Republic of Iraq
Ministry of Higher Education and Scientific Research

Northern Technical University

Environmental and pollution department

وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الشمالية

قسم هندسة تقنيات البيئة والتلوث

حقيبة تدريبية

بعنوان: تشريعات بيئية Environmental Law

إعداد
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دليل البرنامج

- المادة الدراسية :- تشريعات بيئية Environmental Law
- عدد الساعات :- (2) نظري.
- لغة التدريس :- الانكليزية .
- طبيعة المادة :- فصلي .
- عدد الاسابيع :- (15) اسبوع .
- الفئة المستهدفة :- طلبة المرحلة الرابعة .
- اهداف المادة :- تتناول هذه المادة التعريف بالبيئة ومشكلاتها الرئيسة، ونشأة وتطور قانونها وتعريفه ومصادره وبيان أبرز المبادئ التي يقوم عليها. وتتطرق المادة إلى الجهود الإقليمية والدولية الخاصة بحماية البيئة . كما تعرض مفصلاً لدور القضاء في إنفاذ التشريعات البيئة في بعديه الجزائي والمدني من خلال استعرض بعض الجرائم والمخالفات البيئية والنظام القانوني بالدعاوى المتعلقة بالمسؤولية المدنية عن الضرر البيئي.
- الوحدت النمطية :- (كل وحدة نمطية تمثل مفردة اسبوع دراسي واحد) .

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الاسبوع الاول

(الوحدة النمطية)

Environmental Law

- **National environmental policy act (NEPA)**

I. WHAT IS ENVIRONMENTAL LAW

A. Definition

"The Environmental Law System is an organized way of using all of the laws in our legal system to minimize, prevent, punish, or remedy the consequences of actions which damage or threaten the environment, public health and safety."

ENVIRONMENTAL LEGISLATION

The awareness and consideration for environment covers several environmental issues such as pollution of water, air and soil, land degradation, industrialization, urbanization, depletion of natural resources etc. Environmental Law plays a very crucial and important role in regulating the use of natural resources and in protecting the environment. The success of environmental legislations mainly depends on the way they are enforced. Legislation also serves as a valuable tool for educating masses about their responsibility in

maintaining healthy environment. Numerous legislations have already been put forth at national and international levels.

OBJECTIVES

After completing this lesson, you will be able to:

• describe the constitutional provision for environmental protection and conservation

• list and describe the various environmental laws along with their objectives;

• describe the various pollution related acts such as water, air and environment act;

• explain the various global conventions and their objectives in the field of environment.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The genesis of various legislations in the country lies in the environmental problems. There should be effective legislations to protect the environment or else the need for resources. This is a short statute enacted in 1970 which declares a national environmental policy and promotes consideration of environmental concerns by Federal Agencies. NEPA gives statutory bases to force review of federal decisions.

NEPA was enacted to address the need for a national environmental consciousness and to shape national response. The essential purpose of NEPA is to ensure that environmental factors are given the same consideration as other factor in decision making by the federal agencies.

1. The important elements of NEPA are:

The declaration of environmental policies goals. The establishment of (action forcing) prolusions for federal agencies to implements those policies and goals. Establishment of council on environmental quality.

2. NEPA developments

Divided into two titles:

a. Title I

Declare national environmental policy and goals. It provides a method for accomplishing those goals and establishes how NEPA relates to other federal law.

b. Title II

Creates the Council on Environmental Quality (CEQ) and defines its responsibilities.

3. NEPA's Mandate to the Agencies is Essentially Procedural 1980 court case (reaffirmed in 1989), established that NEPA creates no .judicially enforceable substantive rights, it imposes only a procedural duty on federal agencies to consider NEPA's aims when

making decisions. NEPA prohibits uninformed decisions; it does not prohibit unwise decisions. The council on Environmental Quality (CEQ) was created by title II of NEPA and was placed in the office of the president under the status (CEQ) is required to assist and advise the president:

- On the preparation of an annual environmental quality report.
- On national policies to faster and promote the improvement of environmental quality.
- On the progress of federal agencies implementing the act.
- On the state of the environment.

An **EA** is used as screening documents to determine whether `an agency must prepare an EIS or make finding of no significant impact (FONSI).

A (FONSI) briefly presents the reasons why an action not otherwise categorically excluded, will not have a significant effect on the human environment.

EIS preparation:

If federal action does not have a categorical exclusion or dose not quality for a FONSI, then the responsible federal agency must prepare an EIS.

Content **EIS**:

- An EIS is required to describe:

1- Environmental impact of the proposed action.

2- Any adverse impact that cannot be avoided should the proposal be implemental.

3- The reasonable alternative to the proposed action.

4- The relationship between local short term- uses of man s environment and maintenance and enhancement of long term productivity.

الاسبوع الثاني والثالث
(الوحدة النمطية)

ENVIRONMENTAL LEGISLATION

The awareness and consideration for environment covers several environmental issues such as pollution of water, air and soil, land degradation, industrialization, urbanization, depletion of natural resources etc. Environmental Law plays a very crucial and important role in regulating the use of natural resources and in protecting the environment. The success of environmental legislations mainly depends on the way they are enforced. Legislation also serves as a valuable tool for educating masses about their responsibility in maintaining healthy environment. Numerous legislations have already been put forth at national and international levels.

Environmental justices:

The term (environmental justices) was introduced in 1994 and was designed to focus the attention of federal agencies on the human health and environmental conditions minority communities and low-income communities.

- Iraqi Law of Protection and Improvement of the Environment, No. 27 of 2009:

This Law aims to improve and to protect the environment by handling the damages, protecting the public health and the natural resources. The Law establishes a Council for the protection and improvement of the environment referring to the Ministry of Environment and cooperating with other Ministries. It also defines its duties and responsibilities. Smaller Councils will be established in the different provinces of the country.

The Law sets forth provisions for the protection of the environment. The regions responsible for environmental pollution have to use clean technologies and set up a suitable environmental policy. The use of sensors for pollution monitoring and control is recommended as well as the renewable energy technologies. An environmental impact assessment shall be done for any new project held in the country.

The Law concerns also the protection of water from pollution. It regulates the discharge of effluents whether they are of domestic, industrial or agricultural origin.

This Law covers as well the following subjects: regulation of air pollution and noise reduction; earth protection; biodiversity protection; management of hazardous waste; protection of the environment from pollution resulting from exploration and extraction of oil wealth and natural gas; establishment of an environmental protection fund; rewards; compensation for damages; and penal provisions.

Definitions and Aims

Article (1)

The law aims at protecting and improving the environment through elimination and treatment of existing damages or damages likely to be caused. It also aims at preserving public health, natural resources, biodiversity as well as natural and cultural heritage, in coordination with the relevant authorities in a manner that ensures sustainable development through International and Regional cooperation in this regard.

Article (2)

The following terms, for the purpose of this law, shall have mean:

1. Ministry: Ministry of Environment
2. Minister: Minister of environment
3. Board: Board for the protection and improvement of Environment.
4. Board of Governorate: Board for the protection and improvement of environment at each governorate.

5. Environment: surrounding with all its elements where living creatures live in as well as the impact resulting in man's economical, social and cultural activities.
6. Environment elements: water, air, soil and living creatures
7. Environment limits: allowable limits for the concentration of any pollution that it is allowed to be thrown in the environment according to the national standards.
8. Conservation area: A piece of land or water allocates for protecting of vital, cultural, and natural resources' existence.
9. Dangerous materials: the materials may cause harm for the mankind health when they are misused or may cause severe damage in the environment like infectious factors or toxic or explosive or flammable or magnetic or ionic radiation substances.
10. The Environmental catastrophe: serious damage affecting on the environment that normal ability of government is not enough to treat on its result or control on it.
11. Sustainable development: social and economical development that meets the needs of current generation without influencing on the need of next generation in the preservation with environmental system and with the rationale usage of the natural resources.
12. Environmental effect evaluation: studying and analyzing the environmental feasibility study for the proposed projects that their establishment or their activities may have impact on the mankind health and the safety of the environment in the present or in the future with aim of protecting it.

13. Environmental warden: the public servant nominated according to the provisions of this law to observe the implementation of the legislations relevant to the environment.

Air

Legal protection of the air (1980-2003)

During that period, the Iraqi legislature enacted several laws for the preservation of the environment, but no criminal sanctions were imposed on violators. Examples of the aforementioned laws include:

1. Law No. 42 of 1932 for the supervision of professional crafts causing air pollution,
2. Law No. 27 of 1943 to regulate the work of factories and fuel products causing environmental damage,
3. Law No. 19 of 1950 on the organization of work in marble stone factories and air pollution,
4. Law No. 1 of 1959 on functions of the Atomic Energy Commission, and the law on foreign civilian aircrafts and military planes entering or leaving Iraq under Law No. 11 of 1959(9).

- ✓ The interest of Iraq to protect the environment increased after its participation in the Stockholm Conference on the protection of air environment in 1972 and the ratification of the Convention in 1974. The Iraqi legislature granted to the boards of governorates:

1. The power to maintain public health and improve health affairs and take sufficient means to prevent the spread of contagious and infectious diseases by air the establishment.
2. Maintenance of forests and basins, the establishment and management of parks and preventing the construction of buildings that is harmful to the air environment.

Legal protection of the air (1980-2003)

According to the provisions of Article IV of the Law on the Prevention of Ionizing Radiation No. 99 of 1980, a body known as the "Radiation and Pollution Protection Body" and affiliated to the Council for the Protection of the Environment from Pollution. This body was formed due to the large increase in usage of radioactive materials in the non-military sectors (civil industries) and Iraq had proven experiences of human and environmental exposure to radiation from these sources. This body has broad powers and supervises and controls the usage of this type of materials to protect the public from exposure to radioactive pollution. It also draws up policies on all matters related to the field of radiation protection including its prevention, the monitoring of radiation levels in the environment and the determination of allowable maximum limits of radiation in the air.

According to the Ministry of Health Law No. 10 of 1983, on pollution the Council for the Protection of the Environment from Pollution was seconded to the Preventive Services and Environment Department which is an executive body that specializes in environmental issues and the maintenance of the some according to the General Environment System of Health Services Law No. 2 of 1984, and entrusted with the responsibility of:

1- Preparing programmable air pollution control plans for Iraq.

2- Diagnosing the areas and sources of pollution and participating in the finding of appropriate solutions to reduce and control them.

3- Giving technical advice to public and private institutions on the problems caused by pollution.

