ДОНСКОЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ

УПРАВЛЕНИЕ ДИСТАНЦИОННОГО ОБУЧЕНИЯ И ПОВЫШЕНИЯ КВАЛИФИКАЦИИ

Кафедра «Иностранных языков»

Методические указания

по профессионально-ориентированному чтению текстов по дисциплине

«Английский язык»

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Аннотация

Методические указания предназначены для бакалавров направления подготовки 08.03.01 «Строительство», профиль «Теплогазоснабжение и вентиляция» и специальности 20.05.01 «Пожарная безопасность». Методические указания состоят из 4 разделов и включают тексты из оригинальных источников для развития и совершенствования навыков профессионально-ориентированного чтения

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Оглавление

UNIT 1
CONSTRUCTION SITE SAFETY

Part 1

1. Answer the following questions:
   1) Is construction a dangerous work sector in your country?
   2) Why? Prove your answer with some examples.

2. New words and expressions:

hazard – риск
safety sign – предупредительный знак
construction site – строительная площадка
electrocution – смерть от удара током
solvents – растворители
ramp – уклон, уступ
hoist areas – место работы подъемного крана
egress – выход
pedestrians – пешеходы

3. Read the text and choose the best title to it:
   - *Hazards to construction workers*
   - *Safety hazards on construction sites*
   - *Health hazards*

Construction is the most dangerous land-based work sector in Europe after the fishing industry. In the European Union the fatal accident rate is nearly 13 workers per 100,000.

The problem is not that the hazards and risks are unknown, it is that they are very difficult to control in a constantly changing work environment.

The leading safety hazards on site are falls from height, motor vehicle crashes, excavation accidents, electrocution, machines, and being struck by falling objects. Some of the main health hazards on site are asbestos, solvents, noise, and manual handling activities.

Falls from heights is the leading cause of injury in the construction industry. Fall protection is needed in areas and activities that include, but are not limited to: ramps, runways, and other walkways; excavations; hoist areas; holes; formwork; leading edge work; unprotected sides and edges; overhand bricklaying and related work; roofing; precast erection; wall openings; residential construction; and other walking/working surfaces.

The height limit where fall protection is required is not defined.

It used to be 2 metres in the previous issue of Work at Height Regulations. It is any height that may result in injury from a fall. Protection is also required when the employee is at risk to falling onto dangerous equipment.

Fall protection can be provided by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, and warning line systems.

All employees should be trained to understand the proper way to use these systems and to identify hazards. The employee or employer will be responsible for providing fall protection systems and to ensure the use of these systems.

Motor Vehicle Crashes are another major safety hazard on construction sites. It is important to be safety cautious while operation motor vehicles or Equipment on the site. Motor vehicles shall have a service brake system, emergency brake system, and a parking brake system. All vehicles must be equipped with an audible warning system if the operator chooses to use it. Vehicles must have windows and doors, power windshield wipers, and have a clear view of site from the rear window.

Equipment on the job site must have light and reflectors if intended for night use. The glass in the cab of the equipment must be safety glass. The equipment must be used for their intended task at all times on the job site.

Before any excavation has taken place, the contractor is responsible for notification of all applicable companies that excavation work is being performed. Location of utilities is a must before breaking ground. During excavation, the contractor is responsible for providing a safe work environment for employees and pedestrians.

Access and Egress is also an important part of excavation safety. Ramps used by equipment must be designed by a competent person, qualified in structural design.

No person is allowed to cross underneath or stand underneath any loading or digging equipment. Employees are to remain at a safe distance from all equipment while it is operational.

Inspect the equipment before every use.

4. Answer the following questions:

1) What are the leading safety hazards on construction sites?
2) What is the most dangerous cause of injury?
3) What is needed to avoid falls from heights?
4) Who is responsible for providing fall protection system?

5) With what must motor vehicles be equipped?

6) Who is responsible for providing a safe work environment for employees and pedestrians?

7)

5. Match the English equivalents to the Russian ones:

1) land-based work sector	a) условия труда
2) fatal accident rate	b) система стояночного тормоза
3) work environment	c) системы ограждения для автомобилей
4) parking brake system	d) сектор полевых работ
5) guardrail systems	e) оборудование для копания
6) excavation work	f) процент несчастных случаев со смертельным исходом
7) digging equipment	g) земляные работы

6. Look through the text again and divide it into logical parts. Give the message of each part.

Part 2

1. Answer the following questions:

1) What must the construction workers wear to protect themselves at work environment?

