

Act No. 47 of 1980.

**CENTRAL ENVIRONMENTAL AUTHORITY**

AN ACT TO ESTABLISH A CENTRAL ENVIRONMENTAL AUTHORITY TO MAKE PROVISION WITH RESPECT TO THE POWERS, FUNCTIONS AND DUTIES OF THAT AUTHORITY ; AND TO MAKE PROVISION FOR THE PROTECTION AND MANAGEMENT OF THE ENVIRONMENT AND FOR MATTERS CONNECTED THEREWITH OR INCIDENTAL THERETO.

Act No. 47 of 1980.

1. This Act may be cited as the National Environmental Act, and shall come into operation on such date as the Minister may appoint by Order published in the Gazette.

Short title and date of operation.

**PART I**

**ESTABLISHMENT OF THE CENTRAL ENVIRONMENTAL AUTHORITY AND AN ENVIRONMENTAL COUNCIL**

2. (1) For the purposes of this Act there shall be established an Authority called the Central Environmental Authority.  
(2) The Central Environmental Authority established under subsection (1) (hereinafter referred to as "the Authority") shall consist of the persons who are for the time being members of the Authority under subsection (1) of section 3.  
(3) The Authority shall, by the name assigned to it by subsection (1), be a body corporate and shall have perpetual succession and a common seal and may sue or be sued in such name.
3. (1) The Authority shall consist of three members appointed by the President in consultation with the Minister-
  - (a) two of whom shall have adequate expertise and qualifications in the subject of the environment ; and
  - (b) one of whom shall have suitable administrative skill and experience in environmental management.  
(2) The President shall appoint one of such members to be the Chairman of the Authority.
4. (1) The seal of the Authority shall be in the custody of the Authority.  
(2) The seal of the Authority may be altered in such manner as may be determined by the Authority.  
(3) The seal of the Authority shall not be affixed to any instrument or document except in the presence of two members of the Authority both of whom shall sign the instrument or document in token of their presence.

Establishment of the Authority.

Members of the Authority.

Seal of the Authority.

5. (1) The Authority shall have its own Fund. There shall be credited to the Fund of the Authority-
- Fund of the Authority.
- (a) all such sums of money as may be voted, from time to time, by Parliament for the use of the Authority ;
- (b) all such sums of money as may be received by the Authority in the exercise, discharge and performance of its powers, functions, and duties ; and
- (c) all such sums of money as may be received by the Authority by way of loans, donations, gifts, or grants from any sources whatsoever, whether in or outside Sri Lanka.
- (2) There shall be paid out of the Fund of the Authority all such sums of money required to defray any expenditure incurred by the Authority in the exercise, discharge and performance of its powers, functions and duties.
- (3) The initial capital of the Authority shall be twenty million rupees. The amount of the initial capital shall be paid out of the Consolidated Fund in such instalments as the Minister in charge of the subject of Finance may in consultation with the Minister determine and such sums shall be credited to the Fund established under subsection (1).
6. (1) The financial year of the Authority shall be the calendar year.
- Financial year and the audit of accounts of the Authority.
- (2) The Authority shall cause proper books of accounts to be kept of the income and expenditure, assets and liabilities and all other transactions of the Authority.
- (3) The Auditor – General shall audit the accounts of the Authority every year in accordance with Article 154 of the Constitution.
- (4) The Authority shall annually prepare a report of the work of the Authority and forward such report to the Auditor – General who shall, together with his report table such reports in Parliament and such reports shall be published in the Gazette for general information before the lapse of the year succeeding the year to which such report of the finances relate.
7. (1) There shall be established the Environmental Council (hereinafter referred to as “the Council”) which shall consist of the following members appointed by the Minister :-
- Environmental Council.
- (a) a senior officer of the Ministry charged with the subject of Local Government nominated by the Minister in charge of that subject ;
- (b) a senior officer of the Ministry charged with the subject of Finance nominated by the Minister in charge of that subject ;