4- Control and tackle air pollution issues and examine and analyze samples taken from the environmental investigation teams in order to diagnose the chemical and microbial contaminants in the same.

5- Drafting programs and plans for environmental awareness and training courses for personnel working in the field of fighting environmental pollution in Iraq.

- ✓ During the Second Gulf War in 1991, the Iraqi people suffered from the effects of radiological and chemical pollution. Driven by the desire to protection of the environment from pollution and to reduce its impact on public health, the environment and natural resources, and in order to achieve legal protection of environment, the Iraqi legislature issued a new law, the Law on the Protect and Improvement of the Environment, Law No. 3 of

1997, which established a board to protect and improve the environment affiliated to the Council of Ministers, and empowered it to:

1- Formulate public policy to protect and improve the environment and determine the controls on air pollutants;

2- Give advice on the international relations of Iraq in the field of protecting and improving the air environment.

3- Coordinate the activities authorities concerned with the protection of the environment and make decisions on the recommendations submitted to the Protection and Improvement of the Environment Department in all governorates of Iraq.

Adopted of Ambient air quality standards

pollutant	Iraqi Regulations (proposal)		US EPA		Adopted project Air Quality Std.
	concentration	Averaging Time	concentration	Averaging Time	Conc. – averaging Time
CO	10 ppm	8 hour	35 ppm	1 hour	35 ppm – 1 hour
	35 ppm	1 hour	9 ppm	8 hour	9 ppm – 8 hour
SO_2	0.1 ppm	1 hour	0.14 ppm	24 hour	0.1 ppm – 1 hour
	0.04 ppm	24 hour			0.04 ppm – 24 hour
	0.018 ppm	1 year	0.03 ppm	1 year	0.018 ppm – 1 year
NO_2	0.05 ppm	24 hour	0.053	1 year	0.05 ppm – 24 hour
	0.04 ppm	1 year			0.04 ppm – 1 year
O_3	0.06 ppm	1 hour	0.12 ppm	1 hour	0.06 – 1 hour
			0.075 ppm	8 hour	0.075 – 8 hour
PM_{10}	150 $\mu g/m^3$	24 hour	150 $\mu g/m^3$	24 hour	150 $\mu g/m^3$ – 24 hour
$PM_{2.5}$	65 $\mu g/m^3$	24 hour	35 $\mu g/m^3$	24 hour	35 $\mu g/m^3$ – 24 hour
	15 $\mu g/m^3$	1 year	15 $\mu g/m^3$	1 year	15 $\mu g/m^3$ – 1 year
Total suspended particulates	350 $\mu g/m^3$	24 hour	-	-	350 $\mu g/m^3$ – 24 hour
	150 $\mu g/m^3$	1 year	-	-	150 $\mu g/m^3$- 1 year
Falling Dust	10 t/km^2/month residential zone 20 t/km^2/month Industrial zone	30 days	-	-	10 t/km^2/month residential zone 20 t/km^2/month Industrial zone 30 days
Hydro-carbons	0.24 ppm	3 hour	-	-	0.24 ppm – 3 hour
Pb	2 $\mu g/m^3$	24 hour	1.5 $\mu g/m^3$	3 months	2 $\mu g/m^3$ – 24 hour
	1.5 $\mu g/m^3$	3 months			1.5 $\mu g/m^3$ – 3 months
	1 $\mu g/m^3$	1 year			
Benzene	0.003 mg/m^3	1 year	-	-	0.003 mg/m^3 – 1 year
dioxin	0.6pico g/m^3	1 year	-	-	0.6 pico g/m^3 – 1 year

Noise

1. Noise is defined as unwanted sound

Sound, which pleases the listeners, is music and that which causes pain and annoyance is noise. At times, what is music for some can be noise for others2

Section 2 (a) of the Air (Prevention and Control of Pollution) Act, 1981 includes noise in the definition of 'air pollutant'.

Section 2(a) air pollution means any solid, liquid or gaseous substance including noise present in the atmosphere such concentration as may be or tent to injurious to human beings or other living creatures or plants or property or environment.

According to Encyclopedia Britannica: In acoustic noise is defined as any undesired sound.3

In chambers 21st Century Dictionary the definition of noise has undergone a change. Noise pollution stands carved out as phrase separately from noise. The two are defined as under:

Noise- a sound; a harsh disagreeable sound, or such sound; a din. Pollution- an excessive or annoying degree of noise in a particular area, e.g. from traffic or aero plane engines.

Pollution is a noise derived from the verb pollute. Section 2 (c) of the Environment (Protection) Act, 1986 defines environmental pollution to mean the presence in the environment of any environmental pollutant. Section 2 (b) of the said Act defines environmental pollutant to means any solid, liquid or gaseous substance present in such concentration as may be ,or tends to be injurious to environment.

Noise can be described as sound without agreeable musical quality or as an unwanted or undesired sound. Thus noise can be taken as a group of laud, non harmonious sounds or vibrations that are unpleasant and irritating to ear.

2 Measurement

A decibel is the standard for the measurement of noise. The zero on a decibel scale is at the threshold of hearing, the lowest sound pressure that can be heard, on the scale acc. To smith, 20 db is whisper, 40 db the noise in a quiet office . 60 db is normal conversation, 80 db is the level at which sound becomes physically painful.

The Noise quantum of some of the cities in our country indicate their pitch in decibel in the nosiest areas of corresponding cities, e.g. Delhi- 80 db, Kolkata - 87,Bombay-85, Chennai-89 db etc.

3 Sources of Noise Pollution

Noise pollution like other pollutants is also a by- product of industrialization, urbanizations and modern civilization. Broadly speaking , the noise pollution has two sources, i.e. industrial and non- industrial. The industrial source includes the noise from various industries and big machines working at a very high speed and high noise intensity. Non- industrial source of noise includes the noise created by transport/vehicular traffic and the neighborhood noise generated by various noise pollution can also be divided in the categories , namely, natural and manmade. Most leading noise sources will fall into the following categories: roads traffic, aircraft, railroads, construction, industry, noise in buildings, and consumer products.

1. Road Traffic Noise:

In the city, the main sources of traffic noise are the motors and exhaust system of autos , smaller trucks, buses, and motorcycles. This type of noise can be augmented by narrow streets and tall buildings, which produce a canyon in which traffic noise reverberates.

2. Air Craft Noise:

Now-a-days , the problem of low flying military aircraft has added a new dimension to community annoyance, as the nation seeks to improve its nap-of the- earth aircraft operations over national parks,

wilderness areas , and other areas previously unaffected by aircraft noise has claimed national attention over recent years.

3. Noise from railroads:

The noise from locomotive engines, horns and whistles, and switching and shunting operation in rail yards can impact neighboring communities and railroad workers. For example, rail car retarders can produce a high frequency, high level screech that can reach peak levels of 120 dB at a distance of 100 feet, which translates to levels as high as 138, or 140 dB at the railroad worker's ear.

4. Construction Noise:

The noise from the construction of highways , city streets , and buildings is a major contributor to the urban scene . Construction noise sources include pneumatic hammers, air compressors, bulldozers, loaders, dump trucks (and their back-up signals), and pavement breakers.

5. Noise in Industry:

Although industrial noise is one of the less prevalent community noise problems, neighbors of noisy manufacturing plants can be disturbed by sources such as fans, motors, and compressors mounted on the outside of buildings Interior noise can also be transmitted to the community through open windows and doors, and even through

building walls. These interior noise sources have significant impacts on industrial workers, among whom noise- induced hearing loss is unfortunately common.

6. Noise in building:

Apartment dwellers are often annoyed by noise in their homes, especially when the building is not well designed and constructed. In this case, internal building noise from plumbing, boilers, generators, air conditioners, and fans, can be audible and annoying. Improperly insulated walls and ceilings can reveal the soundof-amplified music, voices, footfalls and noisy activities from neighboring units. External noise from emergency vehicles, traffic, refuse collection, and other city noises can be a problem for urban residents, especially when windows are open or insufficiently glazed.

7. Noise from Consumer products:

Certain household equipment, such as vacuum cleaners and some kitchen appliances have been and continue to be noisemakers, although their contribution to the daily noise dose is usually not very large.

4 Harmful Effects:

On Human Being, Animal and Property: Noise has always been with the human civilization but it was never so obvious, so intense, so varied & so pervasive as it is seen in the last of this century. Noise

pollution makes men more irritable. The effect of noise pollution is multifaceted & inter related. The effects of Noise Pollution on Human Being, Animal and property are as follows:

I It decreases the efficiency of a man:- Regarding the impact of noise on human efficiency there are number of experiments which print out the fact that human efficiency increases with noise reduction. A study by Sinha & Sinha in India suggested that reducing industrial booths could improve the quality of their work. Thus human efficiency is related with noise.

II Lack of concentration:- For better quality of work there should be concentration , Noise causes lack of concentration. In big cities , mostly all the offices are on main road. The noise of traffic or the loud speakers of different types of horns divert the attention of the people working in offices.

III Fatigue:- Because of Noise Pollution, people cannot concentrate on their work. Thus they have to give their more time for completing the work and they feel tiring.

IV Abortion is caused: - There should be cool and calm atmosphere during the pregnancy. Unpleasant sounds make a lady of irriative nature. Sudden Noise causes abortion in females.

V It causes Blood Pressure: - Noise Pollution causes certain diseases in human. It attacks on the person’s peace of mind. The noises are

recognized as major contributing factors in accelerating the already existing tensions of modern living. These tensions result in certain disease like blood pressure or mental illness etc.

VI Temporary of permanent Deafness:- The effect of nose on audition is well recognized. Mechanics , locomotive drivers, telephone operators etc. All have their hearing . Impairment as a result of noise at the place of work. Physictist, physicians & psychologists are of the view that continued exposure to noise level above. 80 to 100 db is unsafe, Loud noise causes temporary or permanent deafness.

VII EFFECT ON VEGETATION Poor quality of Crops:- Now is well known to all that plants are similar to human being. They are also as sensitive as man. There should be cool & peaceful environment for their better growth. Noise pollution causes poor quality of crops in a pleasant atmosphere.

VIII EFFECT ON ANIMAL:- Noise pollution damage the nervous system of animal. Animal looses the control of its mind. They become dangerous.

IX EFFECT ON PROPERTY:- Loud noise is very dangerous to buildings, bridges and monuments. It creates waves which struck the

walls and put the building in danger condition. It weakens the edifice of buildings.

