<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Environmental policies in Indonesia: efforts toward sustainable development.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Siti Aini Hanum.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>1992</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10220/2889">http://hdl.handle.net/10220/2889</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td></td>
</tr>
</tbody>
</table>
Environmental Policies In Indonesia:
Efforts Toward Sustainable Development

By

Siti Aini Hanum
ENVIRONMENTAL POLICIES IN INDONESIA: EFFORTS TOWARD SUSTAINABLE DEVELOPMENT

Siti Aini Hanum

Introduction

Indonesia is a country which has given special attention to her environmental needs. The government has been very active both at the national and international levels in promoting the environmental cause, and there are more than 400 non-governmental organizations advocating for environmental improvements. Indonesian national development now contain the concept of sustainable development.

Almost twenty years have passed since Stockholm. The environment is present today in most political agendas in developing countries. Decision-makers and the public have started questioning traditional economic development models that stress economic growth and demand sacrifices from the environment. Developing countries have expressed interests in redefining their development strategies by adding to them the concept of sustainability.

The concepts of sustainable development acknowledges the importance of economic growth, but it differs from previous concepts of development in its recognition that natural resources are finite and that the wasteful use of resources today will cause an unnecessary sacrifice of income and wealth in the future. The concept of 'sustainability' makes little sense, however, unless we also consider the impact of rapid population growth on the physical resource base. The implementation of sustainable development policy in Indonesia therefore contains the merging of environment and population into the development policies.

Indonesia: a country with environmental variety.

Indonesia is the largest archipelago in the world, consisting of 13,677 islands and islets of which about 6,000 are...
inhabited. It stretches 3,200 miles between Australia and the Asian mainland, and divides the Pacific and the oceans at the equator. In terms of topography Indonesian Archipelago consists of different ecosystems and all sorts of situations: dryland, savanna and swamps, highland and lowland, mountains ranges and flat plains, small and large basins, diverse coastal conditions, with a great variety of soil conditions. In other words Indonesia has all of the combined environmental problems.

Indonesia has an abundance of natural resources including crude oil, gas, and other energy resources, minerals forests, and marine resources, and a storehouse of biological diversity that is unsurpassed by any other country with the possible exception of Brazil.

It is possible to distinguish two biological areas in Indonesia separated by a boundary now known as Wallace's line. This separation, the result of the submersion of the archipelago and the existence of the deep ocean trenches, divides the country into two different ecosystem. It also had an important influence on later economic development in relation to the natural environment. The extent to which plants, animals and people established themselves on the different islands dependent very much on the prevalent environmental conditions, such as the terrain, climate, water and soil conditions.

Indonesia's environmental pressures are related to the quantity of population and its growth. The high number of population put a heavy demand on natural resources and the environment. Indonesia is the fifth most populous nation on earth, with a population of more than 180 million. The people are unevenly distributed throughout the archipelago. Some areas are highly overpopulated, e.g. Java with an average of 690 people per sq km and Jakarta with 11,023/sq.km.

Indonesia has 366 known ethnic groups, each with its own cultural identity. About 200 languages and dialects spoken and written over the whole of the Indonesian archipelago. Bahasa Indonesia is the language of instruction and communication.

Policies Development

Indonesia has had a long standing commitment to the concepts of environmental protection and sustainable development. For example, the General Guidelines for State Policy (Garis-garis Besar Haluan Negara) in 1973 emphasized that "exploitation of natural resources should be executed by a comprehensive policy which takes into account the needs of future generations". Accordingly national policy contains an approach similar to sustainable development called pembangunan berwawasan lingkungan.
which means development with an environmental orientation or based on environmental wisdom. This concept is derived from the basic Indonesian philosophy: "...man should strive for harmony in all his fundamental relationships - to God, fellow human being and nature".

In 1978, the Government of Indonesia created the State Ministry for Development Supervision and Environment (Menteri Negara Pengawasan Pembangunan dan Lingkungan Hidup). The main task of the ministry was to promote an environmentally sound development strategy in Indonesia. The newly appointed State Minister provided an environmental policy framework which was introduced into the Third National Economic Development Plan (RPEBLITA III). As a result of this, a number of institutions of the Indonesia Government whose mandate had any potential environmental implications were expected to work in coordination with the State Ministry.

