

*SYRIAN ARAB REPUBLIC
MINISTRY OF STATE FOR
ENVIRONMENTAL AFFAIRS*

*The Syrian National Strategy Report
for Sustainable Development*

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National Strategy for Sustainable Development in Syria

1. INTRODUCTION

The Ministry of State for Environmental Affairs in collaboration with other relevant ministries adopted the Syrian National Environmental Action Plan (NEAP), which proposes several action sub-plans and programs, which would lead to an overall sustainable development in Syria.

The Syrian National Environmental Action Plan (NEAP) is considered as one of the major results produced through the implementation of the National Project for Strengthening the Capacity of Environmental Affairs in Syria. This project was financed by UNDP and Capacity 21 program and nationally executed under the supervision of World Bank. The aim of NEAP is to integrate between national development plans and environmental management. A special unit was set up at the Ministry of Environment for the implementation of the project action plan through continuous and thorough consultations and meeting with the Environment Minister, participation of public and private sectors, relevant ministries, NGOs and research centers.

The overall goal of NEAP is to contribute to protection the health of the Syrian population, and manage scarce materials and cultural resources in a rational and cost-effective manner and to allow economic growth to continue unimpeded by environmental degradation. A gradual and continuous programs of improvement will accomplish this. NEAP actions will target five priority areas, which were identified by a wide consultation exercise, supported by a thorough technical study.

The action plan presented in NEAP covers the period for the coming 10 years, when a full revision of the strategy will take place.

2. SYRIAN ENVIRONMENTAL STRATEGY

The Syrian Environmental Strategy composed of a sequence of actions that can be taken to accomplish strategic objectives. Sustainable development has been involved in these actions and areas of NEAP programs and investment to become as follows:

I. Prevent misuse of land and water resources

- Develop policies to encourage development in areas with appropriate natural resources
- Combat desertification (loss of fertile areas to sand covers, Salinization, Water and Wind erosion, Deforestation)
- Halt conversion of agricultural land to other uses
- Stop over-exploitation of water resources; maintain sustainable use levels.
- Accredited modern sustainable irrigation systems.
- Adopt non-conventional water resources systems (desalination, reuse of treated wastewater).
- Combat deterioration of water resources and protecting them from chemical and microbiological contamination.
- Integrate water resources management.

II. Improve living quality in urban areas

- Control illegal areas with a view to improving urban environment.
- Maintain vital urban core in conservation areas.
- Accredite a sustainable transportation system.
- Improve reliability of potable water supply and wastewater collection and treatment systems.
- Combat natural migration and evacuation.
- Promote suitable housing security.
- Encourage investments by governmental and non-governmental parties to create new job opportunities and unemployment control strategies.

III. Reduce effects of pollution on human health

- Reduce contamination from sewage of water resources
- Ensure quality and quantity of potable water supply in urban and rural areas
- Reduce risk to health from contamination with sewage
- Reduce risk to health from industrial discharges
- Improve air quality
- Improve waste management.
- Reduce use of synthetic fertilizers and human exposure to pesticides
- Improve occupational health conditions.

IV. Protect natural and cultural resources

- Maintain ecological and genetic Biodiversity.
- Prevent further degradation of cultural sites.
- Conserve and protect historic buildings and artifacts in Syria.
- Protect coastal resources.
- Promote efficient use of energy resources.

V. Capacity building, education and raising awareness of the general population

- Strengthen framework of environmental management
- Build the legislative framework for environmental management
- Establish a unit or department for sustainable development.
- Improve public health data collection and analysis
- Expand the role of NGOs and private sector in environmental management
- Invest in environmental education and training
- Raise awareness of environmental sustainability issues.
- Improve ability of EIA to include environmental goals in planning new development.
- Ensure compliance with international obligations and treaties

National capacity building considered as a critical and important task for proper environmental management and sustainable development. NEAP investments, targeted at the priority problems, represent a cost-effective and efficient program and ultimately to restore damaged assets. Full implementation of the NEAP will require an approximate doubling of the current expenditure on environment over the next ten years. The benefits of the investment program in monetary terms alone would far outweigh the costs. This level of investment is entirely feasible in the current economic climate of Syria.

