

**MINISTRY OF NATURAL  
RESOURCES AND  
ENVIRONMENT**

No. 43/2015/TT-BTNMT

**SOCIALIST REPUBLIC OF VIETNAM  
Independence - Freedom - Happiness**

*Hanoi, September 29, 2015*

**CIRCULAR**

**ON STATE OF THE ENVIRONMENT REPORT, SET OF ENVIRONMENTAL  
INDICATORS AND MANAGEMENT OF ENVIRONMENTAL MONITORING DATA**

*Pursuant to the Law on Environmental Protection dated June 23, 2014;*

*Pursuant to the Government's Decree No. 21/2013/ND-CP on March 04, 2013 on defining the functions, tasks, powers and organizational structure of the Ministry of Natural Resources and Environment;*

*At the request of General Director of Vietnam Environment Administration, General Director of the Legal Department,*

*The Minister of Natural Resources and Environment hereby promulgates the Circular on state of the environment report, set of environmental indicators and management of environmental monitoring data.*

**Chapter I**

**GENERAL PROVISIONS**

**Article 1. Scope**

This Circular details Clause 1 Article 127, Clause 2 Article 132, and Clause 3 Article 137 of the Law on Environmental Protection 2014.

**Article 2. Regulated entities**

This Circular applies to:

1. The State management authorities for environmental protection, organizations and individuals involved in report on national state of the environment, thematic report on national environment, report on local state of the environment, thematic report on local environment; development and implementation of the set of environmental indicators.

2. Regulatory authorities, domestic and foreign organizations and individuals implementing national environmental monitoring program; provincial environmental monitoring program; environmental monitoring program of industrial parks, export processing zones, high-tech zones,

industrial clusters, trade villages and production, trading and service establishments within the territory of Vietnam.

### **Article 3. Definitions**

In this Circular, the following terms are construed as follows:

1. The state of the environment report includes report on national state of the environment, thematic report on national environment, report on local state of the environment, thematic report on local environment.
2. The thematic report on environment means a state of the environment report that focuses on a topic of environment or an environmental component that currently attracts much attention of society and environmental management agencies.
3. The set of environmental indicator means a collection of environmental indicators. The environmental indicator includes 01 or more secondary indicators.
4. The secondary indicator means one or a group of basic environmental parameters, directly related to each environmental indicator.
5. The environmental indicator card means a tool used to manage the data of each environmental indicator.
6. The DPSIR model means a model describing the reciprocal relationship between Driving force - D (socio-economic development, underlying causes of environmental changes) - Pressure - P (direct discharges and emissions polluting and degrading the environmental) - State - S (the state of environmental quality) - Impact - I (impact of environmental pollution on public health, socio-economic development and Ecological environment) - Response - R (the State and societal responses to environmental protection).

## **Chapter II**

### **STATE OF THE ENVIRONMENT REPORT AND SET OF ENVIRONMENTAL INDICATORS**

#### **Section 1. STATE OF THE ENVIRONMENT REPORT**

#### **Article 4. Responsibilities and time for preparation for state of the environment report**

1. The Vietnam Environment Administration shall assist the Ministry of Natural Resources and Environment in preparing report on national state of the environment and thematic report on national environment as prescribed in Clause 1 Article 137 of the Law on Environmental Protection 2014. The report shall be prepared and approved ahead of May of the preceeding year.

2. The Department of Natural Resources and Environment of central-affiliated provinces and cities (below collectively referred to as the “Department of Natural Resources and Environment”) shall assist People’s Committees of central-affiliated provinces and cities (below collectively referred to as “Provincial-level People’s Committee”) in preparing report on local state of the environment and thematic report on local environment as prescribed in Clause 2 Article 137 of the Law on Environmental Protection 2014. The report shall be prepared and approved ahead of October of the year in which it is prepared.

#### **Article 5. Methods of preparation for state of the environment report**

1. The state of the environment report is prepared according to the model Driving force - Pressure - State - Impact - Response (the DPSIR model).
2. The set of environmental indicators set forth in Section 2 of this Chapter shall be used to collect information and data.

#### **Article 6. The sources of information for preparation of state of the environment report**

1. The environmental information from the report on national state of the environment, thematic report on national environment and report on local state of the environment, thematic report on local environment that are all approved.
2. Information from the Statistical Yearbook of the country, ministries and local governments.
3. Results of the environmental monitoring programs.
4. Information from ministries, departments, and relevant entities.
5. Information from other sources: results of scientific research programs or scientific research projects at state, ministerial and provincial levels that are all accepted.
6. Information from the programs on surveys and additional investigations on thematic environmental issues for the provision of data for the preparation for state of the environment report.

#### **Article 7. Assessments in state of the environment report**

1. Assessment of the achievement of environmental targets and environmental objectives in the national socio-economic development plan, for the national state of the environment report, the socio-economic development plan of the provinces and cities, for the local state of the environment report.
2. Assessment of environmental quality in areas, regions, provinces and cities for the national state of the environment report, assessment of environmental quality in districts and communes for the local state of the environment report.

3. Assessment of environmental quality during the year and reporting periods.
4. Assessment of environmental parameters in comparison with environmental technical standards or environmental standards.
5. The assessment prescribed in Clauses 1, 2, 3 and Clause 4 of this Article is carried out to analyze and classify environmental issues, thereby determining the national or local environmental issues of concern.

#### **Article 8. Format and contents of state of the environment report**

1. Format and contents of a state of the environment report must comply with the Appendix I enclosed with this Circular.
2. Format and contents of a thematic report on environment must comply with the Appendix II enclosed with this Circular.

During the reporting process, based on the current situation, irrelevant contents shall be applied or eliminated; the order shall be retained or changed but ensure full contents set forth in Article 138 of the Law on Environmental Protection 2014.