In the Fourth National Economic Development Plan (RPPEBLITA IV) a close identification of environment and population issues is made:

"The damage of natural resources and living environment occurred so far is closely related to the population growth and unequal distribution system of population with the number and distribution of the available resources and also the supporting component to the living environment. Besides, the damage is also a result of the inefficient utilization and maintenance of natural resources and the living environment." (RPPEBLITA IV).

In 1983, with the adoption of RPPEBLITA IV, the Ministry was modified and assigned new responsibilities. The new structure, which still operates today, is the State Ministry of Population and the Environment (Menteri Negara Kependudukan dan Lingkungan Hidup or KLH). With the name change, emphasis is put on the interplay between the two factor in national development. The implication: population is increasingly recognized as an important factor which contribute to the state of environment and hence, its management. Likewise, environmental consideration is becoming more essential in the formulation of population policies and programs.

The new KLH has been organized to coordinate environmental activities across departments but has no line of responsibility. Its mandate include three main aspects: develop and issue laws and regulations; provide technical advice and assistance; and monitor environmental performance of departments and provinces.

There have been a large number of government institutions
which were performing environmental responsibilities (Appendix I). Even though it seems rather appropriate to demand that every sector of the economy and government be responsible for their environmental actions. The Ministry has taken several efforts in institutionalizing environmental management, such as awareness program, develop environmental regulations, establishing and strengthening environmental management network, developing human resources, etc.

Awareness program

When the ministry was first established, one top priorities is to raise public awareness and concern on increasingly endangered state of the environment and to create the motivation for concrete action. Among the first undertakings of the ministry therefore was a nationwide public awareness campaign (Dahlan, 1985).

This campaign is aimed at all levels of society in every part of the country. The strategy is to "fly the flag of environment at every mast or flagpole", meaning that the environment is everybody's job. Everybody should be made to feel as responsible as the next fellow when it comes to safeguarding the environment, just as strong as the commitment to national development.

The strategy calls for the use of practically all available channels of communication. This include the usual complement of mass media, government information and extension networks in various fields (agricultural, fishery, forestry, public health, etc), the networks of religious leaders and organizations, and other network of social and interpersonal communication.

The diversity of the target publics require such an approach. Language, cultural view, and concepts on the environment differ from one place to another, and perhaps also, between various groups. To describe the environment and its working it essential to use, among other things, local dialects and the "language" of the various religions, cultural traditions and local beliefs.

A flexible plan then also required to accommodate sectoral requirements, such as communication style, approach, techniques, constraints, etc. Accordingly, the campaigns can not be planned in detail. The KLH ministry only prepare the main plan, which then becomes the basic framework for the detailed plans of the smaller campaigns to be made by the various participants according to their respective capabilities and interests (Dahlan, 1986).
While the micro level campaign is going ahead, the need to prepare for the systemic level is increasingly felt. Resistance toward the cause of environment gradually appeared, from private groups as well as some segments in sectoral development. Overlapping steps with double objectives, awareness as well as systemic are then introduced. In order to encourage open discourse which is so important for heightened awareness and commitment and obtaining information for the fields (previously unreported), various steps are devised to stimulate two way of communications in the truest sense possible. For example by inviting criticism against environmental management, continuous efforts to strive for more freedom of coverage in the environment field, and creating the climate and facilities to stimulate the growth of non-governmental organization (NGOs) on environment.

Another effort to develop participation in monitoring and reporting environmental degradation, and public action at the local level is by stimulating new ideas, and other activities aimed at giving recognition and attention to the efforts of the popularity at grassroots level, no matter how small. The President's environment award called Kalpataru, which literally means "the trees of life", awarded annually on the occasion of the World Environment Day on June 5. The immediate objective of this exercise is to recognize and bring to the national attention outstanding accomplishments in the field of environment by individuals and groups who work unselfishly on their own, without expectation for personal gain. The recognition is given particularly to the works of common people at the grassroots level. The only civil servants who may receive the award are the lowest ranking field worker who have performed way beyond the call of duty.

The strategic objective of the award campaign is to show that anybody could do something really worthwhile, and that environmental degradation could be stopped. The ultimate aim of the kalpataru scheme is to create a strong motivation for self-help in solving local environmental problems and needs. Another objective is to generate a lot of activities and involvement by various groups and strata in the society. Local and regional governments organized their own environmental prizes, numerous organizations held various competitions to give recognition to specific accomplishments of efforts, eg. best plans, essay writing, etc.

