

ENVIRONMENTAL PROBLEMS AND PERSPECTIVES IN MIDDLE EAST AND NORTH AFRICA REGIONS

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Today I would like to share with you some thoughts on how to promote environmentally sustainable economic development in the Middle East and North Africa.

I will begin by providing an overview of the current problems of natural resource scarcity and environmental pollution in the region and of some of their quantifiable costs. I will then propose a range of initiatives for responding to these problems, present estimates of their costs, and suggest ways to finance them. In addition to recommending actions to be taken by the countries of the region, I will identify ways in which external agents – private investors, bilateral donors, and international organizations, including the World Bank – can support local efforts.

Getting off the collision course

The eight countries of the Middle East and North Africa have made impressive, though uneven, progress in the past three decades. Per capita GDP has increased from \$1,500 in 1965 to \$2,000 in 1990. Infant mortality has fallen by half, and life expectancy has increased from 48 to 64 years. Education levels have improved; primary school enrollment is nearly 100 percent, secondary school enrollment has tripled, and female enrollment has increased fivefold. Overall, structural adjustment measures have been adopted and have picked up the pace in most of these countries.

But this progress is threatened by the environmental damage that has accompanied it. Scarce water, degraded arable land, polluted air and water, and inadequate sanitation threaten the region's capacity to maintain economic growth and absorb mushrooming populations. They also impose enormous economic and human costs through disease and early death.

Though blessed with large oil and natural gas reserves, the region is poorly endowed with two critical natural resources: productive land and accessible, renewable water resources. Only 6

Abstract

This paper provides an overview of the current problems of natural resource scarcity and environmental pollution in the region of the Middle East and North Africa and of some of their quantifiable costs.

A three-part strategy – strengthening institutions and participation, improving resource management, and arresting emerging pollution problems – would reinforce sustainable development by balancing economic, environmental, and social concerns. Partnerships will be needed between the countries of the Middle East and North Africa to share relevant experience, between donors and financial institutions to blend resources, with NGOs to build public awareness, and with the industrial countries to share technology and increase trade and tourism.

Résumé

Ce travail fournit une vue d'ensemble sur les problèmes actuels de la rareté des ressources naturelles et la pollution environnementale dans la région du Moyen Orient et de l'Afrique du Nord ainsi que sur certains des coûts qu'ils entraînent et que l'on peut quantifier.

Une stratégie tripartite – renforcement et participation des institutions, amélioration de la gestion des ressources et lutte contre les problèmes environnementaux émergents – renforcerait le développement soutenable en gérant d'une manière équilibrée les problèmes économiques, environnementaux et sociaux.

Il faudra un partenariat entre les pays du Moyen orient et l'Afrique du Nord pour partager leurs expériences spécifiques, entre les bailleurs de fonds et les institutions financières pour mettre ensemble les ressources, avec les ONG pour favoriser une prise de conscience publique, et avec les pays industriels pour partager la technologie et favoriser le commerce et le tourisme.

percent of the region's land is arable, and the available supply of fresh water is limited. As a result, human settlements have been concentrated in a relatively small part of the land mass and food production has depended heavily on irrigated agriculture.

A development paradigm based on seeking food self-sufficiency and rapid industrialization has put increasingly unmanageable pressure on natural resources. Since the 1960s governments in the region have invested in intensive agricultural production, in large-scale infrastructure projects, and in such industries as cement, iron and steel, and fertilizers and chemicals. These investments have been supported by heavy subsidies for water, energy, agrochemicals, food staples, and public services.

This development strategy, designed to meet the needs of a rapidly growing population, ignored conservation and efficient resource allocation. In agriculture, inappropriate farming methods, sedentarization, and improper water management fueled the waste of water resources; fragile pastures were over-

grazed while productive pastures were converted to unsustainable crop cultivation; and low prices spurred the overuse of agrochemicals, leading to fouled runoff. Coastal zones and regional seas have come under increasing pressure, damaging fisheries and tourism, which is one of the largest sources of foreign exchange revenue for several countries.

