



PROMOTING ENVIRONMENTAL STEWARDSHIP

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I. INTRODUCTION

22.01 During the Eighth Plan period, the incorporation of environmental considerations into planning and development was intensified. This enabled a more integrated and holistic management of the environment and natural resources. The institutional capacity and regulatory framework was strengthened and new approaches and planning tools introduced. These efforts to promote sustainable development resulted in Malaysia being ranked 38 among 146 countries worldwide and second in Asia with regard to environmental sustainability¹. In addition, an Environmental Performance Index Study² ranked Malaysia ninth among 133 countries in terms of efforts taken to reduce environmental stress on human health and in protecting ecosystem vitality.

22.02 For the Ninth Plan, in line with the ninth principle³ of *Islam Hadhari*, environmental stewardship will continue to be promoted to ensure that the balance between development needs and the environment is maintained. Greater focus will be placed on preventive measures to mitigate negative environmental effects at source, intensifying conservation efforts and sustainably managing natural resources. Emphasis will be given to the fostering of closer cooperation between stakeholders in addressing environmental concerns. Environmental planning tools such as environmental impact assessments (EIA), strategic environmental assessments (SEA), cost-benefit analysis, market-based instruments and environmental auditing will be increasingly applied in evaluating and mitigating environmental impacts of development activities. In addition, research and development (R&D) will be intensified to further support environmental management and sustainable use of natural resources. These efforts in improving protection of the environment and conserving natural resources will contribute towards enhancing the quality of life.

¹ Environmental Sustainability Index Study, 2005, Yale University.

² Environmental Performance Index Study, 2006, Yale University.

³ "Safeguarding the environment."

II. PROGRESS, 2001-2005

22.03 During the Eighth Plan period, emphasis was placed on improving environmental quality through better management in major areas of concern particularly air and water quality, solid waste management as well as the utilisation of cleaner technologies. With regard to natural resource management, conservation and sustainable utilisation measures were intensified particularly for biodiversity, forest and water resources. The National Environment Policy, which outlines strategies to propel the country's growth trends towards sustainable development, was adopted in 2002. In 2004, a new Ministry of Natural Resources and Environment was formed, consolidating 10 environment and natural resources agencies under one administration to facilitate a coordinated and comprehensive approach in managing environment and natural resources.

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22.04 *Air Quality.* During the Eighth Plan period, air quality remained at good to moderate levels as indicated by the Air Pollution Index. However, there were instances of air quality deterioration in the Klang Valley, Selangor and Seberang Perai, Pulau Pinang, due to increased concentration of ambient ozone levels and particulate matter from motor vehicles, industries and open burning activities and sulphur dioxide from industrial activities. The occurrences of haze from transboundary sources became annual phenomena in parts of the west coast of Peninsular Malaysia and Sarawak. In this regard, bilateral efforts were directed at identifying and addressing the source of transboundary haze. Measures were also undertaken to reduce the occurrence of haze from domestic sources, with the enactment of the Environmental Quality Regulation (Declared Activities) (Open Burning) in 2003.

22.05 Mobile sources remained the major source of pollutants in terms of carbon monoxide and nitrogen oxide (NO_x) emissions. Several measures were undertaken to reduce emissions of pollutants from mobile sources. In 2004, the Environmental Quality Regulation (Control of Emissions from Motorcycles) 2003 was gazetted. Steps were also taken to enact legislation to reduce the sulphur content in diesel from 0.3 per cent to 0.05 per cent. Power plants were the main source of sulphur dioxide followed by industries and others such as hotels and commercial premises. In terms of particulate matter (PM₁₀), stationary sources, which include industries and power plants, contributed almost 90 per cent of the emissions.

22.06 *Water Quality.* The main sources of river water pollution were discharge of domestic sewage, pollutants from agro-based industries/farming, run-offs from earthworks and land clearing and effluent discharge from manufacturing activities. Efforts to reduce and control the discharge of waste water from the

domestic sector focused on upgrading existing and building new sewerage treatment plants. Under the first phase of the National Sewerage Project, four sewerage treatment plants and centralised sewage treatment facilities were constructed. In addition, 825 sewerage treatments plants were upgraded and the length of sewerage networks maintained increased from 9,240 kilometres in 2000 to 14,560 kilometres in 2005. These measures reduced the biochemical oxygen demand (BOD) load in rivers resulting in a decline in the number of polluted rivers.

