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**SURVEY ON INCORPORATING THE ENVIRONMENTAL
DIMENSION INTO DEVELOPMENT PLANS**

PART TWO

**INCORPORATION OF ENVIRONMENTAL CONCERNS INTO DEVELOPMENT
PLANNING IN THE ESCWA MEMBER COUNTRIES**



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Preface

Environmentally sustainable economic development cannot be achieved without significant changes in how nations plan and direct their economic initiatives. The realization of these changes is a challenging goal for all countries in the ESCWA region, because responsibility for environmental and economic matters is fragmented between and within ministries and local governing bodies. The fragmentation has led to different approaches in the various economic sectors and political jurisdictions.

The challenge for the countries in the ESCWA region is this: countries can no longer afford to wait for evidence of environmental degradation before mobilizing the resources necessary to correct the damage. That method is both costly and ineffective. Clearly, the remedial approach to environmental issues is not enough. It is merely crisis management in response to specific problems; it does not go back to basic causes, causes that may originate in agricultural and/or industrial policies, conflicting resource development strategies or society's attitudes. In the short term, many actions meant to mitigate environmental damage give the appearance of success. In the long run, however, this success proves ephemeral as the cause of the problem continues to perpetuate the crisis. The only way out, and the most efficient path to sustainable development, is through the integration of environmental concerns into development planning. Adopting the principle that prevention is better than cure is certainly less costly and more efficient than dealing with the problems after they have occurred.

CONTENTS

| | <i>Page</i> |
|--|---------------|
| Acknowledgments..... | iii |
| Preface | v |
| Introduction | 1 |
| <i>Chapter</i> | |
| I. EVOLVING CONCEPTS AND DEFINITIONS..... | 4 |
| A. Economic growth | 4 |
| B. Development | 4 |
| C. Sustainable development..... | 5 |
| D. Sustainable economic development | 6 |
| E. Sustainability analysis..... | 7 |
| F. Economic reform and the environment..... | 8 |
| G. Globalization and the environment | 9 |
| II. DEVELOPMENT PLANNING AND ENVIRONMENT | 11 |
| A. Prerequisites for environmentally sound planning..... | 12 |
| B. Methods for incorporating environmental considerations into development planning | 13 |
| III. THE SITUATION IN THE ESCWA REGION | 17 |
| A. Patterns of development and their environmental impact..... | 17 |
| B. Towards alternative patterns of development | 22 |
| IV. CASE-STUDIES..... | 25 |
| A. Egypt..... | 25 |
| B. Saudi Arabia..... | 27 |
| C. Yemen | 29 |
| V. RECOMMENDATIONS | 32 |
| <i>Box.</i> Examples of deterioration of natural resources | 18 |
| <i>References</i> | 34 |

INTRODUCTION

1. The debate on environment and development is not new, although it is often perceived as new. Aristotle, writing in the fourth century B.C., contended that poverty would inevitably result if no limits were placed on the rate of human reproduction. In other words, the number of people and their level of consumption could not both increase in the long run. Other writers in the Greco-Roman era, as well as in Chinese antiquity, regularly deplored the effects of ongoing overconsumption of resources, overgrazing, deforestation, erosion, and desertification. About two centuries ago, Thomas Malthus pointed out the contradiction between population growth and food production. He allowed for the likelihood that some technological development would occur in the future, but he believed that the products of such development would be finite, and would quickly be used up by a growing population. He postulated that the human population would continue to grow until it was checked by food or other shortages.
2. Before the environmental consequences of economic development became an area of major national concern in many countries during the 1960s, overriding priority was placed on the effects of technology and economic growth. Consequently, if there was a conflict between having more development projects at the cost of environmental degradation, it would have been resolved in favour of the former in practically all cases. Environmental deterioration was at that time considered to be the price of progress. It is still not unusual to find this philosophy espoused for reasons of greed or ignorance.
3. The discussions of environmental problems in the late 1960s and early 1970s were very much influenced by the experiences of the industrialized countries. The emphasis was primarily on the physical environment; there was very little analysis or understanding of the underlying socio-economic reasons for environmental deterioration in the less developed countries. Two issues received increasing attention in the West: the constantly increasing use of raw materials and energy in the developed countries, and the "population explosion" in the third world. Many scenarios were put forward, the most publicized of which were: *The Limits to Growth* (Meadows and others, 1972), and the *Blueprint for Survival* published by *The Ecologist* in the same year (*The Ecologist*, 1972). The former was based on a computer modelling exercise simulating the interactions between population, industrial production, production of services, food supply, pollution and resource depletion. It found that, if population and industrial production at the global level followed the "business-as-usual" scenarios, then crises in the form of near-exhaustion of material resources, catastrophic levels of pollution and/or starvation would occur within a century. *The Limits to Growth* contains no prescriptions about evening out per capita consumption among the countries of the world. The *Blueprint* is both less quantitative and more normative in its approach. From a review of the limits to mineral and energy resources, pollution and the unsustainability of current agricultural practices, as well as the needs of developing countries, it draws the conclusion that a transition to lower levels of consumption in the North is necessary. These conclusions are, however, not quantified.
4. The clamour for "no-growth" in the West did not contribute to mutual understanding of the environment and resource problems between developed and developing countries. Those in the latter could not comprehend how their impoverished citizens could compete with the substantially more affluent consumers of the industrialized countries in terms of depleting finite global resources. Accordingly, some developing countries felt that the concept of global resources management was an attempt to take from them the national control of resources. Furthermore, as industrialized countries used the lion's share of resources and contributed to most of the resulting industrial pollution, the third world countries did not see any reason to find and pay for the solution.
5. Thus, in 1970, during the preparations for the United Nations Conference on the Human Environment, held in Stockholm in June 1972, it became evident that many countries, both developed and developing, believed that environment and development were not compatible, even though they came to that conclusion for very different reasons. Accordingly, in June 1971, the Conference secretariat convened a seminar on Environment and Development. This seminar clarified several conceptual problems, and arrived at the conclusion that it was possible to address both environment and development problems and that the false dichotomy of "environment versus development" should no longer be recognized, let alone fostered.

6. The concept that environment and development objectives are harmonious and mutually reinforcing received further support at the Symposium on Resource Use, Environment, and Development Strategies, which was jointly convened by the United Nations Environment Programme (UNEP) and the United Nations Conference on Trade and Development (UNCTAD) in Cancún Mexico in 1974. The Symposium participants agreed on six main points:

- (a) Economic and social factors were often the root cause of environmental degradation;
- (b) Meeting the basic needs of the world's population was a chief goal for the international community and nation States. The needs of the poorest strata of mankind were particularly urgent, but they must be met without impinging upon the outer limits of the earth's carrying capacity;
- (c) Different nations, and groups within them, placed widely differing demands on the biosphere. Access to many cheap natural resources was pre-empted by the rich. However, it was not only the rich who wasted natural resources: the poor were often left with no option but to destroy them;
- (d) Developing countries must develop their own self-reliant approach to development, rather than following in the footsteps of the industrialized countries;
- (e) The search for alternative patterns of development and lifestyles, in both developed and developing countries, was the principal means of achieving environmental and development goals;
- (f) This generation must look ahead and not pre-empt the planet's limited resources or pollute its life support systems in a way that would jeopardize the well-being, and the very existence, of future generations.

7. Several world scenarios in the "Limits to Growth" tradition, but with the development prospects of the poor countries as their main focus of attention, were constructed during the mid-1970s. They include: the second report to the Club of Rome entitled "Mankind at the Turning Point" (Mesarovic and Pestel, 1974), "Reshaping the International Economic Order" (Tinbergen and others, 1976); "Handbook of the Latin American World Model" (UNESCO, 1977); and the "The Future of the World Economy: A Study for the United Nations" (Leontief, 1977). All of these are somewhat more optimistic with respect to resource and environmental constraints than the "Limits to Growth". However, because of the many assumptions and variables involved in all these models, they were merely indicative. Many of the specific predictions have, therefore, been proved wrong. This includes both the optimistic predictions (regarding the availability of fusion power by the 1990s) and the pessimistic predictions (regarding the exhaustion of oil or some mineral resources in two decades or the permanent reign of famine in Asia).

8. Concern about pollution and environmental degradation has been central to this debate since the early 1970s, but its roles as well as the specific focuses of attention have changed. In the early 1970s the focus was on local and regional air and water pollution, along with land degradation in so far as it affected food production. In the late 1970s and early 1980s, as it became clear that non-renewable resources were not going to run out that fast, and as even the global food situation appeared to be improving, the focus shifted to a new set of major environmental concerns with an apocalyptic potential quite different from that of local air and water pollution. These include global warming, ozone depletion, destruction of tropical forests, loss of biodiversity, desertification, nuclear disasters and hazardous wastes. The real novelty of these problems varied. Global warming had been under study for decades. The ozone-depleting potential of chlorofluorocarbons was first suspected in 1974. However, neither of these issues really hit the headlines until the mid-1980s, and in the case of ozone because of the discovery of the Antarctic "hole" in 1985. Tropical deforestation became news with alarming reports about the rates at which it was going on, in particular the first global assessment by the Food and Agriculture Organization of the United Nations (FAO) in 1980. Desertification came to public attention following the Sahel drought of the mid-1970s. The occurrence of a nuclear near-disaster in 1979 and a real nuclear disaster in 1986 strengthened fears about nuclear energy. One aspect of the environmental concerns of the 1980s and 1990s is that most of these

concerns are either global or regional. This demonstrates the fact that environmental problems transgress national boundaries: the "pollution of poverty" of the South affects the North inasmuch as the "pollution of affluence" of the North affects the South.

I. EVOLVING CONCEPTS AND DEFINITIONS

A. ECONOMIC GROWTH

9. Economic growth is the growth of the real output of an economy over time. The physical ability of an economy to produce more goods and services depends on increasing the quantity and quality of its (a) capital goods (capital accumulation); (b) labour force; and (c) natural resources. There must be efficient use of these factor inputs so as to maximize their contribution to the expansion of output through improved productivity. In addition, innovative techniques and new products must be introduced and developed to ensure technological progress.

10. The significance of economic growth lies in its contribution to the general prosperity of the community. Growth is desirable because it enables the community to consume more private goods and services, and it contributes to the provision of a greater quantity of social goods and services (including health and education), thereby improving real living standards.

11. Reference was made in the above introduction to earlier "limits" and other models of growth, but the question as to what pressures economic growth will place on the natural environment in the coming years is still being debated in several forums. The World Bank (1992) pointed out that under current production trends, and given projected population increases, developing country output would rise by 4-5 per cent a year between 1990 and 2030, and by the end of that period would be about five times what it is today. Industrial country output would rise more slowly but would still triple over the same period. World output by 2030 would be 3.5 times what it is today, or roughly about \$69 trillion (in 1990 prices). If environmental pollution and degradation were to rise in step with such a rise in output, the result would be appalling environmental pollution and damage. Tens of millions more people would become sick or die each year from environmental causes. Water shortages would be intolerable, and tropical forests and other natural habitats would decline to a fraction of their current size. Fortunately, such an outcome need not occur, nor will it if sound policies and strong institutional arrangements are put in place.

B. DEVELOPMENT

12. "Development" is a word freighted with values, and there is no consensus as to its meaning. Development is usually defined in a normative way. Pearce and others (1990) take development to be a vector of several desirable social objectives. This vector contains a list of attributes which society seeks to achieve or maximize. Possible elements are increases in real income per capita, improvements in health and nutritional status, a "fairer" distribution of income, and increases in basic freedoms. Hence, development is referred to as a set of goals in very different dimensions. Such a definition raises several questions. Does the occurrence of development require that all attributes change in the desired direction? Can development really only occur if income is redistributed? Could a decline in one attribute be compensated for by an increase in another? The World Commission on Environment and Development also defines development in a broad sense, implying that many conditions have to be fulfilled before development occurs. Such a broad definition has profound methodological consequences, for instance because assessment of welfare improvements requires estimating and integrating widely differing aspects of the quality of life.

13. Development is usually defined principally in terms of economic growth: as countries experience increased growth, their productive capacity expands and they "develop." As long as population increases, it is difficult to imagine development without economic growth.