Conservation of natural and cultural resources must be built into development planning through adoption of the sustainable development concepts, implementing EIA studies, and site licensing of industrial and other development projects.

Changes in agricultural policy and investment in improved production methods can potentially yield enormous benefits in soil and water conservation. These, together with investment in the illegal areas, will bring benefits across all environmentally affected areas. Within Syria's interest in protection of environment, it has executed some projects, while others are under planning or implementation. Some of these projects are:

- National Biodiversity Strategy and action plan in 1999, in cooperation with UNDP/GEF.
- The Ministry of Agriculture and Agrarian Reform, is working with UNDP/GEF and ICARDA on executing the Agro- Biodiversity project.
- Integrated development for water resources in Syria.
- Conserving natural protectorates.
- Environmental survey for natural resources.
- National strategy plan for water resources.
- Large wastewater treatment plants are being built for major cities in Syria.
- Rural development centers.
- National Action Plan to combat desertification.
- Integrated water resources management plan in Syria.

Syria ratified a number of important international conventions such as:

- Basel convention on the transboundary movement of hazardous waste disposal.
- Montreal protocol on substances that deplete the Ozone layer.
- Convention on Biodiversity.
- RAMSAR Convention on wetlands.
- Convention to combat desertification.
- World heritage convention for cultural and natural sites.
- Climate change convention.

At the present time Syria has very few protected areas (14) and according to the Biodiversity Convention Syria is committed to increase the number of its natural reserves.

2.1 Implementation of NEAP

During the last decade, the Syrian government has taken the following major steps:

- Establishing the Ministry of Environment in Syria in 1991.
- Establishing the Higher Council for Environmental Safety (HCES).
- Creating the General Commission for Environmental Affairs (GCEA).
- Establishing the Scientific Environmental Researches Center (SERC).
- Establishing eleven General Environment Directorates (GEDs) at the local level.

In the field of legislative Framework, the following has been achieved:

- Draft Environmental Framework Law (EFL) is under consideration by the Syrian Parliament.
- National standards for air pollution, potable water, wastewater and industrial wastewater discharged to the sewage.
- The EIA regulations for different new and existing industrial activities.

Furthermore, the Ministry of State for Environmental Affairs is cooperating with other governmental institutions and ministries to establish a national committee for sustainable development.

As for Institutional Capacity, the institutions needed for environmental management have, for the most part, been established but they still lack capacity to function effectively. There are very little experiences of modern environmental management practice available to Ministry of Environment and, in common with the remainder of public sector, they suffer from low salaries, have difficulty attracting and retaining qualified staff, and somehow scarcity of resource. Well qualified staff are particularly lacking in some key areas, notably:

- Development and enforcement of environmental regulations;
- Cleaner production technologies;
- International environmental law;
- Environmental health management;
- National Action Plan to combat desertification;
- Environmental economics and cost/benefit analysis;
- Abatement technologies of noise and air pollution;
- Environmental awareness in government, industry and amongst the public.

Furthermore, There is no systematic environmental monitoring, only fragmentary data exist that are collected during short campaigns, usually in response to an incident or complaint; and there are some environmental NGOs, and some of the national NGOs (e.g. the Women's Union, the Farmer's Union) have started to include environmental issues amongst their agendas;

There are numbers of national laboratories that can undertake environmental analysis (i.e., the Environmental Research Laboratory at HIAST), Environmental Protection Division Syrian Atomic Commission (SAEC), Pollution Prevention Directorates at the Ministry of Irrigation and the Ministry of Housing, Marine Research Institute, and the Environmental and Scientific Research Centre at the Ministry of Environment, as well as the Syrian Atomic Energy Commission that responsible for the radioactive activities especially the radioactive wastes as a result of extended development in the field of peaceful use of radioisotope, and it dealing with that wastes on the international atomic energy commission regulations and standards. However, few laboratories have systematic quality control procedures.

2.2 Impact of national strategy

Since NEAP with its current amendments towards sustainable development is still under preparation and consequent approval by the government, it is difficult particularly to assess the impacts of the national strategy on the various trends and concerned parties. However, there are some advantages disadvantages of implementation of this respect.