Urban pollution threatens public health in the region. Industries owned or subsidized by the public sector have had little incentive to adopt cleaner technologies. Protective trade regimes, soft budget constraints, and the lack of environmental regulations have permitted the survival of old, highly polluting industries. Obsolete vehicle engine technology and low fuel efficiency have exacerbated urban air pollution. Energy is another major polluter. Historically high energy subsidies, still around \$25 billion a year for the region, have provided little incentive for conserving energy and improving efficiency. Energy consumption per unit of output is almost twice that of other regions with comparable income

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levels, such as Latin America and the Caribbean.

Improving environmental management requires incorporating these social and economic costs into the overall development strategy – by implementing policies and programs that integrate economic growth, poverty reduction, and environmental sustainability. Reform now will be far less expensive than the cost of inaction.

The enormous costs of inaction

Today the region faces enormous development challenges:

- * Population growth averages 3.1 percent, the highest in the world. In one generation the urban population has mushroomed from 32 million to more than 130 million (54 percent of the total), far outpacing the growth of municipal services.

- * The water situation is precarious. Ten countries (Bahrain, Israel, Jordan, Kuwait, Libya, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Yemen) and the West Bank and Gaza consume more than 100 percent of their renewable freshwater supplies, and nine countries (Algeria, Egypt, Iran, Iraq, Jordan, Lebanon, Morocco, Syria, and Tunisia) and the West Bank and Gaza have known problems of poor water quality. Annual per capita water availability was about 3,300 cubic meters in 1960. It has fallen to by 60 percent to about 1,250 cubic meters today, the lowest level in the world.

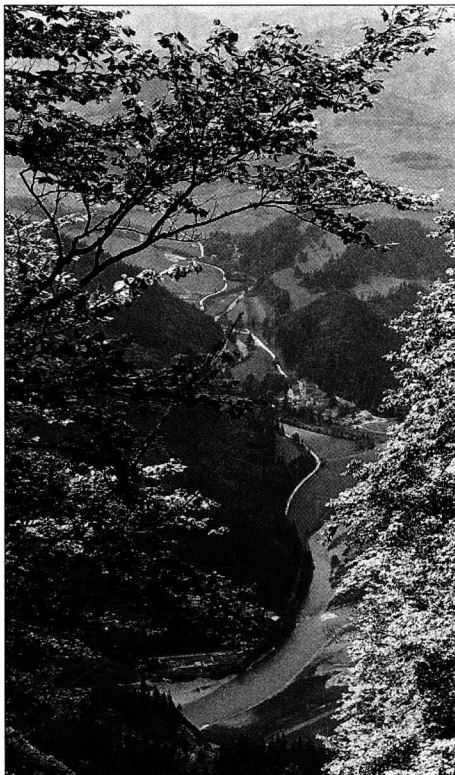
- * About 45 million people have no access to safe drinking water, and 85 million lack safe sanitation. Only 20 percent of urban wastewater is treated, compared with 60 to 70 percent in the United States and Europe.

- * Almost 60 million people (about 40 percent of urban dwellers) breathe dangerously polluted air from highly polluting industries, inefficient vehicles, leaded gasoline, and high-sulfur fuel oils.

- * Natural resource degradation – soil erosion, deforestation, and loss of biodiversity – is persistent and widespread. It is particularly severe in areas of Algeria, Morocco, Tunisia, and Yemen.

- * The region's unique cultural heritage, which helps to attract \$9 billion a year in tourism revenues, is threatened by pollution and uncontrolled development.

That is the bleak situation today. Lost productivity from land degradation, including desertification, is estimated to cost roughly \$1 billion to \$1.5 billion annually. The health effects of pollution cost thousands of lives and dimin-



ish human productivity and well-being. When these effects are combined with other economic effects, the price of unsustainable development stands at \$12 billion to \$14 billion a year, roughly 3 percent of regional GDP. This is similar to the burden of environmental damage in Eastern European countries and two to three times higher than the cost in Western European countries. The figure does not account for certain losses that are difficult to quantify, such as damaged ecosystems, loss of biodiversity, and long-term effects of toxic pollution. Such damage often is irreversible and can undermine future growth by impairing land productivity and human health.