14. The crudest, and most familiar, indicator of development has been gross national product (GNP). There are several limitations of GNP as a measure of development, however. First, GNP measures "productive" activity in a very narrow way, excluding, for example, the productive activities of households because many of these activities are undertaken by women and children. GNP is a measure of "formal" sector activity. The "informal" sector, in which markets exist but are not fully reported statistically, and in which people produce for their own consumption, is not represented in GNP figures. In addition, GNP is a very blunt instrument for measuring economic development without considerable attention being given to demographic profiles. Per capita figures for economic growth, for example, disguise the number of

dependants within families, the number of single parents and elderly people without dependants. GNP figures also fail to distinguish between groups of people, especially social classes, within a country. Some poor countries share their wealth much more equally than others with similar GNP. Finally, GNP statistics record the productive utilization of resources, whether or not these resources are renewable. Moreover, if productive activity is associated with the costs of economic growth, through pollution control, for example, this is also entered under GNP. Deforestation, bringing with it a loss of resources, is usually treated, for example, as a net contributor to capital growth.

15. The use of other social and economic indicators represents an advance on the crude measurement of GNP. The World Bank's annual World Development Report, for example, makes use of a number of such indicators: average annual rates of inflation, adult literacy, life expectancy at birth, and others. The World Bank (1992) pointed out that development was about improving the well-being of people. Economic growth is an essential means for enabling development, but in itself it is a highly imperfect proxy for progress. Since 1990, the United Nations Development Programme (UNDP) has published an annual report on human development. The latest refined human development index (HDI) used in the reports is based on three indicators: longevity, educational attainment, and standard of living (UNDP, 1997).

16. Many development plans aim for national output to increase more rapidly than population, and they prescribe ways to manage production and investment with a view to achieving that objective. Also important to most policy makers is the elimination of poverty, as the goal is not only to raise average real incomes but also to lift the poorest segment of the population above some minimum standard of nutrition, health, education and comfort. Economic growth alone is not enough to constitute development, even if accompanied by the elimination of the most abject poverty; increasingly, development plans and programmes seek to enhance factors such as (a) health and nutritional status; (b) educational achievement; (c) access to resources; (d) equitable distribution of income; (e) well-paid employment opportunities; and (f) basic freedoms. Clearly, to speak of development management is to identify the appropriate mix of these factors for a particular time and place (frequently, a five-year or 10-year period in a nation's history) and to fashion policies and strategies that are effective in achieving these goals.

17. The development process leads to profound structural changes. Typically, employment shifts from agriculture to industry and income shifts even more dramatically. Urban population generally grows far more rapidly than the national average; much of this growth represents a movement of people from the countryside in search of better opportunities or, more frequently, just the hope of even a low-paying job. Even within rural space, populations shift towards previously unoccupied land. It is not unusual to find crops in previously forested areas, either in the wake of logging operations or directly after clearing by prospective farmers. Similarly, previously "empty" coastal areas are taken over for aquaculture, tourism or other intensive uses, and fragile arid zones are cultivated or grazed in ways that increase the risk of desertification. Land-use patterns change in parallel with these population movements and the altered pattern of economic activity. Even within agriculture, some land is farmed much more intensively, with the aid of irrigation; other land may be switched from subsistence crops to quite different cash crops.

18. In other words, the development process (which is dynamic) puts increasing pressures on the environment. Even where the initial experience of development has been successful, fears are raised that the process cannot be sustained. This has led to questions about the sustainability of economic development trends and has given a sense of urgency to efforts to add a sustainability dimension to the economic development concept.

C. SUSTAINABLE DEVELOPMENT

19. The 1970s saw the emergence of a major revision in development thinking that presents a fundamental challenge to the conventional consensus on economic development. In common with the call for a "basic needs strategy," this revision emphasizes improving the basic needs of the poor. One approach that has gained some currency is that of "ecodevelopment." The term was given to the planning concept originally advocated by UNEP in 1975. It was defined as development at the regional and local levels consistent with the potentials of the area involved, with attention given to the adequate and rational use of the natural resources, and to applications of technological styles.

20. The term "sustainable development" was used at the time of the declaration issued by the above-mentioned Symposium on Resource Use, Environment and Development Strategies held in Mexico in 1974. Since then it has become the trademark of international organizations dedicated to achieving environmentally benign or beneficial development. The term has served to catalyse debate over the relation between economic change and the natural-resource base in which it is grounded. At the core of the concept of sustainable development is the requirement that current practices should not undercut future living standards. In other words, present economic systems should maintain or improve the resources and environmental base, so that future generations will be able to live equally well or better. Repetto (1986) advanced a similar definition of sustainable development as a development strategy that manages all assets, natural resources, and human resources, as well as financial and physical assets, for increasing long-term wealth and well-being. Sustainable development as a goal rejects policies and practices that support current living standards by depleting the productive base, including natural resources, and that leave future generations with poorer prospects and exposed to even greater risks.

21. There is a much longer-term perspective to the question of sustainability. This has come to be known as "intergenerational equity." Currently, societies and their Governments are coming to recognize that resources used today are borrowed from their children and their children's children. Resources borrowed from abroad to finance today's development may represent a crushing burden to a country even a decade later; similarly, resources "borrowed" from the environment may leave an untenable legacy of costs and deficits for future generations. Development planners search for policies which will leave as many assets and opportunities (usable resources) for future generations as possible. While policy makers recognize that energy and some natural resources will be "used up" as they are transformed to make them more immediately useful to mankind (to add utility, from the human point of view), they see a need to ensure that the net result of these transformations is positive.

22. In general, the concern has been that few, if any, countries take adequate account of environmental considerations when making policy or planning development. Few allocate or regulate uses of their living resources so as to ensure that they are environmentally appropriate and sustainable. Many lack either the financial or technical resources, or the political will, or adequate legislative, institutional, or public support to carry out fully the environmental protection and conservation measures required. The result of those lacunae is that, at the level of project planning and design, unwanted environmental side-effects have arisen from inadequate attention having been paid to environmental consequences, and from the lack of knowledge and information necessary to predict them; other causes have included ignorance of cost-effective preventive or mitigating measures and failure to consider alternative project designs or locations.

D. SUSTAINABLE ECONOMIC DEVELOPMENT

23. Another term that is increasingly used is "sustainable economic development," to emphasize the "economic" aspect. In contrast to the conventional consensus on economic development, the following criteria define sustainable economic development (Barbier, 1987):

(a) It is indistinguishable from the total development of society and cannot effectively be analysed separately, as sustainability depends on the interaction of economic changes with social, cultural, and ecological, transformations;

(b) Its quantitative dimension is associated with increases in the material means available to those living, or destined to live, in absolute poverty, so as to provide for adequate physical and social well-being and security against becoming poorer;

(c) Its qualitative dimension is multifaceted, and is associated with ensuring the long-term ecological, social and cultural potential for supporting economic activity and structural change;

(d) It is not easily subject to measurement; the quantitative and qualitative dimensions are mutually reinforcing and inseparable, and thus cannot be fully captured by any concept of direct and measurable economic gain.

Sustainable economic development is therefore directly concerned with increasing the material standard of living of the poor at the grass-roots level, which can be quantitatively measured in terms of increased food, real income, educational services, health care, sanitation and water supply, emergency stocks of food and cash, and only indirectly concerned with economic growth at the aggregate, commonly national, level. In general terms, the primary objective is reducing the absolute poverty of the poor through providing lasting and secure livelihoods that minimize resource depletion, environmental degradation, cultural disruption, and social instability.

E. SUSTAINABILITY ANALYSIS

24. Application of this sustainability concept will lead to different analytical problems and outcomes depending on location-specific circumstances. Socio-economic systems show many dissimilarities. At the national level, developing countries often show a combination of the following endogenous factors: high population growth rates; lower average per capita income levels; low levels of basic needs provision; unequal distribution of income and ownership of productive factors; strong dependency on agriculture and other natural-resource-based sectors; outdated production techniques; large subsistence sector; large non-market sector; often weak definition of property rights of land and other resources; economically distorted markets for goods, services and finance; strong government intervention in some markets but weak control in others. Among the factors exogenous to the country are: consumption and production patterns in developed countries; debt, trade and aid policies of the developed world; and multilateral institutions.

25. Sustainability analysis focuses on how ecological and economic systems interact. Scientific knowledge of such linkages is still not extensive. Nevertheless, the following aspects, which tend to reinforce each other, deserve special attention (van Pelt and others, 1990):

(a) Owing to differences in ecosystems, trade-offs between ecology and economy are location-specific. A specific economic activity may be sustainable in a region with relatively robust ecosystems but non-sustainable in another;

(b) High population growth rates, combined with constraints on land development and low productivity in developing countries, contribute to the high rate at which environmental degradation often occurs and the need to find rapid solutions. This is especially the case in areas with fragile ecosystems;

(c) Differences in income level, income distribution and associated consumption and production patterns have an important impact on the nature of environmental problems in rich and poor countries;

(d) Government policies in developing countries often offer incentives to economic sectors to embark on, or continue, activities with harmful ecological effects and unsustainable resource use (Warford, 1987; Jagannathan, 1989). Prices set by the Government in particular fail to reflect long-run environmental costs and benefits. Examples include agricultural policies (pricing of agricultural inputs and outputs), industrial policies, and infrastructure policies (opening of fragile areas and provision of services at low charges). At the same time, environmental policies are often in an embryonic stage, and enforcement of regulations is generally weak. Administrative and technical expertise have yet to be fully developed. Consequently, negative environmental externalities are often not accounted for and do not influence investment decisions;

(e) In developing countries, information flows in general and information on the environment in particular are often highly imperfect, and this tends to lead to suboptimal investment patterns from a national point of view. Positive and negative external, particularly environmental, effects are usually not recognized by investors. The Government often fails to compensate by providing the information or providing the investment itself (Cook and Mosley, 1989);

(f) Environmental problems have different economic consequences in developed and developing countries. The former are generally faced with the qualitative environmental problem of relative scarcity of natural resources. Environmental problems generally cause higher production costs (producers)

and abatement costs (Government), and ultimately higher taxes and prices of products and services (consumers). Qualitative environmental problems can be combated through a change in production and consumption patterns (to prevent future problems) or higher defensive outlays. In many regions in developing countries, environmental problems have become a quantitative problem (absolute natural resource scarcity). Environmental services simply cease to exist and consequently, because of the strong dependency on natural resources, the income-generating potential vanishes. In addition, because of uneven distribution of income and capital goods, the poor, often most directly dependent on natural resources, tend to be hurt most by environmental decay. Inhabitants face an absolute decrease in output of goods and services, and welfare levels drop below the absolute minimum (James and others, 1987; Barbier, 1989). This reinforces vicious circles of poverty and environmental decay;

(g) At high income levels, more resources are available to combat or prevent environmental decay. Protection may be financed through consumption reduction, and need not be at the expense of investments. Moreover, reducing output in environmentally harmful economic sectors may often be compensated for by increasing in other sectors. At extremely low income levels, reducing consumption is impossible, and hence investments in environmental protection measures suffer (Dorfman, 1988). Moreover, environmentally sound alternatives are often lacking.

F. ECONOMIC REFORM AND THE ENVIRONMENT

26. The concepts of economic reform and structural adjustment emerged during the 1980s, when developing countries were forced to "adjust" their economic structures to respond to adverse long-term trends in their terms of trade and the external debt crisis. Early in the 1980s, structural adjustment programmes (SAPs) began to be applied in several countries to deal with balance of payments problems. Most packages shared a strong resemblance, largely because they were managed by the World Bank and the International Monetary Fund (IMF), the Bretton Woods institutions. The Bretton Woods policies drew (and continue to draw) on a set of ideas later called the "Washington consensus." These ideas try to ensure economic "reform" with benefits in faster output growth and rising real incomes by first "stabilizing" the macroeconomy and then "adjusting" the market so that it can perform more efficiently. Stabilization (cutting external deficit) is the domain of the IMF, whereas "adjustment" is the specialty of the World Bank.