3. SPECIFIC SUSTAINABLE DEVELOPMENT TARGETS

Successful implementation will depend on effective management and monitoring with the clear targets and objectively verified actions at national, regional and international levels.

Goals for sustainable development in Syria during the coming 10-12 years are set out in Table (1)

Table 1- Targets and priority actions for national sustainable developmet

Goal	National Level	Regional and Sub-regional Level*	International level
Poverty Eradication	<p>Capacity Building:</p> <ul style="list-style-type: none"> • Provision of elementary and technical education. • Introducing programs aimed at illiteracy eradication, health and social development. <p><u>Investment and job creation :</u></p> <p><u>Supportive actions:</u></p> <ul style="list-style-type: none"> • Support and develop policies of low -income groups and provide mechanisms for the redistribution of wealth. 	<p>Improve capacity building and access to technology</p>	<p>Supportive actions :</p> <ul style="list-style-type: none"> • UNDP programs for poverty eradication should be strengthened.
Population Growth and Distribution	<ul style="list-style-type: none"> • Identify linkages between population and natural resources. • Improve the quality of rural public services in order to minimize rural- urban migration. • Promote appropriate infrastructure and facilities for population growth. 	<ul style="list-style-type: none"> • Provide more opportunities for training Arab manpower 	<ul style="list-style-type: none"> • Support the family planning programs. • Improve occupational health conditions.
Education, capacity building and research	<ul style="list-style-type: none"> • Improve the linkages between researches and needs of society. • Conduct applied research in priority areas • Encouraging both public and private educational institutes to meet the needs of society. • Develop indigenous technologies to support sustainable development. • Develop policies to improve the human resources. • Encourage vocational training and improve its programs. • Introduce and develop environmental education at all levels. • Raise the public awareness to meet the demand of sustainable development programs. 	<ul style="list-style-type: none"> • Establish networks between national and regional researchers and research centers. • Enhance cooperation between scientific research centers to achieve sustainable development. • Enhance cooperation between Arab Universities and training institutes. • Encourage regional organizations to develop mechanisms for information and experience exchange 	<ul style="list-style-type: none"> • Strengthen links between national, regional research and international research activities. • Enhance cooperation with Arab region in the fields of sustainable development especially in the field of water desalination, solar energy and information technology.

* If possible

Goal	National Level	Regional and Sub-regional Level*	International level
Food and water security	<ul style="list-style-type: none"> • Secure sufficient and good quality of water and food. • Protect the water resources from pollution. • Enhance to use new irrigation technologies. • Encourage stakeholder's participation in water management. • Apply cost recovery of investment in water projects. • Accelerate the establishment of national programs to combat desertification. • Select the most suitable crops, based on (climate, water, etc.). 	<ul style="list-style-type: none"> • Establish of project at the regional level to ensure food security by investing in countries where it is possible to develop the agricultural sector. • Protect of shared water resources from pollution. • Prepare for unified Arab strategy concerning food and water. • Activate agreements between Arab States concerning the distribution of agricultural products. • Establish regional mechanisms to conserve and rationalize water consumption. • Combat desertification in coordination with regional and international agencies. • Enhance cooperation between regional organizations to develop selected seeds. • Strengthen water legislation and enforcement. 	<ul style="list-style-type: none"> • Protection of shared water resources from pollution. • Cooperation between states in the management of shared water resources (e.g, Euphrates and Tiger river...) • Raise the issue of water theft and pollution by Israeli occupation in Palestine, Lebanon and other Arab regions. • Encourage the distribution of shared water resources in a reasonable way among the shared countries.
Land degradation and desertification	<ul style="list-style-type: none"> • Develop integrated programs. • Develop national action plan to combat desertification. 	<ul style="list-style-type: none"> • Strengthen the activities of Arab organizations to implement the international conventions. 	<ul style="list-style-type: none"> • Allocation of sufficient financial resources to support national and regional programs to combat desertification. • Supporting national and regional programs of biodiversity.
Transfer of Technology	<ul style="list-style-type: none"> • Promote investment in indigenous technology. • Promote Cleaner Production technologies. • Availability and access to information and training programs. 	<ul style="list-style-type: none"> • Promote investment in indigenous technology. • Promote Cleaner Production technologies. • Encourage technology development by regional centers and promote Cleaner Production technology. 	<ul style="list-style-type: none"> • Transfer of technologies from developed countries to developing countries. • Provision of training.

