the year 2008 is based on a lower replacement rate of only 5 per cent as compared to the 10 per cent used in the historical scenario. <sup>41/</sup>

183. The methodology used in the estimation of domestic production of passenger cars under the normative scenario is again followed for commercial vehicles. To attain the target of 2 per cent of world production of commercial vehicles by 2000 and beyond, the domestic production should reach a level of 747,700 vehicles by the year 2008. <sup>42/</sup> At this level of production of commercial vehicles within the region, imports as a percentage of total demand would be about 91 per cent as compared to about 97 per cent under the historical trend scenario.

184. The high level of production envisaged under the normative scenario can be attained by strengthening the region's equipment production capabilities, the development of basic engineering support facilities and strengthening the engineering core. With such changes the region could greatly increase its contribution to the requirements of the transport sector in terms of trucks, buses, rail wagons, etc. It must, however, be emphasized that the projected volume of commercial vehicles would imply a tremendous burden on the region in terms of the implicit oil bill and maintenance cost. Thus, it might be desirable in many instances to explore ways of substituting commercial vehicles with electrified intercountry railways.

185. As the rural population will have an increased demand for low-cost transport it is envisaged that by the year 2008 the majority of African countries will be manufacturing bicycles and motorcycles which require a relatively low level of investment. According to present estimates, by the

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<sup>41/</sup> The lower replacement rate would result from improved roads and better maintenance of vehicles.

<sup>42/</sup> No assembling is assumed in this scenario.

year 2008 the demand for bicycles and motorcycles or scooters would amount to about 5.6 million units and 2.6 million units respectively. Domestic supply would be able to satisfy about 45 per cent and 36 per cent of the demand for bicycles and motorcycles or scooters respectively.

**Tableau 16. Selected industrial goods: Africa by 2008 under the normative trends scenario**

	1980	2008
<b>A. Tractors</b>		
Tractors in use (000s)	253.3 a/	1 821.5
Annual demand for tractors (000s)	7.0 a/	309.7
Domestic supply	n.a.	210.0
Imports	n.a.	99.7
<b>B. Passenger cars</b>		
Number in use (millions)	3.3 a/	22.7
Number of cars per 1,000 persons	3.0	23.0
Annual increase (millions)	0.4	3.8
Domestic production (millions)	n.a.	1.7
Imports	n.a.	2.1
<b>C. Commercial vehicles</b>		
Number in use (millions)	1.7	49.6
Annual increase (millions)	n.a.	8.3
Domestic production (000s)	16.9 b/	747.7
Imports (millions)	n.a.	7.6

Source: ECA projections, 1983.

a/ Data refer to 1978.

b/ The figure refers to the vehicle equivalent of the value added in the assembly.

## **2. Possibilities of self-sufficiency in industrial intermediates by 2008**

### **(a) Fertilizers**

186. Under the normative scenario, projections of the demand for fertilizers in the African region as a whole are based on the desired level of food production. Since to ensure brighter food prospects, increased use of fertilizers was assessed to be necessary, the total fertilizer requirements for the region as a whole was projected to reach to around 21.5 million tons by the year 2008, implying an average annual growth rate of 9.2 per cent in the demand for fertilizers as compared to a 4.3 per cent growth under the historical trends scenario between 1980 and 2008. The fertilizers would be needed in the following proportions: 7.8 million tons of nitrogenous, 7.4 million tons of phosphatic and 6.8 of potash fertilizers.

187. Consequently, to meet the self-sufficiency requirement, total domestic production is projected to satisfy a large part of the region's fertilizer demand by the year 2008. In this connection, a self-sufficiency ratio of 100 per cent is assumed for the region as a whole which would necessitate additional capacities of 7.2, 6.6 and 6.3 million tons of nitrogenous, phosphatic and potash fertilizers respectively. It should be noted that, while Africa continues to be a net importer of nitrogenous and potash fertilizers, it remains a net exporter of phosphate fertilizers.

188. In view of the self-reliant objective and the need to attain self-sufficiency in food and given the fact that the region is endowed with a range of raw materials and energy resources (phosphate rock, potash, sulphur, coal, petroleum, natural gas, hydroelectricity and geothermal energy), there is no reason why the region as a whole could not reach a production level to satisfy the whole of its fertilizer requirements. To this end, it is estimated that developing Africa would need to establish respectively about 27, 20 and five large-scale production units for nitrogenous, phosphate and potash fertilizers by the year 2008. This would imply investment requirements of the order of \$18 billion at 1980 prices. The magnitude of growth in fertilizer production by 2008 would require approximately 158,200 unskilled and skilled workers in all relevant categories. The requirements are broken down below: <sup>43/</sup>

- Managers and supervisors	66,466
- Health and personnel	1,741
- Engineers and chemists	7,754
- Draughtsmen	633
- Skilled worker/foremen	28,008
- Secretaries/clerks	9,020
- Operators	35,762
- Unskilled and service workers	68,676

(b) *Projection of cement in developing Africa by 2008 under the normative trends scenario*

189. With the normative scenario, the elasticity of *per capita* cement consumption with respect to *per capita* income is assumed to increase between now and the year 2008, implying a corresponding growth in *per capita* consumption of 5.2 per cent per annum in the next 25 years. Thus, by the year 2008 *per capita* cement consumption in the region would reach to about 264.6 kg. The total cement consumption is therefore projected to total 264 million tons by the year 2008. It should be pointed out that the projected *per capita* cement consumption is relatively low compared to the present *per capita* levels in other developing regions. Since increased demand for better housing conditions resulting from the general improvement in income levels as well as from a narrowing in rural-urban income disparities will necessitate an increasing level of cement supply, it might be necessary to promote joint ventures in large-size cement and clinker plants.

190. For the region as a whole, self-sufficiency in cement by the year 2008 would necessitate heavy investments and a large number of workers. Thus it is estimated that between now and the year 2008, real investment and manpower requirements for cement production would have to grow by about 8.4 per cent and 5.9 per cent respectively to be able to set up the required cement production. Equally important, is the reduction and economy in cement consumption per unit of

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<sup>43/</sup> Coefficients of occupational employment in the fertilizer industry were obtained from International Labour Organisation, *Human resources for industrialization* 1967 and Economic and Social Council, *Training of National Personnel for the Accelerated Industrialization of Developing Countries*, 1985.

construction through (a) increased research in building and building materials; (b) standardization of building materials; and (c) the substitution of alternative material like lime pozzelana for cement.

*(c) Iron and steel projections for the African region in 2008*

191. The demand for steel in Africa is still far from being satisfied. As steel is important in key sectors such as building and construction, engineering industries, agriculture, manufacturing and transport, the projection of demand for steel has to be linked to the growth of the steel using sectors. Overall, the normative scenario assumes a significantly increased steel intensity with respect to the level of total GDP since faster industrialization to achieve the Lima target will undoubtedly imply a higher utilization of iron and steel. With a projected steel intensity per one dollar of GDP of  $0.228 \times 10^{-3}$  ton/\$US in the year 2008, the total consumption level of iron and steel for developing Africa as a whole would reach 195 million tons by the year 2008. The projected steel intensity reflects the necessary shift from light to heavy industries with the increased exploitation of the region's iron ore resources. It should also be noted that historical trends show that the direct demand for iron and steel is growing faster than the indirect demand for the region as a whole.

192. The projected level of iron and steel that will be domestically produced is around 61 million tons by the year 2008, implying a self-sufficiency ratio of about 31 per cent. Thus developing Africa would remain a net importer of iron and steel throughout the next 25 years. However, the potential market in the African region reflected in the high levels of consumption requirements may be a stimulating factor for the expansion of domestic steel production especially given the availability of the necessary raw materials such as iron ores, ferro-additives, scrap, coal, natural gas, etc. Over all about 352 million tons of iron ore and 131 million of coal will be required for the production of the level of iron and steel projected by the year 2008. This would imply an investment of the order of \$190 million at 1980 prices.

193. The manpower required to produce the projected output of iron and steel will be in the order of 274,500 workers. <sup>44/</sup> They will be distributed among the relevant occupational categories thus:

- Engineers and managers	19,215
- Technical	32,940
- Administrative/clerical	27,450
- Skilled workers	109,800
- Unskilled workers	85,095

194. While the supply of the last category of workers for the iron and steel industry in Africa will constitute no problem whatsoever, the availability of manpower to fill the others, especially the engineering, managerial and technical categories, might prove to be a constraint on the achievement of planned output targets. Once again, education and training systems should take early cognizance of the manpower needs in this industry and plan to fulfil them.

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<sup>44/</sup> Coefficients of employment for iron and steel were based on International Labour Organisation, *The establishment of iron and steel industries in developing countries and its impact on training and development of skills*, 1981.

195. The normative scenario has further assumed an increase in the installed capacity in developing Africa from its present level of 0.7 per cent to 6 per cent of world capacity by the year 2008 in the belief that fast mobilization of the continent's abundant resources and the fundamental change in the structure of production and promotion of self-sustaining industrial development would bring the African region to an industrial take-off by the year 2008.