- (c) a senior officer of the Ministry charged with the subject of Plan Implementation nominated by the Minister in charge of that subject ;
- (d) a senior officer of the Ministry charged with the subject of Lands nominated by the Minister in charge of that subject ;
- (e) a senior officer of the Ministry charged with the subject of Health nominated by the Minister in charge of that subject;
- (f) a senior officer of the Ministry charged with the subject of Industries nominated by the Minister in charge of that subject ;
- (g) a senior officer of the Ministry charged with the subject of Transport nominated by the Minister in charge of that subject ;
- (h) a senior officer of the Ministry charged with the subject of Power and Energy nominated by the Minister in charge of that subject ;
- (i) a senior officer of the Ministry charged with the subject of Highways nominated by the Minister in charge of that subject ;
- (j) a senior officer of the Ministry charged with the subject of Agriculture nominated by the Minister in charge of that subject ;
- (k) a senior officer of the Ministry charged with the subject of Fisheries nominated by the Minister in charge of that subject ;
- (l) a senior officer of the Ministry charged with the subject of Tourism nominated by the Minister in charge of that subject ;
- (m) a senior officer of the Ministry charged with the subject of Labour nominated by the Minister in charge of that subject;
- (n) a senior officer of the Ministry charged with the subject of Textile Industry nominated by the Minister in charge of that subject ;
- (o) a senior officer of the Ministry charged with the subject of Plantation Industry nominated by the Minister in charge of that subject ;
- (p) a senior officer of the Ministry charged with the subject of

Foreign Affairs nominated by the Minister in charge of that subject ;

(q) a senior officer of the Ministry charged with the subject of Education nominated by the Minister in charge of that subject ;

(r) a senior officer nominated by the Minister in charge of the Greater Colombo Economic Commission established under the Greater Colombo Economic Commission Law ;

(s) the person holding office for the time being as the General Manager of the Authority ; and

(t) three members nominated by the Minister to represent the interests of voluntary agencies in the field of environment.

(2) The Minister shall appoint one of the members appointed under subsection (1) to be the Chairman of the Council.

(3) The functions of the Council shall be –

(a) generally to advise the Authority on matters pertaining to its responsibilities, powers, duties and functions ; and

(b) to advise the Authority on any matters referred to the Council by the Authority.

8. (1) A person shall be disqualified from being appointed or from continuing as a member of the Authority or Council –

Disqualification of members, &c.

(a) if he is, or becomes, a member of Parliament ; or

(b) if he is not, or ceases to be, a citizen of Sri Lanka.

(2) The persons appointed under sections 3 (1) and 7 (1) shall, subject to the provisions of subsections (4) and (5) of this section, as the case may be, hold office for a term of three years and shall be eligible for reappointment.

(3) (a) no member of the Authority shall be a member of the Council ; and

(b) no member of the Council shall be a member of the Authority.

(4) The President in consultation with the Minister shall remove from office any member of the Authority –

(a) if he becomes subject to any of the disqualifications set out in subsection (1) ; or

(b) if he becomes permanently incapable of performing his

duties owing to any physical disability or unsoundness of mind ; or

(c) if he does any act which, in the opinion of the President, is likely to bring the Authority into disrepute.

(5) The Minister shall remove from office any member of the Council-

(a) if he becomes subject to any of the disqualifications set out in subsection (1) ; or

(b) if he becomes permanently incapable of performing his duties owing to any physical disability or unsoundness of mind ; or

(c) if he does any act which in the opinion of the Minister is likely to bring the Council into disrepute :

Provided, however, that no member of the Council shall be removed from office, without the concurrence of the Minister who nominated such member.

(6) In the event of the vacation of office of the Chairman or any other member of the Authority from office under the provisions of this section the President in consultation with the Minister may appoint another person to hold such office during the unexpired part of the term of office of the member whom he succeeds.

(7) In the event of the vacation of office of the Chairman or any other member of the Council from office under the provisions of this section the Minister may appoint another person to hold such office during the unexpired part of the term of office of the member whom he succeeds :

Provided, however, that no appointment shall be made under this subsection, without the concurrence of the Minister who nominated such member.

(8) If the Chairman or any member of the Authority is temporarily unable to discharge the duties of his office due to ill health or absence from Sri Lanka or for any other cause, the Minister may appoint some other person to act in his place as Chairman or as member.

(9) If the Chairman or any member of the Council is temporarily unable to discharge the duties of his office due to ill health or absence from Sri Lanka or for any other cause the Minister may appoint some other person to act in his place as Chairman or as member.

Provided, however, that no such appointment shall be made without the concurrence of the Minister who nominated such member.

(10) The Chairman or any member of the Authority may at any time

resign his office by letter in that behalf addressed to the President.