* If possible

Goal	National Level	Regional and Sub-regional Level*	International level
Globalization	<ul style="list-style-type: none"> • Apply measures to minimize negative impacts of globalization. • Address the cost associated with globalization on technical, economical, environmental and social levels. 	<ul style="list-style-type: none"> • Reinforcement of regional partnerships and the creation of regional block to minimize negative impacts of globalization. • Industrial capacity building at the regional level. • Encouraging collective actions by Arab countries in developing international agreements. • Comprehensive study for the globalization process. 	<ul style="list-style-type: none"> • Permit transferring peoples and technologies with capital. • Governing globalization through UN systems.
Trade and Pattern of consumption	<ul style="list-style-type: none"> • Product standards must be appropriate for trade. • Improve efficiency. • Align production technologies with international standards, including environmental standards (e.g. ISO 14000,) • Promote the concept of cleaner production and consumption. • Encourage reuse and recycling activities. • Proper utilization of technologies for most efficient use of resources, including water and energy. • Consumer protection societies should be encouraged, and take into consideration the rights of the consumer. 	<ul style="list-style-type: none"> • Encourage the establishing of Pan Arab Free Trade Area as a first step in developing Arab economic integration. • Productions and environmental standards need to be harmonized among Arab countries. 	<ul style="list-style-type: none"> • Ensure the free movements of goods, people and products. • Increase the Arab countries share in the international market.
Cultural Heritage	<ul style="list-style-type: none"> • Encourage the national and cultural investment to maintain natural and cultural heritage. 	<ul style="list-style-type: none"> • Encourage regional programs to preserve and use cultural and natural heritage for economic growth. • Promote the Arab culture and heritage. 	<ul style="list-style-type: none"> • Encourage dialogue among different cultural.

* If possible

4. INTEGRATION AND PARTICIPATION

Since early 1990's, the Plan of Integrated Management of the Syrian Coastal Region was prepared by Syrian experts in co-operation with MAP/UNEP experts. The plan demonstrates an integrated approach between ecological, economic and social dimensions. There is still however, a necessity to strengthen coordination among the concerned parties and to follow up execution of the relevant measures within definite timetables in a short and long terms. Additional measures should be taken by Mediterranean countries such as combined monitoring programs covering all pollution parameters in coastal waters originated from land-based sources.

4.1 National Policy and Local Actions for Agenda 21

The Syrian government was the first amongst the Arab countries to establish an environment ministry and to incorporate environment into development planning. In addition, an inter-ministerial body, the Higher Council for Environmental Safety (HCES) has been established with responsibility for setting national policy and co-ordination environmental management activities.

The national strategy contains the national, local, regional, and international dimensions. The Ministry of State for Environmental Affairs (MSEA) has a regulatory and research function and is responsible for developing environmental policy; monitoring implementation of environmental legislation and inter-sector co-ordination. MSEA is assisted by a Consultative Technical Committee and nine Environmental Committees reflecting sectoral interests. Its executive agencies are the General Commission for Environmental Affairs (GCEA), which has a direct responsibility for providing the legislative framework and support required for environmental management including regulations, standards, guidelines and for supplying policy and technical advice at the central and local levels. SERC is a national center for scientific and environmental study and research. Its mandate also includes monitoring pollution, and co-ordination with international research organizations.

For implementation and enforcement of environmental policies at the local level, General Environment Directorates (GEDs) have been established in 11 of the 7 water basins and Local Environment Committees (LECs) in each governorate. GEDs are staffed by MSEA to provide technical support, enforce national legislation, administer regional initiatives and co-ordinate a response to issues involving more than one Governorate. LECs are employed by the Governorates to identify local environment problems and, where there is no GED, to administer the environmental permitting process.