27. SAPs have usually taken the form of a dampening down of demand, a devaluation of the currency, a withdrawal of subsidies on fuel and staple foodstuffs, and deep cuts in government spending. As the 1980s continued, it became clear that economic recovery and structural change were slow in coming. The basic problem with SAPs is that little attention has been paid to their effects on the poor. In 1989, the United Nations Children's Fund (UNICEF) stated that adjustment policies that lead to an increase in malnutrition, a decline in health services and a decrease in school enrolment rates are inhuman and ultimately inefficient (UNICEF, 1989). UNICEF called for an alternative adjustment—an adjustment with a human face—which protects the poor. By the end of the 1980s, the issue of SAPs became important for all agencies and was reviewed by the World Bank. Since 1990, the World Bank has placed renewed emphasis on poverty reduction and human resource development through improvements in health and education along with population control (as opposed to, for example, labour-intensive employment creation, land reform and other targeted programmes for rural development). However, in terms of dollars expended, the efforts have for a long time not been great (Taylor and Pieper, 1996).

28. Although the study of interactions between SAPs and environment is in its infancy (Reed, 1993; Taylor and Pieper, 1996), some trends can be detected and consequent generalizations made. First, environmental impacts depend on the "style" and distribution of growth. Some countries became preoccupied with urban problems at the cost of rural development, which has led to further deterioration of the already degraded rural environment. Secondly, overriding macroeconomic constraints influence environmental impacts. If foreign exchange is scarce and natural resources are available to support exports, the economy is likely to be driven towards "extensive" environmental exploitation. Thirdly, SAPs can have hard-to-foresee system-wide environmental impacts. For example, intensification of agricultural activities for cash crops has led to distortions in agricultural policies which resulted in several negative environmental impacts (land degradation, excessive pollution from agrochemicals), in addition to increasing dependence on imported grains and food. Another example is that the moving of Russian energy prices towards world

market levels has made energy an attractive economic sector, and wide-scale exploitation of oil and natural gas has extended to ecologically fragile areas such as the province of Sakhalin and the tundra zones of eastern Siberia. The outcome could be a rebirth of the Soviet "nature-devouring" economic system, under which it has been estimated that each rouble of humanly produced wealth used up approximately 2.2 roubles worth of natural resources. The return from energy production could flow into private consumption and into fortunes built up abroad, as opposed to long-run capital accumulation.

29. Along with the drive for privatization and for a market-oriented economy, questions are raised about who should pay for environmental protection. Investment in environmental protection does not always appear to make direct, immediate economic sense, as it often generates benefits not readily quantifiable in narrow financial or short-term calculations. This does not mean, of course, that there are not substantial, even at times massive, gains in social or cultural terms; they are merely hard to measure and relate to specific investments. Increasingly, this has become the case as environmental protection has moved from cleaning up offending sources of pollution to managing very broad issues of ambient quality, a practice in which most developed industrial countries have only limited experience.

30. Accurately identifying and quantifying paybacks can be difficult for a number of reasons. Gains may be too diffuse, such as improved health and longevity for large numbers of people as a result of breathing cleaner air. They also may be too indirect, as in the case of rivers and lakes being restored to use for recreation, fishing, or municipal water supply; or they may be non-quantifiable, as in the case of the preservation of species. In many instances where quantification is possible, the economic problem arises from the difficulty of creating an institutional framework capable of compiling accurate data based on the many people who benefit from a particular action.

G. GLOBALIZATION AND THE ENVIRONMENT

31. Globalization refers to the integrated cross-border organization of economic activity, led by transnational economic actors, including transnational corporations from both developed and developing countries and institutional investors, achieved by the rapid expansion of international trade, capital flows and technology transfers, and facilitated by the revolutions in telecommunications and information technology. Globalization is an ongoing and evolving process (Committee for Development Planning, 1997).

32. Globalization in the 1990s has been associated with a shift in the management of global resources from national political authorities to global market actors. The composition and distribution of global finance and global production is determined increasingly by the private decisions and actions of market actors, who are not politically accountable to or subject to the control of national Governments.

33. Few economists or policy analysts would deny that the private investor is now a leading figure on the world stage. However, there is bitter disagreement about what the social and environmental consequences are likely to be. Private investment enthusiasts point out that the growing inflows have reversed the "negative net transfers" of the 1980s, when developing countries were paying out more money, in the form of interest on loans and returns on foreign investment, than they were receiving in new private and public financing. In 1988, these "negative net transfers" amounted to \$1.5 billion; by 1996, the net flow in the opposite direction—from North to South—amounted to \$200 billion. In some parts of the developing world, particularly Asia, these funds have helped fuel a record-breaking economic boom that is often credited with bringing down national poverty rates. Yet critics of large-scale private investment argue that macro financial flows are exacerbating the huge gap between rich and poor that already plagues so many developing societies. In many countries, the market boom does not reach large segments of the population, and in some cases it may actually be injuring them.

34. The environmental implications of growing private capital movements have received less attention than the social ones, but they too are likely to be enormous and somewhat contradictory. In the most general terms, economic globalization is exporting Western consumerism. Given the unsustainable patterns of consumption in the developed countries, this spread of the consumer culture is ominous. In countries in which economic reform is required, macroeconomic constraints often take precedence over environmental concerns, particularly in the short term. For example, if foreign exchange is scarce and exportable natural

resources are available, the economy is likely to be driven towards over-exploitation of natural resources. International capital is attracted to the most profitable location, which may well be a place where environmental laws are weak or not enforced. Concentration of foreign direct investment (FDI) in certain areas also tends to increase urban/rural differences, contributing to rapid urbanization and possible degradation of the urban and rural environments (Commission for Development Planning, 1997).

35. However, international investment is also bringing more advanced, more efficient and cleaner production technologies to the recipient countries, and economic growth and rising standards of living are likely to generate a demand for environmental protection. There is also a growing array of deliberate "green" investment strategies that have been devised in recent years-programmes aimed specifically at using private financing to restore the natural capital of the developing countries.

II. DEVELOPMENT PLANNING AND ENVIRONMENT

36. It is now widely recognized that the conventional mode of planning, based on economic considerations, must give way to a new planning mode having due regard for the environment, in which plans are formulated and decisions are taken on the basis of broader natural and social criteria than heretofore. In other words, environmental considerations need to be intrinsic to policy-making, not added on as afterthoughts.
37. The trend to adopt alternative environmentally sound development planning has gained momentum since the 1972 United Nations Conference on the Human Environment. The World Commission on Environment and Development stressed that, in order to achieve sustainable development there is a need to integrate economic and ecological considerations into decision-making. One of the six goals outlined in paragraph 14 of the International Development Strategy for the Fourth United Nations Development Decade (1 January 1991 to 31 December 2000) is: "a development process that is responsive to social needs, seeks a significant reduction in extreme poverty, promotes the development and utilization of human resources and skills and is environmentally sound and sustainable."
38. The Rio Declaration, adopted by the United Nations Conference on Environment and Development in 1992, explicitly pointed out in principle 4 that "in order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." Agenda 21, adopted by the Conference, devoted an entire chapter—chapter 8—to the question of integrating environment and development in decision-making. Agenda 21 stated that prevailing systems for decision-making in many countries tended to separate economics from social and environmental factors at the policy, planning and management levels. That influenced the actions of all groups in society, including Governments, industry and individuals, and had important implications for the efficiency and sustainability of development. An adjustment or even a fundamental reshaping of decision-making, in the light of country-specific conditions, might be necessary to put environment and development at the centre of economic and political decision-making, in order to achieve a full integration of these factors.
39. The dynamism of society calls for planning methods to cope with changing social values and the increasing scale of economic and technical development. Integrated planning has been proposed as an organizational arrangement to deal effectively with the alternatives and options of an increasingly complex spectrum of socio-economic and environmental change and development. It has been realized that policies designed to solve one issue affect not only the context within which it is being considered, but also the range of actions on other issues. Consequently, integrated planning has to be viewed as a multiple-objective-oriented activity, based on an understanding of the interrelations between the various subsystems.
40. A fundamental methodological problem for decision makers is the lack of an explicit statement of trade-offs between socio-economic and environmental objectives. Economic and environmental decision makers operate with different criteria. Economic planners are predominantly concerned about "efficiency" and to a lesser degree with "equity," while environmental planners give more consideration to "diversity" and "stability." Thus, a common denominator among the different disciplines is required. Efforts to integrate economic and environmental planning will force decision makers to state explicitly their criteria and their policy options. In essence, the integrated planning approach is aimed at achieving the following objectives (Hufschmidt and Hyman, 1982):
- (a) To accomplish interdisciplinary equity in order to establish a balance between conflicting criteria, interests and objectives;
 - (b) To increase efficiency of the overall physical, socio-economic and environmental system in order to achieve an optimal level of quality of life;
 - (c) To develop public participation with the purpose of democratizing the decision-making process and to make it more socially acceptable.

41. An environment-oriented mode of planning is, therefore, defined as one in which inputs and means related to environmental concerns, values, processes, conditions and interrelations are continuously and carefully taken into account during planning. The objective is a more informed design of, and choice among, a range of alternative actions, so that adverse environmental consequences will be avoided or minimized. This approach requires that the question of what impact a course of action would have on the physical and social environment is asked frequently, and answered, throughout the planning process. It entails the continual acquisition, organization, and utilization, of knowledge-especially knowledge about the probable environmental consequences of alternative actions. Methodologies for accomplishing this task have come to be known as environmental impact assessments (EIA). In other words, environmentally sound planning is a continuous planning system embodying, at all governmental levels, a concept of decision-making which encourages the economic and social advancement of people, within the tolerable limits of their surroundings, in order to achieve effective use of resources with minimal environmental deterioration. The principal objective is to ensure that planning objectives and environmental aims are compatible.

42. Since the early 1970s, several countries used EIA techniques to account for the ecological repercussions of major development projects, but the methods of EIA have since been refined and supplemented by other tools (see below). EIA have since been instituted in many national environmental regulations. A major step towards the integration of environmental considerations into development planning was the declaration, in 1980, by the World Bank and some regional development banks, as well as UNDP, UNEP and other organizations, to commit themselves to ensuring that the goal of environmental protection would be incorporated in the formulation and establishment of economic development programmes.

43. Practical experience has shown that there are several constraints that impede the effective integration of environmental considerations in development planning, especially in developing countries. The most important of these constraints are: (a) inadequate information; (b) lack of political will due to conflicting and/or vested interests; (c) lack of positive approaches to overcoming problems; (d) lack of resources, in particular trained personnel; (e) failure to adopt long-term perspectives (meaning a focus on short-term objectives); (f) failure to respond to the trans-sectoral nature of the environment; and (g) poor institutional arrangements which usually produce fragmented concerted action, which means that the actions and processes of environmental management still take place in a largely ad hoc manner. In addition, environmental management programmes are characterized by a variety of desired outputs, which may result in conflicts necessitating choices. Examples are: conflicts between short- and long-term aims, needs and possibilities, such as intergenerational conflicts; conflicts between different levels of interests -global, regional, national and local- and interests of individuals and of groups; conflicts between different goals (alternative uses of land); conflicts between man-made and natural components of the environment; and conflicts between those who share the benefits and those who bear the costs.

A. PREREQUISITES FOR ENVIRONMENTALLY SOUND PLANNING

44. Planning practices differ considerably between countries just as do their individual political, legislative, economic and social systems. It is therefore necessary to assess the conditions within a developing country in order to find a basis for initiating new planning approaches. The following are the prerequisites to effective environmentally sound planning.

1. Availability of information

45. In the developed countries, extensive information is normally available about the human, biological and physical characteristics of a locality or region. Development plans can be easily prepared and evaluated in the light of such information. Such analyses give decision makers an accurate view of the consequences for the entire system of modifications that might take place. Information is supplied about the gains and losses which can be expected from a given utilization of the environment, particularly in terms of the ramifications of such changes over time.

46. In contrast, few developing countries have ready access to the information required for development planning. Thus, when planners focus on bringing about change in one aspect of the environment without

information about the integration of that aspect with other parts of the system, including cultural values, results are frequently less than optimal or even outright failures. The provision of environmental impact statements helps to ameliorate the problem but raises others. The boundaries and nature of the impact statements are frequently defined in terms of the rather narrow immediate effects of modifications of that component or set of components on the environment which is actually the focus of development activity, and they still do not provide broader information allowing planners to evaluate long-term effects and issues which influence the quality of life.