- (11) The Chairman or any member of the Council may at any time resign his office by letter in that behalf addressed to the Minister.
  - (12) The Chairman or any member of the Authority, or the Chairman or any member of the Council may be paid such remuneration out of the Fund of the Authority as may be determined by the Minister.
  - (13) The Chairman of the Authority or Council shall, if present, preside at all meetings of the Authority, or Council, as the case may be. In the absence of the Chairman of the Authority or Council at any such meeting, the members present shall elect one of the members to preside at the meeting.
  - (14)
    - (a) The quorum for any meeting of the Authority shall be two members.
    - (b) The quorum for any meeting of the Council shall be seven members.
  - (15)
    - (a) The Authority or Council, as the case may be, may regulate the procedure in regard to the meetings of such Authority or Council and the transaction of business at such meetings.
    - (b) Meetings of the Authority shall be held at such times and places as the Authority determines.
    - (c) The Council shall meet at least four times each year at such times and places as are fixed by the Authority.
  - (16) The Authority shall, in the exercise, discharge and performance of its powers, functions and duties under this Act, be subject to such general or special directions as may, from time to time, be issued by the Minister.
  - (17) A member of the Authority shall not, except in special circumstances and with the consent in writing of the President in consultation with the Minister during his continuance in office, directly or indirectly engage in any paid employment outside the duties of his office.
  - (18) No act or proceeding of the Authority or Council shall be invalid by reason of the existence of a vacancy among their respective members or any defect in the appointment of a member.
9. (1) The Authority shall appoint a District Environmental Agency for each administrative district consisting of such members as the Authority may determine.

District  
Environmental  
Agency.

- (2) The Government Agent of each administrative district shall be the Chairman of each District Environmental Agency.
- (3) A District Environmental Agency shall exercise, discharge or perform any such powers, functions or duties of the Authority as may be delegated to such agency by the Authority.
- (4) The members of a District Environmental Agency may be paid such remuneration as the Minister may in consultation with the Minister in charge of the subject of Finance, determine.

## **PART II**

### **POWERS, FUNCTIONS AND DUTIES OF THE AUTHORITY**

10. (1) The powers, functions and duties of the Authority shall be –
  - (a) to administer the provisions of this Act and the regulations made thereunder ;
  - (b) to recommend to the Minister, national environmental policy and criteria for the protection of any portion of the environment with respect to the uses and values, whether tangible or intangible, to be protected, the quality to be maintained, the extent to which the discharge of wastes may be permitted without detriment to the quality of the environment and long range development used and planning and any other factors relating to the protection and management of the environment ;
  - (c) to undertake surveys and investigations as to the causes, nature, extent and prevention of pollution and to assist and co-operate with other persons or bodies carrying out similar surveys or investigations ;
  - (d) to conduct, promote and co-ordinate research in relation to any aspect of the environmental degradation or the prevention thereof, and to develop criteria for the protection and improvement of the environment ;
  - (e) to specify standards, norms and criteria for the protection of beneficial uses and for maintaining the quality of the environment ;
  - (f) to publish reports and information with respect to any aspects of environmental protection and management ;
  - (g) to undertake investigations and inspections to ensure compliance with this Act and to investigate complaints relating to non-compliance with any of its provisions ;

Powers, functions and duties of the Authority.

- (h) to specify methods to be adopted in taking samples and making tests for the purposes of this Act ;
- (i) to provide information and education to the public regarding the protection and improvement of the environment ;
- (j) to establish and maintain liaison with other countries and international organizations with respect to environmental protection and management ;
- (k) to report to the Minister upon matters concerning the protection and management of the environment and upon any amendments it thinks desirable in existing legislation concerning any portion of the environment, and upon any matters referred to it by the Minister ;
- (l) to promote, encourage, co-ordinate and carry out long range planning in environmental protection and management ;
- (m) to encourage, promote and give effect to methods of converting and utilizing residues.

(2) Before the end of the month of December of each year, the Authority shall submit to the Minister, a report of the work of the Authority and the Council during the previous financial year, and the Minister shall cause such report to be tabled before Parliament within fourteen days after its receipt or, if Parliament is not in session within fourteen days after the next meeting of Parliament.