Thus, the institutions needed for environmental management have, for the most part, been established and the past five years has been a period of achievement in environmental management. The MSEA has made substantial progress in persuading line ministries to establish an environmental capacity, incorporating environmental issues into national planning and establishing units to support local government. The process of developing the National Environment Action Plan (NEAP) in 1998 and the Basin Environment Action Plans (BEAPs) which supported by the NEAP gave an impetus to the formation of a strong core of environmental management skills and understanding. Public awareness campaigns on environment were conducted in summer 2001.

These campaigns were sponsored by JICA, MAP and considered as an example of public-private-non-governmental society partnership of highlighting public awareness regarding sustainable development in Syria. Moreover, there are plans to increase farmer's awareness and participation through farmers unions. Particular attention will be paid to the ways in which pesticides and fertilizers are misused and how to protect natural resources by using efficient irrigation systems. Also, the involvement of community in Syria was initiated during the NEAP process, with the preparation of Basin Environment Action plans, the preparation of which enabled local participation and awareness rising.

The challenge now encountered by the MSEA is to ensure that the momentum developed during the NEAP process, with its current amendments towards sustainable development, continues to provide a stimulus for environmental management, and that the NEAP is implemented at both national and local levels. The amended NEAP identified a number of priorities within the environmental management system. It was recommended that the GCEA should be expanded and restructured, and that some form of permanent secretariat should be established to follow up and monitor the implementation of environmental programs.

A greater degree of participation by stakeholders in environmental planning through the EIA process- was of great important, supported by awareness rising of environmental issues.

Increasing participation at the local level in environmental management would build on the understanding developed through the preparation of the BEAs. The government has agreed in principle to more than double the size of the GCEA, and to allow for the creation of a number of senior staff positions. The project will support this expansion providing technical support and capacity building to enable environmental management in Syria to move strongly ahead.

Most of the **obstacles or weaknesses** in the above mentioned programs and projects, particularly as for effective implementation, are caused by the lack of financial support and related policy and non availability of advanced technology, in addition to the lack of legislative or regulation support related to sustainable development.

The next steps are to be taken **to improve the planning process and its implementation** in the next 10 years:

1. Involvement of emerging environmental issues within specific integrated studies, action plans and applied programs based on accurate updated information or data.
2. Establishing and accrediting environmental guidelines or standards for:
 - a) Quality of water resources used for drinking, irrigation, industry, ...etc.
 - b) Reuse of treated wastewater for irrigation.
 - iii) Disposal of industrial wastewater discharged in sewerage networks or water resources.
3. Issuing of legislation that regulate and control the environmental sustainability in a way that guarantees commitment to the enforced environmental standards.
4. Exploitation of the main pilot development projects in favor of social target and environmental stability.
5. Supporting of the Environmental Directorate in the Governorate and strengthen cooperation among related agencies.
6. Enhancing of capabilities of Environmental Directorate and other responsible authorities to performed continues pollution monitoring programs and to conduct EIA standards.

In facing these challenges, the Ministry of Environment has introduced projects identified as pilot projects for donor support in order to begin the process of implementation of the NEAP prepared in 1997/1998. The first important proposed project is the "Support for Environmental Management in Syria", which comprises three components:

- Establishment of a Technical Co-ordination Unit within the GCEA with responsibility for assisting the GCEA in co-ordination activities between the line ministries responsible for environmental management, and donor support for the environment.
- Strengthening of local level environmental management within the governorate and development of community based environmental programs.
- Improved environmental information management, consciousness raising and dissemination.

The aim of the project is to strengthen environmental management in Syria and provide the supporting capacity within the MSEA and GCEA to enable effective implementation of the amended NEAP, and development of sustainable institution and organizations.

5. NATIONAL CRITICAL ISSUES

5.1 Priority problems

Based on consultations with stakeholder groups from industry, universities, central and local government and NGOs, environmental issues were ranked in order of priority. National development objectives and economic costs were considered in parallel with the degree of public concern. The UNDP project unit and consultants used the information gained in making a final determination of priorities. The outcome was a list of the priority problems in Syria, in order of importance as follows:

1. Contamination and depletion of water resources.
2. Land degradation and desertification.
3. Poor air quality.
4. Inappropriate solid waste disposal.
5. The growth of illegal areas.