5 Legal Control:
(a) Constitution of India
Right to Life:- Article 21 of the Constitution guarantees life and personal liberty to all persons. It is well settled by repeated pronouncements of the Supreme Court that right to life enshrined in Article 21 is not of mere survival or existence. It guarantees a right of persons to life with human dignity. Any one who wishes to live in peace, comfort and quiet within his house has a right to prevent the noise as pollutant reaching him.

Right to Information:- Every one has the right to information know about the norms and conditions on which Govt. permit the industry which effect the environment.

Right to Religion and Noise
Right to religion does not include right to perform religious activities on loud speaker and electronic goods which produce high velocity of noise.
Directive Principal of State Policy:
The state has the object to make the enviorment pollution free.
Fundamental Duties:

every citizen of the country has the fundamental duty to clean the environment.

(b) Cr.P.C. Section 133

Here Section 133 is of great importance. Under Crpc. Section 133 the magisterial court have been empowered to issue order to remove or abate nuisance caused by noise pollution Sec 133 empower an executive magistrate to interfere and remove a public nuisance in the first instance with a conditional order and then with a permanent one. The provision can be utilized in case of nuisance of environment nature. He can adopt immediate measure to prevent danger or injury of a serious land to the public. For prevention of danger to human life, health or safety the magistrate can direct a person to abstain from certain acts.

(c) I.P.C. Public Nuisance 268-295

Chapter IV of Indian Penal code deals with offences relating to public health, safety, ...decency , morals under Sections 268, 269, 270, 279, 280, 287, 288, 290 291 294. Noise pollution can be penalized with the help of above section. Private remedies suits in the area may related to public nuisance under A299. This article punishment in case of Public nuisance law of torts covers. A person is guilty of public nuisance who does any act or is guilty of an illegal omission which causes any common injury, danger, or annoyance to the pubic or to the people in general who dwell or occupy property

in the vicinity or which must necessarily cause injury, obstruction danger or annoyance to persons who may have occasion to use any public right. A common nuisance is not excused on the ground that it causes some convenience or advantage. Who ever commits a public nuisance in any case not otherwise punishable by this code, shall be punished with fine, which may extend to Rs. 200.

(d) Law of Torts Noise pollution is considered as civil wrong:-
Under law of torts , a civil suit can be filed claiming damages for the nuisance. For filing a suit under law of torts a plaintiff is required to comply with some of the requirement of tort of nuisance which are as follows:-

1. There should be reasonable interference.
2. Interference should be with the use & enjoyment of land.
3. In an action for nuisance actual damage is required to be proved. As a general rule either the presence or absence of malice does not matter. But in some cases deviation from the rule has been made.

In Christe Vs Davey The extent of noise & the amount of disturbance caused there by was ignored & it was held that the noise which arose due to the practice of lawful profession, & without any malice, could not be considered to be actionable nuisance.

In Hollywood Silver Fox Farm Ltd. Vs Emmett It was held that presence of malice was a factor in determining liability for noise

amounting to nuisance. The court said that even on his won land was nuisance, & the defendant was liable in damages.

الاسبوع الرابع والخامس
(الوحدة النمطية)

Legislation on pollution of solid wastes and resources recovery

Solid Waste

-Specification of Sanitary Landfill of Wastes

Specification of Sanitary Landfill of Wastes

It has been approved by the Bureau of the Republic Presidency under its letter No m/5/4/5637 dated 5/5/1980 to observe the following bases which are required in the process of the sanitary landfill of the wastes.

First- Limitations of Assigning the Site:

The following conditions shall be achieved when assigning a site as a landfill:

The site shall be outside the basic design of the cities. It is preferable to choose the natural low lands and mud, sand, stones and lime quarries.

If the low lands are not available, the non-agricultural lands are used by digging trenches for this purpose.

The areas which contain high levels of underground water shall be avoided. It is to choose locations far away from the main streets and cities entrances.

Second- Sanitary Landfill Methods:

The sanitary landfill shall be carried out according to the following specifications:

The wastes shall be spread in layers, pressed by mechanical means, covered with sand and rolled then there is a second layer of wastes and another layer of sand, provided that the following items shall be complied with:

- The thickness of the wastes layer is (1.01-1.5) meter.
- The thickness of the sand layer above the wastes layer is (20-30) cm.
- The wastes shall be covered at the end of each working day with a layer of sand as mentioned in Item (b) to prevent the growing of insects and the emission of bad smells.
- The thickness of the last sand layer shall be (50-80) cm. the necessary licenses shall be given to discharge rain water to prevent its gathering.
- The process of rolling the wastes and sand layers shall be accurate.
- Pesticide and chemical materials shall be used to kill rodents and insects.
- The ruins of buildings produced from destruction and maintenance and materials resulted from construction could be used to cover wastes.
- If the low lands are not available, trenches shall be dug to bury wastes in a depth that is no less than (3-4) meter and (6) meter in

width. The same method of burying above mentioned in (1) shall be used.

Third - Necessary Tracks:

An integral unit of tracks and equipment shall be provided for each of the sanitary landfills and shall be assigned to the purpose of burying wastes; they shall not be used for other purpose. The unit shall consist of the following trucks.

Fifth- Providing the requirements that are needed in landfills:

- To enclose the site before using it as a landfill and plant trees in its sides as far as possible.
- To provide suitable roads to carry wastes to the site and good inner roads to facilitate

The movement of the trucks:

- To provide suitable ceiling to protect the trucks from weather conditions.
- To provide a room to the administration, another one to the guards; a storage for the materials, water closet, and a balance in the entrance of the landfill to weigh the wastes trucks incoming to the site, especially in the centers of the provinces.
- To put clear signs and billboards to find the location of the sanitary landfill.
- To provide water and electricity in the landfill to control fires, if happened, and operate trucks and lights.

US Solid Waste Legislation - Solid Waste Disposal Act of 1965
Promote better management of solid wastes.
Support resource recovery.

Directed that the ***US Public Health Service (PHS)*** promulgate and enforce regulations for solid waste collection, transportation, recycling, and disposal (The US EPA was not formed until 1970).
Provided financial assistance for states to study and develop solid waste management plans.

Provided support for research and development of improved methods of solid waste management.
Resource Recovery Act of 1970

Directed that the nation would change its emphasis from solid waste disposal to recycling and energy recovery.

Required the US PHS to investigate and report on the disposal of hazardous waste in the nation.

The ***US EPA*** was formed in the interim.
In 1973 the US EPA issued the final Report to Congress: Disposal of Hazardous Wastes. This was an important guidance document for the early stages of solid and hazardous waste management.
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Resource Conservation and Recovery Act of 1976 (RCRA)
Significant requirements for the control of hazardous waste storage, treatment and disposal.

RCRA also included directives that the US EPA establish regulations to control solid waste disposal.
The Hazardous and Solid Waste Amendments of 1984 (HSWA)
Direct the US EPA to revise criteria for landfills which receive hazardous household waste or small quantities of industrial hazardous waste.

Require treatment of all contaminated surface water running off of landfills.

Methods of disposing of wastewater sewage sludge at landfills are included in the Clean Water Act as amended.

In October 1991, the US EPA promulgated regulations for municipal solid waste landfills. These regulations required groundwater protection -- a bottom liner and leachate collection system.

Leachate is liquid wastes that seep through the landfill and any precipitation or other water that comes in contact with the waste becoming contaminated. Without a landfill bottom liner this water would seep or leach into the groundwater.
After collection the leachate must be treated prior to discharge into a waterway.

Place restrictions on landfill locations. Landfills cannot be located:

- ✓ near airports--danger to aircraft from scavenging birds,
- ✓ in a wetland,
- ✓ in a floodplain--water contamination,
- ✓ on an earthquake fault.
- ✓ Require minimum operating procedures

Minimum standards for landfill design. These minimum standards include monitoring the quality of the groundwater to insure that it is not polluted, or if it is, that corrective action is taken.

Special Stipulations on the Prevention of Environmental Pollution Caused by anerous'waste

Article 42 The regulations in this Chapter apply to the prevention and cure of environmental pollution caused by dangerous waste. Those not mentioned in this Chapter shall accord with the other regulations of this Law.

Article 43 The administrative department in charge of environmental protection under the State Council shall draw up a national list of dangerous waste in conjunction with relevant departments under the State Council, and stipulate unified differentiating standards, methods, and identification marks for dangerous waste.

Article 44 Identification marks shall be placed on the containers and packing materials for dangerous waste and posted at the facilities and sites for the collection, storage, transport, and disposal of dangerous waste.

Article 45 Those units which produce dangerous waste shall report and register in accordance with the relevant regulations of the state.

Article 46 Those units which produce dangerous waste shall dispose of them in accordance with the relevant regulations of the state. Those who fail to properly dispose of the waste will be required to make rectifications within a specified time period by the administrative department in charge of environmental protection under the people's governments at the county level or above in that locality; as to those units which fail to dispose of the waste before the deadline or which do not carry out disposal in accordance with the relevant regulations of the state, designated units of the administrative department in charge of environmental protection under the people's government at the county level or above in that locality shall undertake to dispose of the waste for them, and all expenses for disposal shall be born by those units which have produced the dangerous waste.

Article 47 The urban people's governments shall organize the construction of the facilities for the centralized disposal of dangerous waste.

Article 48 Those who adopt the disposal method of burying dangerous waste hut fail to confonn to the regulations of the administrative department in charge of environmental protection under the State Council shall pay waste-discharge fees for dangerous waste. The specific means for levying the discharge fees for dangerous waste shall be stipulated by the State Council.