22.07 *Marine Water Quality.* During the Plan period, marine water quality improved in terms of levels of arsenic, copper, *Escherichia coli* (*E.coli*), mercury and suspended solids. *E.coli* remained the major contaminant of marine water.

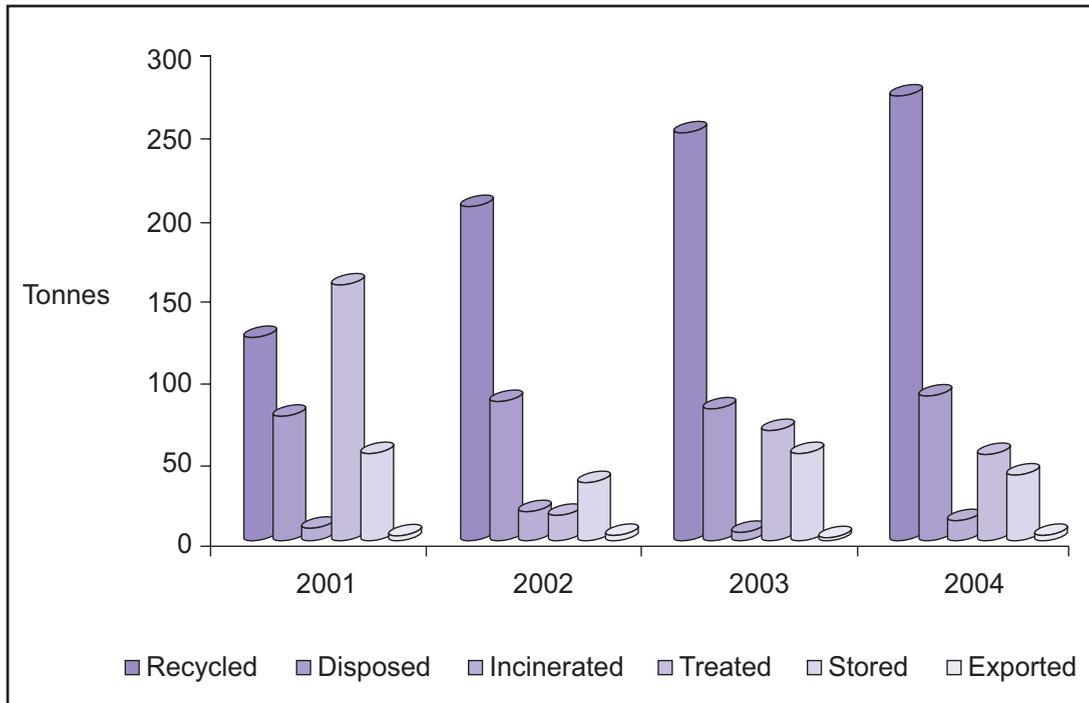
22.08 *Solid Waste.* The amount of solid waste generated in Peninsular Malaysia increased from 16,200 tonnes per day in 2001 to 19,100 tonnes in 2005 or an average of 0.8 kilogram per capita per day. Solid waste in Malaysia on average consists of 45.0 per cent food waste, 24.0 per cent plastic, 7.0 per cent paper, 6.0 per cent iron, and 3.0 per cent glass and others. Despite concerted efforts to promote reuse, reduction and recycling (3Rs) of materials through the National Campaign on Recycling, the amount of solid waste recycled remained at less than 5.0 per cent of total waste disposed. During the Plan period, the Government opened two sanitary landfills at Seelong in Johor and Bukit Tagar in Selangor, and a transfer station in Taman Beringin, Selangor.

22.09 *Toxic Waste.* During the Plan period, an average of 430,000 tonnes of scheduled waste was generated per annum. Of the total waste generated in 2004, approximately 18.8 per cent was treated and disposed in the toxic waste treatment and disposal facility in Bukit Nanas, Negeri Sembilan, 58.0 per cent was recycled and recovered at licensed premises, 19.7 per cent was treated and stored within the premises of generators, 0.7 per cent was exported for recycling and 2.7 per cent was disposed at clinical waste incinerators. The recycling and material recovery from toxic waste registered a significant increase from 29.0 per cent in 2001 to 58.0 per cent in 2004. This led to a decline in toxic waste treated and stored within premises from 59.9 per cent in 2001 to 19.7 per cent in 2004, as shown in *Chart 22-1*.