Table 17. Selected intermediate products: Africa by 2008 under the normative trends scenario

	1980	2008
<b>A. Fertilizers (thousand tons)</b>		
Total demand	2 278	21 490.0
Total production	1 422	21 490.0
Balance	-856	-2 900
<b>B. Cement (million tons)</b>		
Total demand	28	264.0
Total production	23 a/	264.0
Imports	n.a.	
<b>C. Iron and steel</b>		
Steel intensity (tons x 10-3/\$US)	0.129	0.228
Total direct and indirect demand of iron and steel (million tons)	13.4	195.0
Total production (million tons)	6.5 b/	61.0
Imports (million tons)	n.a.	134.0

Source: ECA projections, 1983.

a/ Data refer to 1979.

b/ Installed capacity.

### 3. Consuming Africa's own consumer products

#### (a) Future trends in textile fabrics

196. The normative scenario assumes a rise in the marginal propensity to consume manufactured goods given increases in the general income level and the expected improvements in urban-rural income disparities. Thus the *per capita* consumption of textile fabrics is projected to grow fast at about 3.7 per cent yearly to reach 5.1 kg by the year 2008. This estimate, however, is modest as some African countries (e.g. the Ivory Coast) have already recorded a *per capita* consumption level of nearly 4 kg. The projected total requirement of about 5.1 million tons in the year 2008 would imply a fast growth of 6.7 per cent as compared to 5.2 per cent projected under the historical scenario.

197. The basic assumption behind the supply of textile fabrics under the normative scenario is the desired shift in the consumption pattern to local textile products and the possibilities of developing more domestic textile industries in the African region especially for cotton to take advantage of the readily available raw materials on the continent. Therefore, the share of domestic consumption out of the region's total production of cotton lint has been projected to increase to 80 per cent under the normative scenario as compared to 60 per cent under the historical trends scenario. This assumption presumes that significant progress will be made in changing the life styles of the African population so that the products of the region can be consumed with more confidence.

198. Since domestic consumption of cotton lint is assumed to be 80 per cent of the region's total production in the year 2008, total domestic production of cotton fabrics is projected to be about 4.1 million tons of cotton fabric by the year 2008. A deficit of 1 million tons of cotton fabrics is projected to be covered by imports of mainly synthetics and other man-made fabrics. <sup>45/</sup> In addition to the indicated need to change the life-style in Africa, efforts will be required to increase training in textile technology and to create African multinational textile firms for the production, promotion and marketing of textile products. Further, it will be necessary to (i) improve the quality of domestic textile products, (ii) increase the price competitiveness of Africa's textile fabrics, (iii) ensure a stable supply of the appropriate raw cotton, and (iv) set up specific programmes for the manufacture of textile equipment. Increased intra-African trade in cotton fabrics will also be instrumental in bringing about an increased consumption of the region's own products.

(b) *Pharmaceuticals in Africa by 2008*

199. The normative scenario is based on the relationship between *per capita* consumption of pharmaceuticals and *per capita* GDP. The total consumption of pharmaceuticals is projected to reach a level of \$US 10.3 billion at 1980 prices by the year 2008. From information pertaining to some member States, it is likely that, on average, about 20 per cent of pharmaceutical consumption is formulated in Africa, the balance being imported in finished dosage forms. This would mean making provision for the formulation of up to about 80 per cent of consumption as well as the manufacture of the major active ingredients. In view of the fact that no country in the world is 100 per cent self-sufficient in pharmaceuticals, the following production programme in respect of active ingredients is proposed under the normative scenario:

Proposed production programme	1980	2000	2008
percentage of consumption	20	50	80
total production/sales	190	819	2058
Value added	95	410	1 029

It would be necessary to mention here that Africa has tremendous potential in the area of traditional medicines which could easily be processed into important and new pharmaceutical products.

200. Very rough indications of investment requirements for the manufacture of the active ingredients and the expansion of formulating facilities were estimated at about 6 billion at 1980 con-

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<sup>45/</sup> A few countries like Egypt and Morocco do produce some man-made fabrics.

stant prices. This level was arrived at using a capital ratio of 0.9 or \$0.9 of investment for every \$1 of sales for the period 1983-1990. This ratio, which is appreciably higher relative to the one in developed countries, has been used to take care of African reality in the 1980s. For the periods 1990-2000 and 2000-2008, the ratio has been projected to decline to 0.8 and 0.7 respectively. As for manpower requirements, the projected orders of magnitudes were arrived at on the basis of average value added per employee of \$8,000 with value added estimated at 50 per cent of sales volume. Of the total required manpower of 130,000 in 2008, university graduates (chemists, pharmacists, bacteriologists, engineers and accountants) constitute about 15 per cent while high-school graduates account for about 25 per cent.

**Table 18. Selected consumer goods: Africa by 2008 under the normative trends scenario**

	1980	2008
<b>A. Textiles</b>		
Total demand (million tons)	0.8	5.1
<i>Per capita</i> consumption (kg)	2.0	5.1
Exports (million tons of lint)	0.6	1.2
Imports (million tons of man-made fabrics)	n.a.	1.0
Total production (million tons of cotton fabrics)	0.3 a/	4.1
<b>B. Pharmaceuticals (in US billion at 1980 constant prices)</b>		
Demand based on c.i.f.	1.1 b/	10.3

Source: ECA projections, 1983.

a/ Data refer to 1979.

b/ Data refer to 1978.

#### **G. AN INTEGRATED TRANSPORT AND COMMUNICATIONS NETWORK UNDER THE NORMATIVE SCENARIO**

201. The historical trends scenario highlighted the fact that, unless drastic changes occur in the field of transport, the development of the region will continue to be constrained since, even after the completion of the 1978-1988 Transport and Communications Decade in Africa, feeder roads, railways and maritime transport would need to be expanded further. Therefore, in the normative scenario which assumes substantial progress in the areas of food and agriculture, industrialization, natural resources development, socio-economic welfare and economic co-operation including intra-African trade, a commensurate rate of development of the various transport modes has been anticipated. The envisaged changes are quantitatively and/or qualitatively outlined below for maritime and air transport, roads and railways.

## 1. Maritime transport

202. On the basis of the targeted growth in the volume of Africa's trade including intra-African trade, it is projected, in the normative scenario, that Africa's seaborne trade would amount to 1,463.6 million tons by the year 2008. This normative figure is only slightly higher than that of the historical trends scenario as most of the expansion in the volume of trade is projected to originate from expanded intra-African trade coupled with a reduction in the volume of imports as a result of increased national and collective self-reliance. Further, the volume of seaborne crude oil trade is not projected to be significantly different from the projected historical trend level owing to the anticipated intra-African co-operation in the field of energy and the projected stabilisation in the volume of crude oil exported by Africa outside the region. Actually, crude oil trade would represent, in 2008, about 48 per cent of total seaborne trade as against 70 per cent in 1981.

203. At the projected level of 1,463.6 million tons of seaborne trade, taking into account the proposed UNCTAD Code of Conduct for Liner Conferences, <sup>46/</sup> the volume to be carried by the Africa's fleet by 2008 is targeted to be about 585.4 million tons. Assuming marked improvements in the efficiency of port and fleet operations the projected volume to be transported by Africa would be equivalent to a vessel capacity of 115.5 million dwt. This capacity would, in turn, necessitate a total fleet of almost 5,000 vessels by the year 2008.

## 2. Air transport

204. Under the normative scenario, the total volume of the region's air freight is projected to reach 46.3 billion ton-km by the year 2008. As for passenger traffic the projected level by the year 2008 is about 301.3 billion passenger-km compared with the projected level of world passenger traffic of 4,713 billion passenger-km. <sup>47/</sup> At this level, the share of developing Africa in the world's total passenger traffic would rise from the 1980 level of 2.7 per cent to nearly 7 per cent by 2008.

**Table 19. Selected transport indicators for Africa 1981-2008  
under normative perspectives**

	1981 (actual)	2008	Average annual in- crease in percentage
Seaborne trade (million tons)	571.0	1 463.6	3.5
African fleet capacity (million dwt)	7.18	115.5	10.8
Air freight (billion tons x km)	4.9	46.3	8.3
Traffic passenger (billion passenger x km)	32.0	301.3	8.7

Source: ECA projections, 1983.

<sup>46/</sup> The proposed UNCTAD Code of Conduct recommends that 80 per cent of the seaborne trade should be transported in equal proportion by any two trading partners.

<sup>47/</sup> Based on the Airbus Industry projections in *Realites et perspectives du transport aerien en Afrique*, 1982, no. 1.

205. However, it has to be emphasized that, for the African region to achieve the projected volume of air traffic, policy action would be needed to (i) intensify co-operation and co-ordination between airlines in the commercial and technical fields; (ii) promote multinational airlines; (iii) strengthen and establish multinational training centres; (iv) harmonize regulations and facilities in the field of civil aviation; (v) improve the region's civil aviation infrastructure.