#### **Article 9: The order of preparation for state of the environment report**

1. Propose, submit the theme of the thematic report on environment for approval.
2. Make an outline of the report.
3. Collect, summarize and handle information and data.
4. Draw up a draft of the report.
5. Consult with relevant entities about the draft of report.
6. Submit and approve the report.
7. Provide and publish the report.

The order of preparation for state of the environment report must comply with regulations set forth in Articles 10, 11, 12, and Article 13 of this Circular.

#### **Article 10. Proposal and approval for the theme of thematic report on environment for approval.**

1. Based on the burning environmental issues and the State management on environment, the Vietnam Environment Administration shall propose and submit the Ministry of Natural

Resources and Environment for approval for the theme of thematic report on national environment before the year in which the report is prepared.

2. Based on the burning environmental issues and the State management on local environment, the Department of Natural Resources and Environment shall propose and submit the Provincial-level People's Committee the decision on preparation for thematic report on local environment before the year in which the report is prepared.

#### **Article 11. Consultation with relevant entities about the draft of report**

1. Based on the current situation, the Vietnam Environment Administration and the Department of Natural Resources and Environment may select one or more of the following consultations:

- a) Meeting of the Experts Group;
- b) Seminar for consultation between relevant entities;
- c) Written request for opinions

2. The written request for opinions set forth in Point c Clause 1 of this Article is made as follows:

- a) The draft of national state of the environment report submitted to ministries, local governments and relevant entities for request for opinions;
- b) The draft of local state of the environment report submitted to departments, boards and relevant entities at local governments for request for opinions.

#### **Article 12. Report submission and approval**

1. The Vietnam Environment Administration shall submit the Ministry of Natural Resources and Environment the approval for report on national state of the environment and thematic report on national environment.

2. The Department of Natural Resources and Environment shall submit the Provincial-level People's Committee the approval for report on local state of the environment and thematic report on local environment.

#### **Article 13. Provision and publication of the report**

1. Provision of state of the environment report

- a) The approved report on national state of the environment and thematic report on national environment shall be submitted to authorities of the National Assembly and Government, regulatory authorities, and relevant organizations and individuals;

b) The approved report on local state of the environment and thematic report on local environment shall be submitted to the People's Council at the same level, the Ministry of Natural Resources and Environment, relevant departments, boards, organizations and individuals.

## **2. Publication of state of the environment report:**

a) The report on national state of the environment and thematic report on national environment shall be published on the portal of the Ministry of Natural Resources and Environment;

b) The report on local state of the environment and thematic report on local environment shall be published on the portal of the Provincial-level People's Committee.

## **Section 2. ENVIRONMENTAL INDICATORS**

### **Article 14: The set of environmental indicators**

1. The set of national environmental indicators consists of 36 environmental indicators, 93 secondary indicators divided into 05 groups: driving force indicator group, pressure indicator group, state indicator group, impact indicator group and response indicator group.

2. The set of national environmental indicators is prescribed in the Appendix III enclosed with this Circular.

3. The set of local environmental indicators is developed and issued by the Provincial-People's Committee based on the national environmental indicators.

### **Article 15. Development of the set of environmental indicators**

1. The Vietnam Environment Administration shall assist the Ministry of Natural Resources and Environment in developing the set of national environmental indicators as prescribed in Clause 2 Article 132 of the Law on Environmental Protection 2014. Every 05 (five) years, the Vietnam Environment Administration shall review and submit them to the Ministry of Natural Resources and Environment for consideration and amendments.

2. The Department of Natural Resources and Environment shall assist the Provincial-level People's Committee in developing the set of local environmental indicators as prescribed in Clause 3 Article 132 of the Law on Environmental Protection 2014 to make sure that the number of indicators reaches at least 75% of that of the national environmental indicators and full 05 (five) components of the DPSIR model.

### **Article 16. Update on the information and data of the set of environmental indicators**

1. Information and data of each environmental indicator shall be managed by the environmental indicator card prescribed in the Appendix IV enclosed with this Circular.

2. The information and data of the set of environmental indicators shall be updated from the sources set forth in Article 6 of this Circular.

3. Annually, the agencies assigned to manage the set of environmental indicators shall update information and data to the set of environmental indicators.

#### **Article 17: Management of the set of environmental indicators**

1. The agencies developing the set of environmental indicators described in Clause 1, Clause 2, Article 15 of this Circular shall be responsible for recording and reporting the set of environmental indicators in accordance with applicable law.

2. The Vietnam Environment Administration shall establish and submit a database of the set of national environmental indicators to the Ministry of Natural Resources and Environment; give guidance to the Department of Natural Resources and Environment on the establishment of the set of local environmental indicators.

#### **Article 18: Use of the set of environmental indicators**

1. The set of environmental indicators shall be used to track and assess the progress of environmental quality; aid in the preparation of report on national and report on local state of the environment.

2. The set of environmental indicators shall be used to assess the implementation of environmental targets described in the national and local socio-economic development plans.

### **Chapter III**

## **ENVIRONMENTAL MONITORING DATA MANAGEMENT**

#### **Article 19. Environmental monitoring data**

1. The environmental monitoring data includes:

a) Periodical environmental monitoring result and continuous environmental monitoring result of the environmental monitoring program set forth in Clause 2 of this Article;

b) A report on result of environmental monitoring includes: a periodical report on result of environmental monitoring and annual general report (for periodical monitoring); monthly, quarterly and yearly reports on result of environmental monitoring (for continuous monitoring). Reports on monitoring result must include the implementation result of QA/QC in environmental monitoring.

2. The environmental monitoring programs:

- a) The national environmental monitoring program includes environmental monitoring programs at inter-provincial river and lake basins; key economic zones; trans-border and geographically distinct zones.
- b) The provincial environmental monitoring program includes monitoring programs on environmental components in the area;
- c) The environmental monitoring program of industrial parks, export processing zones, high-tech zones, industrial clusters, trade villages and production, trading and service establishments includes monitoring programs on emissions and environmental components in accordance with the law.