47. Environmentally sound planning demands that planners look beyond immediate goals, and obtain information about the dynamics of socio-cultural, physical and biological systems within a selected geographic area in order to assess the full consequences of proposed actions. An essential step, then, is to collect, analyse and supply information on the interrelations of the relevant variables with which planners and decision makers need to deal, in order to give them a view of the dynamics of the system they contemplate modifying and enable them to develop a preliminary idea of what kinds of changes are most feasible, particularly in those complex and delicate systems that are most vulnerable to change.

2. Public participation

48. There is no universal definition of "public participation." However, from a practical point of view, public participation is basically concerned with involving, informing, and consulting the public in planning, management, and other decision-making activities which can be considered part of the political process. Public participation tries to ensure that due consideration will be given to public values, concerns, and preferences when decisions are made.

49. Unfortunately, not many government agencies are both willing and able to work cooperatively and responsively with the people. Planners and administrators generally view the people as "the problem" and regard themselves as embodying "the solution." Most government agencies have a legacy of paternalistic or technocratic, if not authoritarian, relations with the public.

50. Public participation in planning, in decision-making and in management is indispensable for achieving the integration of economic, social and environmental objectives. Such participation provides a safeguard against poorly considered decisions, and a useful means of increasing public awareness of environmental protection and conservation of natural resources and of increasing the awareness of decision makers about public concerns. Participation tends to build public confidence and improve the public's understanding of management objectives, and it provides additional data for planners and policy makers.

3. Monitoring

51. The development process initiates changes that are greater than the sum of particular projects. The accumulation of changes over time may lead to effects which had not been predicted beforehand. It is of major importance, therefore, that relevant factors be monitored during the implementation of the plan. This would provide a corrective feedback mechanism which would allow observation, judgement and ultimately modifications of plans to achieve greater consistency with development goals or indeed, if necessary, adjustment of the goals themselves.

B. METHODS FOR INCORPORATING ENVIRONMENTAL CONSIDERATIONS INTO DEVELOPMENT PLANNING

52. Although the economic analysis of projects and policies can help a country to make investments with regard to scarce resources that contribute most to its overall objectives, external factors (such as environmental degradation) have often been neglected. Such external factors are now being internalized to the maximum extent possible in several countries. In this regard, rough qualitative assessments early in a project cycle can yield valuable returns by identifying environmentally unsound alternatives and focusing on those that are more sound overall, and designing the latter to achieve sustainable development goals. Several methods are now available for incorporating environmental concerns into development planning and decision-making. The most common of these methods are described below.

1. Environmental impact assessment

53. There are several definitions of EIA in the literature, but the one given by UNEP is all encompassing: EIA is the examination, analysis and assessment of planned activities with a view to ensuring environmentally sound and sustainable development.

54. Decision makers need summarized information on the identification, prediction, and evaluation of environmental quality; thus, a large amount of information must be put in a form that can be readily assimilated. Identification of impacts includes a description of the existing system, and an awareness of problems and opportunities. Prediction refers to the analysis of expected changes in the system; it involves estimates of future states of the system with and without the proposed project. Evaluation goes beyond identification and prediction because human values are used to rank or rate alternative states.

55. The EIA process is desirable because it provides a scientific baseline and allows the anticipation and avoidance of unintended adverse consequences. To be most useful, the approach must go beyond a mere description of physical, chemical, and biological effects of alternatives and must attempt to place social values on the consequences. One also needs to determine scaling factors to make different environmental measures commensurable and weighting factors to compare their relative importance. There is a wide variety of methodologies for EIA (see, for example, Wathern, 1988; and the World Bank, 1991).

56. The EIA process has, however, a number of shortcomings. First, equality should be a basic objective integrated throughout the planning process. However, the environmental impact statement resulting from EIA is often considered to be an afterthought tacked on at the end of the planning process. Secondly, assessments do not lead to a ruling; they merely provide information. Thirdly, a major problem with the EIA is its consumption of scarce resources of time, money, scientific expertise and administrative capability. The costs of an EIA could be borne by the project initiator or international donors. However, if the studies are "bought" by vested interests, the resulting analyses may not be fully objective or credible. Nevertheless, the costs of not assessing environmental impacts may be even larger. Fourthly, it is common practice in environmental assessment to rely on compilations of unorganized data without an analytical framework. Additional information, by itself, does not always improve decision-making, and it can cause confusion and delay. In sum, environmental impact assessment, as currently practised, is an incomplete methodology; it needs to be incorporated in a broader planning and decision-making approach which includes an appropriate mix of other techniques.

57. Although EIAs were once commonly prepared as a final screening after project design was far advanced, it is now generally recognized that environmental studies should be initiated early in the conceptual stage of project preparation, when questions of siting, design and the choice of technology are still being considered. More specifically, it is essential to include the EIA as an integral part of every project feasibility study. The perception that an EIA is an inconvenient hurdle needs to be changed; in fact, the assessment can and should be an aid to a good project or programme design and should enhance rather than detract from the project's overall cost-benefit ratio. However, the EIA process should be extended beyond single projects. The 1987 Brundtland Report (the Report of the World Commission on Environment and Development: Our Common Future) stated that EIA should be applied not only to products and projects, but also to policies and programmes, especially macroeconomic, finance and sectoral policies that could have a significant impact on the environment.

2. Extended cost-benefit analysis

58. Conventional cost-benefit analysis addresses the single objective of economic efficiency. It is most applicable in the construction of physical infrastructure: roads, harbours, dams, irrigation facilities and, on a large scale, creation of a new town, industrial complex, or agricultural development. Environmental effects are not included unless they can be shown clearly in monetary terms through direct impacts on economic efficiency.

59. Of course, many environmental and natural resource effects of development activities involve goods and services that are valued in markets and can be directly entered into conventional cost-benefit analysis. Other such effects, however, are totally outside the market system. Over the last decade, a number of approaches for valuing such goods and services have been developed. In general, economists and environmentalists have had some success at developing useful, if imprecise, estimates for the value of outdoor recreation, air and water pollution, and health and safety effects.

60. This has led to the extension of traditional cost-benefit analysis to include environmental impacts (Dixon and others, 1988). That is, in contrast to traditional project evaluation which considers only the direct project benefits and costs, the expanded approach includes the external and environmental improvement benefits (plus the benefits from environmental protection), as well as the costs of external and/or environmental damages and of environmental control measures (Dixon and Hufschmidt, 1986). However, a number of problems have been encountered in extending cost-benefit analysis to incorporate the environmental impacts of projects. First, physical estimation of environmental effects is often difficult. Secondly, as most environmental resources are non-marketed common-property "goods," economic valuation of their services is not straightforward. Thirdly, little consensus exists regarding methods for monetary valuation of "intangible" environmental goods, such as the need to preserve unknown species for their intrinsic value.

3. Resource accounting

61. In contrast to cost-benefit analysis, resource accounting involves adjusting national income accounts to register both the direct costs inflicted by environmental degradation and the "depreciation" of natural capital to allow for losses in future production potential (Repetto, 1986). Although the national accounts record the income earned from harvesting resource stocks, the loss of future income through declining resource stocks and deteriorating environmental quality is excluded. By allowing for such "depreciation" in the natural capital stock, the net contributions of resource degradation to national income are much lower, and more accurately reflect the impact on economic welfare. For example, depreciation of the forest stock in Indonesia due to deforestation and timber extraction was estimated to cost 4 per cent of GNP (Repetto, 1986).

62. Because resource accounting uses the existing system of national accounts, it appeals to economic policy makers. None the less, there are a number of limitations on its application. For example, measuring the stock of economic capital and its rate of depreciation in developing countries is in itself a complicated task. Given the difficulties in quantifying and monetizing environmental goods, extending depreciation accounting to the stock of natural capital would prove even more difficult. However, to fail to allow for the depletion and degradation of natural resources while allowing for the depreciation of capital goods can be misleading. The United Nations recently reviewed the United Nations System of National Accounts and recommended that member countries should begin to prepare satellite accounts, as a complement to the standard national income accounts which have been used as fundamental indicators of economic trends and as the basis for economic planning for several decades. Such satellite accounts would allow decision makers to have a more accurate evaluation of the net development effect of national policies (United Nations, 1993).

4. Economic instruments

63. Economic instruments provide the means for internalization of environmental degradation and resource depletion costs, so that the producers, transporters, and consumers of various commodities face the full social costs of their activities. The main economic instruments are classified into seven categories (UNEP, 1997): (a) property rights; (b) market creation; (c) fiscal instruments; (d) charge systems; (e) financial instruments; (f) liability systems; and (g) bonds and deposit refund systems. Owing to the heterogeneity of developing countries with regard to ecological, cultural and political aspects, as well as socio-economic conditions, it is necessary to consider their special circumstances when designing economic instruments. If economic instruments are introduced at an early stage in the planning process, they are likely to be more effective than if they are introduced at a late stage. Few, if any, economic incentives have actually replaced regulations because most have been introduced with the primary objective of increasing Government revenues rather than altering behaviour towards more environment-friendly activities.

5. Institutional arrangements

64. The existing governmental institutions and structures in many countries, with decision-making functions distributed throughout sectorial agencies, do not facilitate integrated planning. National environmental protection agencies are generally understaffed, underbudgeted and nowhere near the centre of decision-making. There should be a quantum increase in the resources assigned to these agencies and much closer liaison with economic planning, policy making and budgeting authorities to ensure that sustainability concerns are henceforth fully represented in all aspects of economic development planning and management.

65. Clear policies, based in law, which facilitate incorporating environmental concerns into development planning and decision-making and which support environmental management and protection, are fundamental. The form in which they are articulated is not particularly significant. However, the need for formal rather than ad hoc policies implies the need for involvement of high-level leadership, a policy-making body, and a mechanism for policy formulation.

66. Environment-related responsibilities and powers are most effective when grounded in law. Legal authority to implement national environmental policy should be clearly established. Subsidiary legislation may be necessary to establish the authority for setting environmental quality and performance standards; for enforcing compliance with regulations; or for requiring licences, permits or environmental assessments for certain activities. These standards and procedures may themselves be promulgated as regulations, decrees or administrative orders.

67. Environmental quality standards from the United States of America or other industrialized countries have been adopted without the kind of adjustments that are essential to reflect different ecological and economic circumstances. This "easy way out" fails to recognize that standards set abroad are almost certainly inappropriate and uneconomical for use in developing countries currently and would also require technical and managerial skills that are unlikely to be available (El-Hinnawi, 1997).

III. THE SITUATION IN THE ESCWA REGION

68. The ESCWA region is characterized by wide disparities in physical geography, resources and socio-economic conditions. Except for crude oil and natural gas, natural resources are rather limited. According to the World Bank (1997), the ESCWA region includes three high-income countries (Kuwait, Qatar and the United Arab Emirates), three upper-middle-income countries (Bahrain, Oman, and Saudi Arabia), five lower-middle-income countries (Iraq, Jordan, Lebanon, the Syrian Arab Republic and Egypt), and one low-income country (Yemen)¹. Yemen is categorized as a least developed country (Committee for Development Planning, 1997). Four countries in the ESCWA region (Bahrain, the United Arab Emirates, Kuwait, and Qatar) have a high human development index, above 0.800 (UNDP, 1997). Six countries (Lebanon, Saudi Arabia, the Syrian Arab Republic, Jordan, Oman and Egypt) have a medium HDI, and one country (Yemen) has a low HDI. The low-income countries have generally the lowest degree of human development, but it should be noted that national averages often conceal the wide disparities between and within locations, for example, between rural and urban areas and within these areas.

69. The overall economic performance of the ESCWA region improved significantly in 1996. The region's gross domestic product (GDP), excluding Iraq, registered a growth rate of 4.8 per cent in real terms, compared with 2.2 per cent in 1995 (ESCWA, 1997). Major factors that contributed to the acceleration of economic growth and development in the region in 1996 include the significant rise in oil revenues of most of the member countries and the introduction and acceleration of economic reforms in many countries of the region. However, the countries in the ESCWA region have so far been far less successful in attracting FDI inflows than developing countries in other regions. In fact, all regions in the world had positive FDI inflows growth in 1995, as compared with 1994, with the exception of the ESCWA region and Africa.