Public involvement even starts many months prior to the environment day, that is, the search for most appropriate candidates. The general public is invited to help in the search and propose the candidates who meet the award requirements. The process of the search stimulates discussions on the various aspects of environment, therefore increasing the depth of environmental awareness.
In the area of population-environment interaction, some efforts have actually been done and will continue further incoming years. These are the supportive—but essential—programs of information, awareness and attitude formation. Different than previous efforts which have focussed on the environment sector alone, however, current programs include the population sector and its relationship with the environment (Dahlan, 1984).

The problems of information, attitude and public awareness are wide ranging, e.g. the abstract nature of the concepts of environment (even more so in the case of interaction), social economic conditions which cause detrimental acts against the environment, traditions, the various nature of the audience, etc. Therefore the program also has to encompass a multitude of activities among others: education in the widest sense of meaning (formal, non-formal and informal), mass communications, incentive and awards programs, generating communications and actions programs through various channels and means.

The legal framework for environmental management

Two main aspects of environmental management have been promoted by XLH in Indonesia: the formulation and application of environmental laws, and the adoption of environmental impact assessment procedures.

The laws, regulations and decisions about the environment in Indonesia are based on its 1945 constitution and further strengthened by the Basic Provisions for the Management of Living Environment (Law 4/1982). Intended as the cornerstone of environmental law in Indonesia, it serves as an umbrella for more detailed implementing regulations and decrees.

In the Law No.4 of 1982 the environment at large is classified in three levels (subsystems, spheres or environments), namely (a) natural environment, (b) man-made environment and (c) the social environment.

The concepts of natural environment or ecosystem is fairly well known, especially in terms of its principles, processes and cycles. It consists of natural resources, renewable and non-renewable, organic as well as anorganic, biotic and non biotic. But these as long as they are unchanged by human hands, they remain potential resources. In this concepts, human being is considered part of the biosphere.

Man-made environment is created when the natural environment is changed by people through the application of technology, for the purpose of increasing welfare. In the process, man may degrade the environment in such a way causing irreversible damage
to the natural environment in such a way that it can no longer support people, e.g. by cutting the cycles of chains of life of the ecosystem. Human being here act as population proper, quantitative entities which by increasing number brings increasing pressure on natural resources.

The social-environment is non-physical and qualitative in its characteristics. It composes of values, norms, perceptions, philosophy, culture and other products of the human mind and creativity, including institutions which determine human relationships and interaction. This sphere decides on common goals, the use of natural resources, policy on the environment (i.e. what kind of man-made environment to create with what effect to the natural environment). People here act in their capacity as members of society or groups, and citizens or nationals.

Among provisions of the Law No.4/1982 are: (a) the role of the Ministry for Population and Environment as the coordinating ministry for the environment was codified; (b) the provinces and, therefore, the provincial governors, were given executive power over provincial environmental matters; (c) an environmental impact analysis (EIA) was mandated for each project with environmental implications; and (d) environmental protection was to be guided by new quality standards. Each department or nondepartmental agency was made responsible for environmental affairs in the industrial sector.

In 1986, a Government Regulation No. 29 was passed. It describes a process and an organizational framework to enable central government departments to undertake work on environmental analysis. This regulation requires that each industrial activity, existing and proposed, complete a preliminary environmental impact report (for proposed activities) or evaluation report (for existing activities). If the industrial activity is deemed to have significant environmental impact, then a full EIA is required.

Currently the Ministry of State for Population and Environment has two laws which are in the process of enactment in the parliament aiming at influencing population-environment-development interaction, i.e. the Law on Spacial Arrangement and the Law on Population Dynamic.

Any regulatory program needs to have a mechanism of enforcement in order to become effective. In this case media plays an important role. At the end of last year the media helped to disseminate the ministerial announcement about a number of industries that should close their factory if they cannot provide any technology to neutralized their waste disposal, in these few months.
Strengthening environmental management network.

The Indonesian administrative structure has been characterized by strong sectoral line agencies and a relatively high degree of centralization of development planning and investment. Meanwhile, as a State Ministry, KLH has no line responsibilities. Its main objective is to ensure that each line agency takes environmental considerations into account.

Without having any subordinate institutions or personnel in the lower administrative levels, KLH has to initiate, stimulate, support, compliment, and accelerate action at all levels of Indonesian society on all issues of environmental concern. In its catalytic role, KLH has to developed many networks of influence and consultation with central, provincial and other agencies, with universities and NGOs, and with the consultant and business communities.