#### **Article 20. Management of environmental monitoring data**

- 1. The Vietnam Environment Administration shall assist the Ministry of Natural Resources and Environment in managing the national environmental monitoring data as prescribed in Clause 1 Article 127 of the Law on Environmental Protection 2014.
- 2. The Department of Natural Resources and Environment shall assist the Provincial-level People's Committee in managing the local environmental monitoring data as prescribed in Clause 2 Article 127 of the Law on Environmental Protection 2014.
- 3. Industrial parks, export processing zones, high-tech zones, industrial clusters, and production, trading and service establishments shall manage the environmental monitoring data as prescribed in Clause 3 Article 127 of the Law on Environmental Protection 2014.

#### **Article 21. Reporting of environmental monitoring data**

- 1. The entities affiliated to the Ministry of Natural Resources and Environment, entities affiliated to the network of national environmental monitoring assigned expenses from the State budget to run environmental monitoring programs shall be responsible for sending the Vietnam Environment Administration the relevant data on environmental monitoring prescribed in Clause 1 Article 19 of this Circular to summarize and submit a report to the Ministry of Natural Resources and Environment.
- 2. The Department of Natural Resources and Environment shall report the environmental monitoring data prescribed in Clause 1 Article 19 of this Circular to the Ministry of Natural Resources and Environment.
- 3. Investors constructing and trading in technical infrastructure of economic zones, industrial parks, export processing zones and hi-tech parks shall submit a report according to regulations on environmental protection in economic zones, industrial parks, export processing zones and hi-tech parks.



4. The production, trading and service establishments which are not prescribed in Clause 3 of this Article shall submit a report to the authorities that have the power to appraise and give approval for environmental impact assessment reports or certify environmental protection plans.

5. Agencies, entities and organizations prescribed in Clauses 1, 2, 3 and Clause 4 of this Article shall be responsible for monitoring and ensuring the quality, accuracy and reliability of the environmental monitoring data.

6. The report on environmental monitoring data prescribed in Clause 1, Clause 2, Clause 4 of this Article shall be made according to the forms and frequency prescribed in Article 22, Article 23 of this Circular.

## **Article 22. Forms of the report on environmental monitoring data**

### **1. Forms of the environmental monitoring data**

a) Format of environmental monitoring data: data set forth in Clause 1, Article 19 of this Circular is stored in a computer file in word format (.doc or .docx) for environment monitoring reports; excel file format (.xls or .xlsx) for periodic monitoring results; text file for automatic continuous monitoring results; and is printed on paper (except for automatic continuous monitoring results);

b) The form of a periodic and annual report on monitoring results shall comply the Table A1, Table A2, the form of a report on automatic continuous air monitoring result shall comply with Table A3, Table A4, the form of a report on automatic continuous water monitoring result shall comply with Table A5, Table A6 of Appendix V enclosed with this Circular;

c) The periodic monitoring result is saved in excel file format (.xls hoặc .xlsx), standard Unicode format; result of automatic continuous monitoring (including monitoring results and calibration results) is saved as text files in ASCII format (Vietnamese without diacritics).

### **2. Submission and receipt of environmental monitoring data:**

a) Monitoring reports and results shall be bound into volumes bearing the signature and stamp of the reporting agency and 01 copy shall be submitted to a receiving agency described in Clauses 1, 2, 3 and Clause 4, Article 21 of this Circular. Report files shall be sent via e-mail or portal of the receiving agency;

b) The receiving agency shall confirm the receipt of report in writing and submit it to the reporting agencies. The written document shall act as a basis for determination of fulfillment of environmental monitoring tasks.

## **Article 23. Reporting frequency of environmental monitoring data**

1. For the entities running the national environmental monitoring programs, the reporting frequency is as follows:

- a) Submit results and reports on periodic environmental monitoring at least 30 days after the last day of monitoring;
- b) Submit results and reports on a monthly and quarterly basis ahead of the 15<sup>th</sup> of the preceeding month;
- c) Submit an annual general report on periodic environmental monitoring result and automatic continuous environmental monitoring result before March 15 of the preceeding year.
- d) Continuously submit automatic monitoring results in real time.

2. For the Department of Natural Resources and Environment, the reporting frequency is as follows:

- a) Submit an annual general report on periodic environmental monitoring result and automatic continuous environmental monitoring result before March 31 of the preceeding year.
- b) Continuously submit (24/24 hours) automatic continuous monitoring results online to the Ministry of Natural Resources and Environment. The monitoring results submitted to Ministry of Natural Resources and Environment shall meet the demand for provision and use of information and reach at least 80% of expected monitoring results of the monitoring programs.

3. For industrial parks, export processing zones, hi-tech parks, industrial clusters, trade villages, and production, trading and service establishments:

- a) The environmental monitoring data of economic zones, industrial parks, export processing zones and hi-tech parks shall be reported according to regulations on environmental protection in economic zones, industrial parks, export processing zones and hi-tech parks as prescribed.
- b) The production, trading and service establishments prescribed in Clause 4 Article 21 of this Circular shall submit a report on periodic monitoring results at least 30 days after the last day of monitoring; the production, trading and service establishments prescribed in Clause 3 Article 39 of the Government's Decree No. 38/2015/ND-CP dated April 24, 2015 on management of waste and discarded materials shall continuously submit automatic continuous monitoring results in real time to the Department of Natural Resources and Environment of the local governments.

#### **Article 24. Recording and publication of environmental monitoring data**

- 1. The agencies assigned to manage environmental monitoring data set forth in Article 20 of this Circular shall be responsible for recording in accordance with applicable law.
- 2. The Vietnam Environment Administration shall establish and submit a national environmental monitoring database to the Ministry of Natural Resources and Environment; give guidance to the Department of Natural Resources and Environment on the establishment of local environmental monitoring database.

3. Annually, the Vietnam Environment Administration shall update and publish list of national environmental monitoring data on the portal of the Ministry of Natural Resources and Environment and Vietnam Environment Administration.