22.10 *Chemical and Hazardous Substances.* The use of chemical and hazardous substances showed an increase, particularly in the agriculture sector. The volume of fertilisers used increased from 2.2 million tonnes in 2001 to 4.0 million tonnes in 2004. Better farming practices were introduced to reduce the use of chemicals and hazardous substances through the *Skim Akreditasi Ladang Malaysia* (SALM), and *Skim Organik Malaysia* (SOM). The Pesticides Act 1974 was revised in September 2004 to strengthen the control of pesticides through the introduction of safer handling measures, penalties for non-compliance with safety labels and promotion of safety features in production and sale.

CHART 22-1

SCHEDULED WASTE MANAGEMENT, 2001-2004



Source: Department of Environment

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22.11 *Land Use Planning.* A National Physical Planning Council was established in 2003 and a National Physical Plan (NPP) 2005-2010 was adopted to further enhance integrated land use planning. In addition, guidelines to protect and conserve environmentally sensitive areas (ESA) were developed. A total of 86 local plans and 14 structure plans, which incorporated environment and natural resource conservation considerations, were prepared. In addition, 35 development standards and guidelines on the environment, housing, transport, land use, industry and urban surroundings, were also issued and implemented to improve urban planning and development.

22.12 *Water Resources.* The Government adopted an integrated water resource management (IWRM) approach to optimise water management and developed a Management Plan for the Langat River Basin, Selangor. A study on groundwater resources in the states of Johor, Kedah, Negeri Sembilan, Sabah, Sarawak and Selangor was completed in 2002. A guideline for installing a rainwater collection and utilisation system was also introduced.

22.13 *Biodiversity.* The National Biodiversity-Biotechnology Council (NBBC) was established in 2001 to coordinate efforts for the conservation and sustainable utilisation of biological resources. The National Wetlands Policy was adopted in 2004 to protect and conserve wetlands as well as improve their management. A Highlands Conservation and Management Strategy for Peninsular Malaysia was developed and a study of Hill Stations in Peninsular Malaysia conducted to promote sustainable development of highlands. In this regard, 109 projects on highlands implemented by 12 different Ministries were monitored to ensure that the strategies and guidelines were taken into account.

22.14 The number of protected areas increased from 37 to 40, with the establishment of the *Taman Negeri DiRaja Belum* in Perak, *Taman Negara Pulau Pinang* and *Taman Warisan Selangor*, increasing the size of protected areas to 5.36 million hectares, or 16.3 per cent of Malaysia's land area. In addition, the wetlands in Tanjung Piai, Sungai Pulai and Pulau Kukup, Johor were designated RAMSAR sites. Other critical habitats such as the wildlife corridors in Gunung Bintang Hijau in Kedah-Perak and Endau Rompin in Johor-Pahang, as well as fresh water swamps and open lakes, were also identified for conservation. Gene banks for endangered species and *ex-situ* breeding programmes were also established to protect endangered species and facilitate relocation of threatened species.

22.15 *Forest Resources.* During the Plan period a total of 19.52 million hectares or 59.5 per cent of Malaysia's land area remained under forest cover, of which 14.39 million hectares were permanent reserved forest and 3.21 million hectares were totally protected areas. In addition, 310,550 hectares of forest plantation were established, of which 75,800 hectares were in Peninsular Malaysia and 174,750 hectares in Sabah and 60,000 hectares in Sarawak. The Malaysian Criteria, Indicators, Activities and Standards of Performance for Forest Management Certification (MC&I) system was launched in 2001 to certify sustainably managed forests and chain-of-custody timber produced from these forests, and 67 companies were certified by 2005. Measures were also taken to intensify the conservation and rehabilitation of mangrove forests, to serve as an effective shoreline defence system against erosion, wave action and *tsunamis*.