الاسبوع السادس والسابع
(الوحدة النمطية)

Legislation on pollution of pesticides and toxic substance

The need for pesticides regulation

1. These Regulations may be cited as the Pesticides and Toxic Substances Regulations. In these Regulations unless the context otherwise requires- Interpretation "application" means the way and means of using the pesticide or toxic substance on its intended target as prescribed by the manufacturer

   "banned pesticide or toxic substance" means a pesticide or toxic substance for which all registered uses are prohibited or for which requests for registration have not been granted;

   "bunding" means an upraised area surrounding the floor of a warehouse to contain any spillages and washings from pesticides or toxic substances and from cleaning water of the pesticides and toxic substances;

   "chemical treatment" means the reaction of a pesticide or toxic substance with another under optimum conditions of pH, temperature

and others;

"dangerous poison" shall mean highly hazardous in accordance with the World Health Organisation Classification;
"disposal" means the final location of pesticides or toxic substances, their wastes or contaminated packaging materials by burial, chemical or thermal destruction;

"experimental pesticides or toxic substances" means a pesticide or toxic substance to be assessed in Zambia for primary biological activity, and not available to the public for sale or use;

"incineration" means the subjection of a pesticide or toxic substance to an appropriate high temperature for a specified period of time to achieve complete destruction;

"inspectorate" means the Environmental Inspectorate established under section eighty-one of the Act;

"label" means the written, printed or graphic matter on, or attached to, the pesticide and toxic substance or the immediate container thereof and the outside container or wrapper of the retail package of the pesticide or toxic substance;

"packaging" means the containers together with the protective wrapping used to carry and or store pesticides and toxic substances or their products for wholesale and retail distribution to users;

"packaging material" means the material which the container is made of; provide protection from pesticides or toxic substance when they are handled or applied;

"recognised research institution" means a research institution recognised by the Minister as competent to carry out research into pesticide or toxic substance use;

"repackaging" means the transfer of pesticide from any commercial package into any other, usually smaller container, for subsequent sale;

"residue" means any substance in food, soil agricultural commodities or animal feed resulting from the use of pesticides and toxic substances and includes any derivatives or a pesticide or toxic substance considered to be of toxicological significance;

"severely restricted" means a pesticide or toxic substance whose general registered uses are prohibited but whose certain registered uses are permitted under these regulations;

"toxic substance" means a poisonous substance which causes significant adverse physiological effects to man, animal or the environment;

"toxicity" means a physiological or biological property which determines the capacity of a substance to injure or harm living organism by being absorbed in the body;

"trader" means any person engaged in the trade of pesticides or toxic substances and includes any person exporting, importing, or selling small substances; and

"withholding period" means the period between the last application for the product and the harvest of plant products; grazing of treated areas and slaughter of treated animals for food.

GENERAL HANDLING, USE AND SAFETY

(1) A person who uses a pesticide or toxic substance, in the form of dust, vapours or very small spray droplets, the container of which bears or is required to bear a label with a warning "very dangerous poison" or

"poison" or where application of the pesticide or toxic substance is in confined places, shall use suitable and effective cartridge type respirators, or masks with special canisters, in accordance with the Eighth Schedule, whichever is appropriate.

(2) A person who fumigates or applies a pesticide or toxic substance, the container of which bears or is required to bear a label with a warning

"very dangerous poison" or "poison" shall use a suitable respiratory so that none of the contaminated ambient air is inhaled.

(3) No person shall authorise or order the wearing of a respirator when the canister or cartridge has exceeded the service life specified by the manufacturer.

(4) No woman who is pregnant or child who is under 16 years of age shall be employed in the handling of pesticides or toxic substances.

(5) All employees shall display or make available a copy of this regulation to all the employees who are involved in the handling of a pesticide or toxic substance.

(6) All employers of persons handling pesticides and toxic substances shall cause their employees to undergo medical checkups every six (6) months to assess the pesticides or toxic substance levels and effects.

(7) All manufacturers, formulators and those involved in repackaging of pesticides or toxic substances shall install dust and vapour extractors.

(8) All employers shall provide washing facilities for persons handling pesticides or toxic substances.

(9) No person shall be allowed to eat, drink or smoke whilst handling pesticides or toxic substances.

(10) All employers shall ensure availability of adequate, suitable and accessible fire extinguishers in the handling area.

STORAGE AND DISPOSAL

(1) Pesticides and toxic substances shall be stored in a warehouse. Which Conditions of storage of pesticide or toxic substance

(a) can be securely locked;

(b) has walls and frames made of material that is non-combustible;

(c) has floors made of concrete and is impervious to liquids;

(d) has a roof designed to prevent smoke accumulating in it in case of fire;
(e) contains two clearly labelled and accessible emergency exits;
(f) is separated from office accommodation;
(g) contains a handling area where the floor is at the height of a vehicle bed;
(h) is adequately lit and ventilated on the lower and upper parts of the walls and roof;
(i)has a separate drainage system for rain water drainage;

Pollution (Pesticides and Toxic Substances) Regulations

1. Name of Applicant:
2. Address of applicant:
(a) Postal..
(b) Business

3. Type of pesticide (insecticide, herbicide, fungicide, etc) or toxic substances (e.g.cyanide, benzene);

4. The empirical and structural formula for each active ingredient:

5. Formulation (type of formulation: wettable powder, emulsifiable concentrate,
etc.)

6. Percentage of purity on a mass-by-mass or mass by volume basis (specify) of each

active ingredient and other ingredients (including inert matter) in the pesticide/toxic substance stating which percentage applies to each ingredient:

7. Physical and chemical properties of each ingredient with specific reference to type of formulation.

8. Size of containers in which pesticides or toxic substance is to be sold and the net weight or volume.

9. Nature of containers in which pesticide or toxic substance is to be sold.

10. Stability of formulation.
11. Corrosiveness of equipment:.
12. Phytotoxicity.
13. Safety precautions to be observed in handling, use and storage
14. Hazard to wildlife.
15. Residue data.
16. Proposed use.

17. Directions of use.
18. Directions for safe disposal of expired pesticide or toxic substance.
19. Directions for safe disposal of used container.
20. Biological effectiveness and benefit in use.

الاسبوع الثامن

(الوحدة النمطية)

Energy

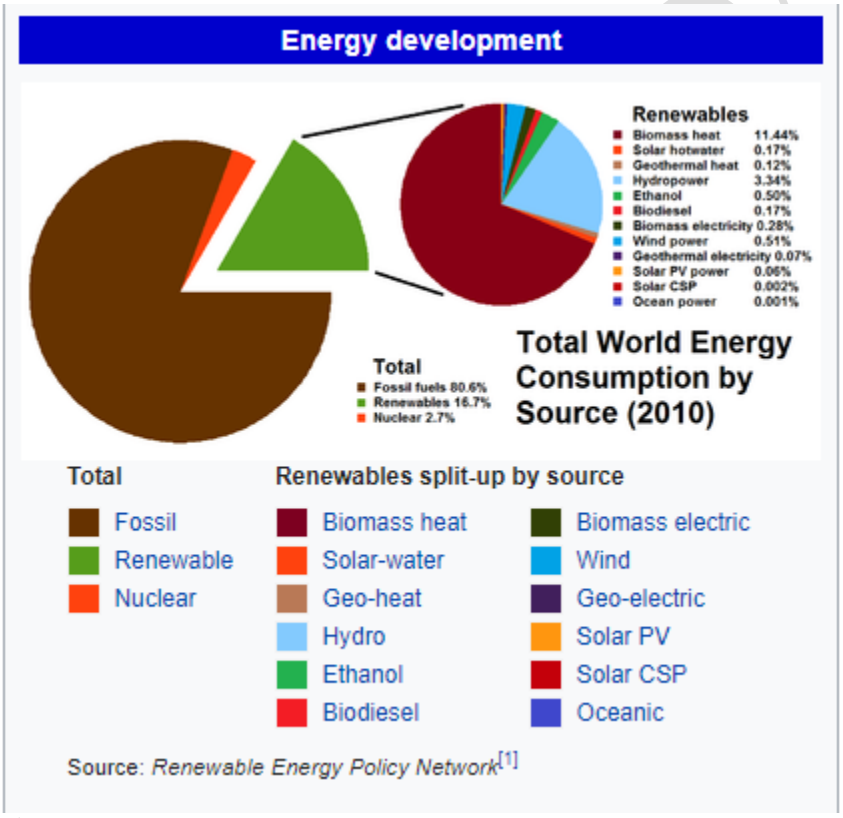
The need for energy development and control

Environmental controls of energy supply

Energy development is the field of activities focused on obtaining sources of energy from natural resources. These activities include production of conventional, alternative and renewable sources of energy, and for the recovery and reuse of energy that would otherwise be wasted. Energy conservation and efficiency measures reduce the demand for energy development, and can have benefits to society with improvements to environmental issues.

Societies use energy for transportation, manufacturing, illumination, heating and air conditioning, and communication, for industrial, commercial, and domestic purposes. Energy resources may be classified as primary resources, where the resource can be used in substantially its original form, or as secondary resources, where the energy source must be converted into a more conveniently usable form. Non-renewable resources are significantly depleted by human use, whereas renewable resources are produced by ongoing processes that can sustain indefinite human exploitation.

Thousands of people are employed in the energy industry. The conventional industry comprises the petroleum industry, the natural gas industry, the electrical power industry, and the nuclear industry. New energy industries include the renewable energy industry, comprising alternative and sustainable manufacture, distribution, and sale of alternative fuels.

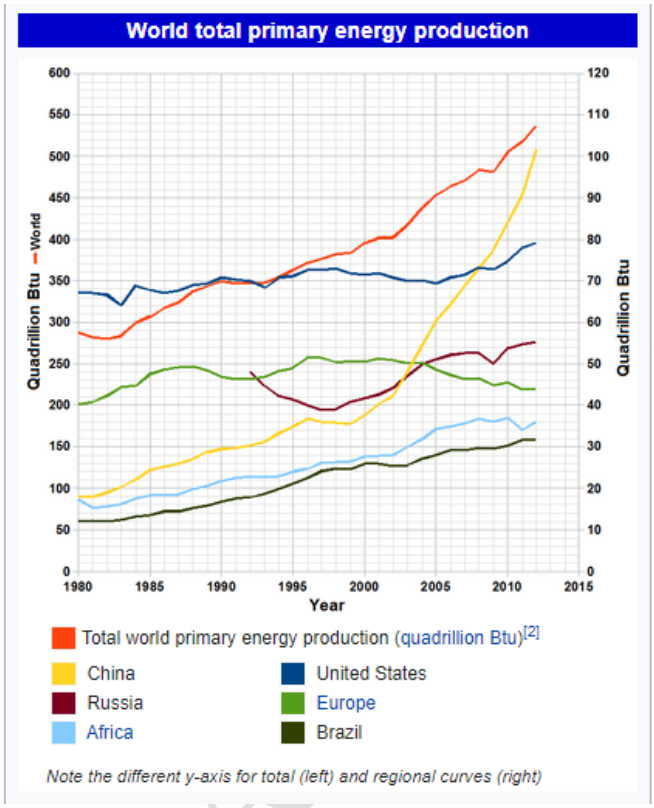


Classification of resources

Energy resources may be classified as primary resources, suitable for end use without conversion to another form, or secondary resources,

where the usable form of energy required substantial conversion from a primary source. Examples of primary energy resources are wind power, solar power, wood fuel, fossil fuels such as coal, oil and natural gas, and uranium. Secondary resources are those such as electricity, hydrogen, or other synthetic fuels.