2) Are there any hazards to non-workers at work environment?

2. New words and expressions:

hard hat – защитная каска
goggles – защитные очки
advisory plate – щит с оповещением
windshield – ветровое стекло
to penetrate – проникать
angle – угол

3. Read and translate the text:

Hazards to non-workers

Hard hats and steel-toe boots are perhaps the most common personal protective equipment worn by construction workers around the world. A risk assessment may deem that other protective equipment is appropriate, such as gloves, goggles, or high-visibility clothing.

Many construction sites cannot completely exclude non-workers. Road construction sites must often allow traffic to pass through. This places non-workers at some degree of risk.

This sign and advisory plate penetrated the windshield and roof of a car in a side-impact test crash. A safer sign would have stiffer uprights, no advisory plate and the flashing light would be moved to the point of the sign to spread the impact force.

Road construction sites are blocked-off and traffic is redirected. The sites and vehicles are protected by signs and barricades. However, sometimes even these signs and barricades can be a hazard to vehicle traffic. For example, improperly designed barricades can cause cars that strike them to roll over or even be thrown into the air. Even a simple safety sign can penetrate the windshield or roof of a car if hit from certain angles. The majority of death in construction is caused by hazards relating to construction activity. However, many deaths are also caused by non construction activities, such as electrical hazards.

4. Study the safety signs given below. Make up instructions for non-workers using modal verbs:

Model: You must not block the fire door! You may not smoke here! You are not allowed to smoke here!

Various workplace safety signs commonly used at construction sites and industrial work environments:

5. Explain the meaning of the following words connected with the work environment:

employer, employee, construction worker, non-worker, pedestrian, operator, contractor.

6. Look through the text again and give the summary of it using the following phrases:

- The text is devoted to …
- The text is about …
- It puts forward the idea of …
- The main idea of the text is …
- It touches upon the problem of …

UNIT 2
AIR-POLLUTION

1. New words and expressions:
   chemicals – химикаты
   particulates – дисперсные осадки
   ozone depletion – истощение озонового слоя
   threat – угроза, опасность
   emission – излучение
   sulphur dioxide – сернистый газ
   contamination – загрязнение, заражение

2. Read the text and find out the information about the air pollutants:

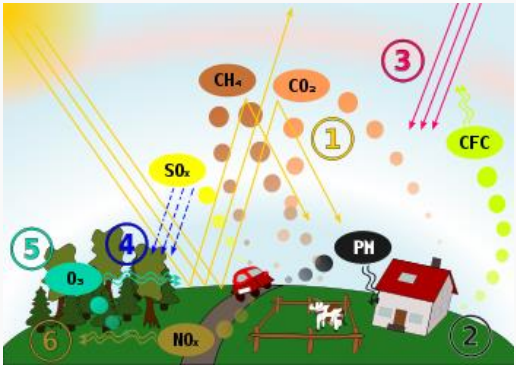
Air pollution is the introduction into the atmosphere of chemicals, particulates, or biological materials that cause discomfort, disease, or death to humans, damage other living organisms such as food crops, or damage the natural environment or built environment.

The atmosphere is a complex dynamic natural gaseous system that is essential to support life on planet Earth. Stratospheric ozone depletion due to air pollution has long been recognized as a threat to human health as well as to the Earth's ecosystems.

Indoor air pollution and urban air quality are listed as two of the World's Worst Toxic Pollution Problems in the 2008 Blacksmith Institute World's Worst Polluted Places report.

Pollutants

Before flue-gas desulfurization was installed, the emissions from this power plant in New Mexico contained excessive amounts of sulfur dioxide:



Schematic drawing, causes and effects of air pollution: (1) greenhouse effect, (2) particulate contamination, (3) increased UV radiation, (4) acid rain, (5) increased ground level ozone concentration, (6) increased levels of nitrogen oxides.