22.16 *Mineral Resources.* The National Minerals Council was established in 2001 to monitor and coordinate measures to manage mineral resources including the mineral reserves policy and the institutional framework for mineral governance. The model State Mineral Enactment, which encompassed enhanced environmental considerations and procedures, was adopted by three more states, namely Johor, Kedah and Negeri Sembilan, bringing the total to five. Quarry Rules pursuant to the National Land Code 1965 were also adopted by Selangor in 2003 and Pahang in 2004 to improve control of quarry operations.

22.17 *Marine and Coastal Resources.* During the Plan period, 37 projects were implemented to protect coastal areas from degradation and erosion. These included the construction of wave breakers, beach nourishment and widening of coastlines, particularly the shoreline bordering agricultural areas in Johor, Melaka, Perak, Perlis, Pulau Pinang, Sarawak and Wilayah Persekutuan Labuan. In addition, a pilot study to develop an integrated shoreline management plan (ISMP) for the northern coastline of Pahang was completed, while the study for the southern coastline of Pahang is ongoing. Other initiatives to protect marine diversity included the establishment of the Tun Sakaran Marine Park in Sabah and the preparation of a Marine Strategic Roadmap to intensify marine R&D.

Other Initiatives

22.18 *Environmental Awareness and Promotion.* During the Plan period, efforts to enhance environmental awareness were further intensified at school, community and national levels. In 2002, the Malaysian Environmental NGOs (MENGOs) was established to bring together 18 environment-related organisations to improve cooperation and integration of their efforts in raising awareness on environment and natural resource issues and in providing inputs, comments and feedback to the Government. In addition, the *Bandar Lestari-Anugerah Alam Sekitar* programme was launched in 2005 to encourage local authorities to adopt environmentally friendly practices, and Kuantan, Pahang emerged as the first recipient.

22.19 *International Environmental Initiatives.* Malaysia continued to play an active role in various multilateral environmental initiatives. Notably, Malaysia hosted the Seventh Convention of Parties (COP7) of the Convention on Biological Diversity and the First Meeting of Parties (MOP) to the Cartagena Protocol in February 2004. A number of multilateral environmental agreements (MEAs) and related amendments were signed and ratified during the Plan period. These included the signing of the Stockholm Convention on Persistent Organic Pollutants, while the Montreal Protocol on Substances that Deplete the Ozone Layer, the Basel Convention on the Transboundary Movements of Hazardous Waste and their Disposal, the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Cartagena Protocol on Biosafety, were ratified.

III. PROSPECTS, 2006-2010

22.20 During the Ninth Plan period, the Government will place emphasis on preventive measures to mitigate and minimise pollution as well as address other adverse environmental impacts arising from development activities. In addition, steps will be undertaken to identify and adopt action to promote sustainable natural resource management practices in relation to land, water, forest, energy

and marine resources. These efforts will enhance protection of the environment and conservation of natural resources and contribute towards improving the quality of life. The strategic thrusts for addressing environmental and natural resources issues will focus on:

- ❑ *promoting a healthy living environment;*
- ❑ *utilising resources sustainably and conserving critical habitats;*
- ❑ *strengthening the institutional and regulatory framework as well as intensifying enforcement;*
- ❑ *expanding the use of market-based instruments;*
- ❑ *developing suitable sustainable development indicators; and*
- ❑ *inculcating an environment-friendly culture and practice at all levels of society.*

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22.21 *Air Quality.* A new Clean Air Action Plan will be developed and implemented to improve air quality. Detailed studies will be undertaken to formulate action plans to improve the air quality in urban areas. Emission of air pollutants from stationary sources will be addressed by promoting the use of cleaner technologies. The sulphur content in diesel and petrol will be reduced from 3,000 ppm to 500 ppm and from 1,500 ppm to 500 ppm respectively, with the adoption of EURO 2M specifications. New emission standards based on EURO 2 for diesel vehicles and EURO 3 for petrol vehicles will also be introduced to reduce emission of air pollutants from mobile sources. In addition, the capacity and ability to fight peat swamp fires, a domestic source of haze, will be strengthened.

22.22 *Water Quality.* The utilisation of the integrated river basin management (IRBM) approach will be intensified to improve river and groundwater quality. Efforts will be targeted towards reducing the number of polluted rivers. Public sewerage systems will be upgraded and additional centralised sewerage treatment plants will be constructed to reduce the discharge of inadequately treated wastewater into river systems. Gross pollution traps and sedimentation ponds will be installed at critical locations in river basins to reduce the outflow of non-point source pollutants. Siltation and erosion control will be addressed through the amendment of existing laws. Enforcement will be intensified to ensure that effluent discharge comply with environmental standards in order to maintain environmental health.