Another important classification is based on the time required to regenerate an energy resource. "Renewable" resources are those that recover their capacity in a time significant by human needs. Examples are hydroelectric power or wind power, when the natural phenomena that are the primary source of energy are ongoing and not depleted by human demands. Non-renewable resources are those that are significantly depleted by human usage and that will not recover their potential significantly during human lifetimes. An example of a non-renewable energy source is coal, which does not form naturally at a rate that would support human use.



Fossil fuels

The Moss Landing Power Plant in California is a fossil-fuel power station that burns natural gas in a turbine to produce electricity

Main articles: Fossil fuel and Peak oil

Fossil fuel (*primary non-renewable fossil*) sources burn coal or hydrocarbon fuels, which are the remains of the decomposition of plants and animals. There are three main types of fossil fuels: coal, petroleum, and natural gas. Another fossil fuel, liquefied petroleum gas (LPG), is principally derived from the production of natural gas. Heat from burning fossil fuel is used either directly for space heating and process heating, or converted to mechanical energy for vehicles, industrial processes, or electrical power generation. These fossil fuels are part of the carbon cycle and thus allow stored solar energy to be used today.

The use of fossil fuels in the 18th and 19th Century set the stage for the Industrial Revolution.

Fossil fuels make up the bulk of the world's current primary energy sources. In 2005, 81% of the world's energy needs was met from fossil sources.[4] The technology and infrastructure already exist for the use of fossil fuels. Liquid fuels derived from petroleum deliver a great deal of usable energy per unit of weight or volume, which is advantageous when compared with lower energy density sources such as a battery. Fossil fuels are currently economical for decentralized energy use.

RENEWABLE ENERGY SOURCES Main new and renewable energy resources are nuclear energy, biomass energy, geothermal energy, solar energy, and wind energy. Nuclear energy is a clean

energy like hydropower, wind energy, geothermal energy, and hydrogen energy.

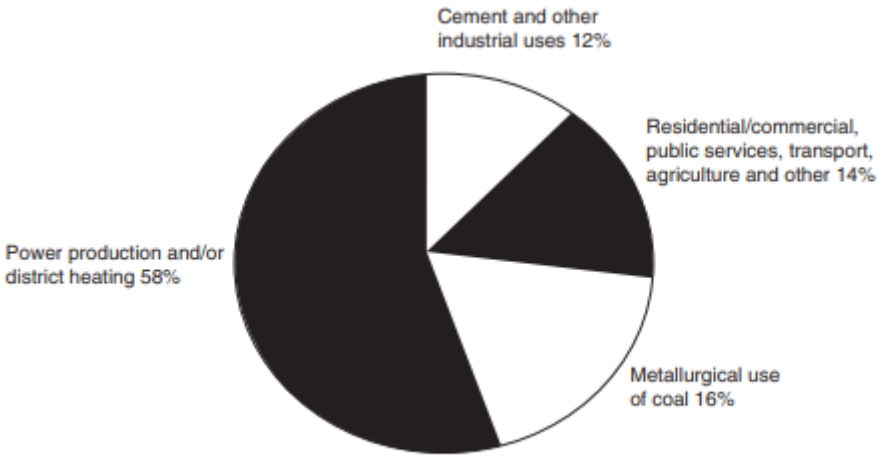
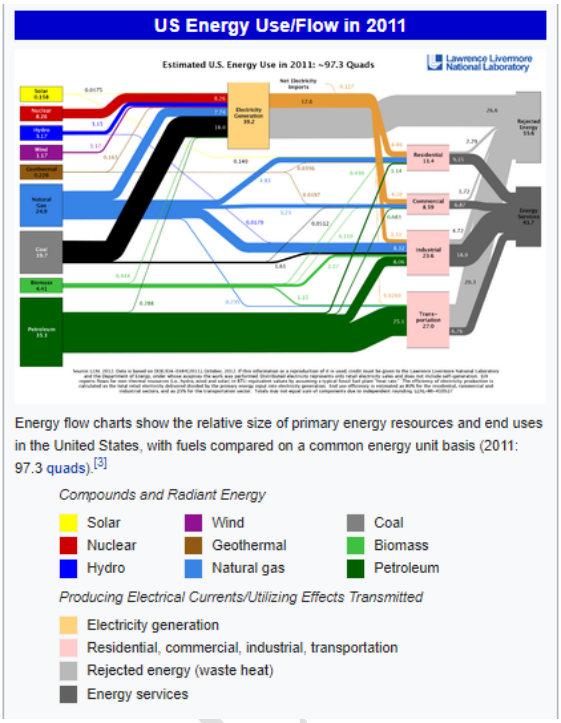


Figure 2. The main uses of coal
(*Source:* Griffiths, 2002)



Hydropower, nuclear energy is the only technology available today for the intensive production of energy without carbon dioxide (CO2). Hence nuclear energy is a cornerstone of the system to balance the energy mix towards non-CO2 emitting energies. In 2001, world Total Primary Energy Supply was 10,038 million tons oil equivalents (Mtoe), of which 13.5%, or 1,352 Mtoe, was produced from renewable energy sources (IEA, 2003). Renewable energy sources and their usage forms are given in Table 8. The renewable energy share of total world energy consumption is expected to remain unchanged at 8% through 2025, despite a projected 56% increase in consumption of hydroelectricity and other renewable resources (EIA, 2003).

ENERGY AND ENVIRONMENT

The United States International Trade Administration (USITA) estimates that four subsectors of the pollution control equipment market will grow most rapidly in coming years: 1) municipal water treatment and waste water; 2) nonmarine-related hazardous wastes; 3) non-industrial air pollution; and 4) solid waste disposal. In addition, the USITA projects rapid growth in recycling and waste-to- energy markets (Balat et al., 2003). Recently, environmental problems resulting from energy production, conversion, and utilization have caused increased public awareness in all sectors of the public, industry, and government in both developed and developing countries (Dincer, 2001a). The environmental impact of energy use can be seen in two ways: The utilization of limited natural resources and the stress caused by environmental pollution. To combat that environmental damage, exploring and exploiting the utilization of combustible renewables and waste would be a necessary measure for decreasing the environmental impact of energy use (Sun, 2004). Growing evidence of environmental problems is due to a combination of several factors, since the environmental impacts of human activities has grown dramatically because of the sheer increase of world population, consumption, industrial activity etc. Achieving solutions to the environmental problems that we face today requires long term potential actions for sustainable development. In this regard, renewable energy resources appear to be one of the most efficient and effective solutions. That is why there is an intimate connection between renewable energy and sustainable development (Demirbas, 2000).

The risk of climate change due to emissions of CO2 from fossil fuels is considered to be the main environmental threat from the existing energy system. Other environmental problems are acidification and dispersion of metals originating from fossil fuels (Johansson and Lundqvist, 1999; Balat et al., 2003; Demirbas et al., 2004a; Demirbas et al., 2004b). Fossil fuels supply a large part of the total primary energy use in the world, about 75% (Demirbas et al., 2004a). The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), agreed to in December 1997, marks an important turning point in efforts to promote the use of renewable energy worldwide and the developed countries should decrease the net emission of CO2 (Demirbas, 2003b). Emissions of CO2 caused by human activity are generally considered the most important (IPCC, 1992). World CO2 emissions are expected to increase from 23,899 million metric tons in 2001 to 37,124 million metric tons in 2025 (Fig. 6). World CO2 emissions in 2025 would exceed 1990 levels by 72%. Combustion of petroleum products contributes 5,733 million metric tons to the projected increase from 2001, coal 4,120 million metric tons, and NG the remaining 3,374 million metric tons (EIA, 2004). Biomass provides a clean, renewable energy source that could dramatically improve our environment, economy and energy security. As biomass based on growing crops or trees in agriculture or forestry sequester carbon, the net CO2-balance from cradle to grave of the crop itself is zero, whereas

fossil fuel burning causes a net contribution to the atmospheric stock of carbon (Sedjo et.al., 1995). Wood industries and power plants generate enormous quantities of wood ash. Air toxic emissions during biomass combustion were typically very low, and often near or below detection limits. During the combustion of wood, the basic cations are transformed to their oxides which are slowly hydrated and subsequently carbonated under atmospheric conditions (Balat et al., 2003). Biomass absorbs CO2 during growth, and emits it during combustion.

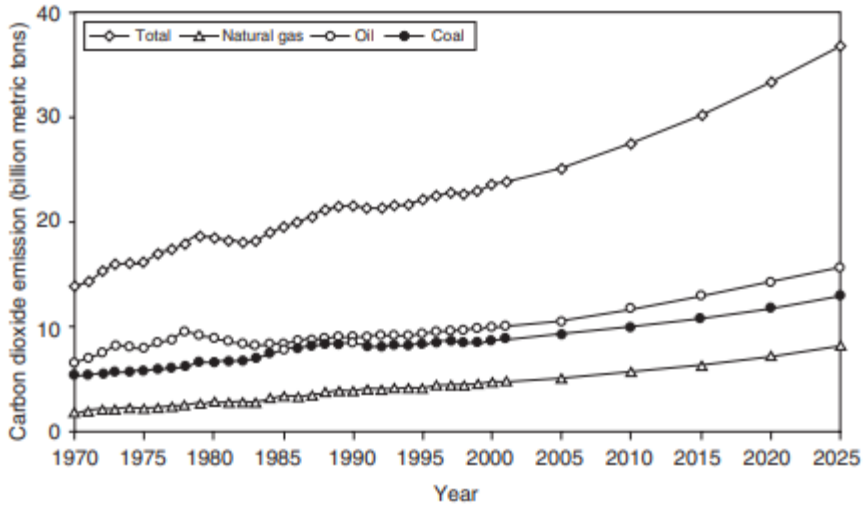


Figure 6. World energy-related CO_2 emissions by fuel type, 1970–2025
Source: EIA, 2004

Therefore, biomass helps the atmospheric CO2 recycling and does not contribute to the greenhouse effect. Biomass consumes the same amount of CO2 from the atmosphere during growth as is released

during combustion (i.e. biomass is considered CO2-neutral fuel). In addition, overall CO2 emissions can be reduced because biomass is a CO2 neutral fuel. Therefore, blending coal with biomass fuels can reduce fossil-based CO2 emissions. Due to higher heat capacity of H2O compared to CO2 water vapour in the atmosphere appears to be the most important greenhouse gas. Co-firing of biomass residues with coal brings additional greenhouse gas mitigation by avoiding methane (CH4) release from the otherwise landfilled biomass (Sami et al., 2001; Demirbas, 2003c). A water power plant is in general a highly effective energy conversion system. There is no pollution of the environment, but objections are raised relative to the flooding of valuable real estate and scenic areas. Whether a particular hydroelectric installation is economically competitive with a fossil fuel power plant will depend upon a number of factors, in particular, fuel and construction costs (Kaygusuz, 1999).