The provincial government, as stated in Act 4/1982, is now responsible for environmental management at the regional level. The authority vested in the provincial governor is wide-ranging; to set standard, to license and check new projects, to monitor adherence to environmental laws and to enforce the laws. The main planning and coordinating agency at the provincial level is the BAPPEDA which works directly under the governor. BAPPEDAs coordinate sectoral agencies in the preparation of development plan and budgets, and they help resolve implementation problems. The BAPPEDA also has an increasingly important role to play in natural resource management.

A unit deal with environmental matters has been established by presidential decree in each provincial governor's office. This agency, called Bureau for Population and Environment (BKLH), is a low level (third echelon), nonoperational (i.e., advisory and data collecting) group which reports to an assistant secretary in the governor's office. BKLH has no enforcement power. Its main task has been the preparation of provincial population and environmental report called Neraca Kependudukan dan Lingkungan Daerah which describe current problems and lists the steps being taken to resolve them.

The KLH network is an aspect of the KLH's overall structure which, by and large, has been successful and innovative institutional mechanism. There is another group of network, which has two parts. One is a grouping of environmental NGOs, organized under WALHI, i.e. the Indonesian Environmental Forum and the other is the Centers for Environmental Studies (PSLs) which are part of the Indonesian University system. These two groups were critical to the early success of KLH and provided it with the kind of regional level presence which, as state
ministry, it could never have had by itself.

This network provided a number of critical functions for KLH. The NGOs provided a means by which local and regional environmental issues and specific problems and crises could be aired and hopefully resolve promptly by regional government directly through the intervention of KLH. Some NGOs also provided a kind of combination of early warning and advisory function to the ministry on growing regional or sectoral issues relating to environment and natural resource use.

The PSL has provided KLH with other kinds of inputs and assistance in formulating the policies of KLH. The PSLs are mandated to provide technical expertise for Indonesia's three primary university functions (Tridharma Perguruan Tinggi): research, education/training, and public service. An example of how these three functions can be integrated is provided by the important role of PSLs play in the environmental impact assessment (AMDAL) process. They provide AMDAL training to various organizations that are responsible for planning, evaluating, approving, and implementing projects. PSL representatives become ex-officio members of all provincial AMDAL commissions. A PSL may also conduct research on and prepare an AMDAL document, particularly if other local consultants are not available.

The PSLs are now recognized nation-wide as having an important role in Indonesia's efforts to improve environmental management at all levels and in all sectors. They have become a widely acknowledged and frequently invaluable source of information for decision making, planning, AMDAL training, and various consultative services.

**Human resources development**

The implementation of integrated approach to sustainable development also faces problem of human resources development which involve their knowledge and attitude. The environmental orientation backed up by an adequate knowledge should become the personal outlook of everybody, including the personnel of development: planners, implementors as well as regulators.

Worldwide according to the World Bank Report few people have technical training in environmental disciplines, and the situation as acute in Indonesia, which has general shortage of trained people in all sectors (World Bank, 1989). Under the circumstances KLH is undertaking assessments of human resources in environmental fields in order to provide in-service and advanced training for the staff of KLH and other key line agencies.
The urgent needs for human resources development in high level policy and decision makers such as high officials of government ministries, development planners and politicians is to make them aware about various environmental issues and problems, and the policy implication on environmental quality. One of the main problem in training this group is related to the fact that they are from different institutions with various management style, and therefore is likely to different perception toward environmental management (Dja'adiningrat, 1990).

The other group that also needs environmental management training is the middle-level executives and technical personnel in both the government and private sectors who are responsible for planning and/or evaluating environmental impact statements. Because of their involvement in the project implementation, this group are relatively well-versed in traditional project planning and management. The training objective for this group is to acknowledge the basic concepts of applied ecology and the need for an overall perspective in development planning; to acquire knowledge and skills to synthesize information from several disciplines and to identify, evaluate and use various integrated social-economic-environmental system models for specific development problems/programmes.

Environmental Data Management

The main sources of aggregated and centrally held environmental and resource data in Indonesia are the Ministry of Population and Environment (KLH); the environmental statistics program of the Central Bureau of Statistics (BPS) and other statistics collected from agricultural, industrial and household surveys, economic sectors, etc.; the National Mapping Agency (BAKOSURTANAL); and the major sectoral ministries (i.e. Agriculture, Forestry, etc.). Other more ad hoc and decentralized sources of environmental and resource data are also available from research stations, independent project and provincial studies.