22.23 *Marine Water Quality.* The interim standards for marine water quality will be reviewed with a view towards establishing comprehensive standards. A detailed study will be undertaken to establish the appropriate methodologies and parameters taking into account domestic pollutant loads and conditions. In addition, surveillance of marine waters will be intensified to increase compliance and control the illegal discharge of pollutants.

22.24 *Solid Waste.* The National Strategic Plan for Solid Waste Management (Strategic Plan) will be implemented with emphasis on the upgrading of unsanitary landfills as well as the construction of new sanitary landfills and transfer stations with integrated material recovery facilities. Priority will continue to be accorded to the reduction, reuse, recovery and recycling of waste as well as greater use of environment-friendly materials such as bioplastics. Legislation to streamline solid waste management will be enacted to facilitate the implementation of the strategies and measures in the Strategic Plan. Awareness raising campaigns and activities will be increased to educate the public on the benefits of practicing sustainable consumption. A solid waste department will be established to implement these measures and to administer solid waste policy, planning and management in a holistic manner.

22.25 *Toxic, Chemical and Hazardous Substances.* The institutional capacity of the relevant agencies managing toxic and hazardous substances will be further strengthened through the adoption of a global harmonised system for the registration of imports, transportation and safe handling of chemical and hazardous substances. Measures will also be undertaken to develop a framework to facilitate the utilisation of approaches and technologies to treat and convert toxic waste into a resource for reuse. In addition, steps to address the indiscriminate use of chemicals, particularly in agricultural practices, will be intensified.

22.26 *Cleaner Technology.* To promote the greater use of environmentally sound technologies, industries will be encouraged to adopt self-regulatory measures and apply the Life Cycle Approach (LCA) in their production processes and product development. SIRIM Berhad will develop a National Lifecycle Inventory Database for primary industries and activities such as electricity generation, water supply, petroleum and natural gas exploration and production as well as petrochemicals. The database will facilitate efforts by industries to develop LCAs in their production and manufacturing processes. In addition, findings from the pilot eco-labelling project will be used to develop a national environmental labelling scheme. Steps will also be taken to facilitate the adoption of cleaner technologies by small and medium enterprises (SMEs), including through the identification of new sources of financing from the SME Bank.

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22.27 *Land Use Planning.* The application of the spatial development approach, which integrates environmentally sustainable development concepts and methodologies, will be promoted. The strategies in the NPP will be implemented via incorporation into structure plans. Appropriate methods and parameters will be developed to identify and manage ESAs to enable them to serve as buffer zones in the control of development sprawl. Management of land resources will be improved through the expansion of the *e-Tanah* programme and by instituting competent land administration through training.

22.28 *Landscape.* The National Landscape Policy will guide the development of urban parks at city, district and state levels. Green lung reserves will be expanded and rivers, roads, public buildings and amenities will be landscaped to improve the environment. Suitable ex-mining areas and quarries will be rehabilitated and improved to serve as geological heritage sites and eco-tourism attractions.

22.29 *Water Resources.* Emphasis will be placed on maintaining and enhancing the ecosystem functions of river systems through the restoration and maintenance of highland catchments, wetlands, river buffers and riparian zones. The suitability of market-based instruments will be explored to internalise environmental costs, including scarcity, into water pricing systems. Measures to reduce water demand will be emphasised including through the provision of tax rebates for industries that recycle water.

22.30 *Biodiversity.* Efforts will be intensified to protect critical habitats. Towards this end, existing management plans will be reviewed to further strengthen the protection of threatened flora and fauna. EIA processes will be reviewed to include assessment of impacts to ecosystems. The Highland Conservation and Management Strategy study for Sabah and Sarawak will be implemented and a National Highlands Policy will be developed. The Guidelines for Access and Benefit Sharing (ABS) of Biological Resources will be developed to ensure the equitable sharing of benefits from the use of biodiversity resources as well as address issues of biopiracy. Research institutions and universities will develop a comprehensive biodiversity inventory to facilitate bioprospecting.