70. So far, economic growth in the ESCWA region has involved substantial trade-offs. Growth has been achieved by centralized development strategies characterized by large-scale public investments directed to: (a) heavy industries (cement, iron and steel, petrochemicals); (b) agricultural intensification and land reclamation; and (c) large infrastructure projects. These investments were accompanied by large-scale subsidies for public services, basic food products, energy, agrochemicals and water. This has discouraged conservation and increased inefficiency in natural resource allocation. Combined with general environmental neglect, economic and social development efforts have been accompanied by misuse and degradation of natural resources and increasing water and air quality deterioration.

71. The countries of the ESCWA region are facing critical problems of environmental degradation which, based on current trends, are getting worse (UNEP, 1997). The costs of poor environmental quality and natural resource mismanagement include: impairment of public health, agricultural and fishery productivity losses, degradation of historical sites and cultural property, degradation of ecosystems, loss of biodiversity and reduction in amenities. Quantification of these costs is rather difficult, but estimates indicate that these costs amount to some \$10 billion - \$14 billion per year, or roughly 3 to 4 per cent of regional GDP (El-Hinnawi, 1997).

A. PATTERNS OF DEVELOPMENT AND THEIR ENVIRONMENTAL IMPACT

1. *Agricultural development*

72. Agricultural production in the ESCWA region is generally constrained by limited arable lands, scarce water resources and unfavourable climatic conditions. Although productivity can be raised in some countries, these constraints, coupled with a rapidly growing population, insufficient investment (especially in low-income countries) and resource deterioration, pose great challenges for sustaining agricultural and rural development in the region as a whole.

¹ Owing to lack of data, information on the ESCWA member Palestine (the West Bank and the Gaza Strip) was not included.

73. Government policies and interventions, subsidies (especially for agrochemicals and water), existing legislation, the technologies used for irrigation and cultivation, and the lack of development—or slow development—of rural areas are all hindering progress in sustainable development.

74. Although the “Green Revolution” technological packages introduced in the 1960s led to marked increases in the yields of some crops in several countries in the ESCWA region, these packages have not been without problems. Some of the imported packages failed to give the anticipated results, either because they were not suited to or could not be adapted to local conditions, or because of poor application and management.

75. The rationale behind the introduction of packages of high-yielding varieties of seeds (HYVs) was to increase the yields of the main food crops. However, there has been a growing trend in many countries in the region to encourage the cultivation of HYVs and improved varieties of “export” and “urban-consumer” crops, at the expense of expanding production of staple food crops. The argument has been that cash crops will generate more income for the farmers and, in the case of export crops, more hard currency for the country. It has been argued that part of that hard currency could be used to import the cheaper cereals and other staple food crops. This policy of encouraging the introduction of technological packages of export crops has led to an imbalance in agricultural systems. Large producers have benefited more, while small and poor farmers have been more negatively affected. Many have, therefore, been forced to abandon agriculture and migrate to urban areas or seek other jobs abroad (El Hinnawi, 1991).

76. National agricultural policies in almost all countries in the ESCWA region have often neglected resource conservation measures (see box). The absence of integrated national conservation strategies, soil policies and water-use policies has led to soil degradation, loss of fresh water and deterioration of water quality. As a result, many of the benefits anticipated by the planners are either not materializing, or are being negated by unanticipated adverse side-effects.

BOX. EXAMPLES OF DETERIORATION OF NATURAL RESOURCES

The arable and permanent crop land area in the ESCWA region is about 4 per cent of the total land area. The most common soil modification problems arise from excess irrigation. Waterlogging and salinization affect up to 50 per cent of irrigated land (for example, in the Syrian Arab Republic and Egypt), and in some locations in some countries up to 100 per cent. Salinization is aggravated when marginal quality water is used, and improper water management practices are adopted.

About 40 per cent of irrigated land and 70 per cent of rangelands in the ESCWA region are affected by desertification to varying degrees.

Loss of agricultural land to other activities has prevailed in several countries in the region. In Egypt, for example, about 300,000 hectares (ha) of good agricultural land were lost to non-agricultural projects in the period 1960-1990. Since 1990, the average loss of agricultural land has been estimated at 13,000 ha/year. In Jordan, the area of Amman increased from 20 square kilometres (km) in 1948 to about 530 square km currently; the expansion occurred at the expense of surrounding agricultural area.

In spite of water scarcity in the ESCWA region, seepage and poor irrigation practices result in losses of up to 70 per cent of the water withdrawn for irrigation. Over-exploitation of groundwater (some major reservoirs are non-renewable) for irrigation is becoming a major concern in some countries.

Source: E. El-Hinnawi, *Environmental Protection for Agriculture and Food Production in the Near East* (COAG/NE/89/3) (Rome, FAO, 1989); *Sustainable Agriculture and Rural Development in the Near East*, Regional Doc. No. 4, FAO/Netherlands Conference on Agriculture and the Environment (Rome, FAO, 1991); and *Self-Monitoring in Egyptian Industries* (EEAA/OSP) (Cairo, Egyptian Environment Affairs Agency, 1997).

77. Agricultural production in the ESCWA region can be expanded without exerting destructive pressures on natural resources. However, this will happen only if farming systems and agricultural technologies adapted to land capabilities are developed, if incentive systems that farmers respond to reflect the true value of agricultural outputs and inputs and the true costs of resource use, and if over-exploitation of marginal and sensitive ecosystems is checked. Agricultural policies should shift gradually from the goal of maximizing production in the short term to a perspective that also considers long-term sustainability of production. Sustainable agricultural development should aim at meeting the perceived needs of all people, especially the rural poor. It should also aim at improving the quality of life in the rural areas.

2. Rural development

78. A symbiosis exists between agricultural and rural development and national economic growth but is not always fully appreciated in several countries in the ESCWA region. Governments tend to be too preoccupied with placating dominant urban interests to commit adequate resources to the development of the rural sector. Efforts have been slow to improve the conditions of small farmers and to implement plans to increase non-agricultural employment in rural areas in order to raise rural incomes.

79. The lower middle-income and low-income countries in the ESCWA region are primarily rural. The rural population includes landless labourers, subsistence farmers, tenant sharecroppers, pastoralists, nomadic herders and small fishermen. Apart from their extremely low incomes, most of the rural population live in poor environmental conditions. Such conditions are the result of decades of neglect and inappropriate rural development policies—or the virtual lack of such policies.

80. Many peasants see migration to the cities or abroad as the only path to an improvement in their income and standard of living. Most urban centres in the ESCWA region have already reached their carrying capacity and offer very limited employment opportunities. They have proved incapable of absorbing more than a fraction of the people coming onto the urban labour market each year. The situation has been aggravated by the deteriorating conditions of life in rural areas. This has not only increased migration out of rural areas; it has also contributed to stagnation in urban and semi-urban areas.

81. Intraregional labour mobility from rural areas of some countries to the main oil-exporting countries has been seen as a partial solution to rural poverty and as a source of hard currency. However, although emigration and remittances have led to improvement of the quality of life for many people, it is not large enough to alter radically the picture of rural poverty. Indeed, it has had a profound negative impact on agricultural and rural development. A shortage of agricultural labour has been created in some areas, leading to substantial increases in farm wages and causing several problems for commercial as well as small farms. Migration of labour has also created what has been termed the “feminization” of the farm labour force. This has added to the heavy burden already carried by women in rural areas and, consequently, created additional health and social problems for them and for their children.

82. Since the demand for unskilled labour in the oil-exporting countries slackened in the mid-1980s, return migration has already become a major emerging issue for many countries that provide migrant workers: returnees tend to settle in urban areas and compete for jobs, while the decline in remittances, an important source of foreign exchange and investment, has tended to reduce job creation.

83. Environmentally sound rural development plans should be based on an integration of agricultural and rural development plans that are closely linked with development plans in other sectors. This will not only eliminate or reduce conflicts in utilization of different natural resources, but will also lead to more efficient management that will foster national economic growth.

3. Urban development

84. A common feature of population distribution in the ESCWA region is the high rate of urbanization in most countries. High-income countries are already more than 80 per cent urban, and urbanization in these countries will reach at least 90 per cent in the year 2020. The rate of urbanization in middle-income countries will also rise, from about 50 per cent currently to about 65 per cent in 2020. Low-income countries

will have a much higher rate of urbanization, from 40 per cent to about 60 per cent in 2020. The rapid and mostly unplanned urbanization has created many economic, social and environmental problems (El-Hinnawi, 1993).

85. As cities increase in size, slums and squatter settlements proliferate. It has been estimated that about one third of the urban population in the ESCWA region live in urban slums and shanty towns. The percentage of people living in such areas varies markedly from one city to another and from country to country, but most of them share the same precarious and dismal environment: overcrowded substandard shelters with inadequate clean water supply and lack of sanitation, as well as lack of paved roads, garbage collection services, and basic medical, education, communication and transportation services. The equal sharing of misery in squatter settlements has transformed some of these areas into almost closed societies and islets of poverty within the urban conglomeration. In some countries, these islets have become fertile grounds for crime, drug traffic and other illegal activities.

86. The intra-urban disparities are not only reflected in incomes, but in human development as well. Infant mortality rates, incidence of infectious diseases and malnutrition are more frequently encountered in squatter and marginal settlements than in the richer parts of the cities. Although statistics indicate higher coverage with regard to clean water supplies and sanitation services in urban than in rural areas, in most cases the coverage is more complete in the richer parts of the cities, whereas the poor parts are inadequately served or not served.

87. Intra-urban differentials have become worse over the past two decades, and they reflect the inappropriate urban development policies in most countries in the ESCWA region (especially in middle- and low-income countries). Little or nothing has been done to respond to the social and environmental costs which have accompanied urban change. Official statistics normally include the number of houses, factories or offices built, the lengths of paved roads or water mains laid, and the sewers being constructed in the richer parts of urban areas. They totally ignore the poor areas, because there is nothing being done, or only very little being done, in such areas. The lack of, or non-implementation of, environmentally sound urban development plans has transformed several cities in the ESCWA region into conglomerates with high levels of air pollution and noise (for example, Cairo) and with traffic congestion and chronic parking problems, eroded green areas, street pavements in need of repair, and roads that are frequently flooded with sewage and garbage.

4. Industrial development

88. The ESCWA member countries are going through an important transitional period, the outcome of which will have a profound impact on their industrial growth in the short and the medium term. Some of the main features of this period include: introduction of economic reforms; new levels of oil prices; the challenges of the new international trade agreements (Uruguay Round) and the rapid advances in the applications of technological innovations in industry.

89. Industrial activities in the ESCWA region consist of extractive and manufacturing industries. The share of extractive industries in the GDP is about 19 per cent, whereas the share of manufacturing industries is about 11 per cent. The latter percentage is rather low compared with other newly industrialized developing countries (other Asian countries, for example). The manufacturing industries in the ESCWA region consist mainly of textiles (21 per cent of manufacturing value added), food industries (21 per cent), basic metals (15 per cent), chemicals (14 per cent), tools and light equipment (12 per cent), and other manufacturing industries (17 per cent).

90. The pattern of industry in the ESCWA region reflects policies adopted by most countries which focus on production of goods for local consumption (the so-called policy of replacement of imports). This policy depends on local demand, as determined by the size of the population and average per capita income. The traditional model of industrial activity—in which individual manufacturers take in raw materials and generate products to be sold plus waste to be disposed of—is still being practised in most countries of the region.