11. The Authority may, with the consent of the Minister, or in accordance with the terms of any general authority given by him, borrow temporarily, by way of overdraft or otherwise, such sum as the Authority may require for meeting the obligations of the Authority in discharging its duties under this Act :

Borrowing powers of the Authority.

Provided that the aggregate of the amounts outstanding in respect of any temporary loans raised by the Authority under this subsection shall not at any time exceed such sum as may be determined by the Minister in consultation with the Minister in charge of the subject of Finance.

12. (1) The Authority may with the concurrence of the Minister, from time to time, give to any local authority in writing such directions whether special or general to do or cause to be done any act or thing which the Authority deems necessary for safeguarding and protecting the environment within the local limits of such local authority.
- (2) Every local authority to which a direction has been given under subsection (1) shall comply with such direction.

Power to give directions to local authorities.



## PART III

### STAFF OF THE AUTHORITY

13. (1) There shall be a General Manager of the Authority appointed by the Minister, who shall be the chief executive officer of the Authority. General Manager, Secretary and staff of the Authority.
- (2) The General Manager shall, subject to the general direction and control of the Chairman, be charged with the direction of the business of the Authority, the organization and execution of the powers, functions and duties of the Authority and the administration and control of the employees of the Authority.
- (3) The General Manager shall also function as Secretary to the Authority.
- (4) The Secretary shall be entitled to be present and to speak at meetings, but shall not be entitled to vote as such meetings.
14. (1) The Authority may appoint such officers and servants as it considers necessary for the efficient exercise, discharge and performance of its powers, functions and duties. Appointment of officers, servants and agents.
- (2) The officers and servants of the Authority shall be remunerated in such manner and at such rates, and shall be subject to such conditions of service, as may be determined by such regulations as may be prescribed.
- (3) At the request of the Authority any officer in the public service may, with the consent of that officer and the Secretary to the Ministry charged with the subject of Public Administration, be temporarily appointed to the staff of the Authority for such period as may be determined by the Authority with like consent, or be permanently appointed to such staff.
- (4) Where any officer in the public service is temporarily appointed to the staff of the Authority, the provisions of subsection (2) of section 13 of the Transport Board Law shall, *mutatis mutandis*, apply to and in relation to him.
- (5) Where any officer in the public service is permanently appointed to the staff of the Authority, the provisions of subsection (3) of section 13 of the Transport Board Law shall, *mutatis mutandis*, apply to and in relation to him.
- (6) Where the Authority employs any person who has entered into a contract with the Government by which he has agreed to serve the Government for a specified period, any period of service with the Authority by that person shall be regarded as service to the Government for the purpose of discharging the obligations of such contract.
- (7) At the request of the Authority any member of the Local Government Service or any other officer or servant of any local authority may with the consent of such member, officer or servant

and the Local Government Service Advisory Board or that local authority, as the case may be, be temporarily appointed to the staff of the Authority for such period as may be determined by the Authority with like consent or be permanently appointed to such staff on such terms and conditions including those relating to pension or provident fund rights as may be agreed upon by the Authority and the Local Government Service Advisory Board or that local authority.

- (8) Where any person is temporarily appointed to the staff of the Authority in pursuance of the provisions of subsection (7), such person shall be subject to the same disciplinary control as any other member of such staff.

## **PART IV**

### **ENVIRONMENTAL MANAGEMENT**

15. The Authority in consultation with the Council shall, with the assistance of the Ministry charged with the subject of Lands, formulate and recommend to the Minister a land use scheme consistent with the following objects :-
- Land use management.
- (a) to provide a rational, orderly and efficient system of the acquisition, utilization and disposition of land and its resources in order to derive therefrom maximum benefits ; and
  - (b) to encourage the prudent use and conservation of land resources in order to prevent an imbalance between the needs of the nation and such resources.
16. The Land Use Scheme formulated under section 15 may include –
- Land Use Scheme
- (a) a scientifically adequate land inventory and classification system ;
  - (b) a determination of present land uses, the extent to which such land is utilized, underutilized or rendered idle or abandoned ;
  - (c) a comprehensive and accurate determination of the adaptability of land for community development, agriculture, industry or commerce ;
  - (d) identification of areas having important historic, cultural, or aesthetic value where uncontrolled development could result in irreparable damage ;
  - (e) a method for exercising control by the Government over the use of land in areas where environment control is deemed necessary ; and
  - (f) a policy for influencing the location of new areas for the

resettlement of persons and the methods for assuring appropriate controls over the use of land in and around such areas.