22.31 *Forest Resources.* The conservation and sustainable use of forest products, watersheds and water catchments will be emphasised to promote sustainable forest management. The development of sustainable sources of wealth from forest products such as herbal and medicinal products, eco-tourism and bioprospecting activities will be promoted. Centres on Forest and Non-Forest Products will be established to further develop capacity in environmental and natural resources management. The MC&I system will be strengthened to consolidate efforts for sustainable forest management.

22.32 *Mineral Resources.* A synergistic approach will be taken to steer the industry towards sustainable mineral resources development. The adoption of environmentally-friendly practices will be emphasised through the adoption of the Minerals Enactment and Quarry Rules by all states.

22.33 *Marine and Coastal Resources.* An Integrated Coastal Zone Management Policy will be adopted to promote conservation and preservation of marine and coastal resources. The rehabilitation and improvement of the coastline will be intensified through regeneration and re-vegetation programmes. A comprehensive management plan for mangroves and coastal forests will be developed to arrest the mangrove depletion rate to ensure a continuous supply of resources as well

as to mitigate the impact of coastal erosion and *tsunamis*. A Coastal Vulnerability Index will be developed to guide the design of programmes to enhance coastal zone management.

Other Initiatives

22.34 *Economic Approaches*. Measures will be undertaken to expand the use of economic instruments and market-based measures, such as the incorporation of the polluter pays principle, user fees and economic valuation techniques, to address environmental issues effectively and efficiently. The use of innovative funding mechanisms to facilitate the conservation of critical and protected areas will be explored. Pilot studies and projects will be undertaken to operationalise the implementation of these innovative market-based instruments.

22.35 *Environmental Awareness and Promotion*. During the Plan period, efforts to promote and inculcate an environment-friendly culture and practice among Malaysians will be intensified and will involve the active participation of the private sector and NGOs. Appropriate interventions and changes will be made through the school curriculum to create a deeper and longer lasting awareness of the need to care for the environment. The private sector will be encouraged to institute responsible care programmes within industries and companies to develop a higher degree of care towards public safety, security and the environment. In addition, the energy, ideas and enthusiasm of environmental NGOs will be harnessed to complement and supplement efforts by the Government in protecting the environment.

22.36 *Sustainable Development Indicators*. A Malaysian SDI system will be developed and benchmarked with on-going international initiatives to ensure comparability. In this regard, a comprehensive study will be conducted to evaluate the timeliness, appropriateness and usefulness of applying assessment methods such as natural resource accounting, environmental auditing and pressure-state-response based models to monitor sustainable development in Malaysia.

22.37 *International Environmental Initiatives*. Malaysia will continue to emphasise regional and international cooperation in addressing regional and global environmental issues. The deliberations and developments at various environmental fora will be closely monitored to ensure that they do not jeopardise Malaysia's interests. Emphasis will be accorded to the studies and measures needed to facilitate action by Malaysia to meet its commitments to multilateral environmental agreements.

IV. INSTITUTIONAL SUPPORT

22.38 The Ministry of Natural Resources and Environment and its 10 agencies will have a key role in promoting environmental stewardship and maintaining

the balance between development needs and the environment. Together with the Ministry of Housing and Local Government, it will ensure that the environment is taken into account in land use planning and development. The Department of Forestry and the Department of Wildlife and National Parks (PERHILITAN) will be the frontline agencies in the conservation of our biodiversity. The corporate sector and environmental NGOs will be encouraged to supplement and complement the efforts of these key agencies.

V. CONCLUSION

22.39 During the Eighth Plan period, emphasis was placed on improving environmental quality through better management in major areas of concern particularly air and water quality, solid waste management, as well as the utilisation of cleaner technologies. Efforts were also intensified to protect and conserve land, water, biodiversity and forest resources. During the Ninth Plan period, the Government will place emphasis on preventive measures to mitigate and minimise pollution. The promotion of sustainable natural resource management practices in relation to land, water, forest, energy and marine resources, will be intensified. There will also be closer cooperation with stakeholders and NGOs in addressing environment and natural resource concerns. These efforts will enhance protection of the environment and conservation of natural resources and contribute towards improving the quality of life.