4. Annually, the Department of Natural Resources and Environment shall update and publish list of local environmental monitoring data on the portal of the Provincial-level People's Committee and the Department of Natural Resources and Environment.

## **Chapter IV**

### **IMPLEMENTATION PROVISIONS**

#### **Article 25. Expenses for preparation of state of the environment report, set of environmental indicators and management of environmental monitoring data**

Expenses for preparation of state of the environment report, set of environmental indicators and environmental monitoring data management are covered by the State budget appropriations for environmental issues.

#### **Article 26. Effect**

1. This Circular comes into force from December 01, 2015.

2. The Circular No. 08/2010/TT-BTNMT dated March 18, 2010 of the Minister of Natural Resources and Environment on the preparation of the report on the national environment, report on the environmental impacts of the sector and industry and report on provincial state of the environment; the Circular No. 09/2009/TT-BTNMT dated August 11, 2009 of the Minister of Natural Resources and Environment on the development and management of national environmental indicators and the Circular No. 10/2009/TT-BTNMT dated August 11, 2009 of the Minister of Natural Resources and Environment on the set of national environmental indicators for air, surface water and coastal seawater environments shall expire since this Circular comes into force.

#### **Article 27. Implementation**

1. The Vietnam Environment Administration shall be responsible for providing instructions, conducting inspection and supervision of the implementation of this Circular; providing instructions on methods, summarizing information for the set of environmental indicators, and assisting the Ministry of Natural Resources and Environment in providing detailed instructions on the structure and file format of environmental monitoring data.

2. The State management agencies for environmental protection, organizations and individuals involved in report on national state of the environment, development and implementation of the set of environmental indicators; implementing national environmental monitoring program; provincial environmental monitoring program; environmental monitoring program of industrial parks, export processing zones, high-tech zones, industrial clusters, trade villages and

production, trading and service establishments, shall be responsible for implementing this Circular.

3. Difficulties that arise during the implementation of this Circular should be promptly reported to the Ministry of Natural Resources and Environment.

**MINISTER**

**Nguyen Minh Quang**

## **APPENDIX I**

### **FORMAT OF THE REPORT ON NATIONAL STATE OF THE ENVIRONMENT AND REPORT ON LOCAL CURRENT ENVIRONMENTAL**

*(Enclosed with the Circular No. 43/2015/TT-BTNMT dated September 29, 2015 of the Minister  
of Natural Resources and Environment)*

List of persons involved in the preparation

List of Tables

List of Charts

List of Pictures

List of Frames

List of Abbreviations

Index

Foreword

Abstract

- General introduction of the report: purposes, scope; subjects; guidance for readers.
- Brief summary of the report's Chapters and Sections.

## **Chapter I. Overview of natural conditions and socio-economic development of the country/local governments**

### **1.1. Overview of natural conditions**

Describe the characteristics of geographic location, terrain, hydrological system, climate that impact the natural and local environment.

### **1.2. Socio-economic development**

#### ***1.2.1. Economic development***

General requirements: overview of development and distribution by industries and sectors; Contribution rate and GDP and GRDP growth rate of the whole industry by sector; comparison through stages; development trend of the industry and sector upon the implementation of development plans; role and impact of economic growth on social life and environment.

- *Industrial development*
- *Construction development*
- *Energy development*
- *Transportation development*
- *Agriculture, forestry and fishery development*
- *Medical activities*
- *Tourism, service, business and import and export development*

#### ***1.2.2. Society***

General requirements: Overview of social context in the country; description of the mechanical growth of population and the transformation of rural and urban populations; forecasts about population growth, migration to urban areas; overview of the impact of population growth and migration on the environment.

- *Social context in the country*

- *Population and migration.*

- *Urban development.*

### **1.2.3. International integration**

- *National and local trend towards international integration.*

- *National and local challenges in economic and environmental development in connection with international agreements and conventions to which Vietnam is a contracting party or obliged to implement.*

## **Chapter II. Pressure from socio-economic development on the environment**

General requirements: describe socio-economic development on the environment by analyzing negative impacts that are reflected by the estimated amount of waste discharges caused by socio-economic development activities, which then aids in identifying from where the major pollution issues are derived.

### **2.1. Pressure from population, migration and urbanization**

General requirements: describe pressure from population, migration, and urbanization on the environment by analyzing negative impacts that are reflected by the estimated amount of discharge of pollutants in sewage, which then aids in identifying from where the major pollution issues are derived; estimated total amount of waste discharged into the environment.

***The following contents shall be included:***

- *Estimated amount of discharges of pollutants in sewage by areas, regions, provinces, cities at national level and district at local level based on the estimated assessment results of pressure from population, migration and urbanization on the environment.*

- *Estimated amount of discharges of pollutants in sewage by areas, regions, provinces, cities at national level and district at local level based on the estimated assessment results of pressure from population, migration and urbanization on the environment.*

- *2.1. Impacts of population growth, migration and urbanization on national and local land fund.*

### **2.2. Pressure from industrial activities**

General requirements: describe pressure from industrial activities on the environment by analyzing negative impacts that are reflected by the amount of waste

(water waste, emissions) produced during industrial activities, which then acts as a basis for the assessment of pressure from industrial activities on the environment.

### **2.3. Pressure from construction activities**

General requirements: describe pressure from industrial activities on the environment by analyzing negative impacts that are reflected by the amount of waste (water waste, emissions) produced during construction activities, which then acts as a basis for the assessment of pressure from construction activities on the environment.

### **2.4. Pressure from energy activities**

General requirements: describe pressure from energy activities on the environment by analyzing negative impacts that are reflected by the amount of waste (water waste, emissions) produced during energy activities, which then acts as a basis for the assessment of pressure from energy activities on the environment.

### **2.5. Pressure from transportation activities**

General requirements: describe pressure from transportation activities on the environment by analyzing negative impacts that are reflected by the amount of waste (water waste, emissions) produced during construction activities, which then acts as a basis for the assessment of pressure from transportation activities on the environment.