The data available at KLH are largely derived from the Population and Environmental Regional Balances (NKLD) Reports prepared by BKLH. In 1986 KLH issued NKLD guidelines in order to improve the quality of data. Since 1981 the best NKLD report has been awarded by the President on the occasion of World Environment Day on June 5.

For the last two period of five-years development plan KLH has been developing a environmental data base management system by establishing environment's inventory at the early stage.
Policy institutionalization

The implementation of sustainable development in environmental policy in Indonesia is among others supported by the system of environmental study centres, AMDAL, and BAPRDAL.

Environmental study centres

The recognition of a need for provincial and local planning capacity which would take into account this variability was acknowledged with the establishment of BAPPEDA offices (provincial planning boards) in the mid 1970s. At the same time, investment in university development off Java was intensified (Soerjani, 1988). The institutional base for a decentralized approach to environmental planning and management began to be built as these bodies gained strength. Manpower development has been a critical need since then (Salim, 1982). In the 1970s, Indonesia limited environmental manpower was concentrated in four or five key universities on Java. The first graduate degree program in environmental management started in 1972 at Bogor Agricultural University.

Along with the general expansion and increased academic quality of higher education came the rationale for the development of the Environmental Study Centres (PSLs). The first PSL was founded in 1972 at Padjadjaran University in Bandung, west Java with the establishment of its Institute of Ecology. In 1979 a joint agreement between the Minister of State for Development Supervision and Environment (PPLH) and the Ministry of Education and Culture was established for the establishment of the centres as an integral part of the university research structure.

The PSLs are mandated to provide technical expertise for Indonesia’s three primary university functions (Tridharma Perguruan Tinggi): research, education/training, and public service. An example of how these three functions can be integrated is provided by the important role of PSLs play in the environmental impact assessment (AMDAL) process. They provide AMDAL training to various organizations that are responsible for planning, evaluating, approving, and implementing projects. PSL representatives become ex-officio members of all provincial AMDAL commissions. A PSL may also conduct research on and prepare an AMDAL document, particularly if other local consultants are not available.

The PSLs are now recognized nation-wide as having an important role in Indonesia’s efforts to improve environmental management at all levels and in all sectors. They have become a
widely acknowledged and frequently invaluable source of information for decision making, planning, AMDAL training, and various consultative services.

Environmental Impact Assessment

Environmental consideration in development procedures could be seen in the implementation of Presidential Decree 29/1986 which established a procedures and an institutional framework for carrying out environmental impact assessment (AMDAL).

AMDAL (Analisis Mengenai Dampak Lingkungan, or Analysis of Environmental Impacts) is an integrated review process to coordinate the planning and review of proposed development activities, particularly their ecological, social-economic and cultural components, as a complement to the technical and economic feasibility.

Overall coordination of the AMDAL procedures was initially the responsibility of KLB. This responsibility was transferred to the new Environmental Impact Management Agency (BAPEDAL) in June 1990. Authority for process implementation currently lies in the central and provincial levels of government: (1) at the central level with 14 sectoral government departments and non-departmental government institutions, and (2) at the regional level with 27 provincial government.

The goal of AMDAL is to facilitate and accelerate economically sound, environmentally and socially acceptable development ventures. Essentially, the AMDAL procedures involves the following steps: (1) identify the potential environmental impacts of a project proposal; (2) predict the extent of impacts if the project is implemented; (3) evaluate the impacts.

The public may be involve at any stage of the AMDAL procedures. The AMDAL Regulation requires the authorized government agency to inform the public of activities requiring AMDAL documents, and of its decisions on most types of AMDAL documents. It also gives the public the option of offering oral or written comments to the AMDAL Commissions before permit decisions are made.

Environmental Impact Management Agency

Widespread concern for quality of life in Indonesia has produced a need for more sophisticated capabilities in environmental sciences. This includes both assessment of environmental quality and remediation technology. New programs are therefore being developed to address these needs including the organization of government bodies responsible for these task.
The government of Indonesia in 1990 decided to create the BAPEDAL system (Board for the Control of Environmental Impact). The BAPEDAL (Badan Pengendalian Dampak Lingkungan) is one such government body created to assist the President of the Republic of Indonesia in implementing control of environmental impacts with the ultimate goal of improving environmental quality.