### 3. Road and railway infrastructure

206. As was indicated under the historical trends scenario, road infrastructure in Africa has the most critical and pivotal role in the integration of the balkanized African region. Therefore, in the normative scenario, particular attention has to be paid to the development of an efficient road infrastructure especially in view of (i) the projected increase in overall economic activity; (ii) the need to open up new domestic markets for increasing intra-African trade; (iii) expanded industrial activities more appropriately linked to the region's natural resource base; and (iv) the African Common Market envisaged in the Final Act of Lagos. Indeed, the success of the projected industrial take-off will depend, to an extent, on the capability of the region's transport network (especially roads) efficiently, reliably and cheaply to transport raw and intermediate materials among countries and distribute the finished products to the various consumption centres within the region. Also, the major components of the African Food Plan as well as the projected improvement in the food situation in Africa will require a solid and efficient road infrastructure in individual African countries and in the region as a whole.

207. Consequently, the perspectives of road development by the year 2008 have to go much beyond the United Nations Transport and Communications Decade in Africa due to end in 1988. Indeed, it has to be emphasized that the 20 years that will follow the completion of the Transport Decade will have to see a clear consolidation and expansion of the achievements that will have materialized by 1988. Since it is currently estimated that the ongoing five trans-African highway projects will have been completed by 1990, it is therefore assumed under the normative scenario that work will have started on four additional trans-African highways namely (i) Tripoli-Luanda-Windhoek, (ii) Nouakchott-Cairo, (iii) Dakar-N'Djamena-Massawa and (iv) Beira-Lobito. These four additional highways considered in the normative scenario would bring the total length of trans-African highways, to 101,922 km by 2008. In addition to the trans-African highways, the normative scenario stresses the importance that has to be paid to the development of rural access roads. In this respect, it should be noted that, besides the importance of these roads in terms of distribution of goods and services, rural access roads have tremendous potential for triggering off some very important elements of a development scenario such as employment, increasing the cultivable lands through increased access and habitation, etc.

208. With respect to railways, the normative scenario would necessitate a drastic departure from the present railway structure to a more integrated, efficient and modern railway network. Firstly the normative scenario envisages increased use of more efficient engines as well as electrification. Indeed the projected supply of hydroelectricity would make it possible to electrify - at a reasonable cost - a very large part of the African railway network by the year 2008. Secondly, there would be need for clear policies directed towards the normalization of stock and equipment including, in particular, the development of techniques for changing from one gauge to another. Thirdly, the development of rail industries in Africa must be given particular attention so as to create a capacity for the assembly of traction machines (locomotives, shunters, railcars). Fourthly, with the growth of competition from other means of transport, the African railways operating conditions have to be drastically improved so as to raise productivity. Lastly, the creation of sub-regional training centres is of paramount importance for the development of African railways in the next 25 years. Overall such policies, if implemented, would substantially improve both the efficiency and length of the African railway network. The additional 26,000 km projected in the

Master Plan of the Union of African Railways <sup>48/</sup> could then be achieved by 2008 and the average speed of 100 km/h would be possible.

#### H. NEW DIMENSION IN AFRICA'S EXTERNAL TRADE AND FINANCE

209. The results of the historical trends scenario for the African region point to an almost unsustainable position in the field of foreign trade and external finance. Thus the normative scenario attempts to analyze more desirable relationships between and structures of domestic growth and the external sector. In this respect particular attention has been focused on improving the structure of Africa's trade including in particular (a) increasing intra-African trade; (b) more processing of Africa's agricultural and natural resources; (c) diversification of exports; (d) increasing self-sufficiency in major import items such as food, energy and basic industrial products; (e) reform in the region's monetary and financial institutions, mechanisms and structures; and (f) more favourable and equitable international trade and financial environment. Thus the projections in the external sector under the normative scenario take into account the analysis carried out in the key sectors, the objectives of the Lagos Plan of Action and the basic elements of a new international economic order.

210. In carrying out the projections of the region's exports, the same commodity groups as in the historical trends scenario have been treated, namely cash crops (coffee, cocoa, tobacco and tea), minerals (copper, iron ore and bauxite) and energy (crude oil and natural gas). It should be kept in mind, however, that other important and strategic products such as uranium, cobalt, chrome, platinum, coal, etc. will have an important role to play in the region's future development in terms of both domestic utilization and trade under the normative scenario. Moreover the role of gold and other critical minerals in southern Africa has to be kept in perspective, as it is likely that significant political changes will occur in that part of the region by the year 2008. Import projections have also been confined to those commodities covered in the analysis of demand and supply in the key sectors under the normative scenario. More specifically import projections take into account increased self-sufficiency in important items in sectors such as food, energy, machinery, transport equipment, intermediate industrial goods, textiles and pharmaceuticals.

##### 1. Exports projections under normative scenario

###### (a) *Cash crops*

211. The projections of exports of *cash crops* are based on the results of the FAO study "Agriculture: Towards 2000". The FAO projections point to a marked acceleration in the growth rates of the selected agricultural commodities as a result of (i) increased investment in commodity development aimed at enhancing export earnings; (ii) reduced trade barriers in agricultural commodities; (iii) increased trade with other developing countries and the Socialist countries of Eastern Europe; and (iv) faster growth in the world economy. Overall exports of the selected agricultural commodities are projected to grow at a rate higher than total exports, thus implying that their relative weight in the total exports of the region as a whole by 2008 will increase significantly. In addition, assuming that the African region will achieve a higher level of processing of its agricultural raw materials for exports, the export earnings from this commodity group would then increase substantially. This would however require that the semi-processed products would be competitive in the world market so as to reverse the tendency of the region's being a price-taker. In addition efforts to reduce price fluctuations for agricultural primary products will have to yield results, especially in the area of Common Fund for Commodities, international commodity agreements and buffer-stocks schemes.

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<sup>48/</sup> Union of African Railways, Retrospect and prospects, 1981.

(b) *Minerals*

212. While increased mineral production is contemplated under the normative scenario, the volume of mineral exports is relatively moderate compared to the historical trend scenario. For example, the growth rate for copper exports is projected to remain at the same level as in the historical trends scenario on the ground that Africa will increase processing of that mineral for domestic use. For iron ore, the projected trend in domestic production of iron and steel under the normative scenario implies that exports of primary iron ore would grow at much slower rate than in the historical trends scenario. Similarly, export growth rate of bauxite is projected to decelerate appreciably as a result of the trends towards more processing in the main bauxite producing African countries. Other factors which are likely to slow down Africa's mineral exports include (a) shifts in the types of final goods demanded by consumers and investors in developed countries; (b) technology developments that alter the intensity of utilization of mineral in final goods; and (c) substitution among raw materials. Therefore the importance of exports of minerals in primary form, relative to the total exports of the region as a whole, is projected to decline substantially by the year 2008.

213. As a result the major objective of Africa's mineral development policies would have to be directed towards "... expansion of African indigenous capabilities to determine and exploit African mineral resources for intra-African and extra-African purposes, research and development in the pattern of change in mining technology in relation to net advantages of and to the region; the monitoring of trends in the development of technologies of exploration . . . ; the development of technologies for small-scale mineral resources exploitation". <sup>49/</sup> Another important aspect of mineral exploitation and utilization relates to the necessity to establish joint multinational ventures especially in the fields of iron and steel and other strategic minerals.

(c) *Mineral fuels*

214. As indicated above, the normative scenario, assuming that present exploration efforts will bear fruit, has projected that crude oil production in the region as a whole will increase steadily to reach 751.6 million tons in 2008 as against 508.7 million tons projected under the historical trends scenario. However, it was also emphasized that such increase in production is projected to be mainly consumed within the region. Thus Africa's export of crude oil outside the region is projected to remain at the same level as in the historical trends scenario. It should be noted that such a prospective view of the crude oil situation in the African region is aimed at ensuring a regional balance so that Africa will not, by 2008, be dependent on other regions for its energy requirements. In addition, such desirable prospects would make it possible for implementing the proposals in the Lagos Plan of Action with respect to "the possibility of importing countries being allowed to pay in local currency, or to use bartering . . .". <sup>50/</sup> Also it is likely that import cost of crude oil from within the region will be lower than it would have been from outside the region, thus relieving the balance-of-payments burden on many oil-importing African countries.

215. Natural gas exports under the normative scenario were also projected taking into account the need and the possibility for the African region increasingly to utilize its natural gas resources. Due consideration was also given to the fact that the likely main external importers of natural

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<sup>49/</sup> ECA Proceedings of the first Regional Conference on the Development and Utilization of Mineral Resources in Africa - Arusha, 2-6 February 1981, pages 4 and 5.