الاسبوع التاسع والعاشر
(الوحدة النمطية)

International Environmental Law

What is International Environmental Law?

International Environmental Law (IEL) is concerned with the attempt to control pollution and the depletion of natural resources within a framework of sustainable development. It is a branch of public international law - a body of law created by states for states to govern problems that arise between states.

IEL covers topics such as population, biodiversity, climate change, ozone depletion, toxic and hazardous substances, air, land, sea and transboundary water pollution, conservation of marine resources, desertification, and nuclear damage.

Principles and concepts embody a common ground in international environmental law; and they both reflect the past growth of international environmental law and affect its future evolution. Principles and concepts play important roles in international environmental law, which itself is one of the most rapidly evolving areas of public international law. They can indicate the essential characteristics of international environmental law and its institutions, provide guidance in interpreting legal norms, constitute fundamental norms, and fill in gaps in positive law. Principles and concepts also

appear in national constitutions and laws; and they are referred to in, and influence, international and national jurisprudence. Today, almost all major binding and non-legally binding international environmental instruments contain or refer to principles or concepts and are engines in the evolving environmental law.

Declarations

Of particular importance are the principles established at two important United Nations conferences, the 1972 Conference on the Human Environment ("Stockholm Conference") and the 1992 United Nations Conference on Environment and Development ("UNCED") in Rio de Janeiro. Both of these conferences produced declarations of principles (the "1972 Stockholm Declaration" and the "1992 Rio Declaration", respectively), which were adopted by the United Nations General Assembly. Together with the hundreds of international agreements that exist relating to protecting the environment (including human health), the principles in the 1972 Stockholm Declaration and 1992 Rio Declaration are widely-regarded as the underpinnings of international environmental law. The Rio Declaration contains a preamble and twenty-seven international environmental law principles that guide the international community in its efforts to achieve sustainable development. Since the adoption of the Rio Declaration, major developments in international environmental law have taken place that affect the definition, status and impact of principles and

concepts in international environmental law. These developments include the negotiation and entry into force of several major multilateral agreements.

Legal Status The legal status of international environmental law principles and concepts is varied and may be subject to disagreement among states. Some principles are firmly established in international law, while others are emerging and only in the process of gaining acceptance, representing more recent concepts. Some principles are more in the nature of guidelines or policy directives which do not necessarily give rise to specific legal rights and obligations. Principles have acquired recognition, among other means, through state practice, their incorporation in international legal instruments, their incorporation in national laws and regulations, and through judgements of courts of law and tribunals. Some principles are embodied or specifically expressed in global or regionally binding instruments, while others are predominantly based in customary law. In many cases it is difficult to establish the precise parameters or legal status of a particular principle. The manner in which each principle applies to a particular activity or incident typically must be considered in relation to the facts and circumstances of each case, taking into account of various factors including its sources and textual context, its language, the particular activity at issue, and the particular circumstances in which it occurs, including the actors and

the geographical region, since the juridical effect of principles and concepts may change from one legal system to another.

Public International Law Finally, it is important to recognize that international environmental law is an inseparable part of public international law. Public international law principles such as the duty to negotiate in good faith, the principle of good neighbourliness and notification, and the duty to settle disputes peacefully, thus may pertain to a situation regardless of its designation as "environmental" and may affect the evolution of international environmental law principles more generally. At the same time, the development of international environmental law principles and concepts may affect the development of principles in other areas of international law. The application and, where relevant, consolidation and further development of the principles and concepts of international environmental law listed in this unit, as well as of other principles of international law, will be instrumental in pursuing the objective of sustainable development.

Sustainable Development The international community recognized sustainable development as the overarching paradigm for improving quality of life in 1992, at UNCED. Although sustainable development is susceptible to somewhat different definitions, the most commonly accepted and cited definition is that of the Brundtland Commission on Environment and Development, which

stated in its 1987 Report, Our Common Future, that sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Integration and interdependence Principle 4 of the Rio Declaration provides: "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." Principle 25 states that "Peace, development and environmental protection are interdependent and indivisible." Principles 4 and 25 make clear that policies and activities in various spheres, including environmental protection, must be integrated in order to achieve sustainable development. They also make clear that the efforts to improve society, including those to protect the environment, achieve peace, and accomplish economic development, are interdependent. Principles 4 and 25 thus embody the concepts of integration and interdependence. The concepts of integration and interdependence are stated even more clearly in paragraph 6 of the 1995 Copenhagen Declaration on Social Development, which introduction states that "economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development, which is the framework for our efforts to achieve a higher quality of life for all people...". Paragraph 5 of the 2002 Johannesburg Declaration on Sustainable Development

confirms this, by stating that "we assume a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development (economic development, social development and environmental protection) at the local, national, regional and global levels." Integration was one of the main themes discussed at the 2002 Johannesburg World Summit on Sustainable Development, with particular emphasis on eradicating poverty

Inter-Generational and Intra-Generational Equity Equity is central to the attainment of sustainable development. This is evident from many international instruments. For example, the 1992 United Nations Framework Convention on Climate Change ("UNFCC") refers in article 3.(1) to intergenerational equity, as do the last preambular paragraph of the 1992 CBD, the 1992 United Nations Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the 1994 Desertification Convention and the 2001 Stockholm Convention on Persistent Organic Pollutants ("POPs"), among others.

Needs As noted above, the Brundtland Commission's Report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"; and it goes on to identify two

"key concepts" of sustainable development. The first of which is "the concept of 'needs,' in particular the essential needs of the world's poor, to which overriding priority should be given." Similarly, Principle 3 of the 1992 Rio Declaration states that "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations"; and Rio Principle 5 provides that "All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world." Paragraph 6 of the Copenhagen Declaration, the first sentence of which is reproduced above, refers in subsequent sentences to "Equitable social development" and "social justice".

Responsibility for Transboundary Harm Principle 21 of the Stockholm Declaration recognizes the sovereign right of each state upon its natural resources, emphasizing that it is limited by the responsibility for tranboundary harm.

1972 Stockholm Declaration Principle 21

"States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."

Twenty years later, Principle 21 was reiterated in Principle 2 of the Rio Declaration, with the sole change of adding the adjective "developmental" between the words "environmental" and "policies":

1992 Rio Declaration Principle 2

"States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."

Environmental Impact Assessment In many countries, public participation rights are granted through Environmental Impact Assessment procedures with broad public participation or in various sectoral laws adapted to the special circumstances of each sector. Consultation with, and dissemination of information to the public are important objectives of EIAs. For example, article 16(3) of the 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region requires that the information gathered in the assessment be shared with the public and affected parties. In Africa, the Memorandum of Understanding ("MOU") of October 22, 1998, between Kenya, Tanzania and Uganda contains the agreement of the three states to develop technical guides and regulations on EIA procedures, including enabling public participation at all stages of the process and to enact corresponding legislation (article 14). This provision was subsequently embodied in the Treaty for East African Community by the three states Kenya, Tanzania and Uganda. As noted above, the 1992 CBD also requires appropriate public participation in environmental assessment.

Republic of Iraq
Ministry of Higher Education and Scientific Research

Northern Technical University

Environmental and pollution department

وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الشمالية

قسم هندسة تقنيات البيئة والتلوث

الاسبوع الحادي والثاني عشر
(الوحدة النطية)

International Legislation to prevent reduce and control pollution of marine environment

Introduction – A Brief History Of Governance Of The Marine Environment The United Nations (1998)1 notes that the oceans and seas have long been subject to the doctrine of the Freedom of the Seas. In 1609 the Dutch Philosopher and Jurist Hugo Grotius wrote about that doctrine in his treatise Mare Liberum, setting down the concept that the seas and oceans were freely available for all states to use – every nation being free to travel to (and trade with) every other nation. Grotius argued that God created the oceans, that the oceans were mobile and, therefore, that they should be accessible by every nation. The concept was developed at a time when the Netherlands sought to join in the lucrative trade for spices, woods and other goods and resources only obtainable in the East Indies. However, Portugal sought to prevent the Netherlands from doing so by claiming sole jurisdiction to trade in the East Indies, citing as justification a Papal Bull of Pope Alexander VI of 1493 (and subsequently agreed by Spain and Portugal in the Treaty of Tordesillas, Spain in June 1494). That Papal Bull followed the discovery of the West Indies by Christopher Columbus and subsequent disputes over territorial rights between Portugal and the

King of Castile (Spain) in the West Indies and wider Latin American area. The Papal Bull allowed Christian countries to claim jurisdiction over trade with non-Christian countries and was originally intended to partition the right to control trade west of the Azores between Portugal and Spain. However, it resulted in Spain claiming the sole right of navigation in the western Atlantic Ocean (to try and prevent access to the region by British ships, while Portugal claimed a similar right in the South Atlantic and Indian Oceans. Cincin-Sain and Knecht (1998, pp 68-69)2 note that Grotius" concept of Freedom of the Seas was eventually accepted by coastal nations wishing to trade with other nations around the globe. Subsequently, in the 1700s, the concept of the territorial waters was developed and, by tacit agreement of all coastal states, these extended 3 miles out from the coastline. The idea of territorial waters was to allow coastal states the right to establish specific controls on customs, fishing rights and protection of coastal areas but it did not give those states the right to prevent foreign vessels from passing through their territorial waters. Subsequently, there was little change in governance of the marine environment until the period post World War II since which there have been many significant developments in international and national laws relating to the marine environment. Cincin-Sain and Knecht (1998, page 69) indicate that one of the main reasons for this new activity was the discovery of major oil and gas deposits in the Gulf of Mexico leading to the United States (and subsequently a number of