Future trends

By the turn of the century, at current trends, things could get much worse:

- * The region's population will have grown to 340 million, increasing the demand for scarce water and arable land.

- * About 160 million people will live in cities where air pollution exceeds World Health Organization (WHO) guidelines – impairing children's learning capacity, reducing labor productivity and overall human well-being, and slowing growth in tourism.

- * Industrial pollution is likely to increase by more than 50 percent.

- * Transport pollution will increase by more than 60 percent unless action is

taken to replace obsolete vehicle engine technology and increase fuel efficiency.

- * The water crisis will become more acute – in fourteen of the nineteen countries in the region, demand is likely to exceed available renewable freshwater supplies by the year 2000.

- * Left unchecked, land and forest degradation – already very serious – will worsen, posing a real threat to the region's agricultural base.

- * The region's cultural property will be seriously damaged by uncontrolled development, increased air pollution, and growing numbers of tourists.

It is difficult to quantify the future costs of this environmental degradation. But together, these problems will jeopardize the region's prospects for economic and social development. And experience worldwide clearly demonstrates that failure to act *now* can only increase the cost and complexity of later remedial action. Prioritizing actions is the key to success. Problems that have an impact on human health or that lead to economic losses naturally would have a high priority.

A three-part strategy for sustainable development

A three-part strategy – strengthening institutions and participation, improving resource management, and arresting emerging pollution problems – would reinforce sustainable development by balancing economic, environmental, and social concerns. Let me discuss each of these pillars in turn.

1. Strengthening environmental institutions and public participation

Environmental management is a relatively new field in the region, so building institutional capacity in environmental policy-making is a top priority. Building capacity will require well-focused assistance to improve managerial and technical capacity and to strengthen the monitoring and enforcement of environmental quality standards. It will also require publicizing environmental risks and involving the public in setting priorities and making decisions. Increased awareness of environmental problems can spur public action and the willingness to pay for environmental services.

To improve policy formulation and coordination, monitoring, and enforcement, governments need to:

- * Strengthen the ability of public agencies to execute these functions, set priorities, and assess environmental risks.

- * Reorient national environmental

action plans to analyze the environmental implications of economic and sector policies, set priorities for action, and propose mechanisms for resource mobilization.

* Ensure that laws support an integrated approach to pollution control, establish realistic and location-specific environmental impact assessments for all major new investments.

* Give priority to monitoring and enforcement where pollutants pose the greatest threat to public health.

To increase public participation in environmental management, governments need to:

* Gradually decentralize the operational functions of environmental management to municipal and local levels, ensuring that these local institutions have sufficient financial autonomy and management capacity to carry out their expanded roles.

* Release information regarding water quality, hazardous emissions and wastes, and the conservation of nature.

* Involve affected populations, local non-governmental organizations (NGOs), and the media in decision-making regarding environmental issues by, for example, holding public consultations and conducting participatory environmental audits.

The institutional capacity of countries to handle environmental issues varies across the region, but overall, technical expertise and authority need to be strengthened. Oman and Tunisia have made progress in strengthening their capacity in environmental policy-making. Algeria, Egypt, Morocco, and Saudi Arabia are restructuring their environmental institutions. Risk assessment has been introduced in Algeria, Egypt, and Tunisia to identify priorities. Several countries, including members of the Gulf Cooperation Council, have made environmental impact assessment mandatory for new development projects.

Public access to environmental information has improved, but much more effort is required to achieve real public participation in environmental management.

2. Improving the management of scarce natural resources

The scarcity of water and arable land in the region is a fundamental constraint to its future economic growth. Energy, though historically plentiful, will also become scarce if current consumption patterns continue. The problem requires reorienting development away from mining the natural resource base by improving management through the

following three actions:

* Adapt to increasing water scarcity by increasing water prices to encourage conservation and mobilize financial resources for investments and by strengthening institutions to mediate conflicts and introduce integrated water resources planning and management.

* Gradually eliminate subsidies on energy, fertilizers, pesticides, and other agrochemicals.

* Intensify efforts to encourage the adoption of proven technologies for the efficient use and conservation of water, land, and energy by conducting information campaigns, introducing incentives, such as environmental taxes and pollution charges, and removing trade barriers to new technology.