<sup>50/</sup> A/S-II/14, annex 1.

gas - mainly European countries, are now in the process of establishing important arrangements for securing natural gas from other regions, particularly the USSR. Thus the proportion of natural gas exported relative to total production is projected to drop to around 55 per cent by 2008 under the normative scenario, as compared to the present share of about 70 per cent. In terms of magnitude, natural gas exports are projected to reach about \$15 billion at 1980 prices making it a major export earning item for the region as a whole. Although coal was not covered in the export projections, it should be kept in mind that, in addition to the projected increase in domestic consumption, Africa could also be a net coal exporter by 2008.

*(d) Goods and services*

216. With respect to Africa's total export of goods and services, the projections under the normative scenario point to major changes in structure since the selected 10 export commodities will, by 2008, account for 40 per cent of total exports outside the region as against about 75 per cent in 1980. This implies that under the normative scenario the next 25 years will witness a diversification in exports with increased exports of semi-processed products and finished manufactured goods. Indeed with the anticipated attainment of the Lima target and the target of the Lagos Plan of Action of 2 per cent of world industrial production for the African region by the year 2000, the region as a whole will have to increase its exports of manufactures substantially. Overall exports outside the African region are projected to increase at an average annual rate of about 3.4 per cent as against 1 per cent growth rate projected under the historical trends scenario.

217. In line with the Lagos Plan of Action, the normative scenario aims at changing the African region's economic structure. Thus in the field of exports, it is assumed that the region as a whole should move from undue dependence on exports outside the region as the engine of growth. As a result one of the major new dimensions of the normative scenario in the export sector is the substantial expansion of intra-African trade. In this regard, on the basis of the prospects analysed under the normative scenario, intra-African trade will account for about 30 per cent of the total volume trade of the region, thus allowing for more expansion of productive capacities in individual countries. Another important dimension is the expansion of processing activities through the establishment of African multinational production corporations and joint ventures, which will allow for more flow of primary resources and products among the countries.

## 2. Imports projections under the normative scenario

218. Under the normative scenario, it is assumed that, by the year 2008, Africa will substantially improve its self-sufficiency ratios in food, energy, capital goods, intermediate goods and basic manufactured consumer products. Consequently total imports of goods and services from outside the region are projected to grow on the average at a moderate rate of about 4.5 per cent yearly. Of course this growth rate will result from a gradual slowdown in imports from outside the region in conformity with the expansion of the region's productive capacity and intra-African trade over the next 25 years.

219. Since for the African region as a whole the self-sufficiency ratio in cereals by the year 2008 was projected to reach about 85 per cent, the region would have to import about 33.6 million tons of cereals in 2008 implying a food import bill of about \$8 billion at 1980 prices. At this level, however, the share of cereals imports in total imports of goods and services from outside the region would be much lower than it is at present. Capital goods on the other hand would continue to account for a very large proportion of the region's imports since 91 per cent of commercial vehicles requirements and 55 per cent of demand for passenger cars would, by 2008, have to be imported from outside Africa. For agricultural machinery, however, the normative scenario has envisaged a dramatic increase in domestic production, thus reducing the amount of

imported agricultural equipment like tractors to about one third of the requirements by the year 2008.

220. Further, the normative scenario has projected a substantial reduction in the volume of imports of intermediate and manufactured goods. For example by the year 2008, it is projected that Africa will not have to import cement and fertilizers. Imports of pharmaceuticals and textiles fabrics would be only about 20 per cent of the total requirements of the region as a whole. However the African region will still have to import about 70 per cent of its direct and indirect iron and steel demand by the year 2008.

221. The above projections of total imports, which assume a substantial drop in import elasticity with respect to GDP, imply that the African region as a whole needs to restructure vigorously its import substitution programmes. Specifically, import substitution programmes should be envisaged at the subregional and regional levels in order to avoid duplication among countries and ensure greater efficiency and competitiveness in price and quality of regional industries. In addition, regional import substitution programmes will make it possible to lessen the present protection policies among African countries. For this policy to succeed, it has to be complemented by well articulated campaigns to encourage the African people to consume with pride Africa's own manufactured goods. Another area in which the African region would have to make a major breakthrough is that of the import of services. In this regard it is of paramount importance for the region to pool its resources in the development of skilled manpower including consultancy services, technology, shipping and air transport, insurance and banking. African countries individually and collectively should also embark on negotiations aimed at rationalizing procurement procedures with a view to minimizing foreign exchange leakages. Finally it is important to draw attention to the need to standardize imports, especially capital goods, as this would *inter alia* enable the region as a whole to consolidate its master technology through the manufacture of standardized spare parts in the region.

### 3. Finance and aid

222. As it may be seen from the projections of total imports and exports which imply a substantial reduction of the trade gap as a proportion of GDP, the African region will endeavour to mobilize and pool its resources with a view to bearing the primary responsibility for financing its development, in the spirit of national and collective self-reliance. However, domestic efforts will undoubtedly need to be supplemented by external assistance and aid. A healthy international financial environment will also be necessary. As has been noted by the World Bank, to complement the domestic efforts a "commitment is necessary from the international community . . . to increase aid and to provide assistance in ways more suitable to Africa's need than in the past and in support of the reform programmes defined by the African Governments." 51/

223. The major critical areas in the financial sphere include (a) increasing privatization of the international financial system; (b) increasing conditionality; (c) interest and exchange rates; and (d) decreasing, in real terms, of resource flows to developing countries. These problems would have to be resolved so that a more attractive financial milieu can be established. For the African region it might be useful to consider some of the proposals outlined by the Brandt Commission in the field of financial co-operation among developing countries which include "strengthening regional payments arrangements, expansion of developing countries" financial facilities including

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51/ World Bank, op.cit., p. 121.

**Table 20. Export projection of selected commodities under normative scenario**

	1980		2008		Average annual growth rate in percentage
	Quantity (thousand tons)	Value in million 1980 US dollars	Quantity (thousand tons)	Value in million 1980 US dollars	
<b>Cash crops</b>					
Coffee	957.0	3,177.2	2,834.1	9,409.2	3.9
Cocoa	837.0	1,944.3	1,961.0	4,555.4	3.1
Cotton	622.0	2,101.7	4,223.1	14,269.8	7.1
Tobacco	148.0	340.4	458.7	1,055.0	4.1
Tea	177.0	458.4	568.0	1,471.1	4.2
<b>Minerals</b>					
Copper a/	980.5 b/	2,137.5	1,578.6	3,441.3	1.6
Iron ore c/	26.2 d/	461.0	33.7	593.1	0.9
Bauxite c/	13.1	539.7	15.9	655.1	0.7
<b>Energy</b>					
Crude oil c/	279.0 b/	66,067.2	254.3	60,147.2	-0.3
Natural gas d/	13.6 b/	2,448.0	82.9	14,922.0	6.2

Source: ECA secretariat projections, 1983.

a/ Blister and refined.

b/ Figures refer to 1978.

c/ In million tons.

d/ In billion of m3.

considering the establishment of a third World Bank, support for enlarging refinancing and guaranteeing developing countries export credit facilities, increased direct investment in the third world by developing countries, reform of the IMF and World Bank in the direction of greater power sharing, . . .” 52/

224. The African region for its part will also need to strengthen its monetary and financing structures including in particular the creation of an African Monetary Fund at the regional level. As stipulated in the Lagos Plan of Action, there is need for a “complete restructuring and reorientation of the policies and programmes of monetary and financial institutions imported into

52/ Op.cit., pages 155 and 156.

African (central banks, commercial banks, etc.) in such a way as to integrate them better in the development objectives of each country.” 53/ Also, at the subregional level, existing financial co-operation arrangements should be reviewed with a view to integrating them into single subregional multilateral clearing and payment arrangements, and appropriate clearing and payment arrangements should be established in subregions where institutional payments systems do not exist.

## I. A MACRO-ECONOMIC FRAMEWORK FOR SELF-SUSTAINED ECONOMIC GROWTH

225. Under the normative scenario, gross domestic product is projected to grow at an average annual rate of about 7.3 per cent during the period 1980-2008. Such growth performance would be accompanied by consistent sectoral expansion and, of course, structural changes particularly in key sectors such as food and agriculture, manufacturing, energy and mining, and transport and communications. Similarly, the evolution of the main domestic expenditure variables, namely consumption, savings and investment, and the external sector is projected with a view to increasing self-reliance and self-sustained economic growth for the region as a whole.

### 1. Selected sectoral performance under the normative scenario

226. The agricultural sector is planned to grow at an average annual rate of 4.3 per cent between 1980 and 2008 with emphasis on food production so as to ensure the attainment of an overall self-sufficiency in food. Such substantially improved growth performance would necessitate a new focus on the agricultural sector with radically improved national and regional agricultural policies. Particular attention will have to be given to increased and more appropriately distributed agricultural investment, enlargement of national and subregional markets in order to boost the demand for agricultural products within the region, adoption of effective pricing and fiscal policies in favour of agricultural producers, promotion of small-scale agro-processing industries in the rural sector and easy access of farmers to agricultural inputs, extension services and credit facilities.