### **2.6. Pressure from agriculture, forestry and fishery activities**

General requirements: describe pressure from agriculture, forestry and fishery activities on the environment by analyzing negative impacts that are reflected by the amount of waste (water waste, emissions) produced during construction activities, which then acts as a basis for the assessment of pressure from agriculture, forestry and fishery activities on the environment.

### **2.7. Pressure from medical activities**

General requirements: describe pressure from medical activities on the environment by analyzing negative impacts that are reflected by the amount of waste (water waste, emissions) produced during construction activities, which then acts as a basis for the assessment of pressure from medical activities on the environment.

### **2.8. Pressure from tourism, service, business and import and export activities**

General requirements: describe pressure from tourism, service, business and import and export activities on the environment by analyzing negative impacts that are reflected by the amount of waste (water waste, emissions) produced during tourism,

service, business and import and export activities, which then acts as a basis for the assessment of pressure from tourism, service, business and import and export activities on the environment.

### **Chapter III. Water environment state**

#### **3.1. Surface water**

##### ***3.1.1. Surface water resources***

##### ***3.1.2. Pollution progress***

- *Overview of progress of surface water quality based on characteristic parameters.*
- *Comparison of surface water quality, presented via chart or map:*
  - + *with national technical regulation.*
  - + *with years and period of preparation for reports at national and local levels.*
  - + *with regions and areas at national level and districts at local level.*
- *National and local-level burning issues about surface water environment.*

#### **3.2. Underground water**

##### ***3.2.1. Underground water resources***

##### ***3.2.2. Pollution progress***

- *Overview of progress of underground water quality based on characteristic parameters.*
- *Comparison of underground water quality, presented via chart or map:*
  - + *with national technical regulation.*
  - + *with years and period of preparation for reports at national and local levels.*
  - + *with regions and areas at national level and districts at local levels.*
- *National and local-level burning issues about underground water environment.*

#### **3.3. Coastal marine environment**



- *Overview of progress of sea water quality based on characteristic parameters.*
- *Comparison of sea water quality, presented via chart or map:*
  - + *with national technical regulation.*
  - + *with years and period of preparation for reports at national and local levels.*
  - + *with regions and areas at national level and districts at local levels.*
- *National and local-level burning issues about coastal marine environment.*

#### **Chapter IV. Air environment state**

- *Overview of progress of air quality based on characteristic parameters.*
- *Overview of noise and vibration levels in industrial areas, industrial zones (complexes); construction areas; high-density roads, trade villages.*
- *Comparison of air quality, noise and vibration levels, presented via chart or map:*
  - + *with national technical regulation.*
  - + *with years and 5-year period at national and local levels.*
  - + *with regions and areas at national level and districts at local levels.*
- *National and local-level burning issues about air environment; issues about emission control; uses of national database on exhaust fumes for assessment of air environment quality.*

#### **Chapter V. Land environment state**

##### **5.1. Land use status**

- *Overview of land use status and issues about land repurposing and their pressure on the environment.*
- *Overview and assessment of improvement and rehabilitation of land environment.*

##### **5.2. Land pollution progress**

- *Overview of progress of land environment quality based on characteristic parameters.*

- *Comparison of land environment quality, presented via chart or map:*
  - + *with national technical regulation.*
  - + *with years and 5-year period at national and local levels.*
  - + *with regions and areas at national level and districts at local levels.*
- *National and local-level burning issues about land environment.*

## **Chapter VI. Biodiversity state**

Requirements: Description of biodiversity state and progress. Overview of biodiversity progress of ecosystems at national and local levels.

- *Forest ecosystems.*
- *Mangrove forests (only applicable to the local governments having mangrove forests).*
- *Wetland*
- *Coral reefs and seagrass beds (only applicable to coastal areas).*
- *Other ecosystems.*
- *Species and genetic resources.*

## **Chapter VII. Management of solid waste**

### **7.1. Overview of management of solid waste**

### **7.2. Management of urban solid waste**

- *Classification and collection of urban solid waste.*
- *Reuse and recycling of urban solid waste.*
- *Treatment and destruction of urban solid waste.*
- *Urban hazardous wastes.*

### **7.3. Management of agricultural and rural solid waste**

- *Classification and collection of agricultural and rural solid waste*

- *Reuse and recycling of agricultural and rural solid waste.*
- *Treatment and destruction of agricultural and rural solid waste.*
- *Agricultural and rural hazardous solid waste.*

#### **7.4. Management of industrial solid wastes**

- *Collection and transport of industrial waste.*
- *Treatment and recycling of industrial solid waste.*
- *Industrial hazardous solid waste.*

#### **7.5. Management of medical solid wastes**

- *Classification, collection, and transport of medical solid waste.*
- *Treatment and recycling of normal medical solid waste.*
- *Medical hazardous waste.*

#### **7.6. Import and export of discarded materials**

- *Analyze and assess the import and export of discarded materials, management and relevant issues.*

### **Chapter VIII. Climate change, natural disasters, and environmental emergencies**

#### **8.1. Greenhouse gas emissions**

- *Analyze and assess greenhouse gas emissions, and sources of greenhouse gas emissions.*

#### **8.2. Effect of climate change**

- *Analyze and assess the progress of climate change at national and local levels and effects on society, economy, ecological environment and human.*

#### **8.3. Natural disasters**

- *Overview of natural disaster state at national and local levels.*

- *Losses caused by natural disasters, which then acts as a basis for the assessment of pressure from natural disasters on the environment at national and local levels.*

#### **8.4: Environmental emergencies**

- *Overview of state of the environmental emergency at national and local levels.*
- *Losses caused by environmental emergencies at national and local levels.*

### **Chapter IX. Impacts of environmental pollution**

#### **9.1. Impacts of environmental pollution on human health**

- *Direct impacts due to water pollution reflected through related diseases.*
- *Direct impacts due to air pollution reflected through related diseases.*
- *Indirect impacts due to land pollution.*
- *Indirect impacts due to pollution caused by solid waste.*

#### **9.2. Impacts of environmental pollution on socio-economic issues**

- *Economic loss due to disease burden.*
- *Economic loss due to effects on business activities of the industry and sector.*
- *Economic loss due to expenses for environmental improvement.*

#### **9.3. Impacts of environmental pollution on landscapes and ecosystems**

#### **9.4. Creation of environmental conflicts**

Requirements: description of environmental conflicts manifested through conflicts over interests between social groups in exploiting and using natural resources; conflicts between social groups in assuming the burden of impact of environmental pollution and natural resource degradations, and defining the responsibility for treatment and remedying of environmental pollution.