In addition, a number of secondary issues were identified which, although limited in extent, are either responsible for acute localized effects or frustrate redemption efforts. These comprised the following (in no particular order):

- Lack of public awareness of environmental issues and sustainable development.
- Inadequate industrial site management and safety;
- Coastal degradation;

5.2 Causes of priority problems

These problems have been arisen as a result that the environmental dimensions had not been taken previously in consideration in preparing the 5-years plans.

5.2.1 Policy factors

- Development policy and planning has not adequately accounted for the environmental factors such as water availability, soil quality, etc.;
- EIA has not been considered.
- Inadequate public participation in environmental decision-making has led to implementation failures and apathy.
- Lack of comprehensive Environmental law.

5.2.2 Institutional factors

- Lack of sufficient for environmental planning and management.
- Environmental legislation and standards relating to pollution control are lacking.
- Lack of awareness of the environmental issues between decision makers and public.

5.2.3 Lack of investment

- Lack of investment in infrastructure and technology and a shortage of the technical and managerial resources needed to operate and maintain these as low priority accorded to the environment in the past.

In addition, a number of secondary issues were identified which, although they might occur over a limited area, or might not cause great economic or public health damage, nevertheless are responsible for acute localized effects or frustrate redemption efforts. These comprised the following:

- Industrial site management and safety;
- Lack of public awareness of environmental issues;
- Coastal degradation;
- Loss of public green space

6. IDENTIFYING PRIORITY ACTIONS

Each of those problems has a range of causes cutting across several sectors. To indicate where actions should be focused, the information is briefly summarized in Table (2), which links the priority environmental problems with their effects and causes.

Table (2): illustrates a brief summary of each of those problems, Priority problems, effects and causes

Problem	Main Effects	Proximate Causes
<p>Poor quality and depletion of water resources</p> <p>Poor air quality</p>	<ul style="list-style-type: none"> • Eventual loss of agricultural production. • Difficulty in meeting the increased demand of potable water. • Risk of drought. • Increased illness and premature death from waterborne diseases. • Risk of epidemics. • Increased cost of wastewater treatment • Risk of non-communicable diseases (i.e., poisoning and cancer) • Increased illness and premature death from various diseases. • Reduced visibility. • Degradation of public buildings, monuments, historical sites, rubber and plastic materials due to acid droplets and corrosion process. 	<ul style="list-style-type: none"> • Over abstraction of groundwater. • Increased irrigated crops. • Use of inappropriate irrigation methods. • Lack of sufficient sewerage network, treatment plants, and safe disposal methods of sewage solid waste. • Unregulated industrial discharges. • Leachate from uncontrolled solid waste disposal sites. • Lack of National Water Strategy. • High traffic congestion. • Old and poorly maintained vehicles fleet. • Poor quality of vehicle fuels. • Unregulated industrial emissions and absence of EIA. • Inefficient burning of indoor heaters.
Inappropriate solid waste disposal	<ul style="list-style-type: none"> • Public nuisances (odor, vermin, smoke, litter) • Risks to public health • Groundwater pollution 	<ul style="list-style-type: none"> • Inefficient indoor heaters • Lack of sanitary landfills • Lack of hazardous waste repositories • Poor location and inadequate management of disposal sites
Illegal settlements and unregulated town planning	<ul style="list-style-type: none"> • Poor living conditions in unregulated developments • Loss of heritage • Noise, fumes and time loss due to traffic 	<ul style="list-style-type: none"> • Inadequate town planning • Over-crowding • Unclear land tenure system • Rural-Urban Immigration.

To determine the strategic priorities, the amendment NEAP has summarized the pressure factors and enabling factors as follows:

6.1 Pressure factors

The amendment NEAP has summarized the required factors to determine the strategic priorities as follows:

- Intensification of agricultural activities especially increases in irrigated production,
- Increased demand of water for agriculture, which accounts for 85-90% of consumption in most water basins;
- Increase in demand for potable water, particularly in areas with permanent or seasonal shortages;
- Rapid population growth and increasing urbanization;
- Increasing economic growth and associated increases in energy demand, industrial activity and production of polluting wastes;
- Changing patterns of consumption and lifestyle associated with urbanization and uneven income distribution.