227. Industry as a whole is projected to grow at an average annual rate of 8.8 per cent during the period 1980-2008. The manufacturing mining and energy sectors are projected to be the major source of industrial expansion. As pointed out in the analysis of some critical variables in industry under the normative scenario, the growth in the manufacturing sector would have to involve increased transformation of raw materials into finished products so as *inter alia*, to establish the base for the increased production of agricultural machinery, transport equipment, chemicals and basic intermediate products such as building materials, fertilizers and iron and steel. To ensure an efficient industrial production pattern, national and subregional policies should aim at promoting entrepreneurial capabilities especially for small- and medium-scale private enterprises and at improving management and technical skills. Multinational enterprises or joint ventures in the productive sectors for more efficient resource utilisation would also seem to be an important area in the overall industrial development of the African region.

228. The energy sector is also projected to contribute substantially to the overall performance of industry. With the projected expansion in electricity, coal and gas production together with an improved supply of crude petroleum to meet the needs of the African region, the mining and energy sectors would grow at an average annual rate of well over 6 per cent during the period 1980-2008. However the achievement of such performance implies increased subregional and regional co-operation.

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53/ A/S-II/14, annex 1.

229. The implementation of the United Nations Transport and Communications Decade for Africa and the materialization of more subregional economic co-operation arrangements as well as the setting up of an African common market would contribute substantially to the acceleration in the rate of growth of the transport and communication sector to reach about 7.5 per cent per annum on the average between 1980 and 2008. Also, the projected increase in the domestic supply of transport equipment and the improved maintenance system would contribute to a steadier development of transport activities, especially when a better regional energy balance is achieved

## 2. Domestic expenditure and external trade under the normative scenario

230. With the objectives of self-reliance in most of the key areas analysed in the precedings sections and the overall target of growth of over 7 per cent per annum during the period 1980-2008, investment is projected to have to increase at an average annual rate of about 8.5 per cent. At this rate the share of investment in total GDP would rise to about 30 per cent by the year 2008. Moreover, such an increase in investment is expected to be accompanied by an improvement in capital efficiency with an incremental capital output ratio maintained at around 4 in spite of the required heavy investments in economic infrastructure, energy resources and the heavy industry sector. Actually the improvement in capital efficiency would have to be based essentially on an internalization of the factors of production through the use of domestic factor inputs and the improvement of corporate planning and management.

231. To realize such a high level of investment, domestic savings would have to increase to reach a level of well above 20 per cent of gross domestic product. It should be noted that, from the projected levels of the key variables, a large proportion of the consumption of food, intermediate goods, energy and some capital and consumer goods could be supplied domestically by 2008, thus reducing substantially the negative effects of imports on the level of consumption. Such a change in the consumption pattern would, hopefully, result in a higher saving rate for the region as a whole. Also, a critical review of company tax policies and depreciation allowances together with a rationalization of pricing policies in both public and private enterprises could increase corporate savings and consequently government revenue and public savings. Finally, if efforts are made to control the level of resource leakages in the African economies, tremendous savings could be made in the next 25 years.

232. In the external sector, increased subregional co-operation and intra-African trade as well as stronger trade relationships with other developing regions would make it possible for most African countries to register an export growth of about 5 per cent per annum during the period 1980-2008. Such export performance, especially in the context of intra-African trade, would have to be based on diversification so that African countries can trade among themselves in the commodities they require. The anticipated shift in the direction of trade from North-South to South-South as well as the projected increase in domestic supply would make it possible to reduce the import elasticity of the region as a whole to below 1 by 2008. Hence the overall external balance of African countries is projected to improve substantially.

## J. SOME QUALITATIVE ASPECTS OF THE DEVELOPMENT SCENARIO

233. From the various results of the normative scenario, it would seem that African countries would have to restructure their economies extensively in order to achieve the above targets. The dynamics of development would have to be based on the region's own resources and potential instead of depending on earning enough foreign exchange to run a whole economy as is the case at present. The countries will have to establish - perhaps jointly - capital, intermediate and consumer goods industries. This means that foreign trade has to be perceived as a component of growth

rather than as its sole determinant. Thus, the main thrust of the normative scenario is that Africa's future development should be conceived not in terms of how much GDP but rather in terms of how much actual physical goods are being produced with local expertise and domestic resources and how much change is being made to structure the economy in terms of diversification and greater vertical and horizontal sectoral integration. On the part of the African people, it seems critical to aim at more far-sighted perceptions and a greater feeling of collective responsibility so that qualitative and quantitative changes can be achieved in areas like savings, consumption, investments, etc.

234. Development must be thought of as a long, continuous and arduous process. Some of the essential elements of the development process to which little attention is given include important areas like systematic collection, classification, storage, retrieval and use of information, analysis of such information in order to illustrate options, selection of viable choices, planning, execution, review, mobilization of inanimate as well as human resources and, last but not least, project analysis, design and implementation. These features are undoubtedly administrative and managerial. Further, the development process requires explicit methods of co-ordination, clarity of purpose and direction as well as the capacity to ensure continuity and self-sustainment in the midst of international uncertainties. In short, for a development process to be carried out successfully effective organization is necessary.

235. Lack of organization causes wastage of resources, dissipation of effort and in the end failure and frustration which may lead to political upheavals and instability. Often, lack of organization can even put those countries which have the necessary resources in development bottlenecks and thereby place them at the mercy of foreign exploiters. The symptoms of economic malfunctions which are mentioned in the first and second parts of this study would then be inevitable. In the end, the policy-makers as well as the technical and professional cadres would find themselves helpless and ineffective.

236. Furthermore, every sector of the economy will need effective institutional machinery. Agriculture, industry, natural resources, transport and communication, trade and finance will need the support of efficient institutions such as ministries, public enterprises and private organizations and companies. These institutions would have to have the right environment and incentives to achieve concrete results in the shortest possible time without wasting resources. To enable these institutions to be efficient it is necessary that they be staffed with men and women with the necessary expertise that ensures the right relationship between the activities and the objectives of development. The expertise would, therefore, need to have the capability to prepare and design projects, to map out efficient uses of investment funds, to screen project proposals and to make the necessary analysis of issues so as to be able to make pertinent policy recommendations.

237. Finally for the projections envisaged in the 'willed future' scenario to materialize, it has been repeatedly emphasized that economic co-operation and integration is not only necessary but must be stepped up and sustained to match the rigorous demands of the Lagos Plan of Action and the Monrovia Strategy. As was noted, the development scenario sums up the picture of success of co-operative efforts such as the United Nations Transport and Communications Decade, the Industrial Development Decade for Africa, the Preferential Trade Area for Eastern and Southern African States, the Southern African Development Co-ordination Conference, the Economic Community of West African States, the emerging Economic Community of Central African States, etc. It needs therefore to be emphasized that there are particular sectors of this scenario whose success hinges critically on the fulfilment of economic co-operation and integration efforts. The energy sector and the industrial sector, to cite but two, are cases in point. Whether attention is focused on the establishment of a capital goods sector, or on self-sufficiency in industrial raw materials, or on Africa's demand for textiles and pharmaceuticals being met out of

its own domestic production, the conclusion is inescapable that no industrial take-off will be possible unless the envisaged degree of regional and subregional economic co-operation is achieved. This means, *inter alia*, that an African Economic Community should materialize by the year 2000, which, in turn, implies that current efforts to forge subregional common markets through the MULPOC must bear fruit.

**PART IV**

**THE WAY TO A WILLED FUTURE: SOME CONCLUDING REMARKS**

## A. REFLECTIONS ON AFRICA'S FUTURE DEVELOPMENT PATHS: AN OVERVIEW

238. A diagnosis of the African situation - social, political and economic - has been attempted on many occasions by many eminent Africans. <sup>54/</sup> The assessment, in all cases, has been unanimous: the African region is most seriously affected by the burden of underdevelopment. In spite of its vast human and natural resources, in spite of the efforts of its leaders and the dedication of its people, the region is unable to boast of any significant achievement of wellbeing. The use of its resources is not only below its potential but also in the hands of outsiders. Mass poverty, unemployment, social unrest, disease, hunger and ignorance continue to plague the region. As a result, Africa continues to resound with cries of distress.

239. The present study set out not to restate the known elements of an already well understood diagnosis. Instead, the study tried to sketch out alternative African conditions - mainly from the economic and social point of view - 25 years from now. In peering into the future of the year 2008, the present analysis tried to reflect on the nature and content of two alternative development paths or scenarios. The first scenario dealt with the perspective of the African region by the year 2008 if the past development trends were to continue without major conscious changes in patterns of production, distribution and lifestyles on the African people. The second scenario is intended to form a clearer basis for the answer to the question posed many years ago. Which way Africa? No doubt, the wisdom and foresight of the leaders of Africa already culminated in a succinct formulation of the answer to the question when the Lagos Plan of Action was adopted by the extra-ordinary summit of Heads of State and Government. Thus, the development scenario described in this study is only a preliminary "peep" into the beautiful and mature African region that the leaders had in mind when they adopted the Monrovia Strategy, the Lagos Plan of Action and the Final Act of Lagos. The major thrust of the scenario is to give some idea of the orders of magnitude of effort that would seem necessary for achieving a willed future compatible with the potential and possibilities of the region.