South American countries) setting out claims to hold jurisdiction over resources on the continental shelf contiguous with their coastlines and, subsequently, to acceptance of national jurisdiction over ocean zones 200 nautical miles from the coastline. The UN (1998) indicates that pressure from domestic oil interests led President Truman, in 1945, to unilaterally declare US jurisdiction over all oil, gas and mineral rights on its continental shelf, closely followed by Argentina, Chile, Peru, and Ecuador (which claimed sovereign rights to a 200 mile zone in order to protect fish stocks from distant water fishing fleets). Other countries went on to claim a 12 mile territorial sea zone (increasing the distance from the 3 miles that had previously been common practice). The main purpose for extending territorial waters was to gain access to rich mineral, oil and fishing resources of the seas and oceans from being used by other countries which either also bounded the sea in that region (therefore requiring treaties to agree specific territorial boundaries) or from countries from further afield. As oil and other companies identified rich mineral, ore and oil deposits, the financial benefits to a nation on whose continental shelf those resources were identified become ever more important. Fishing stocks also became an issue of contention as many nations have deep water fishing fleets which need to travel further and further afield as fishing stocks decline in one region and so those fleets move on to another region. Between the 1950s and 1970s there were growing disputes over what countries could claim to be the limits of their territorial

waters and later over the development of the idea of Exclusive Economic Zones (EEZ). An EEZ is a sea zone over which a state has specific rights to natural resources including fisheries. Table 1 outlines the limits for different areas as set out under international law. One example of a dispute, and an early conflict over access to an EEZ arose in the early 1970s between the United Kingdom and Iceland over access to rich fishing grounds in the North Atlantic. In 1972 Iceland declared an EEZ of 200 nautical miles in an action which led to the so-called "Cod Wars", during which the nets of British trawlers fishing in the region were cut and vessels from the British Navy had to be sent to the area to protect them. This dispute ended in 1974 following a threat by Iceland to close a NATO base used by the British Navy. The UK government declared the area off limits to British fishing vessels from December 1976.

Table 1. Scope of coastal waters by distance from coastline

Zone type	Distance from the coastal baseline mean water mark
Internal waters	Any waters, including estuaries, inland from baseline
Territorial waters	12 nautical miles offshore from the baseline
Contiguous zone	Between 12 and 24 nautical miles from baseline
Exclusive Economic Zone	200 nautical miles from baseline
International waters	Waters outside any waters claimed by a country

Note: 1 nautical mile = 2,025.372 yards (1,852 metres) compared to a standard mile which is 1,760 yards (1,609.344 metres). The nautical mile is approximately 15% longer than a standard mile.

In the example of the "Cod War" there is a distance of slightly less than 500 miles between the furthest north of the Scottish Isles and the southern coastline of Iceland, and so both

countries would have been able to adopt the 200 nautical mile EEZ limit without overlap. However, in an area such as the North Sea countries are much closer together and, therefore, there are a number of treaties delimiting the areas which can be claimed as national waters by the different coastal states. It was thus vital that international rules were put in place to clearly identify what a state could or could not claim in terms of the seas and oceans abutting its coastline. Those rules were codified and put in place through the development of the UN Convention on the Law of the SEA (UNCLOS; also sometimes known as LOS Convention or LOSC) and discussed in Section 2.1. Section 2 also examines some other UN level conferences and Conventions which have a direct impact of marine governance. These include the 1972 UN Conference on the Human Environment (UNCHE) and the subsequent.

Angela Carpenter creation of the UN Environment Programme (UNEP), together with the 1992 UN Conference on Environment and Development (UNCED) and its outputs on Climate Change, Biodiversity and Agenda 21. This introduction has provided a brief history of how marine environmental governance has developed over time, particularly since the end of World War II, and many of the most significant International Conventions that have been developed to protect the environment will be considered in more detail in Section 2. However, in order to further illustrate the complex nature of marine environmental governance, and to provide

an example of just some of the actors involved in one specific issue, Figure 2.1 from Carpenter (20053, page 22) has been updated and appears as Figure 14. Carpenter (2005) set out an example of the complex relationship between regulators at international, regional and national levels and examined some of the many stakeholders responsible for dealing with, or which were impacted by the issue of marine pollution from ships in the North Sea region of the European Union (EU).

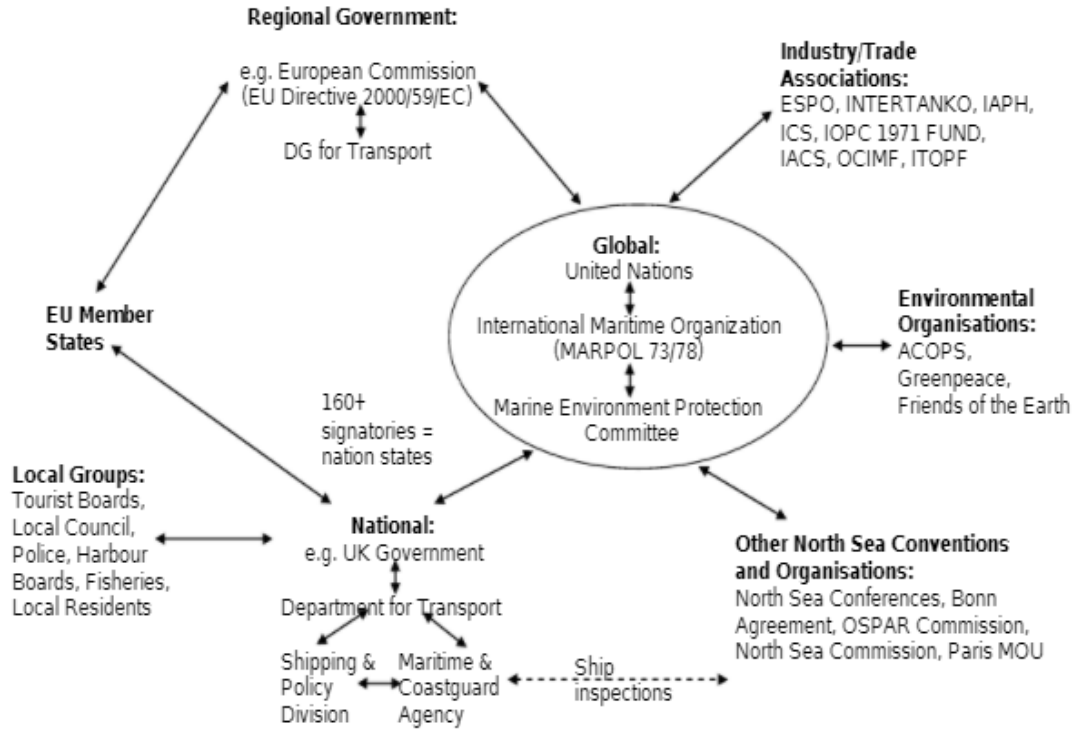


Figure I. Some Participants in North Sea Pollution Prevention (amended from Carpenter, 2005, Figure 2.1, page 22)

The Role Of The United Nations In The Marine Environment

As discussed in the introduction, the United Nations plays a major role in governing and protecting the marine environment, through its various committees and conventions. This section will examine one of the most significant UN Conventions with relevance to the marine environment - the UN Convention on the Law of the Sea (UNCLOS) covering the background and history of the development of that Convention and providing an overview of the scope of that Convention. It will also examine two of the most significant UN Conferences of the last few decades and their relevance to the marine environment – the 1972 UN Conference on the Human Environment (UNHCE) and the 1992 UN Conference on the Environment and Development (UNCED).

The 1982 UN Convention on the Law of the Sea: Its Development and Scope The UNCLOS Convention was adopted on 10 December 1982 at Montego Bay, Jamaica and entered into force on 16 November 1994. It is the main Convention dealing globally with issues of protecting the marine environment, the rights of coastal states to maintain jurisdiction in areas such as customs, fishing and access to mineral and other resources within their territorial and contiguous waters and EEZs (see Table 1), and also the need to protect the marine environment from pollution and misuse. However, the process of developing the Convention took several decades, starting with meetings to convene a UN Conference

on the Law of the Sea until its final entry into force in 1994. This section will look first at developments which took place at an international level to first establish the need for a Convention and will then describe some of the main elements of the Convention itself.

Developments Leading to UNCLOS Convention Between 1949 and 1956 an International Law Commission (ILC) met to discuss the issues of territorial waters, the high seas and territorial seas with draft articles on the continental shelf, fisheries and contiguous zones being submitted to the UN General Assembly fifth session in 1953. A final report on the territorial sea was adopted by the ILC in 1956 and a final draft of the Law of the Sea Convention was agreed at the same time. In February 1957 the UN General Assembly met and adopted Resolution 1105(XI) which agreed to convene a UN Conference on the draft convention. The first UN Conference on the Law of the Sea took place in Geneva, Switzerland, between 24 February and 27 April 1957. That Conference adopted 4 separate Conventions and an Optional Protocol which were open for signature by member states between 29 April and 31 October in 1958. Following on from that, other states and also certain specialized agencies were invited to become signatories to the Conventions as follows: Convention on Territorial Sea and The Contiguous Zone (Entered Into Force 10 September 1964): Part I, Sections I and II, of this Convention set out how the territorial seas of states should be delimited by an

Individual state and included what constituted the baseline low water line for making that determination (for example how it should be calculated for straight coastlines, or for those fringed by islands). It also set out that such a baseline should appear on official charts produced by the state and outlined how territorial waters should be decided between adjacent coastal states. What this Convention did not do, however, was to set an actual distance from the baseline for the limit of such a territorial sea. Part I, Section III, identified the requirement that states maintain a right of innocent passage for vessels travelling through territorial seas, while subsections C and D set out rules for government ships and for warships specifically.

Part II of the Convention then outlined what constituted a contiguous zone which could be up to a further 12 miles out from the boundary to the territorial sea zone of a state. Convention on the High Seas (Entered Into Force 30 September 1962): Article 1 of this convention indicates that the high seas are any parts of the sea which are not part of the internal or territorial seas of a state. Article 2 sets out the right of freedom of the seas for all states, whether coastal or non-coastal, to have freedom of navigation, to fish, to lay submarine cables and pipelines and to fly over the high seas. States with no sea coast are granted access to the high seas under Article 3. The Convention then goes on to set out specific articles including the right of vessels to fly the flag of, and be registered in, any state,

articles on piracy including seizure of pirate vessels by states, and articles allowing a nations warships to pursue and board foreign flagged merchant vessels for inspection etc. The convention also, at Articles 24 and 25, sets out requirements on the prevention of pollution from vessels, which later forms the basis of the **International Maritime Organization (IMO) Convention** on the Prevention of Pollution from Ships (1973) and its Protocols (1978), known more commonly as MARPOL 73/78 and discussed in Section 3 of this chapter. Convention on Fishing and Conservation of Living Resources of the High Seas (Entered into Force 20 March 1966) This Convention set out the rights and duties of states with respect to fishing and the exploitation of living resources of the seas, irrespective of whether a state had a coastline adjacent to the area where, for example, fishing was taking place, or even if they had any coastline at all. Articles within this Convention include issues such as fishery conservation and on how states competing for the same fish stocks and other resources should enter negotiations to reach agreement on conservation (Article 4). Further Articles set out how the UN should be notified, via the UN Food and Agriculture Organization, if there is a failure to reach agreement between states, while dispute between States over certain Articles could be put before a special commission to try and achieve a peaceful resolution of such a dispute.