Many countries already are reforming the way in which they manage their national resources. Egypt, Morocco, Syria, and Tunisia are implementing integrated water resource management. Jordan and Tunisia are increasing the price of irrigation water.

Energy conservation and efficiency measures have been introduced in industry in Egypt, Morocco, and Tunisia. Jordan is rationalizing energy prices and restoring the financial viability of its energy sector by commercializing power enterprises. Egypt has eliminated pesticide subsidies, and Morocco and Tunisia have removed fertilizer subsidies.

A new policy of reliance on markets and price signals can be expected to help redirect resources to high-value uses, encourage conservation, and reduce the scale of extra investment needed simply to maintain current levels of per capita resource availability. Continuing and reinforcing these reforms, though a difficult task, is vital and urgent.

3. Arresting emerging pollution problems

Urban and industrial pollution and the lack of access to safe water and sanitation are posing increasing threats to public health. Antipollution measures generally have been directed at only one medium, such as water or air, often resulting in the more rapid deterioration of another medium. Integrated pollution control should address the impact on all media and focus on waste reduction and recycling to prevent pollution.

To promote clean industries, governments should:

* Encourage private investment in clean industry by removing tariff and non-tariff barriers to the adoption of clean process technology.

* Apply the polluter-pays principle so that enterprises pay the costs of pollution, and establish licensing procedures to ensure that pollution control measures are taken.

To clean up "hot spots" where pollution is endangering human health or ecosystems, governments should:

* Improve the quality and extend the coverage of environmentally safe water and sanitation services by enhancing the operation and maintenance of existing services, rehabilitating non-operational treatment plants, and encouraging investment in appropriate, low-cost technologies.

* Identify and rank hot spots through environmental audits, and then develop least-cost mitigation plans to form the basis for compliance agreements with polluting firms on phased reductions in emissions.

* Ensure that financially viable public and private enterprises bear the costs of clean-up. Highly polluting public enterprises that are not financially viable and cannot be restructured should be shut down.

* Reduce air pollution from transport and energy sources by phasing out leaded gasoline and high-sulfur fuels, establishing emissions standards for new vehicles and imposing progressive ownership levies on used vehicles, and accelerating natural gas development.

Several countries are beginning to tackle emerging pollution problems. Algeria, Morocco, and Saudi Arabia are adopting an integrated approach to pollution control in selected industrial areas. Coastal oil pollution is being addressed regionally by Algeria, Morocco, and Tunisia through guidelines and regulations. Many countries in the region are investing in wastewater treatment facilities; Tunisia stands out for its strides in wastewater treatment. Algeria, Egypt, Morocco, and Tunisia have initiated pollution audits for industries and municipal governments, assisted by METAP. Egypt and Tunisia, with the assistance of donors, have begun clean-up operations for specific industries. Tunisia has established a fund for loans to finance industrial clean-up. Algeria is preparing a program with the World Bank to reduce hazardous wastes that are harmful to human health. And Morocco is developing a program with the help of the Bank to clean up the highly polluted Sebou River basin using an integrated approach.

Such efforts need to be reinforced and extended. More attention also needs to be paid to the removal of energy subsidies and the adoption of clean process and renewable energy technologies.

Costs and financing

Clearly no blueprint for sustainable development can be drawn for the region as a whole. A regional strategy can, at best, give a general idea of what needs to be achieved at the country level. Each country will then have to travel its own path based on its particular problems, constraints, and comparative advantages.

Essential tools for developing country-level action agendas are national environmental action plans. These action plans must be well coordinated with all sector, finance, economy, and planning ministries. They must set environmental priorities and identify relevant projects, explicitly examine the environmental implications of policies, investigate mechanisms to mobilize resources, and encourage participation by all concerned parties.