### **Chapter X. Environmental management**

Requirements: assessment of environment management at national and local levels reflected through the effectiveness and adequacy of policies and regulations directly related to environmental components, issues addressed and issues paid attention to

environmental management, which then acts as a basis for recommendations of issues that need addressing first.

#### **10.1. The implementation of environmental targets described in the national and local socio-economic development plans**

#### **10.2. Policies and legislative documents**

*- Highlight policies and legislative documents to create legal framework for environmental protection at national and local levels.*

#### **10.3. Environmental management systems**

*- System for organizing and assigning responsibility for environmental management at central government, local governments for national level, at provinces, districts, communes, wards, towns for local level.*

#### **10.4. Finance and investment for environmental protection**

*- Investment from the State budget allocated to national and local levels.*

*- Investment and financial support from environmental protection fund at national and local levels.*

*- Investment from the community participation at national and local levels.*

*- Investment and financial support from international cooperative projects at national and local levels.*

#### **10.5. Use of tools for environmental management**

*- Carry out strategic environmental assessment, and environmental impact assessment at national and local levels.*

*- Inspect and handle violations against the law on environmental protection at national and local levels.*

*- Control pollution and treat sources of pollution at national and local levels.*

*- Provide information on environmental monitoring at national and local levels.*

*- Apply the economic tool to environmental management at national and local levels.*

#### **10.6. Scientific and technological research and application of new technology**

- *Scientific and technological research at national and local levels.*

- *Technology transfer at national and local levels.*

- *Application of cleaner production technology at national and local levels.*

#### **10.7. Improvement of public awareness and private sector involvement in environmental protection**

#### **10.8. International cooperation in environmental protection**

### **Chapter XI. Challenges in environmental protection, orientations and solutions to environmental protection in the next 5 years**

#### **11.1. Environmental challenges**

- *Summary of environmental challenges at the present time.*

- *A number of environmental challenges in the coming time.*

#### **11.2. Orientations and solutions to environmental protection in the next 5 years.**

- *Develop and implement corresponding schemes and programs on environmental protection to address burning issues about the environment.*

- *Complete policies and law on environmental protection.*

- *Complete environmental management systems.*

- *Enhance the effectiveness of tools in managing environment.*

- *Promote finance and investment for environmental protection.*

- *Improve public awareness and private sector involvement in environmental protection.*

- *Promote international cooperation.*

- *Solutions in connection with some industries.*

### **Conclusion and recommendations**

### **List of references**

FORMAT OF THE THEMATIC REPORT ON NATIONAL ENVIRONMENT AND  
THEMATIC REPORT ON LOCAL ENVIRONMENT  
*(Enclosed with the Circular No. 43/2015/TT-BTNMT dated September 29, 2015 of the Minister  
of Natural Resources and Environment)*

List of persons involved in the preparation

List of Tables

List of Diagrams

List of Pictures

List of Boxes

List of Abbreviations

Foreword

Abstract

- *Introduction of the theme of report.*

- *General introduction of the thematic report: general information on purposes, scope, reasons for selecting the theme, and subjects of the report.*

**Chapter I. Overview of environmental issues (the selected environmental theme)**

- *Describe the natural characteristics and socio-economic development directly impacting the selected environmental theme. Analyze those impacts.*

**Chapter II. Pressure from environmental pollution**

Requirements: describe pressure from environmental pollution by analyzing negative impacts reflected by amount of pollutant discharges, which then acts as a basis for assessment of reasons for pressure from environmental according to the selected themes.

- *Amount of pollutant discharges produced from sources of pollution impacted environmental issues (the selected theme of the report).*

- *Assessment of direct reasons for pressure and major driving forces leading to that pressure.*

- *Comparison of the above-mentioned pollutant discharges with years, industries, sectors to the environment.*
- *Comparison of progress of sources of pollution and target for pollution reduction.*

### **Chapter III. The state of the environment of the selected environmental theme**

- *Description of progress of characteristic parameters, assessment of environmental quality. Comparison of those parameters with environmental technical regulations.*
- *Assessment of pollution level by space and time.*

### **Chapter IV. Impacts of environmental pollution**

- *Describe the impacts of environmental pollution (the theme of report) on:*

4.1. Human health reflected through diseases in connection with environmental pollution.

4.2. Socio-economic development

4.3. Landscapes and ecosystems.

### **Chapter V. Situation of environmental management**

Requirements: assessment of the situation of environmental management for the environmental theme of the report. The done tasks (success) and noteworthy issues (shortcomings and challenges).