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Un Environmental organizations

Convention of the Continental Shelf (Entry into Force 10 June 1964) This Convention defined, in Article 1, what was meant by the term "continental shelf" and set out the rights of coastal and other states in areas such as exploration, the laying of pipelines and The **United Nations Environment Programme** (**UNEP**) is responsible for coordinating the UN's environmental activities and assisting developing countries in having environmentally sound policies and practices.

UNEP was founded in 1972 by Canadian businessman and philanthropist Maurice Strong, its first director, following the United Nations Conference on the Human Environment (Stockholm Conference). Its mandate covers a wide range of areas, including the atmosphere, marine and terrestrial ecosystems, environmental governance, and green economic development. UNEP's activities include developing international environmental agreements; promoting environmental science and information; working with public and private stakeholders on developing and implementing policy; funding and implementing environmental development projects, such as reforestation and wetland restoration; and formulating guidelines on issues such as the international trade in

potentially harmful chemicals, trans-boundary air pollution, and contamination of international waterways. It also maintains a repository of scientific and environmental research.

As a member of the United Nations Development Group, UNEP aims to help the world meet the 17 Sustainable Development Goals.[4] Over the last thirty years, it has increasingly focused on climate change, helping create or implement environmental treaties and institutions such as the United Nations Framework Convention on Climate Change. In 1988 it joined the World Meteorological Organization to establish the Intergovernmental Panel on Climate Change, a leading authority on the science of climate change. UNEP is also one of several "implementing agencies" for the Global Environment Facility, the Multilateral Fund for the Implementation of the Montreal Protocol, and the International Cyanide Management Code.

Environment Assembly

The United Nations Environment Assembly is UNEP's governing body. Created in 2012 to replace the Governing Council, it currently has 193 members and meets every two years.[13]

Structure

UNEP's structure includes eight divisions:[14]

- Science Division: aims to provide scientifically credible environmental assessments and information for sustainable

development. It reports on the state of the global environment, assesses policies, and aims to provides an early warning of emerging environmental threats. It is in charge of the monitoring and reporting of the environment regarding the 2030 Agenda and Sustainable Development Goals.

- Policy and Programme Division: makes the policy and programme of the UNEP. This division ensures other divisions are coordinated.
- Ecosystems Division: supports countries in conserving, restoring and managing their ecosystems. It addresses the environmental causes and consequences of disasters and conflicts. It helps countries to reduce pollution from land-based activities, to increase resilience to climate change, and think about the environment in their development planning.
- Economy Division: tries to get large businesses to be more environmentally conscious. It has three main branches: Chemicals and Health, Energy and Climate, and Resources and Markets.
- Governance Affairs Office: engages member states and other relevant groups to use UNEP's work. The office serves UNEP's governing body, the United Nations Environment Assembly, and its subsidiary organ, the Committee of Permanent Representatives, and manages their meetings. It helps strengthen the visibility, authority and impact of the Assembly as an authoritative voice on the environment.

- Law Division: helps to develop environmental law. Works with countries to combat environmental crime and to meet international environmental commitments. The law division aims to improve cooperation between lawmakers around the world who are making environmental laws.
- Communication Division: develops and disseminates UNEP's messages. It delivers them to governments to individuals through the digital and traditional media channels.
- Corporate Services Division: handles UNEP's corporate interests such as management and exposure to financial risk.

International Environmental Education Programme (1975–1995)

For two decades, UNESCO and UNEP led the International Environmental Education Programme (1975-1995), which set out a vision for, and gave practical guidance on how to mobilize education for environmental awareness. In 1976 UNESCO launched an environmental education newsletter *Connect* as the official organ of the UNESCO-UNEP International Environmental Education Programme (IEEP). Until 2007 it served as a clearinghouse to exchange information on environmental education in general and to promote the aims and activities of the IEEP in particular, as well as being a network for institutions and individuals interested and active in environment education.[22]

Climate change

UNEP in 1989, 31 years ago, predicted "entire nations could be wiped off the face of the Earth by sea level rise if the global warming trend is not reversed by the year 2000".

UNEP in 2005, 15 years ago, predicted "50 million people could become environmental refugees by 2010, fleeing the effects of climate change".

Glaciers are shrinking at record rates and many could disappear within decades, the UNEP said in 2008. The scientists measuring the health of almost 30 glaciers around the world found that ice loss reached record levels in 2006. On average, the glaciers shrank by 4.9 feet in 2006. Norway's Breidalblikkbrea glacier shrank 10.2 feet in 2006. Glaciers lost an average of about a foot of ice a year between 1980 and 1999, but since the turn of the millennium the average loss has increased to about 20 inches.

Electric vehicles

At the fifth Magdeburg Environmental Forum held in 2008, in Magdeburg, Germany, UNEP and car manufacturer Daimler AG called for the establishment of infrastructure for electric vehicles. At this international conference 250 politicians and representatives of non-government organizations discussed future road transportation under the motto of "Sustainable Mobility–the Post-2012 CO2 Agenda".[27]

Circular economy

UNEP is the co-chair and a founding partner (along with groups such as the Ellen MacArthur Foundation) for the Platform for Accelerating the Circular Economy, which is a public-private partnership of over 50 global organizations and governments seeking to support the transition to a global Circular economy.

EACEA managed the following three bilateral co-operation programmes:

EU-US Atlantis Programme

EU-CANADA Cooperation Programme

Education Cooperation Programme under the framework of the industrial countries instrument (ICI ECP)

The cooperation and mobility activities covered under these programmes had been fully integrated and reinforced in the Erasmus+ Programme under the form of:

- short term scholarships for the exchange of students and staff between European and partner country universities
- full master scholarships to excellent students worldwide

- joint master programmes managed by European and partner country universities
- joint cooperation projects of various forms between European and partner country universities

Non-governmental organization

"NGO" redirects here. For other uses, see NGO (disambiguation).

Organizations which are independent of government involvement[3] are known as non-governmental organizations or non-government organizations,[4] with NGO as an acronym.[5][6] NGOs are a subgroup of organizations founded by citizens, which include clubs and associations that provide services to their members and others. NGOs are usually nonprofit organizations, and many of them are active in humanitarianism or the social sciences. Surveys indicate that NGOs have a high degree of public trust, which can make them a useful proxy for the concerns of society and stakeholders. However, NGOs can also be lobby groups for corporations, such as the World Economic Forum. According to NGO.org (the non-governmental organizations associated with the United Nations), "[an NGO is] any non-profit, voluntary citizens' group which is organized on a local, national or international level. Task-oriented and driven by people with a common interest, NGOs perform a

variety of service and humanitarian functions, bring citizen concerns to Governments, advocate and monitor policies and encourage political participation through provision of information.

Russia had about 277,000 NGOs in 2008.[13] India is estimated to have had about two million NGOs in 2009 (approximately one per 600 Indians), many more than the number of the country's primary schools and health centers.[14][15] The term "NGO" is used inconsistently; it is sometimes a synonym for a civil society organization, any association founded by citizens.[16] NGOs are known in some countries as nonprofit organizations, and political parties and trade unions are sometimes considered NGOs. NGOs are classified by orientation and level of operation; orientation refers to the type of activities an NGO undertakes. Activities may include human rights, consumer protection, environmentalism, health, or development. An NGO's level of operation indicates the scale at which an organization works: local, regional, national, or international.

Activities

The World Bank classifies NGO activity as operational and advocacy.[22] NGOs act as implementers, catalysts, and partners. They mobilize resources to provide goods and services to people who have been affected by a natural disaster; they drive change, and partner with other organizations to tackle problems and address human needs.

NGOs vary by method; some are primarily advocacy groups, and others conduct programs and activities. Oxfam, concerned with poverty alleviation, may provide needy people with the equipment and skills to obtain food and drinking water; the Forum for Fact-finding Documentation and Advocacy (FFDA) helps provide legal assistance to victims of human-rights abuses. The Afghanistan Information Management Services provide specialized technical products and services to support development activities implemented on the ground by other organizations. Management techniques are crucial to project success.

Operational

Operational NGOs seek to "achieve small-scale change directly through projects",[19] mobilizing financial resources, materials, and volunteers to create local programs. They hold large-scale fundraising events and may apply to governments and organizations for grants or contracts to raise money for projects. Operational NGOs often have a hierarchical structure; their headquarters are staffed by professionals who plan projects, create budgets, keep accounts, and report to and communicate with operational fieldworkers on projects.[19] They are most often associated with the delivery of services or environmental issues, emergency relief, and public welfare. Operational NGOs may be subdivided into relief or development organizations, service-delivery or participatory, religious or secular, and public or private. Although operational NGOs may be community-based, many are national or international. The defining activity of an operational NGO is the implementation of projects.

Campaigning

Campaigning NGOs seek to "achieve large-scale change promoted indirectly through the influence of the political system."[19] They require an active, efficient group of professional members who can keep supporters informed and motivated. Campaigning NGOs must plan and host demonstrations and events which will attract media,

their defining activity.[19] Campaigning NGOs often deal with issues related to human rights, women's rights, and children's rights, and their primary purpose is to defend (or promote) a specific cause.

Combined

NGOs may conduct both activities. Operational NGOs will use campaigning techniques if they face issues in the field which could be remedied by policy change, and campaigning NGOs (such as human-rights organizations) often have programs which assist individual victims for whom they are trying to advocacate.

Public relations

Non-governmental organisations need healthy public relations to meet their goals, and use sophisticated public-relations campaigns to raise funds and deal with governments. Interest groups may be politically important, influencing social and political outcomes. A code of ethics was established in 2002 by the World Association of Non-Governmental Organizations.