Institutional and policy reforms and increased public awareness, not investments alone, are prerequisites for sound environmental management. Implementing reforms to promote more sustainable development will not come free of cost. A first estimate puts the cost at \$60 billion to \$80 billion over the next decade, or about 1.5 percent of regional GDP if the investments are spread over ten years. This compares favorably with environmental management costs in most OECD and some transition countries, which spend about 1 to 2 percent of GDP on environmental protection each year. Major benefits from these investments include health improvements from the provision of safe water and sanitation, increased agricultural productivity, and less air pollution. As noted earlier, these investments cost far less than ignoring continuing environmental damage. Most of the financing for these investments will have to be raised from domestic sources, though not necessarily from the public budget. To the extent possible, costs should be transferred from governments to resource users and polluters, and cost recovery mechanisms put in place to finance new investments. Starting now, the region can raise funds through market-based mechanisms, by:

* Increasing electricity and water prices so that they reflect the full cost of supply. Energy subsidies in the region are estimated at \$25 billion a year; annual costs of water supply investments not currently recovered are about \$12 billion.

* Introducing pollution charges to discourage pollution and raise revenues. If the region could bring charges to levels comparable to those in Poland by 2005,

it would raise \$1.7 billion a year.

* Recovering the costs of solid waste management, wastewater treatment, and sanitation through efficient pricing.

* Levying a tax on harmful additives to gasoline to internalize the health costs of pollution.

A tax on leaded gasoline equivalent to 10 cents a liter could raise \$2 billion a year if imposed on 50 percent of current gasoline consumption.

All these measures play a dual role – they raise funds for new investments, and they provide incentives for more efficient resource use.

The private sector also can play an important role in environmental management:

* Private firms can be encouraged to finance environmental investments and to manage water and wastewater treatment plants, sanitary landfills, and special industry waste facilities on a user-charge basis.

* Foreign private investments and joint ventures can expand natural gas supply, upgrade domestic automobile and truck technology, and introduce clean industrial and energy technology.

Socio-economic constraints to reform

Governments face many pressures in implementing the reforms urged here. Interests often conflict, and governments themselves find it hard to curb environmentally damaging policies and polluting public enterprises because of the political consequences. Citizens benefit from using environmental resources without paying for them. Requiring that businesses and consumers pay the real costs of natural resources and services and that polluters pay for pollution is an unattractive, but essential, political task. Political difficulties can be eased by making the most of “win-win” opportunities. In those situations where there are “losers”, such as reducing energy subsidies, the net gains of policy changes can be used to compensate the “losers”. The poor suffer the most from environmental degradation. They typically live on marginal, erosion-prone land or in urban slums close to polluting industries and without access to piped water or adequate sanitation. They are the ones who struggle to make ends meet as their crop yields decline and whose children die from diseases caused by polluted water.

The impact of environmental policy reforms on the poor depends on many factors. In urban areas the poor often are willing to pay for water and sanitation services, because these services

may actually cost them less than, for example, buying water from private vendors. Increasing the resources available to governments through improved cost recovery can make it possible to extend services to the unserved poor. In rural areas the link between poverty and environmental degradation is more complex. Environmental policy reform will have both positive and negative effects. For example, soil and water conservation programs that involve local participation may benefit small farmers, while increasing irrigation water prices may hurt them.

Several strategies can help people cope with poverty and land degradation. Farmers and herders on arid and semi-arid land can be encouraged to take up non-farm employment. And farmers can be encouraged to improve their land if they are provided more secure land tenure and market incentives. Policies and regulations should be grounded in local realities, traditions, and natural resource management strategies. The social impact of policies should be assessed before they are implemented. Based on such assessments, targeted measures that minimize adverse effects without offsetting the reform objectives can then be designed and implemented.

The role of the World Bank

Partnerships will be needed between the countries of the Middle East and North Africa to share relevant experience, between donors and financial institutions to blend resources, with NGOs to build public awareness, and with the industrial countries to share technology and increase trade and tourism.

Much of the funding for reform will, of course, come from domestic sources, but external assistance – both financial and capital – will remain important in the short to medium term. International donors will need to coordinate development assistance closely with the priorities emerging from the national environmental action plans to enhance effectiveness.

The Bank is committed to responding to the leadership shown by countries willing to act on this agenda. It will work – directly and in collaboration with other donors that have long provided support on environmental issues – to develop programs to deal with the priority environmental problems. The challenges are formidable, but the costs of securing the future for this generation and future ones are manageable with close cooperation and partnership for action. ●