In fulfilling this responsibility, the BAPEDAL undertakes the following functions: (a) Assist the President in formulating policies regarding implementation of environmental pollution control; (b) Manage hazardous waste; (c) Monitor and control activities with significant environmental impact; (d) Develop a reference laboratory and data and information processing on environmental pollution; (e) Improve public participation in environmental pollution control; (f) Implement other tasks assigned by the President.

Conclusion.

National development is needed to improve conditions in all aspects of life at all levels. The experience in the last four five-year plans in Indonesia show that every development activity has the potential of causing negative impacts to the environment. In the natural environment, for example, the pressure of land brings about a chain of degradation: starting with erosion, formation of critical lands, destruction of watershed areas, water crisis, and ever decreasing carrying capacity of the land. In the man-made environment, for instance, chemical pollution and declining quality of air and water have created new environmental health problems.

Population also related to development and environment. Population number is always increasing and therefore there will be an increasing pressure on the environment and natural resources. Environmental carrying capacity will increasing due to development activities. Undoubtedly, the problems of environment impact is related to population problems. And both problems related to, and cannot be less complex than, the problems of development. The concept of development with environmental wisdom means that instead of confronting development against the cause of environment, the objective is to consider the relation between development and environment.

The implementation of sustainable development needs an integrated approach to development. The environment deals with a totality, the whole ecosystem with all its components (or sectors) interdependent to each other. Hence the environment could no longer be isolated from development sectors. The idea of sustainability should be made inherent in all sectors.
simultaneously. As the public awareness of environmental issues is increasing, the line agency hopefully takes environmental considerations into account.

This paper shows Indonesian efforts toward sustainable development. It focuses mainly on environmental policies. It also highlighted some issues and problems concerning the efforts.
References


Salim, Emil. Environment, Equity and Futurity. Address to the Indonesian Institute for Management at the Twelfth
Graduation ceremony of its MBA Program, Jakarta, December 14, 1990.


## APPENDIX I

### PARTIAL LIST OF INDONESIAN AGENCIES WITH ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT RESPONSIBILITIES

<table>
<thead>
<tr>
<th>Government agency</th>
<th>Environmental support responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Agriculture</td>
<td>Renewable resources in agriculture, fisheries, animal husbandry, pesticide regulation</td>
</tr>
<tr>
<td>Ministry of Communications</td>
<td>Noise pollution, pollution by transport modes</td>
</tr>
<tr>
<td>Ministry of Education and Culture</td>
<td>Environmental education, environmental study centers</td>
</tr>
<tr>
<td>Ministry of Finance</td>
<td>Budget for environmental management projects, programs and institutions</td>
</tr>
<tr>
<td>Ministry of Forestry</td>
<td>Forest protection, production, reserves and conservation, research, reforestation and reforestation</td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>Sanitation, food quality, pesticides, hazardous substances management</td>
</tr>
<tr>
<td>Ministry of Home Affairs</td>
<td>Supervision of municipal and provincial agencies dealing with environment, land registration and demarcation</td>
</tr>
<tr>
<td>Ministry of Industry</td>
<td>Industrial pollution control, hazardous substances management</td>
</tr>
<tr>
<td>Ministry of Justice</td>
<td>Codification of environmental law, enforcement</td>
</tr>
<tr>
<td>Ministry of Manpower</td>
<td>Occupational safety</td>
</tr>
<tr>
<td>Ministry of Mines and Energy</td>
<td>Nonrenewable resources management, environmental geology (including groundwater), pollution control</td>
</tr>
<tr>
<td>State Ministry for Population and Environment</td>
<td>Coordination of environmental and population affairs</td>
</tr>
<tr>
<td>Ministry of Public Works</td>
<td>Water supply and management, settlement planning, water and air quality, energy management</td>
</tr>
<tr>
<td>State Ministry for Research and Technology</td>
<td>Research on ecology, oceanography, natural resource inventory, supervision of research, technology development</td>
</tr>
<tr>
<td>Ministry of Trade and Cooperatives</td>
<td>Trade in protected animals and plants</td>
</tr>
<tr>
<td>Ministry of Transmigration</td>
<td>Environmental planning for transmigration settlements</td>
</tr>
</tbody>
</table>

**Source:** State Ministry for Population and Environment.