### 1. Some consequences of maintaining the status quo

240. The picture that emerges from the analysis of the perspective of the African region by the year 2008 under the historical trend scenario is almost a nightmare. Bearing in mind that the future of 2008 is the future of the young and unborn children of Africa today, the implications have to be taken seriously. Firstly, the potential population explosion would have tremendous repercussions on the region's physical resources such as land and the essential social services - education, health, housing, nutrition, water, etc. At the national level, the socio-economic conditions would be characterised by a degradation of the very essence of human dignity. The rural population, which would have to survive on intolerable toil, will face an almost disastrous situation of land scarcity whereby whole families would have to subsist on a mere hectare of land.

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<sup>54/</sup> See for example: OAU, What kind of Africa by the year 2000, 1979, Adebayo Adedeji, Africa and the New International Economic Order: A Reassessment, 1979, Ali Mazrui, The African Condition, 1979 and also Report of the Seminar on Alternative Patterns of Development and Life Styles for the African Region, 1979.

Poverty would reach unimaginable dimensions since rural incomes would become almost negligible relative to the cost of physical goods and services.

241. The conditions in the urban centres would also worsen with more shanty towns, more congested roads, more beggars and more delinquents. The level of the unemployed searching desperately for the means to survive would imply increased crime rates and misery. But, alongside the misery, there would continue to be those very few who, unashamedly, would demonstrate an even higher degree of conspicuous consumption. These very few would continue to demand that the national department stores be filled with imports of luxury goods even if spare parts for essential production units cannot be procured for lack of foreign exchange.

242. Against such a background of misery and social injustice, the political situation would inevitably be difficult. The very consequence of extreme poverty would be social tensions and unrest which, in turn, would result in political instability. Management systems, which are at the very core of a proper development that produces the necessary physical goods and services for the people, would be increasingly undermined by problems of corruption, nepotism and inefficiency. Further, the weak and fragile social political structure would mean highly unstable national structures vis-à-vis external powers and forces. With increased food shortages, many Governments would be put at the mercy of food donors with many implicit strings that undermine deliberate national action for progress. With the continuous and cumulative financial difficulties, Governments would have little choice but to yield to the often unkind designs of international monopoly capital. As a result, the very notion of national sovereignty would be at stake.

243. At the subregional and regional levels, the implications of the historical scenario are as disastrous as at the national level. Firstly, as a result of the penetration by outside forces given very weak social, political and economic national structures, the African region would, by 2008, be under a new and more dangerous form of balkanisation: a balkanisation in terms of markets to dump the products of other regions and in terms of international power games. This neo-parcelling of Africa would mean that the region would face a crisis of identity. The different African countries - with only apparent sovereignty - would look at each other in terms of the "camp of donors" to which they belonged. The psychological and cultural erosion that such a situation would bring about would then complete the sorry picture of a resigned, depleted and self-pitying continent.

## 2. Features of another future for Africa

244. Faced with such a disturbing and unacceptable situation in Africa by the year 2008 if present trends were to continue, it is imperative to explore an alternative future, assess its internal logic, coherence and derive - albeit vaguely - the necessary course of action. The normative scenario hazarded to map out, on the basis of some selected critical areas, the quantitative elements of a willed future. But it is important to reiterate here the main features of the envisaged future of a fully liberated and matured continent.

245. Can the dream of an African free from hunger, disease, unemployment and poverty, social and cultural imbalances, external domination and racism come true? Can Africa come to terms with the idea of autonomy and collective and self-reliance? The history of mankind and that of many other regions persuades one to be unequivocal about the potential of the African region. Then the question is what future should Africa set out to conquer by the year 2008. Firstly, the African region has to aim at a future which recognises that man is the author and beneficiary of development. Thus, the very first element that has to characterise Africa's future by the year 2008 relates to the development and utilisation of the human factor. In this respect the edu-

cation system by the year 2008 should have been redesigned such that there are no barriers between education and employment, education and society, education and culture, education and technology, etc. Similarly, the socio-political milieu in which the individual exists simultaneously as a generator and consumer of wealth has to be tuned so as to bring out of society, while at the same time offering society, the best of life. This means that at the national level the democratisation of the entire social, economic and political subsystems is a necessary feature of Africa's future.

246. Secondly, the normative scenario has repeatedly drawn attention to the need for a new lifestyle for the African people. The analyses of the development scenario poignantly show the disastrous implications of consuming what Africa does not produce while neglecting its own products. This calls for a new social feature of self-confidence and pride. In this respect it should be noted that, while the development scenario did not project total self-sufficiency in all physical products and services, it emphasized the need to eliminate the social and psychological dependency of society that brings about unwarranted mimicry. Indeed, the indigenisation of the African economy, the attainment of self-reliance, the expansion of domestic production capabilities and markets, innovation, etc. cannot come about if the African region remains psychologically dependent on other regions. Thus, new cultural, social and scientific values have to become important features of Africa's socio-economic development by the coming century.

247. But in addition to the national features, the African region has to be convinced that effective and meaningful co-operation among African States is a necessary for the willed future analysed in the normative scenario. Given the balkanisation of the region and the large number of small economies, given the many land-locked countries and given the disparities in resource endowments, regional co-operation becomes a critical complement to national self-reliance. If the willed future is to materialize, the region as a whole has to develop the will to co-operate in all fields - food, energy, industry, transport, trade, money and finance, human resource development, etc.

248. To complete the picture of the development scenario for the year 2008, it is pertinent to reflect on the features of the international environment that Africa would wish to prevail in the next century. There is, of course, little doubt that world peace will be necessary for Africa to achieve its aspirations. But, in addition, Africa will require a better and more equitable international economic order and the region as a whole must be convinced that with solidarity it can and, indeed, must negotiate to bring about a new international order. This order must be such that Africa will be an equal partner in the production, distribution and consumption of the world's wealth. The world order must hear the voice of Africa in the formulation and implementation of decisions that affect international relations. That world order must recognize, accept and respect the sovereignty of the African States.

## **B. ACTION TOWARDS A 'WILLED FUTURE'**

249. The socio-economic prospects for the African region under the historical trends scenario are undoubtedly undesirable. Therefore a radical change of the African social, economic and political environment is urgently called for to lay the foundation of individual and collective

self-reliance and self-sustainment. On many occasions <sup>55/</sup>, African Governments and inter-governmental organizations have stressed the dangers of continuing with past policies and the imperative need for a change of course. Since Africa is not resource-poor, bringing about the desired change is not impossible. What is necessary, if perhaps not sufficient, is for African Governments and people to resolve to break with the past concepts, habits, attitudes, approaches, etc. Hence, to avoid the terrible spectre of increasing mass poverty, unemployment and general instability which are implied in the historical trends scenario and to create the basis for the normative scenario, African countries must devise and implement adequate national, subregional and regional measures. In other words the future emerging from the normative scenario depends mainly on the "will" of Africa i.e. its people to initiate change.

### 1. National measures

#### (a) *Necessary increased economic sovereignty*

250. The analysis of the present situation of the African region has already pointed out the weakness of the region with respect to the knowledge of and sovereignty over its huge natural resources. It is therefore particularly important for individual African countries to undertake a complete inventory of water, forestry, mineral and energy resources with a view to laying the basis for efficient and rigorous management of those resources. In addition, the promotion of local skilled manpower for the exploration and exploitation of natural resources is a main instrument for ensuring control of African countries over their natural resources since natural resources are the basis of all production especially in the industrial sector. Actually, the industrial take-off contemplated in the normative scenario cannot be envisaged without the African people mastering Africa's natural resources.

251. Generally, there is a need to exercise more efficient control over key areas such as mining, manufacturing, banking and finance, insurance and transport and communications which, in many African countries, are directly or indirectly dominated by transnational corporations. Such an objective could be achieved through better knowledge of the activities of the transnational corporations with a view to substituting the internal factors of production for external ones. More specifically, the development of appropriate manpower skills for project formulation, analysis and implementation, for corporate planning and management and for productive activities including production control together with the mastery of technology are critical prerequisites in the process of internalizing the factors and forces of production and people-oriented development.

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<sup>55/</sup> ECA, ("Revised framework of principles for the implementation of the new international economic order in Africa" (E/CN.14/ECO/90/Rev.3).

"What kind of Africa by the year 2000" final report of Symposium on the Future Development Prospects of Africa up to the year 2000 (E/CN.14/698/Add.2), Monrovia, 12-16 February 1978.