6.2 Enabling factors

To prevent environmental degradation, these pressures need a good and qualified management, predicated on a sound understanding of the issues, the technical ability to implement management techniques, the necessary financial resources and active stakeholder co-operation. The low priority of sustainable development in Syria, in to the face more urgent strategic concerns, has led to lack of investment and a shortage of the technical and managerial resources necessary to meet these challenges.

The followings require particular attention:

- Environmental resources are being overused.
- Development policy and planning has not adequately accounted for the environmental factors such as water availability, soil quality etc.
- Environmental planning and management institutions are inadequate; they need strengthening and support services (such as laboratories, consultancies) which need to be developed in the private sector;
- Environmental legislation and standards relating to pollution control are incomplete;
- A framework which would allow the sector ministries coordinate policy to make best use of scarce resources such as water, land and to take integrated measures to control environmental degradation is required;
- Environmental economics should be promoted for costing of resource use (irrigation water, energy) and pricing of services (water supply, sanitation, and waste collection);
- Decision-makers and the public need greater awareness of the environmental consequences of policies, development activities and personal behavior.

7. STRATEGIC PRIORITIES

Considering the nature and proximate causes of the priority problems together with the pressures and enabling factors that give rise to them, we were able to take actions into five strategic areas. Within each area, policy, institutional investment, or information shortcomings have contributed to the interlocking network of causes of the priority problems. The strategic areas are defined below:

7.1 Capacity to formulate and implement environmental improvements

In the mean time, capacity to formulate and carry out policy that is targeted at environmental improvement is severely limited. Successful implementation of the NEAP will depend on strengthening environmental management capacity within the sector ministries and MSEA at national and local levels. It is also necessary to build the private sector support services and public involvement that are vital parts of any successful environmental initiatives.

7.2 Misuse of land and water resources

The most costly environmental problems facing Syria fall under the broad category of "Misuse of Land and Water Resources". The policies encouraging misuse need to be re-examined and the activities, which cause degradation, should be better managed, with the aim of achieving sustainable resource use in the next 10 years.

7.3 Effects of pollution on human health

Severe effects on human health are being caused by pollution from a wide variety of sources in particular sewage, industry and traffic exhaust. Management systems, investment in treatment facilities, enforcement of environmental standards and emission limits, product standards and training are all needed to protect the population and reduce the incidence of environmentally related disease to acceptable levels.

7.4 Quality of urban services and infrastructure

As result of the growth of the population and urbanization, the demand for living space and sites for small-scale industry have overwhelmed capacity for urban planning. All urban residents, but the new migrants in particular, are finding themselves in increasingly degraded urban environments. Rural development and urban planning norms should be enforced in order to relieve the pressure.

7.5 Natural and cultural resources

The natural and cultural resources of Syria represent are of importance to the entire world as part of the earliest human heritage. Uncontrolled development in historic urban centers and around main sites is degrading a valuable cultural resource and endangering an important source of revenue. The aim is to preserve them for future generations whilst developing their recreational and tourism potential where appropriate.

8. SHORT AND MEDIUM TERM ACTIONS

In many sectors the programs and investments needed to address key concerns cannot yet be implemented. They may require changes in policy; institutional adjustments, and collection of basic information or research before the most cost-effective solutions can be developed. For this reason, actions have been categorized under the following headings:

- Policy development;
- Institutional adjustments;
- Investment programs;
- Information exchange and research.

The amended NEAP comprises a complete list of actions related to (objectives, policy, institutions, investments and information /training) which are required at the short and medium terms. In

addition, a limited number of actions that can be initiated immediately (at least within the next three years) have been identified. The actions related to the following targets are shown also in Table (1):

- Poverty eradication
- Population growth/distribution
- Education capacity building and research
- Food and water security
- Land degradation and desertification
- Transfer of technology
- Globalization
- Trade and pattern of consumption
- Cultural and heritage.