### **NATURAL RESOURCES**

17. The Authority in consultation with the Council shall recommend to the Minister the basic policy on the management and conservation of the country's natural resources in order to obtain the optimum benefits therefrom and to preserve the same for future generations and the general measures through which such policy may be carried out effectively.
- Natural Resources, Management and Conservation.

### **FISHERIES**

18. The Authority in consultation with the Council shall, with the assistance of the Ministry charged with the subject of Fisheries, recommend to the Minister a system of rational exploitation of fisheries and aquatic resources within the territorial waters of Sri Lanka, or within its exclusive economic zone, or within its inland waters and shall encourage citizen participation therein to maintain and enhance the optimum and continuous productivity of such waters.
- Management policy for fisheries and aquatic resources.
19. Measures for the rational exploitation of fisheries and other aquatic resources may include the regulation of the marketing of threatened species of fish or other aquatic life.
- Measures for rational exploitation of fisheries, &c.

### **WILDLIFE**

20. The Authority in consultation with the Council shall, with the assistance of the Ministry charged with the subject of Wildlife Conservation, recommend to the Minister a system of rational exploitation and conservation of wildlife resources and shall encourage citizen participation in such activities.
- Management policy for wildlife.

### **FORESTRY**

21. The Authority in consultation with the Council shall, with the assistance of the Ministry charged with the subject of Forestry, recommend to the Minister a system of –
- Management policy for forestries.
- (a) (i) rational exploitation of forest resources,
- (ii) regulation of the marketing of threatened forest resources,
- (iii) conservation of threatened species of flora, and the encouragement of citizen participation therewith to keep the country's forest resources at maximum productivity at all times ;

- (b) promoting a continuing effort on reforestation, timber stand improvement, forest protection, land classification, forest occupancy management, industrial tree plantation, parks and wildlife management, multiple use forest, timber management and forest research.

### **SOIL CONSERVATION**

22. The Authority in consultation with the Council shall, with the assistance of the Ministry charged with the subject of Soil Conservation, recommend soil conservation programmes including therein the identification and protection of critical watershed areas, encouragement of scientific farming technique, physical and biological means of soil conservation, and short term, and long term research and technology for effective soil conservation. Management policy on soil conservation.
23. The Authority may undertake and promote continuing studies and research programmes on environmental management and shall, from time to time, determine priority areas of environmental research. Environmental research.

### **PART V**

#### **GENERAL**

24. (1) For the purpose of giving effect to the principles and objects of this Act, the Authority may, by notice in writing served on the occupier of any premises, require that occupier to furnish to the Authority within fourteen days or such longer period as is specified in the notice such information as to any manufacturing, industrial, or trade process carried on in such premises or as to any wastes discharged or likely to be discharged from the said premises as is specified in the notice. Furnishing of information
- (2) The Authority shall treat all information furnished to it pursuant to any requirement made under subsection (1) with the strictest secrecy and shall not divulge such information to any person other than to a court, subject to subsection (3) for the purpose of any prosecution for an offence under this Act.
- (3) Any information furnished or statement made to the Authority pursuant to any requirement made under subsection (1) shall not if the person furnishing the information of making the statement, object, at the time of furnishing the information or statement, to doing so on the ground that it might tend to incriminate him, be admissible in evidence upon any proceedings against that person for an offence under this Act.
25. The Authority may appoint – Analysts, &c.
- (a) analysts for making analysis of samples taken for the purposes of that Act ; and