- *Success (in policies, law, organization and implementation of thematic environmental protection activities)*
- *Shortcomings and challenges (in management, planning, law, resources, investment capital for the environment and implementation of thematic environmental protection activities, etc.).*

### **Chapter VI. Challenges in environmental protection, orientations and solutions to environmental protection**

6.1. Environmental challenges (the selected theme of report)

- *Summary of environmental challenges at the time of preparing the report (in connection with the selected theme of report).*
- *A number of challenges (in connection with the theme of report) in the coming time.*



6.2. Orientations and solutions to environmental protection (*the selected theme of report*)

- *Solutions to environmental management structure.*
- *Solutions to policies, regulations, law on environmental protection (the selected theme of report)*
- *Solutions to finance and investment for environmental protection (the selected theme of report)*
- *Issues concerning the improvement of quality control, monitoring and warning of environmental pollution (the selected theme of report).*
- *Issues concerning human resources, solutions to enhancement of community participation in environmental protection (the selected theme of report).*
- *Other specific solutions (the selected theme of report)*

**Conclusion and recommendations**

**List of references**

**APPENDIX III**

**THE SET OF NATIONAL ENVIRONMENTAL INDICATORS**

*(Enclosed with the Circular No. 43/2015/TT-BTNMT dated September 29, 2015 of the Minister of Natural Resources and Environment)*

<b>Groups of indicator</b>	<b>No.</b>	<b>Name of indicators</b>	<b>No.</b>	<b>Name of secondary indicators</b>	<b>Unit</b>	<b>Description</b>
Driving force	1	Population development	1	Annual average population, urban population, rural population	thousand persons	
			2	Urban population rate per total population	%	
			3	Urban and rural population density	person/km <sup>2</sup>	
			4	Annual population growth rate	%	

			5	Annual average life expectancy	age	
	2	Agricultural development	6	Annual rice yield	thousand tonnes	
			7	Annual number of cattle and poultry	thousand cattle thousand poultry	
			8	Annual volume of fertilizers used	tonne	
			9	Annual volume of pesticide used	tonne	
	3	Medical development.	10	Number of hospitals, clinics, and health centers	hospital, clinic, and health center	
			11	Hospital bed-population ratio (10,000 persons)	hospital bed	Number of available hospital beds for every 10,000 population
	4	GDP annual growth rate	12	GDP at current prices	billion dong	
			13	GDP growth rate	%	
			14	Growth rate of per capita GDP	%	
	5	Transport development	15	Annual number of registered vehicles	piece	
			16	Average age of vehicles	year	Road traffic: age of cars and motorcycles.  Rail traffic: Age of locomotives Waterway traffic: Age of inland vessels, age of ships Air traffic:

						Age of aircrafts
			17	Total volume of domestic/international freight by waterway	million tonnes	
			18	Number of ports and wharves	port, wharf	- Number of ports - Number of wharves
	6	Construction activities	19	Area of new residential housing construction (state-owned and private)	thousand m2	
			20	Kilometers of bridges and roads newly built, upgraded and renovated	km	
	7	Industrial development	21	Number of industrial parks and industrial clusters established	Industrial park, industrial cluster	
			22	Area of industrial parks and industrial clusters		
			23	Occupancy rate of industrial parks/industrial clusters	%	
			24	Number of industrial establishments nationwide by manufacturing industries	establishment	
			25	Output of oil extracted from sea	thousand tonnes	
			26	Output of extracted coal	thousand tonnes	
	8	Aqualculture development	27	Number of aquaculture	establishment	

				production establishments		
			28	Total area for aquaculture	ha	
			29	Volume of aquaculture	million tonnes	
			30	Number of aquaculture processing establishments	establishment	
			31	Volume of aquaculture production	million tonnes	
	9	Tourism development	32	Number of domestic and international tourists	thousand persons	
	10	Trade village activities	33	Number of recognized trade villages	trade village	
	11	Forestry activities	34	Forest area and forest canopy cover percentage	thousand ha, %	
			35	Proportion of natural forest and newly planted forest area of total forest area	%	
			36	Volume of timber issued with license for annual exploitation by local governments	m <sup>3</sup>	
			37	Loss of forest area due to forest fire, forest land area repurposing, and sabotage by area	thousand ha	
Pressure	12	Amount of dust and exhaust emissions	38	Total amount of PM <sub>10</sub> , TSP, SO <sub>2</sub> , NO <sub>2</sub> , CO and by sectors: industry,	kg/day	

			agriculture, daily life and services		
13	Wastewater by sectors	39	Total volume of wastewater by sectors: agriculture, industry, daily life and services	m <sup>3</sup> /day, night	
		40	Total amount of BOD, COD, TSS and by sectors: industry, health, agriculture, daily life and services	kg/day	
14	Environmental emergencies	41	Number of oil spills in estuaries and at sea	case	Details on: Time, place, volume of oil spill, type of oil, cause of each oil spill.
		42	Number of chemical spills in rivers and at sea	case	Details on: Time, place, volume of spilled chemicals, type of chemical, cause of each chemical spill.
15	Production of solid waste	43	Volume of solid waste produced annually by sectors: daily life, agriculture, industry, health and imported discarded materials	tonne	
		44	Volume of hazardous waste produced annually by sectors: industry, health, daily life, and agriculture	tonne	
16	Climate change	45	Salinity (chloride concentration) in water in coastal areas	mg/l	

			46	Green house gas amount by sectors: industry, agriculture, energy, forest repurposing and by CH <sub>4</sub> , N <sub>2</sub> O, CO <sub>2</sub>	million tonnes of CO <sub>2</sub> equivalent	
			47	Annual average temperature and rainfall	temperature (degree C) rainfall (mm)	
	17	Natural disasters	48	Annual number of natural disasters	case	Storms, floods, flash floods, droughts, tornadoes, etc.
			49	Loss of life, economy and environment caused by natural disasters	Loss of life: person  Economic loss: billion dong  Environmental loss: determined pollution level	
	18	Air quality	50	Average concentrations of substances (TSP, PM10, SO <sub>2</sub> , NO <sub>2</sub> , CO) in the air	mg/m <sup>3</sup>	Monitoring results in urban areas; Residential areas; Production areas; Traffic intersections
			51	Number of days with the concentration of noxious substances in the air exceeding the permissible standard	day/year	Determined by the average 24h monitoring results of exceeding the permissible standard for TSP, PM10, SO <sub>2</sub> NO <sub>2</sub> , CO