OAU, "Strategy for the African region in the International Development Strategy for the Third United Nations Development Decade". Resolution CM/Res.722(XXXIII), Monrovia, July 1979.

United Nations, "Lagos Plan of Action for the Economic Development of Africa 1980-2000" (A/S-II/14, annex 1.)

(b) *Proper perception of socio-economic development and more efficient design and implementation of development plans*

252. To make radical changes, it is necessary to have clear perceptions of socio-economic development and to establish efficient planning and plan implementation systems. Thus, Africa has to appreciate the ultimate purpose of development as "the development of man - the realisation and unfolding of his creative potential through improvement not only in his material conditions of living which enable him to fulfil his psychological needs but also through the satisfaction of his psychic needs." <sup>56/</sup> Consequently, in addition to giving high priority to the production of goods and services for the purpose of raising the standard of living of the people, development should equally be based on the values, cultures, goals, aspirations and preferences of the African people. Such an approach is the only way to ensuring the self-confidence of the population and laying the foundation of self-reliant and self-sustained development.

253. Such an approach means placing the human factor at the centre of socio-economic development. In addition, African countries would have to improve their planning methods as well as the plan implementation process through, *inter alia*, (a) involving all socio-economic agents in setting up the plan's objectives, targets and strategies, (b) analysing the range of domestic factor inputs (human, material, capital, institutional, financial, organizational) with a view to their effective mobilization, (c) taking into consideration sectoral interdependence with a view to covering all economic and social sectors and activities and to correcting organic imbalances and (d) defining and setting up follow-up and evaluation mechanisms. In addition, African countries must make every effort to clearly identify the new "engines of growth" or "essential cores" of their future development, so as to ensure greater and internally dependent transformations.

(c) *Improvement of the political and social environment*

254. Experience in many African countries has amply demonstrated that the creation of a peaceful and serene political and social climate is a must if the ultimate goal of development is to be achieved. Even with full control over natural resources and sound development objectives and strategies, the lack of social, political and economic justice would nullify the very achievement of sovereignty. It is therefore imperative for African Governments to take or strengthen such measures to ensure (a) the full participation of the people in all the dimensions of a genuine development; (b) the creation of equal opportunities for all; and (c) innovation from within Africa.

255. It must further be appreciated that an improved political and social climate is not merely a guarantee for political stability but a *sine qua non* for the blooming of the genius of the African people who, in the pre-colonial period proved themselves highly resourceful in many activities. What is required from African Governments is to make it possible for the population to interrelate positively with all the development variables: natural and financial resources, development institutions, local and foreign technologies. To this effect, full cognizance should be taken of the positive elements of the African traditions and customs.

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<sup>56/</sup> Adebayo Adedeji "Perspectives of development and economic growth in Africa up to the year 2008". Statement at the Monrovia Symposium on the future development prospects of Africa towards the year 2000.

(d) *Domestic policies*

256. Domestic policies in African countries need also to be strengthened particularly in key areas such as food and agriculture, industry, money and finance. Most of such policies have already been discussed in the preceding analyses of the two scenarios. However, it is worth highlighting some of the policy areas of critical importance for the successful implementation of the normative scenario. In agriculture, to achieve the objective of food self-sufficiency African countries must embark upon comprehensive measures including provision of better inputs to farmers, promotion of improved cultural practices, strengthening of storage capacities, remunerative pricing policies and establishment of land-holding systems conducive to increased output per unit of land.

257. In energy, national measures must supplement the regional co-operation arrangements which are called for in the normative scenario. Such domestic measures include conservation policies, promotion of rural electrification, intensification of the domestic use of solar and wind energies and introduction of small hydropower schemes. To rationalise the price structure in energy, energy prices must be maintained at levels that reflect the real economic cost of each type of energy. Only then can it be ensured that each African developing country adjusts to the evolving energy situation and that end-users are given the appropriate signals for more rational consumption patterns. Finally, the inefficient use of fuelwood has to be remedied by, *inter alia*, the development of more efficiently designed cooking stoves.

258. The major domestic policies required in the industrial sector include the need to rehabilitate the present industrial establishment. The rehabilitation policies should be directed mainly to the reduction of the cost of production and increasing the utilization of capacities. Secondly, since the normative scenario envisages the possibility for the African region to embark on increased production of capital and intermediate industrial goods, industrial policies will be required to (a) establish institutions for promoting studies, research, standardization and other services; (b) create or strengthen financial institutions; (c) promote small and medium-scale industries; and (d) monitor the activities of transnational corporations. It should, however, be emphasized that the industrial take-off of developing Africa rests mainly on increased subregional and regional co-operation in areas such as creation of major industrial complexes, training, technology, engineering consultancy, finance, etc.

259. Finally, domestic policies required to achieve the normative scenario should also cover key areas such as management and skill development, money and finance. To develop the managerial capabilities, African countries must reform their present administrative and management systems in both the public and the private sectors so as to make them more result-oriented. In the field of money and finance, African countries must devise policies aimed at reducing the present average annual rate of inflation of over 15 per cent, which not only constrains the ability of Governments to increase taxation, both direct and indirect, but also affects the level of public and private savings. It has also been mentioned earlier that, in order to increase domestic financial resources, attention should be given to company tax policies, pricing policies of enterprises as well as to the rural area with the potential for increasing savings. With respect to the preservation of foreign exchange resources, African countries need to reduce the present foreign exchange leakages through, *inter alia*, (a) the establishment of African insurance and shipping companies; (b) the formation of consultancy groups; and (c) the creation or strengthening of support services to public and private enterprises in various areas such as external trade negotiations, feasibility studies, etc.

## 2. Action at the subregional and regional levels

260 It has been repeatedly emphasized throughout this study that the balkanisation of the continent was one of the constraints to African development. There is no doubt therefore that

economic co-operation is a must in areas such as energy, industry, transport and communications and trade. Although it is not intended here to repeat what was already detailed as subregional and regional components in the United Nations Transport and Communications Decade for Africa and in the Industrial Development Decade, nor the existing or planned arrangements included in the treaties and protocols of the present subregional economic groupings, some critical measures at the subregional and regional levels do have to be reiterated in the context of the normative scenario.

*(a) Lessening subregional and regional tensions*

261. Peace at the subregional level as at the national and world levels is a necessity for achieving collective self-reliance. This would mean that African countries have to maintain brotherly relations with less selfishness, as tension between countries has on many occasions brought about serious economic and social distortions in the countries concerned. It is therefore imperative, especially for the existing subregional economic groupings, to put into practice the protocols related to the free movement of persons and free entrepreneurship. The democratisation of development is as important at the subregional and regional levels as at the national level.

*(b) The need to increase African solidarity*

262 African countries, bilaterally or multilaterally, need to strengthen their solidarity in all fields with a view to taking advantage of common culture, traditions and resources. Already some developments in fields like bilateral joint ventures in production activities and joint development of river basin and lake basin resources are taking shape. But there is still need for African countries to harmonize and concretise their policies and regulations especially in the areas of taxation, investment codes, exchange rates, utilization of skilled manpower, etc. so as to maximize the results of bilateral and multilateral economic activities.

*(c) The need for more effective subregional and regional technical co-operation institutions and economic co-operation organizations*

263 African countries have already courageously embarked on creating co-operation arrangements and institutions which need to be strengthened and expanded in the fields of training, mapping, mineral resource, technology, money and finance, production and trade, etc. Concrete measures to strengthen the present institutions and economic organizations should include increased financial support from African countries and increased use of the services provided by such co-operation arrangements and institutions in the context of the need to internalize all factors of development. In addition, the extent to which African countries will manage to influence the direction and content of events in the world at large will depend on the development and expansion of intra-African technical and economic relations.

### C. THE ROLE OF THE ECONOMIC COMMISSION FOR AFRICA

264. In making the transition from the present difficult conditions to a decidedly better future by the year 2008, the institutions of the African region will have to play important roles. Of course, during the past 25 years the Economic Commission for Africa and its secretariat have been relentless in contributing to African development. <sup>57/</sup> The commission has become a useful forum for negotiations by member States on common problems and for evolving joint positions on international issues in the economic, social and technological fields. Further, the

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<sup>57/</sup> For full details see: ECA, Twenty-five years of service to African development and integration, 1983.

Commission has, particularly through the activities of its secretariat, made valuable studies and publications on the development and economic growth problems of the continent for use by member States and their institutions, researchers, international organizations, etc. Technical advisory services, training as well as the creation of pivotal development institutions have been undertaken by the Commission to foster the advancement and integration of the region. Similarly the operational activities of the secretariat of the Commission have been usefully expanded to serve the member States more effectively.

265. But, while the Commission and its secretariat have recorded such remarkable achievements the justified desire for a better Africa will call for new roles and new challenges for the ECA and its secretariat. The new dimensions in the development scenario will necessitate new dimensions in the activities of the Commission as well as the strengthening of those traditional areas of the secretariat.