91. Different types of pollutants are emitted from the industrial sector. The composition and quantities of these discharges vary from one industry to another, and depend on several factors: (a) type of industry; (b) size of industry; (c) technologies used for production; (d) fuel used; (e) maintenance of equipment; and (f) pollution control measures adopted and their effectiveness.
92. Air pollution is common in industrial areas. For example, in Egypt, high levels of particulate matter and sulphur oxides have been found in the air in the industrial areas of Helwan and Shoubra El-Kheima (Cairo area) and in Alexandria. In Bahrain, high levels of non-methane hydrocarbons have been recorded (mainly from refineries, storage tanks, and production of natural gas). In Qatar, high levels of the common air pollutants and ammonia have been recorded from the Umm Said industrial area. High levels of such pollutants have also been reported from the Al-Shuaiba area in Kuwait. Trans-boundary air pollution is becoming a problem in some areas, for example in the Gulf (League of Arab States, 1996). In contrast, in the new industrial areas of Jubail and Yanbu in Saudi Arabia, the levels of emitted sulphur dioxide, hydrogen sulphide, nitrogen dioxide, ozone and carbon monoxide are lower than those stipulated by the criteria for air quality because of the environmental protection measures adopted and the good monitoring systems in place.
93. The use of water in industrial processes produces billions of cubic metres of liquid wastes daily. These wastewaters vary in quantity and in composition from one industry to another. The discharge of untreated liquid wastes into surface water bodies leads to several thermal, chemical and biological effects in the receiving waters. The magnitude of these effects depends on the quantity and composition of the wastewater discharged and on the characteristics of the receiving water bodies (including composition, degree of agitation and aquatic life present). In Egypt, about 300 million cubic metres of untreated industrial wastes are discharged into the Nile waters every year. In addition, agricultural drainage systems receive large quantities of industrial wastes and sewage. In Jordan, most industrial wastes are discharged in the Seil El-Zarga basin near Amman, causing marked pollution in the Talal Dam lake, which is the main irrigation source of the Jordan Valley. Similar water pollution problems have been reported from the Syrian Arab Republic and from Iraq.
94. The marine environment (especially the coastal areas) is increasingly threatened by industrial pollution. In Egypt, the brackish lakes north of the Nile Delta receive over 16 billion cubic metres of agricultural drainage, sewage and industrial wastes each year. The waters of these lakes are directly connected to the Mediterranean. In other areas, for example in Alexandria, factories discharge their waste directly into the sea. The same is true for industries in the Syrian Arab Republic. The Gulf is also heavily polluted with industrial wastes, particularly those resulting from the oil industry. Such pollution can be seen along the shores of Qatar, Kuwait, Bahrain, the United Arab Emirates, Oman and Saudi Arabia. It has been estimated that about 159,000 tons of oil find their way annually into the marine environment in the Gulf area. Oil pollution is also the most important environmental problem in the Red Sea and the Gulf of Aden.
95. Industry generates solid wastes that vary in quantity and composition according to the type and size of the particular industry. The extractive industries (especially mining) generate considerable amounts of solid wastes, as compared with manufacturing industries. Most industries use landfills to dispose of their solid wastes, while other industries burn certain wastes (such as oily sludge). The environmental impact of solid wastes depends to a large degree on the method adopted for their management. Several industries have realized the potential of some of their solid wastes and have adopted recycling programmes and other strategies to make use of these wastes.
96. The above-mentioned, and other, environmental impacts of industry in the ESCWA region were the result of long years of neglect. Few industrial development plans give due consideration to environmental issues. Industries have been preoccupied with production quotas and short-term gains and have rarely invested in environmental protection measures. Environmental regulations have rarely been complied with and have never been enforced properly (a vivid example is Law No. 48 (1982) which regulates the discharge of wastewater into the Nile and other waterways in Egypt). However, industry is not the only factor to blame. The major obstacles to effective implementation of environmental regulations include: the abstract and sometimes inaccurate formulation of the laws and their executive regulations; the non-compatibility between regulations and local economic, social and environmental conditions; the general lack of cost-benefit analyses with regard to implementing the regulations; the inadequacy of institutional structures for

enforcement, including the lack of trained manpower and appropriate funds, and the frequent overlap, split, and contradiction of enforcement responsibilities among several ministries or agencies (El-Hinnawi, 1997).

97. Several recent trends in the ESCWA region are causing increasing concern about future industrial development and its impact on natural resources and the environment:

(a) Many ESCWA member countries have undertaken macroeconomic structural reforms that favour the production of export goods so they will be in a better position to benefit from the liberalization of international trade, agreed upon during the last Uruguay Round. Such an orientation necessitates cutting costs to remain competitive. This often means using the environment as a free or relatively inexpensive input. The trade-off between environment and development could, therefore, affect the ESCWA region most acutely, as countries in the region strive to achieve competitiveness in an increasingly competitive global economic environment;

(b) Increasing relocation of pollution-intensive industries from developed countries to some countries in the ESCWA region might take place to make use of some cheap natural resources (such as natural gas and/or associated gases from oil wells in some Gulf States), cheap labour, and/or relatively lax environmental standards and regulations;

(c) Some countries in the ESCWA region have developed "free zones" in which foreign-owned firms (or joint ventures) can process chemicals and raw materials, and assemble and manufacture goods for export. Because environmental protection measures are not stringent in these areas (or made less stringent by a political decision), such manufacturing industries may have serious effects on the health of workers, the surrounding population and the environment;

(d) Privatization is growing in the ESCWA region as an important element in economic stabilization and structural reform policies being implemented by several countries. Apart from the social impact of privatization, there are growing concerns about its environmental impacts. Privatized companies will be preoccupied with expansion and modernization of their operations to acquire short-term gains and remain afloat in a competitive market, paying little or no attention to addressing their mounting environmental problems (especially when non-compliance with environmental regulations prevails).

B. TOWARDS ALTERNATIVE PATTERNS OF DEVELOPMENT

98. Concern over the relations between development and environment in the ESCWA region dates back to the early 1980s, when ESCWA (at that time ECWA) and UNEP organized the Regional Seminar on Alternative Patterns of Development and Life Styles in Western Asia, held in Beirut in 1980. The Seminar recommended that self-reliance, meeting basic needs, using appropriate technologies, and integrating environmental factors into development planning should be given due consideration by Governments in the region (ECWA/UNEP, 1980).

99. More recently, during the preparations for the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, in 1992, ESCWA defined several factors that were hindering progress in sustainable development in the region. Among these factors were:

(a) Inadequate consideration of the environment in national economic policies and development plans;

(b) Weakness of existing regulatory mechanisms and administrative systems dealing with environmental issues;

(c) Lack of effective public participation in planning, decision-making and implementation of development programmes, environmental protection and conservation measures.

100. The Arab Declaration on Environment and Development and Future Prospects, adopted by the Arab Ministerial Conference on Environment and Development, held in Cairo in 1991, pointed out the

commitment of the Arab Ministers Responsible for the Environment to make every possible effort with a view, inter alia, to achieving the following:

(a) Minimizing the harmful environmental impacts of economic development through the integration of environmental considerations in the planning process and in economic and sectoral policies;

(b) Drawing up policies for the use of materials and development planning based on the preventive principle.

101. In its programme of action submitted to the United Nations Conference on Environment and Development in 1992, ESCWA made several recommendations on achieving environmentally sound and sustainable development. These recommendations were as follows:

(a) The concept of sustainability should be adopted as the goal of national economic and development policy;

(b) National economic policies and decisions on investment should take full account of their impact on natural resources and the environment;

(c) Environmental impact assessment, environmental cost-benefit analyses and other related procedures should be made part of the decision-making process for development projects, the transfer of technology, and regulatory measures;

(d) National environmental institutions should be strengthened and should play a more active role in the decision-making process;

(e) Sustainability is for the people and with the people. Therefore, public awareness and participation should be accorded the highest priority in national development strategies.

102. In spite of the well-intentioned declarations and pronouncements, there is still a long way to go before effective integration of environmental considerations into development planning can be realized in the ESCWA member countries.

103. The majority of ESCWA member countries have assigned the function of designing policies for environmental protection either to a single environmental ministry or to a national commission or council. Theoretically, such environmental bodies should coordinate environmental management and enforce laws and set standards and norms through legislation. In practice, however, the success of national environmental bodies has varied considerably. Interdepartmental conflicts have often weakened the operational ability and limited the coordinating role of environmental bodies in several countries. Other problems include:

(a) Inadequacies in environmental, economic and social data, including bottlenecks in collection and processing of data and lack of knowledge of past trends and baselines, which limit the quality of analysis;

(b) Inadequacies in technical, economic and administrative expertise, which limit the quantity and quality of planning and implementation;

(c) Inadequacies in monitoring and enforcement of laws and regulations;

(d) A scarcity of financial resources, which limits the willingness to protect the environment;

(e) Minimal participation in environmental planning by either the general public or many affected governmental agencies, which reduces the effectiveness of implementation;

(f) Difficulty in controlling the environmental impact of private sector activities, which limits the effectiveness of public programmes for environmental improvement.

104. The ESCWA member countries have made substantial efforts at the national level to formulate national environmental action plans, national conservation strategies, and action plans to combat desertification. However, most of these plans have been formulated as "independent" plans that are not integrated with the overall national development plan that deals with the different sectors of the economy: agriculture, industry, transportation, and tourism. For example, in Jordan's five-year development plan for 1986-1990, the environment appeared as an independent sector not integrated with (or cross-referenced to) development plans in other sectors of the economy. In Oman, the strategy of the fourth five-year development plan (1991-1995) made no reference to the environment: however, under the infrastructure sector, the plan includes a section on "environment and water resources." Again, this illustrates that the environment is dealt with as a sector, and not as an issue that cuts horizontally across all sectors of the economy, and which should be integrated into the development plans of these sectors. Another example, the plan of action to combat desertification in Oman, is not clearly tied to the national agricultural development plan.

105. However, in recognition of the intersectoral nature of many environmental concerns, an increasing number of ESCWA member countries are developing cross-cutting policies, laws and institutions, and some are seeking to bridge the gaps between the public and private sectors and non-governmental organizations (NGOs). Within Governments, the machinery commonly takes the form of interministerial or interdepartmental committees, while the policies are often expressed in national environmental strategies, developed in consultation between the sectoral departments. Even then, the policies are generally implemented through the traditional sectoral machinery. Only a few Governments (in Oman, for instance) have created high-level, cross-cutting procedures under the direct control of the head of Government or a very senior minister, and assigned to all ministers responsibility for accounting for the environmental impact of their departmental policies (ESCWA, 1996).

IV. CASE-STUDIES

A. EGYPT

1. *Environmental situation*

106. Egypt's population was 61.5 million in 1996, according to the latest census, and is projected to reach 67 million in 2000, and 80 million in 2017 (Ministry of Planning, Egypt, 1997). The average annual rate of population growth was 2.5 per cent in the period 1980-1990 and has slowed to 2.2 per cent since 1990; it is projected to be about 1.3 per cent in 2017. About 98 per cent of the population of Egypt live in the narrow Nile Valley, the Delta and the adjoining territories, which together make up only 4 per cent of the total area of Egypt. In contrast, the remaining 2 per cent of the population live in the desert (frontier) governorates, which occupy 96 per cent of the total area. Although the population density in Egypt is about 55 persons per square kilometre for the total area of the country, it is about 1,400 persons per sq km of the inhabited land. In the Cairo Governorate, the population density reaches an astounding 31,000 persons/sq.km (Institute of National Planning, 1995).

107. Egypt's economy is estimated to have grown by 4.9 per cent in 1996, up from 4.6 per cent in 1995 (ESCWA, 1997). The structural adjustment and economic reform undertaken since 1991 are beginning to yield some of the anticipated results. Egypt's rate of inflation, which registered 15.7 per cent in 1995, is estimated to have declined to 7.2 per cent, and the budget deficit as a percentage of GDP has fallen to 1.2 per cent. The improvement was mainly due to cutbacks in government expenditure, the introduction of a general sales tax, and a reduction in subsidies. Prices of manufactured products are currently not regulated, except for pharmaceuticals, cigarettes, rationed sugar and rationed edible oil products, and virtually all agricultural subsidies were removed by 1994. The prices of petroleum products in Egypt rose from 36 per cent of international prices in 1989 to 90 per cent in 1995.

108. Egyptians, individually and collectively, interact with their environment and have caused widespread environmental changes; some have been positive, but many others have been negative. Many of the latter changes have been magnified because, until relatively recently, the endeavour for continued improvements in the level of economic growth was not associated with sufficient appreciation of its possible adverse environmental effects. Development activities in agriculture, industry, transport, tourism, energy production and use, and in other sectors, have had an impact on the air, water, soil, marine environment and wildlife.

109. Air pollution in most cities constitutes a serious environmental problem, especially in industrial areas. The levels of common pollutants, such as sulphur dioxide, suspended particulate matter and carbon monoxide, in the air are higher than the guideline values established by the World Health Organization. In the industrial areas of Cairo, the suspended particulate matter is 5-10 times higher than international standards; sulphur dioxide is 2-20 times higher, and nitrogen oxides about 2 times higher (EEAA, 1997). In addition to its health hazards, air pollution has caused the deterioration of the surfaces of many materials, including historic buildings and monuments.