					measured at automatic continuous monitoring stations
19	Surface water quality	52	Content of substances (TSS, DO, BOD5, COD, NH4, NO3-, NO2-, PO43-, Coliform) in surface water	TSS, DO, BOD5, COD, NH4+, NO3-, NO2-, PO43- (mg/l) Coliform (MPN/100 ml)	Monitoring results of water quality parameters in: main rivers (3 monitoring points in upstream, middle stream and downstream); in urban ponds, rivers and canals.
20	Coastal water quality	53	Content of some substances (DO, COD, NH4, oil) in seawater in some estuaries and coastal areas	mg/l	
		54	Content of toxic substances (pesticides, CN, heavy metals) in coastal sediments	Pesticides (mg/l), CN (mg/l), Heavy metal (mg/l)	
21	Biodiversity	55	Number of species threatened with reduction in biodiversity and classification conserved in the Vietnam Red Book, IUCN's List	species	
		56	Number of lost species	species	
		57	Number of endangered, precious	species	

				and rare prioritized for protection		
			58	Number of newly discovered species	species	
			59	Number and area of nature reserves	Number of nature reserves: reserve  Area: ha	
	22	Land environment	60	Land area classified according to use purposes	thousand ha	Classified according to:  - Agricultural land,  - Forestry land,  - Special-use land,  - Residential land.
			61	Area of degraded land according to types: desertification, soil contamination, erosion, rock saltification, salinity intrusion, alum contamination	ha	
Impact	23	Impacts on public health	62	Percentage of people with respiratory diseases in polluted areas and control areas (without air pollution)	%	Percentage of people with diseases per total populations in polluted and unpolluted areas.
			63	Percentage of people with cholera, dysentery, typhoid	%	Percentage of people with respiratory



Response				fever, malaria in polluted areas and control areas		diseases in contaminated areas and control areas (without air pollution)
			64	Number of people with occupational diseases in connection with environmental pollution (land, water, air, noise) in manufacturing areas	person	
	24	Legal documents on environmental management	65	Number of promulgated legislative documents on environment	legislative document	List of names and numbers of documents
			66	Number and name of promulgated technical standards and regulations on environment	document, standard, regulation	List of names and numbers of standards and regulations
			67	International treaties on the sea to which Vietnam is a contracting party	treaty	
	25	Finance and investment for environmental protection	68	Annual budget for environmental protection	million dong/year	
	26	Appraisal and approval for strategic environmental assessment and environmental impact assessment reports, and environmental protection plans	69	Annual number of reports on approved strategic environmental assessment	report	
				Annual number of approved reports on environmental impact assessment	report	
				Annual number of locally approved plans on	plan	

			environmental protection		
			Number of approved schemes on environmental protection	scheme	
	27	Inspection and handling of violations against the law on environmental protection	70 Annual number of discovered and handled environmental violations	case	
			71 Fine for environmental violations	million dong	
	28	Tools for environmental management	72 Environmental protection fees for collected wastewater	million dong	- Environmental protection fees for industrial wastewater - Environmental protection fees for daily-life wastewater
			73 Environmental protection fees for annually collected solid waste		
			74 Percentage of establishments that are collected fee per total number of establishments with environmental violations discovered	million tonnes	
	29	Handling of establishments causing serious environmental pollution	75 Percentage of establishments causing serious environmental pollution remediated	%	Percentage of establishments causing serious environmental pollution remediated per

					total number of establishments defined in the Decision No. 64/2003/QD-TTg and Decision No. 1788/QD-TTg of the Prime Minister.
		75	Area of urban green spaces per capita	m <sup>2</sup> /person	
		76	Number of establishments applying cleaner production	establishment	
	31	Wastewater control	77	Rate of industrial zones with wastewater treatment system	% Number of industrial zones with concentrated wastewater treatment system per the total number of active industrial zones
				Treated volume of wastewater per the total produced volume of industrial wastewater	m <sup>3</sup> /day, night
			78	Number of industrial establishments issued with license for discharging wastewater into sources	establishment
			79	Number of industrial establishments issued with license for using	establishment

			surface/underground water		
32	Environmental monitoring	80	Number of automatic continuous stations for monitoring air and water	water station, air station	Number of automatic continuous stations for monitoring water.  Number of automatic continuous stations for monitoring air.
		81	Number of places for periodic monitoring according to environmental components at national and local levels	place	Divided by environmental components: surface water, underground water, coastal sea water; air, land.
33	Solid waste	85	Rate of solid waste collection	%	Volume of collected solid waste per the total volume of solid waste classified according to:  - Daily-life solid waste  - Agricultural solid waste  - Industrial solid waste  - Medical solid waste
		86	Rate of treatment of solid waste satisfying national technical	%	Volume of treated normal solid waste per

				standards and regulations respectively		the total volume of solid waste classified according to:
						<ul style="list-style-type: none"> <li>- Daily-life solid waste</li> <li>- Agricultural solid waste</li> <li>- Industrial solid waste</li> <li>- Medical solid waste</li> </ul>
			87	Rate of treated hazardous waste satisfying national technical standards and regulations respectively	%	<p>Volume of treated hazardous waste per the total volume of hazardous waste classified according to:</p> <ul style="list-style-type: none"> <li>- Agricultural hazardous waste</li> <li>- Industrial hazardous waste</li> <li>- Medical hazardous waste</li> <li>- Daily-life hazardous waste</li> </ul>
			88	Rate of solid waste recycling by sectors	%	Volume of recycled solid waste per the

					total volume of solid produced waste classified according to:  - Daily-life solid waste  - Industrial solid waste  - Industrial solid waste  - Medical solid waste
34	Use of clean water	89	Percentage of urban households supplied with clean water	%	
		90	Percentage of rural households supplied with clean water	%	
35	General management of river basin	91	General activities for management of river basin implemented		Detailed information:  Locations; Time; Specific activities; Expenses for investment
36	General management of coastal areas	92	General activities for environmental protection in coastal areas implemented		Detailed information:  Locations; Time; Specific activities; Expenses for investment
		93	Provinces involved in general management of coastal areas	province	Detailed information:

						Number and name of provinces; List of solutions to general management of coastal areas adopted by the province
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