#### **1. The Commission as a forum for negotiations and decisions**

266. The realization of the goal of collective self-reliance, the establishment of an African Common Market or the effective negotiation of a new international economic order will, no doubt, require that the Commission expand its role as a forum for negotiations and as a channel between the African countries and the international community. While the success of the role of the Commission as a forum for negotiations will depend on the political will of the member States, the secretariat will have to gear itself to face the challenge of bringing up the necessary issues for negotiations, as well as creating the right environment for successful negotiation among member States. This will constitute a challenge in terms of both the quality and the sense of dedication of the secretariat. It will also require that the secretariat will not be constrained by the problem of inadequacy of budgetary resources.

#### **2. Intensified secretariat activities**

267. The secretariat of the Economic Commission for Africa in the next 25 years will have to intensify its activities in the areas of research, data collection analysis and dissemination, organization of conferences, expert meetings, workshops, etc. In this regard, the secretariat will have to reorient its activities so as to become more practical and a catalyst in the development of the member States. In line with the necessary changes called for in production patterns and lifestyles of member States, the secretariat will have to undertake research in new areas so that the African countries will have a greater insight into problems and their solutions for keeping on the development path that will ensure that the development scenario materializes.

#### **3. ECA and institution-building in Africa**

268. In terms of the development and economic growth needs of Africa more institutions for collective action will be inevitable. Examples are many from the normative scenario: iron and steel development, monetary integration, energy, and human resource development, etc. Therefore the Economic Commission for Africa will in the next 25 years continue selectively to encourage the establishment of institutions in Africa. Naturally, due attention will have to be paid to the ways and means of financing the activities of the institutions so that member States are not overburdened by the financial implications.

#### **4. ECA and the promotion of economic and technical co-operation**

269. In calling for the creation of an African Economic Community by the year 2000, African Heads of State and Government highlighted the steps that would have to be taken, namely (a) the strengthening of existing regional and economic communities and the establishment of

others; (b) sectoral integration at the continental level; and (c) harmonization of financial and monetary policies. It is clear that, if these steps are to be coherently implemented, a central mechanism is necessary. Therefore, the Economic Commission for Africa and its secretariat, supported by the general secretariat of the Organization of African Unity, will have to continue its present efforts to promote economic and technical co-operation among its member States.

#### 5. The ECA secretariat as a regional 'think tank'

270. Already, the ECA secretariat has shown its potential in originating ideas dedicated to changing development patterns in Africa for the better. Indeed, the origins of the Monrovia Strategy, the Lagos Plan of Action and the Final Act of Lagos can be traced to the bold initiative of the secretariat to recommend, after analyzing the historical processes of development, economic growth, technological change, etc., that Africa needed a new national and regional economic order. <sup>58/</sup> In view of the complexity of development and the intricacy of implementing a genuine development process, continuous assessment and reassessment of problems and solutions will be essential. Thus, the secretariat of the Economic Commission for Africa will have to be strengthened so as to act efficiently as a centre for development in Africa. It will also be necessary to co-ordinate the activities of national and subregional research institutions so that there is a spread, popularization and internalisation of Africa's own attitudes and approaches to development.

#### 6. ECA at the operational level

271 The evolution of the Economic Commission for Africa and its secretariat in the next 25 years should, *inter alia*, involve the further development of capabilities for project-oriented activities. There cannot be any doubt that the attainment of the various targets of the normative scenario will depend on the national, subregional and regional projects that will be conceived, formulated and implemented. Therefore, assuming that the political will to co-operate will be forthcoming, the secretariat should intensify its efforts in the area of training in project identification and analysis, project implementation, monitoring and evaluation as well as spatial planning. Through such an elaboration of subregional and regional projects, the ECA secretariat will be playing the critical role of consolidating subregional and regional co-operation.

#### D. THE ROLE OF THE INTERNATIONAL COMMUNITY IN SUPPORTING AFRICA'S MOVE TOWARDS THE 'WILLED FUTURE'

272 In the preceding sections, great emphasis was put on measures which African countries and African inter-governmental organizations, particularly ECA, should devise and implement in order to achieve the objectives of the development scenario. But these measures will not be enough if the international economic order continues to oppress the efforts of developing countries in general and of developing Africa in particular. Hence, while Africa, through its own efforts at the country, subregional and regional levels, should and must endeavour to influence world affairs, the early establishment of a new international economic order constitutes a major element in the successful transition to a "willed future". The major changes that are called for in the present international economic order relate to both the international structures of production, trade and finance and international institutions.

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<sup>58/</sup> See "Revised framework of principles for the implementation of the new international economic order in Africa" (E/CN.14/ECO/90/Rev.3).

## 1. Required international structural changes

### (a) *Africa and developed countries*

273. The efforts required to achieve such objectives as food self-sufficiency, production of capital and intermediate industrial goods, exploitation of the hydropower potential, building an integrated transport and communications network, etc, would undoubtedly necessitate the support of the international community. Thus external resources complementary to the domestic ones would be needed, under appropriate terms and conditions, and the developed countries and other capital-surplus countries should be ready to assist the African region positively to realize its objectives. In particular it is more than urgent that the commitment made by all developed countries to devote 0.7 per cent and 0.15 per cent of their gross national product to official development assistance to developing countries and to the least developed countries respectively is realized soon.

274. In addition to the increased flow of resources to the African region, the developed countries should also encourage and support such measures as (a) more processing of new materials and increased linkages among economic sectors in African countries; (b) stabilization of the price of export commodities and improvement of the terms of trade and African countries; (c) removal of all trade barriers vis-à-vis African countries; (d) promotion of research in science and technology.

275. As summarized by the Executive Secretary of the Economic Commission for Africa, 59/ "the agenda for a new international economic order will therefore include the following: (i) international effort to enable Africa to achieve effective sovereignty over its natural resources; (ii) international support for the physical integration of Africa through full co-operation in the implementation of the United Nations Transport and Communications Decade 1978 to 1988; (iii) international co-operation to achieve a break through in manpower development in Africa; (iv) decolonization of Africa's colonial monetary arrangements and the setting up of an African monetary system; (v) respect for Africa's political independence and the elimination of outside manipulation of the African economy by outside powers with a view to frustrating the achievement of national and regional economic objectives; (vi) acceptance by the entire international community that Africa's continued economic backwardness constitutes a danger to world peace and stability and consequently an international agreement to provide Africa with the wherewithal to enable her to achieve a new national and regional order by the year 2000".

### (b) *Africa and South-South technical and economic co-operation*

276. At a time of increasingly inward-looking policies in many of the developed countries, it is necessary that developing countries should increase and strengthen their economic relations. 60/ In the previous section, selected measures were briefly outlined in relation to subregional and regional co-operation in the African region. Similarly interregional co-operation would be of great importance for the success of the development scenario since Africa could benefit largely from development experiences of other regions like Latin America, China and Asia.

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<sup>59/</sup> Adebayo Adedeji, *Africa and the new international economic order: A Reassessment*; December 1979.

<sup>60/</sup> A detailed analysis of areas for increased South-South co-operation is contained in the report of seventeenth session of the Committee for Development Planning - Official Records, Economic and Social Council 1981, Supplement No. 7 E/1981/27.

277. Similarly capital-surplus developing countries can greatly assist Africa through, *inter alia*, the expansion of the recent policies of direct transfers of resources to developing Africa instead of transferring such resources to other regions or to multilateral institutions which are dominated by the industrialized countries. Also capital-surplus developing countries could, in the framework of appropriate arrangements and safeguards, invest more in the African region or open soft-loan windows in African subregional or regional development banks.

278. In the field of technology, Africa could strengthen its technological capabilities and skills through greater exchange of information with and training in other developing regions. Another important aspect of co-operation in technology is the use by African countries of consultancy firms and skilled manpower from other developing regions. More generally interregional co-operation would help the African region in expediting the building of its infrastructure and its industrial base through, *inter alia*, the use of low cost technologies.

## 2. Improved international institutions and mechanisms

279. African countries form part of the international structure and as such they belong to many of the world's international institutions. But, in line with Africa's call for a new international economic order, the international institutions would also have to change so that they are more responsive to the needs of all regions. Actually there is need "to define their functions more specifically in relation to one another, to adapt government membership to trends in the world economy and to improve the way these organizations operate" <sup>61/</sup> It is in this context that several proposals have been and continue to be made in different fora. If a truly new international economic order is to be implemented there is need for (a) more balanced and democratic representation of developing countries in the decision-making processes of international institutions; (b) an integrated reform of the world's monetary, financial and trade-regulating international institutions; and (c) the creation of a world development fund to ensure a substantial increase in long-term development finance. <sup>62/</sup>

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<sup>61/</sup> Organization for Economic Co-operation and Development, *Facing the future - Mastering the probable and managing the unpredictable* - Paris, 1979.

<sup>62/</sup> See Committee for Development Planning - Report on the sixteenth session - Official records, Economic and Social Council, 1980 - Supplement No. 2.