110. About 60.2 billion cubic metres of water are extracted from natural sources annually. Of this amount, 55.5 billion cubic metres are from the Nile and the remaining from groundwater resources. Egypt is recycling an additional 3.7 billion cubic metres of drainage water and 600 million cubic metres of treated domestic wastewater annually for irrigation. In spite of the increasing scarcity of fresh water, the Nile is becoming increasingly polluted by discharges of untreated or partially treated domestic wastewater, industrial effluents and drainage water. The Nile and its Rosetta and Damietta branches receive about 6,000 million cubic metres of drainage water per year, 1,700 million cubic metres of municipal wastewater, and 312 million cubic metres of industrial wastewater (EEAA, 1997). The deterioration in the water quality has led to the disappearance of several species of fish from the Nile. Drainage canals, which are supposed to collect drainage of agricultural areas only, have been receiving increasing quantities of untreated or partially treated domestic wastewater and industrial wastes. This contamination of drainage water poses serious problems to the increased recycling of drainage water for irrigation. In addition, most of the drainage system in the Delta discharges its waters into the brackish lakes (wetlands) north of the Delta. Most of these lakes

have become highly polluted, and this has affected aquatic life and birds, and reduced fish production in some of the lakes.

111. The coastal waters of Egypt are becoming increasingly polluted. Pollution from maritime transport, especially from oil tankers, has been rising in the Red Sea, the Gulf of Suez, and the eastern Mediterranean. However, most of the pollution of the coastal waters comes from land-based sources. The Mediterranean coastal zone receives annually about 15,000 million cubic metres of drainage water, 765 million cubic metres of sewage, and 545 million cubic metres of industrial wastewater. Signs of deterioration of the quality of coastal waters and beaches are already manifest from Port Said to Alexandria. Pollution from land-based sources is also increasing in the Red Sea and Gulf of Suez area owing to increased discharge of municipal and industrial wastewaters.

112. About 7.7 million feddan² (3 per cent of the total land area of Egypt) are cultivated. Although in the period 1953-1997 about 2.7 million feddan were reclaimed, between 1960 and 1990 about 750,000 feddan of good productive land were lost to non-agricultural uses (such as buildings, roads and factories). Since 1990, the average loss of agricultural land has been estimated at 30,000 feddan per year. Farmland in Egypt is subjected to different types of degradation. The estimated loss in soil production potential due to waterlogging and salinization, physical constraints, and problems related to fertility and management, has been estimated at about 52 per cent. Of the total irrigated land, about 70 per cent is affected by a small degree of desertification, 28 per cent by moderate desertification, and about 2 per cent by severe and very severe desertification.

113. About 43 per cent of the population of Egypt live in urban areas which have become very crowded. The uncontrolled urbanization in Egypt has led to the proliferation of slums and squatter settlements, with concomitant economic, social and environmental problems. About 97 per cent of the urban population and 61 per cent of the rural population have access to piped drinking water. However, there are disparities in per capita water use between urban and rural areas, and between and within urban areas themselves. The quality of drinking water varies also from one governorate to another, and from one area to another within the same governorate. About 50 per cent of the urban population have adequate connections to sewerage services, but there is a marked shortage in treatment plants in most governorates. Only 5 per cent of the rural population have access to sewer systems. The amount of municipal solid wastes generated in urban areas is approximately 24,000 tons/day, and in rural areas about 11,000 tons/day. The collection rates of solid wastes in urban areas vary generally from 40 to 70 per cent; the highest rates are in the high-income parts of the cities. Urban areas in Egypt are also plagued with noise pollution. Noise levels in most cities exceed the internationally acceptable noise levels by several orders of magnitude.

2. Development planning and the environment

114. The environmental problems in Egypt have been exacerbated over the years by the lack of adequate and effective policies to deal with them. Anticipation of problems and institution of timely preventive measures are unheard of. National development plans have focused mainly on economic growth, virtually neglecting the environmental impact of the development in different sectors. For example, the national development plan for 1982/83 to 1986/87 does not refer at all to environment. Only under the section on agriculture and irrigation is there a vague general reference to the need to deal with land degradation, protection of agricultural land, rational use of water for irrigation, and rural development. The national development plan for 1992/93 to 1996/97 deals briefly with environment as a separate sector. It lists a number of actions to be taken, mostly a repetition of what has been mentioned in the Environmental Action Plan issued by the Environmental Affairs Agency in 1992. Even the recently issued national strategy for economic and social development for 1997/98 to 2016/17 (Ministry of Planning, Egypt, 1997) deals with environment as a separate sector, but only in a general way. The sections of the strategy on the development of agriculture, industry, transport and other sectors make scarcely any mention of the corresponding and relevant environmental issues. Environment has, therefore, been included in these plans and strategies

² One feddan equals approximately 1.04 acres.

largely as an afterthought, and not as an integral part of the development plans of each sector of the economy.

115. The situation is further exacerbated by the lack of effective coordination between different agencies. Environment is a field that cuts across the activities of all ministries and institutions. To coordinate the activities of these bodies in the field of pollution control and conservation of natural resources, some interministerial committees were established, but they proved to be ineffective. In 1982, the Environment Agency replaced these committees, and more recently, the Egyptian Environmental Affairs Agency was established according to the provisions of Public Law No.4 (1994). The principal functions of the EEAA are: the formulation of environmental policies; the preparation of necessary plans for environmental protection and environmental management projects and follow-up of their implementation; and the promotion of relations between Egypt and other States, as well as regional and international organizations, in the field of environment. In particular, the EEAA undertakes the preparation of environmental legislation, the formulation of environmental norms and standards, and the supervision of environmental monitoring activities. The EEAA has mainly a catalytic and coordinating role, and most environmental protection activities are executed by the relevant ministries and by the governorates. When it comes to accountability to determine who did what and who did not, the role of the EEAA is virtually non-existent, or at best rather vague and weak.

116. Many laws and regulations (laws, Presidential decrees, Ministerial decrees and Governors' instructions) have been enacted in Egypt to regulate certain environmental issues (for example, control of air pollution, control of water pollution, management of solid wastes, noise control, traffic control, urban planning, control of marine pollution, protection of endangered species, and regulation of agricultural land use for construction). Public Law No. 4 (1994) and its Executive Regulations issued by Prime Minister's Decree No. 338 (1995) are the latest in the series of environmental regulations. Among its important provisions, Law No. 4 has established an Environment Protection Fund, and instituted the environmental impact assessment as a condition for granting permission for new projects or for the expansion of existing ones. For the protection of surface waters from pollution, Law No. 48 (1982) and its Executive Regulations are still in force. However, there are several problems that hamper the effective implementation of all these regulations. These include: the inadequacy of the formulation of some of the regulations, the general non-compliance of all sectors and the public with the regulations, the inadequacy of enforcement measures, and the duplication and contradiction between enforcing bodies. For example, enforcement regarding noise control, traffic rules, and emission of smoke from motor vehicles rests with the relevant bodies of the Ministry of Interior. The enforcement of protection of surface waters (including the Nile and the lakes north of the Delta) is the responsibility of the Ministry of Public Works and Water Resources. The enforcement of regulations related to municipal solid waste collection and management is the responsibility of the governorates. There is no effective mechanism to coordinate between these enforcing bodies in order to ensure enforcement and to avoid duplication and conflicts. Although the EIA is a welcome legal addition that might help to integrate environmental concerns into development projects, its implementation is still fragmented. For some major projects, political decisions prevail.

B. SAUDI ARABIA

1. *Environmental situation*

117. Saudi Arabia had an estimated population of 19 million in 1995, and is expected to have a population of 42 million in 2025. The current average annual population growth rate is about 3 per cent (World Resources Institute, 1996; World Bank, 1997). About 80 per cent of the population lived in urban areas in 1995, and urban population is expected to reach 88 per cent in 2025.

118. Saudi Arabia's economy accounts for over 40 per cent of the ESCWA region's GDP. Saudi Arabia's real GDP was estimated to have registered a 5 per cent growth rate in 1996. In nominal terms, Saudi Arabia's GDP grew by 8.6 per cent in 1996. With oil production averaging 8 million barrels per day (b/d), the country's oil revenues were estimated to have reached about \$51 billion in 1996, a 19.3 per cent increase over 1995 (ESCWA, 1997). The growth of the oil sector, which accounts for over one third of Saudi Arabia's GDP and around 90 per cent of its exports, was clearly the main factor in boosting the economy and

reducing the country's internal and external imbalances. According to the World Bank (1997), and as noted above, Saudi Arabia is classified in the category of upper-middle-income countries, with a GNP per capita of \$7,040 in 1995.

119. Saudi Arabia has a total land area of 215 million hectares, about 3.7 million hectares of which is cropland (about 1.7 per cent). Permanent pastures constitute 56 per cent of the total land area, forests and woodlands constitute about 0.8 per cent, and the remaining 42 per cent are classified as "other land." Degradation of cropland by waterlogging and salinization is common in some areas. Rangeland is affected by desertification to varying degrees, owing to overgrazing and harsh natural environmental conditions.

120. Owing to low precipitation and high evaporation rates, surface water is limited, and Saudi Arabia has no perennial rivers or lakes. Surface run-off, however, can occur during rainstorms. Estimates of run-off water range between 2,000 million and 2,400 million cubic metres per year (Al-Ibrahim, 1991). The absence of a reliable and adequate surface water supply has resulted in a heavy reliance on groundwater. The latter is obtained from shallow and deep aquifers. Shallow aquifers contain a renewable water supply charged by infiltration from rainfall and surface run-off water flowing over wadis. Deep aquifers, in contrast, contain fossil water (non-renewable) and are estimated to hold a reserve of about 500 billion cubic metres. The annual demand for water in Saudi Arabia has increased dramatically, from 2.4 billion cubic metres in 1980 to about 16 billion cubic metres in 1995, and is expected to reach 24 billion cubic metres in 2025 (Al-Ibrahim, 1991; ESCWA, 1996). About 75 to 80 per cent of water is drawn from groundwater resources, 7 per cent from desalination plants, and the remaining 13 per cent from surface run-off and reclaimed wastewater. About 88 per cent of water withdrawn is used for agriculture, 9 per cent for domestic purposes and 3 per cent for industrial purposes. The over-exploitation of groundwater in Saudi Arabia has led to several environmental consequences: significant depletion of aquifers; decline of water tables (the groundwater level around Riyadh has dropped about 10 metres during the past three decades); compaction of aquifers; deterioration of water quality due to salt water intrusion (especially in aquifers near coastal areas); and subsidence of land. In some locations, for example in the Wadi Fatima, Qatif and Hassa regions, natural springs have dried up.

121. The coastal waters of Saudi Arabia, especially along the Gulf, are suffering from increasing pollution from industrial and municipal sources. Oil pollution from offshore operations and transportation of oil in the Gulf is of particular concern. However, it should be noted that this is more of a regional problem shared by all the countries that are members of the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates).

2. Development planning and the environment

122. Saudi Arabia has adopted the principle that prevention is better than cure in its development and environmental plans. The Fifth National Development Plan (1990-1995) incorporates the following long-term objectives: (a) improvement of the standard of living of all citizens in an environment that is free from pollution; and (b) the achievement of sustainable development on the basis of improved management of natural resources and of not exceeding the carrying capacity of different ecosystems. In addition, containing and reducing existing environmental damage is accorded high priority. The Fifth Plan stressed the environmentally sound development of the industrial sector, through the use of cleaner and best available technologies; and the achievement of food security without causing depletion of resources or deterioration of the environment.

123. The development plans of Saudi Arabia did not skirt the issue of emerging environmental problems. Problems that emerged during the implementation of one development plan were promptly addressed by the next plan. An important example is provided by agricultural development. The agricultural sector in Saudi Arabia achieved very high rates of growth during the past 15 years for many reasons, including: strong Government support; establishment of a viable infrastructure; increased investment in food industry projects; and high Government subsidies to farmers. As a result of these measures, the cultivated area increased from about 150,000 hectares in 1975 to about 3.7 million hectares currently. Wheat production increased from 142,000 tons in 1980 to about 4 million tons in 1992. This led not only to self-sufficiency but also to the realization of surpluses for export. Production of vegetables, fruits and livestock products also increased.