9. ADDITIONAL MEASURES AT INTERNATIONAL LEVEL

As for additional measures that should be undertaken by the international community including the United Nations Systems, there is a need to:

- Global or universal norms related to secure sustainable shelter (residential property), clean water, and treatment plant---and to allow people to meet these basic requirements.
- Global action on fresh water, as water will be the major obstacle for future development in several countries of regions. Certain efforts are needed to resolve issues related to land – based sources of pollution, non-point source runoff from agriculture and urban areas, protection of ground water resources, the impact of development projects on eco-systems, and securing demands for water among different social sectors, among rural and urban communities, and among riparian countries,(Euphrates river: Syria, Turkey, Iraq).
- A big demand for global framework for national legislative reforming to support decentralized policies, since many efforts were successfully made in several countries in the aspect of environmental governance, labor, and sustainable urban policy which reduce the poverty.

10. GLOBAL CRITICAL ISSUE: EDUCATION, TRAINING, AND PUBLIC AWARENESS

For the purpose of integrating education and public awareness into national sustainable strategy, universities and institutions are running courses and organizing training programs, seminars and postgraduate studies in different fields of the environment, subjects on the environment have also been introduced in schools curricula. Syria has sufficient numbers of professors and lectures engaged in research, teaching and experiment development, part of which is engaged in the research activities of environment and development, which are mainly conducted at universities and research centers and commissions. Some of their research works are published in the refereed journals issued locally or internationally.

The Syrian Higher Council of Science holds annually a science seminar for one week in which various topics on development and environment are handled. This council also holds several workshops in this respect.

The accomplishments achieved to reorient education system include projects aimed at strengthening national capacities for environmental affairs have been initiated in Syria since 1997 under Agenda 21 and World Bank program. Networking, database and integration of data for environmental assessment are at an early stage. At present there is a tendency towards increasing output in order to enhance understanding and facilitate interaction between science and society, and consequently to increase the projected scientific capacity and capability. In addition, a part of the budget earmarked annually for scientific research is paid for the promotion of sustainable development and for preventing environmental degradation. Numerous research works have been performed and

published in the field of biodiversity, wastewater treatment, solid waste management, fish taxonomy and biology, aquatic ecosystem, etc...

As creative solution to overcome the implementation problems, it is identified among others that dissemination of the results of successful examples of cleaner technologies, through newsletter, manual and the sustainable development press, will greatly strengthen public awareness and promote capacity building strategies.

To improve institutional effectiveness, it is recommended to take by the following suggestions:

- Decentralization of decision-making process for enhancing community participation in the formulation, execution and evaluation of local development projects.
- Strengthening electronic information systems, networking, and cooperation and coordination among relevant organizations to enable all users to benefit from data at the local, national, regional and international levels.

11. THE WAY AHEAD

Finally, we can conclude and perceive the major challenges related to sustainable development that could be faced in the future, as follows:

- ◆ Extreme centralization in favor of strengthening local authorities and participation of private sector and other non-governmental organizations and societies in decision-making.
- ◆ High increase of population growth remains the big challenge in addition to the poverty, unemployment and environment degradation.
- ◆ Water scarcity and quality as a main challenge to decision makers on local and governmental levels, particularly in major cities.
- ◆ Lack of sustainable development management, which is in need of initiatives giving it, in addition to promotion of sustainable water management practises including development of unconventional water resources such as reuse of treated waste water, desalination, and support of water preservation programs.
- ◆ Lack of institutional capacity building that is in need of support and promotion in order to achieve better environmental and urban management.

List of Abbreviations and Acronyms

NEAP	National Environmental Action Plan
NGOs	Non-Governmental Organizations
EIA	Environmental Impact Assessment
UNDP	United Nations Development Program
GEF	Global Environment Facility
HCES	Higher Commission for Environmental Affairs
SERC	Scientific and Environmental Research Center
GEDs	General Environmental Directorates
MAP	Mediterranean Action Plan
UNEP	United Nations Environment Program
MSEA	Ministry of State for Environmental Affairs
GCEA	General Commission for Environmental Affairs
BEAPs	Basins Environmental Action Plan
LECs	Local Environmental Committees
JICA	Japanese International Cooperation Agency