- (b) pollution control officers for inspection and evaluating the records of monitoring prescribed equipment and installations for detecting the presence, quantity nature of waste and their effects on the receiving portions of the environment.
26. (1) Subject to subsection (5) the Authority may by order delegate any of its powers, duties and functions under this Act to any Government department or any local authority. Delegation of powers, duties and functions.
- (2) Where the Authority has delegated any power to any Government department or to any local authority any officer of such Government department or local authority may exercise any of the powers which the General Manager would be able to exercise had he been exercising the power himself.
- (3) Nothing in this section shall preclude the Authority from any responsibility to protect the environment and from administering the provisions of this Act.
- (4) An order made under subsection (1) may be revoked or varied at any time by the Authority.
- (5) An order under subsection (1) shall not be made by the Authority –
- (a) in respect of any local authority except with the concurrence of the Minister ; and
- (b) in respect of any Government department except with the concurrence of the Minister in charge of such Government department.
27. All members, officers and servants of the Authority shall be deemed to be public servants within the meaning of and for the purposes of the Penal Code. Members, officers and servants of the Authority deemed to be public servants.
28. The Authority shall be deemed to be a scheduled institution within the meaning of the Bribery Act and the provisions of that Act shall be construed accordingly. The Authority deemed to be a scheduled institution within the meaning of the Bribery Act.
29. The provisions of this Act shall have effect notwithstanding anything to the contrary in the provisions of any other written law, and accordingly in the event of any conflict or inconsistency between the provisions of this Act and the provisions of such other written law, the provisions of this Act shall prevail over the provisions of such other written law. The Act to prevail over other written law.
30. (1) No suit or prosecution shall lie-
- (a) against the Authority, for any act which in good faith is done or purported to be done by the Authority under this Act ; Protection for action taken under this Act or on the direction of the Authority.

- (b) against the members of the Authority, Council or District Environmental Agency or any officer or servant of the Authority for any act which in good faith is done or purported to be done under this Act, or on the direction of the Authority.
- (2) Any expense incurred by the Authority in any suit or prosecution brought by or against the Authority before any court shall be paid out of the Fund of the Authority and any costs paid to, or recovered by, the Authority in any such suit or prosecution shall be credited to the Fund of the Authority.
- (3) Any expense incurred by any such person as is referred to in paragraph (b) of subsection (1) in any suit or prosecution brought against him before any court in respect of any act which is done or is purported to be done by him under this Act or on the direction of the Authority shall, if the court holds that such act was done in good faith, be paid out of the Fund of the Authority, unless such expense is recovered by him in such suit or prosecution.
31. Every person who contravenes or fails to comply with any provision of this Act or of any regulation made thereunder shall be guilty of an offence and shall on conviction before a Magistrate be liable to imprisonment of either description for a term not exceeding two years or to a fine not exceeding one thousand five hundred rupees or to both such imprisonment and fine. Offences
32. (1) The Minister may make regulations in respect of all matters which are stated or required by this Act to be prescribed or for which regulations are required by this Act to be made. Regulations
- (2) Every regulation made by the Minister shall be published in the Gazette and shall come into operation on the date of such publication or upon such later date as may be specified in the regulation.
- (3) Every regulation made by the Minister shall, as soon as convenient after its publication in the Gazette, be brought before Parliament for approval. Every regulation which is not so approved shall be deemed to be rescinded as from the date of such disapproval but without prejudice to anything previously done thereunder. Notification of the date on which any regulation is deemed to be rescinded shall be published in the Gazette.
33. In this Act unless the context otherwise requires- Interpretation
- “beneficial use” means a use of the environment or any portion of the environment that is conducive to public benefit, welfare, safety, or health and which requires protection from the effects of waste, discharges, emissions and deposits ;

“environment” means the physical factors of the surroundings of human beings including the land, soil, water, atmosphere, climate, sound, odours, tastes and the biological factors of animals and plants of every description ;

“exclusive economic zone” means the zone declared to be the exclusive economic zone, by proclamation made under section 5 of the Maritime Zones Law ;

“land” includes messuages, buildings and any easements relating thereto ;

“local authority” means any Municipal Council, Urban Council, Town Council or Village Council and includes any Authority created and established by or under any law to exercise, perform and discharge powers, duties, and functions corresponding or similar to the powers, duties and functions exercised, performed and discharged by any such Council.

“pollution” means any direct or indirect alternation of the physical, thermal, chemical, biological, or radioactive properties of any part of the environment by the discharge, emission, or the deposit of wastes so as to affect any beneficial use adversely or to cause a condition which is hazardous or potentially hazardous to public health, safety, or welfare, or to animals, birds, wildlife, aquatic life, or to plants of every description ;

“prescribed” means prescribed by regulations ;

“territorial waters” includes territorial sea and the historic waters of Sri Lanka ; and

“waste” includes any matter prescribed to be waste and any matter, whether liquid, solid, gaseous, or radioactive, which is discharged, emitted, or deposited in the environment in such volume, constituency or manner as to cause an alteration of the environment.