However, this progress was combined with incremental consumption of the limited groundwater resources, which led to accelerated depletion of aquifers (World Resources Institute, 1990; Al-Ibrahim, 1991). Accordingly, in 1994, the Government reduced wheat subsidies to \$850 million, from \$1.87 billion in 1993. With the objectives of limiting the use of water and cutting subsidized wheat production, the Government continued in 1994-1995 its policy of tight control over wheat farming permits and plans to produce only for self-sufficiency. Against a domestic consumption of some 1.8 million tons, production of wheat dropped from 3.6 million tons in 1993 to about 2.5 million tons in 1995. One of the general objectives of Saudi Arabia's Sixth Development Plan (1995-2000) emphasizes the diversification of the productive base in agriculture by encouraging investment in large-scale agricultural projects that depend on renewable water resources and the use of minimal quantities of water. The water sector strategies in the Plan emphasize water conservation, including the improvement of irrigation efficiency, the decrease of demand in the agricultural sector, monitoring and protection of groundwater resources, and supply augmentation through desalination.

124. The Meteorology and Environmental Protection Administration (MEPA) was established in 1980 as the central environmental agency responsible for preparation of environmental standards, monitoring of environmental conditions, and undertaking of environmental impact assessments in cooperation with other relevant agencies. The National Commission for Wildlife Conservation and Development was established in 1986, and in 1990 the Ministerial Committee on Environment was established with a broad mandate of planning and coordination authority as well as responsibility for preparing the strategic environmental position of Saudi Arabia.

125. The institution of EIA as a legal requirement for new development projects is efficiently enforced by MEPA in coordination with other relevant agencies. In addition, the increasing awareness among policy makers of the importance of integrating environmental considerations into development planning has prompted the establishment of modern industries using cleaner production technologies and encompassing different environmental protection measures. An example of this is provided by the industrial cities of Jubail and Yanbu, which are under the administration of the Royal Commission for Jubail and Yanbu. The Royal Commission made every effort to ensure that the development of both cities would be carried out in accordance with sound environmental practices. Environmental monitoring in Jubail, for example, has shown that air emissions have been below acceptable limits since 1983, and that wastewater discharge into the Gulf has not caused any marked environmental damage (O'Brien and others, 1992).

C. YEMEN

1. *Environmental situation*

126. Yemen had an estimated population of 15 million in mid-1995, and it is estimated that the country will have a population of 34 million in 2025. The average annual population growth is currently 3.3 per cent. The urban population is estimated currently to make up 34 per cent of the total population and this figure is expected to rise rapidly to 58 per cent in 2025 (World Resources Institute, 1996; ESCWA, 1996; World Bank, 1997).

127. Yemen is a least developed country, with an average GNP per capita of \$260 in 1995 (Committee for Development Planning, 1997). Yemen began implementing economic and structural reforms in 1995, under the auspices of the World Bank and the IMF. After registering a GDP growth rate of 8.5 per cent in 1995, the economy of Yemen was estimated to have grown by 3 per cent in 1996 (ESCWA, 1997). Owing to Yemen's relatively high population growth rate, its GDP per capita declined by an estimated 0.7 per cent in 1996. Although Yemen's economy benefited from higher oil prices and revenues, the country suffered considerably from the 1996 floods, which had a severe negative impact on the important agriculture sector.

128. The total land area of Yemen is about 53 million hectares, 1.5 million hectares of which is cropland (24 per cent of cropland is irrigated land); 16.1 million hectares are permanent pastures; 2 million hectares are forests and woodlands; and 33.3 million hectares are classified as other land (World Resources Institute, 1996). Changing farming and grazing practices in Yemen led to soil and land degradation and to deforestation. Although soil erosion occurs naturally, the rate of erosion is increasing as a result of the removal of vegetation and unsustainable land-use and farming practices, particularly the development of

large-scale schemes and the deterioration of terraces due to inadequate maintenance. Deforestation due to increased fuelwood consumption, overgrazing, and clearing land for agriculture reduced the total forest and woodland cover from 2.5 million hectares in 1970 to 1.5 million hectares in 1993 (Yemen, 1996).

129. The water resources in Yemen are very limited. Water resources were estimated to be about 16,000 million cubic metres in 1995 (2,000 million cubic metres were surface waters; 13,500 million cubic metres were groundwater; and the rest was from desalination plants and wastewater reuse). The total demand for water in 1990 was 2,899 million cubic metres, and it is expected to reach 4,777 million cubic metres in 2025 (ESCWA, 1996). With the fast-growing population, water availability per capita is projected to decrease to about 150 cubic metres in 2025. About 93 per cent of water withdrawn in Yemen is used for irrigation. Over-exploitation of groundwater resources is common in several areas and has led to the depletion of resources. Water quality is deteriorating in many shallow aquifers, and saline water from the sea is increasingly intruding into coastal aquifers. In addition, groundwater in urban areas has been increasingly contaminated by municipal and industrial wastewater.

130. The sea along the mainland coast and the numerous islands in the Red Sea are in heavy traffic areas, and oil spills from ships and oil terminals are common in these areas. Marine habitats such as mangroves and seagrass are increasingly threatened by coastal development. The planned development for Socotra Island is likely to have considerable environmental impact on marine resources of the Island, which harbours many endemic coral, fish and turtle species, some of which are listed in the IUCN (World Conservation Union) Red Data Book of endangered species. Terrestrial habitats, rich in several species of plants, are also prone to accelerated extinction.

131. In urban areas, water supply, sanitation, drainage and garbage collection are inadequate. In most towns, sewage is disposed of directly into the sea or groundwater recharge areas. Water-borne diseases account for a high percentage of child mortality in Yemen. Industries in and near urban centres emit air pollutants without any control, and industrial wastewater is discharged into the environment without treatment.

2. Development planning and the environment

132. The environmental problems in Yemen have been compounded by the virtual lack of integration of environmental considerations into development planning. Deficiencies in both regulatory and economic policy frameworks have been key factors contributing to increased land degradation. For example, there has been no effective legislation for land conservation. Pricing policies also have led to over-exploitation of land. The subsidization of food crops has encouraged the farming of marginal lands, thereby increasing deforestation and soil erosion.

133. The absence of a national water policy and effective regulations have contributed to wasteful use of the limited water resources. The application of a flat on-and-off peak rate has encouraged overuse of water with consequent negative environmental impacts (groundwater resources depletion, groundwater contamination, and waterlogging in irrigated land). The narcotic qat, which requires large amounts of water to produce, occupies some 25 per cent of the irrigated area. Although the official policy is to restrict the cultivation of qat to low potential areas and to levy a sales tax on it, these measures are not adequately enforced.

134. Recently, the Government of Yemen stated that the interrelation between socio-economic growth and sound environmental management is a major item on the country's development agenda, and its growth-oriented development strategy, which aims at increased food production and industrialization, is based on continued utilization of the country's natural resources. These concerns are reflected in the Five-Year Development Plan (1996-2000) in which the National Environment Action Plan (NEAP) forms the basis for the environment chapter. The strategy of the NEAP is to promote sustained use of natural resources through a set of legislative, institutional, economic and financial measures, an improved information base, and community involvement.

135. In 1990, the Government of Yemen established an interministerial Environment Protection Council (EPC) with the mandate to develop and propose policies to protect the environment, formulate national environmental legislation and regulations, set up national environmental standards, coordinate and monitor national and international efforts in environmental protection and promote environmental education and public awareness of environmental issues. Members of the EPC are representatives of all the ministries engaged in environmental management and of the ministries whose activities may pollute the environment. EPC reports directly to the Prime Minister. Although considerable efforts have been made by the EPC to fulfil its mandate, contradictory interpretations of the mandates and inadequate coordination between different departments have hampered the anticipated progress both in integrating environmental considerations into development projects and in addressing contemporary environmental issues. However, it must be stressed that the experience of Yemen in this area is still in its early stages (the NEAP was only approved in 1996), and it is premature to judge the activities and progress made thus far.

V. RECOMMENDATIONS

136. Promoting growth, alleviating poverty, and protecting the environment are mutually supportive objectives in the long run. Rather than address environmental issues in isolation, decision makers should consider the preservation of the environment along with other issues central to the formulation of development policy. In so doing, they should take maximum advantage of complementarities in order to help the poor, promote better resource management, and contribute to sustainable development.

137. To a large degree, environmental management should be seen as a means of attaining the wider objectives of sustained economic growth and poverty alleviation. Environmentally related behaviour and policies regarding that behaviour should thus be a part of social, sectoral, and macroeconomic policies. Furthermore, planning at all levels should be sensitive to the intersectoral consequences of activities. Governments should use the tools at their disposal to search rigorously for policy and project interventions that address economic growth and poverty alleviation in an environmentally benign way.

138. The greatest challenge government institutions face is overcoming traditional sectoral divisions when implementing environmental policies, as such policies often cut across the normal bounds of bureaucratic responsibility. For most environmental problems, many different actors must be brought together. Agencies need to collaborate, and some mechanism for resolving conflict is needed. A common problem in the ESCWA region is the lack of effective mechanisms for mainstreaming environmental concerns. Some examples include the fact that investments in water supply are not matched by investments in wastewater treatment and sanitation, and that conservation policy is divorced from agricultural policy.

139. Sustainable development is not a ready policy menu. It is a demanding series of concrete, costed and draconian reforms which confront inadequate economic policies and instigate new structural adjustment programmes. Many recommendations have been made about the ways and means to achieve sustainable development (by the World Commission on Environment and Development and Agenda 21, among others), and it is not intended to reiterate those recommendations here. The important point that should be made, however, is that sustainable development cannot be achieved overnight. A transitional period, the length of which will vary from one country to another, should be set to initiate and stabilize a number of actions to achieve sustainable development. This transitional period is also necessary for the gradual incorporation of environmental considerations into development planning. The most important actions to be taken in that period are outlined below:

(1) Strengthening the implementation of environmental management in all sectors of the economy by (a) increasing the awareness of policy makers, executives, and the public about the importance of resource conservation and environmental protection, and (b) effective enforcement of clearly defined and realistic environmental regulations;

(2) Effective instituting of environmental impact assessments (and their enforcement) as a legal requirement, and the broadening of the concept of EIA to cover policies and programmes at the national and local levels;

(3) Directing efforts in project appraisals at (a) development of project portfolios that enhance sustainable development, (b) overcoming the piecemeal project approach, (c) establishment of monitoring for mid-course corrections, and (d) establishment of post-completion evaluation routines to avoid perpetuating flawed programmes;

(4) Establishing a good physical database upon which to plan, take and implement investment decisions involving the use of natural resources;

(5) Integrating environmental concerns with community development, and developing a participatory approach to utilization and management of natural resources by local communities;

(6) Using economic instruments in a broad and effective manner (in particular, incentives and disincentives) to conserve resources and improve environmental quality;

(7) Ensuring that national environmental action plans, national conservation strategies, national water strategies, and national land policies are related to each other and to the overall national development plans of the different sectors of the economy. An agricultural development plan, for example, cannot be formulated and implemented in isolation of national plans for water, energy, environment and transport.

(8) Establishing systems for natural and environmental resource accounts to reflect economy-environment interactions at both the national and local levels and including natural resource accounting in the governing process as an important step in improving the ability of Governments to conserve resources, protect the environment, and move towards sustainable development;

(9) Linking natural resource accounting with the development of improved governmental foresight capability in order to assess long-term costs and benefits, for all economic and social sectors, of policies to protect natural resources and environmental quality, and linking these assessments directly to decision-making.

(10) Incorporating environmental objectives into tax policies, policies affecting investment, and foreign trade incentives. It is especially important that environmental goals become part of both government and private sector policies that affect the pricing of goods and services. Economic activity must account for the environmental costs of production, and environmental goals should be an integral part of economic policy.

140. It would be useful, at this stage, to initiate some case-studies to demonstrate the feasibility of integrating environmental considerations into the development plan of a particular locality, or sector of the economy, to identify opportunities and constraints. The findings of these case-studies (to be carried out by some countries in the ESCWA region) would certainly help to provide the appropriate orientation for the much wider integration of environmental considerations into development plans at the national level.

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