A substance in the air that can be harmful to humans and the environment is known as an air pollutant. Pollutants can be in the form of solid particles, liquid droplets, or gases. In addition, they may be natural or man-made. Pollutants can be classified as primary or secondary. Usually, primary pollutants are directly emitted from a process, such as ash from a volcanic eruption, the carbon monoxidegas from a motor vehicle exhaust or sulphur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. An important example of a secondary pollutant is ground level ozone — one of the many secondary pollutants that make up photochemical smog. Some pollutants may be both primary and secondary: that is, they are both emitted directly and formed from other primary pollutants. (See also p. 22 Secondary pollutants).

Major primary pollutants produced by **human activity** include:

• Sulphur oxides (SO_x) - especially sulphur dioxide, a chemical compound with the formula SO_2. SO_2 is produced by volcanoes and in various industrial processes. Since coal and petroleum often contain sulphur compounds, their combustion generates sulfur dioxide. Further oxidation of SO_2, usually in the presence of a catalyst such as NO_2, forms H_2SO_4, and thus acid rain.

• Nitrogen oxides (NO_x) - especially nitrogen dioxide are emitted from high temperature combustion, and are also produced naturally during thunderstorms by electric discharge. Can be seen as the brown haze dome above or plume downwind of cities. Nitrogen dioxide is the chemical compound with the formula NO_2. It is one of the most prominent air pollutants.

• Carbon monoxide (CO)- is a colourless, odorless, non-irritating but very poisonous gas. It is a product by incomplete combustion of fuel such as natural gas, coal or wood.

• Volatile organic compounds - VOCs are an important outdoor air pollutant. In this field they are often divided into the separate categories of methane (CH_4) and non-methane (NMVOCs). Methane is an extremely efficient greenhouse gas which contributes to enhanced global warming.

• Particulates are tiny particles of solid or liquid suspended in a gas. Sources of particulates can be man made or natural. Some particulates occur naturally, originating from volcanoes, dust storms,

forest and grassland fires, living vegetation, and sea spray. Human activities, such as the burning of fossil fuels in vehicles, power plants and various industrial processes also generate significant amounts of aerosols.

• Persistent free radicals connected to airborne fine particles could cause cardiopulmonary disease.

• Toxic metals, such as lead and quick silver, especially their compounds.

• Chlorofluorocarbons (CFCs) - harmful to the ozone layer emitted from products currently banned from use.

• Ammonia (NH_3) - emitted from agricultural processes. It is normally encountered as a gas with a characteristic pungent odor. Ammonia, either directly or indirectly, is also a building block for the synthesis of many pharmaceuticals. Although in wide use, ammonia is both caustic and hazardous.

• Odors — such as from garbage, sewage, and industrial processes

Radioactive pollutants - produced by nuclear explosions, nuclear events, war explosives, and natural processes such as the radioactive decay of radon. (See also p. 22 Human activity pollutants; p.23 Natural source pollutants).

3. Look through the text again and answer the following questions:

1) What is the air pollution?

2) What has been recognized as a threat to human health and the Earth's system?

3) Explain the meaning of an air pollutant?

4) What are the forms of air pollutants?

5) How can they be classified? Give the examples of each type.

4. Match the columns and make the collocations based on the text:

1) air	a) depletion
2) biological	b) pollutants
3) living	c) environment
4) natural	d) effect
5) ozone	e) particles
6) greenhouse	f) droplets
7) solid	g) organisms
8) liquid	h) dioxide

9) sulphur	i) eruption
10) volcanic	j) pollution

5. Choose one of the expressions and be ready to speak on it:
air pollution, atmosphere, air pollutant, primary pollutants, secondary pollutants.

6. Read the text again and fill in the spidergram:

– Human activity –

– Natural sources –

7. Study the list of the environmental problems given in the appendix, choose one of the problems and prepare a five-minute talk.

UNIT 3
VENTILATION

1. New words and expressions:
   firefighting tactics – противопожарные тактики
   expulsion of heat and smoke – выбросы тепла и дыма
   smoke explosion – взрыв, воспламенение
   flashover – нависшее облако
   timed ventilation – ограниченная вентиляция
   truck companies – грузовые компании
   saw – пила

2. Read the text and learn about two types of ventilation:

Ventilation is an important part of structural firefighting tactics, and involves the expulsion of heat and smoke from a fire building, permitting the firefighters to more easily and safely find trapped individuals and attack the fire. If a large fire is not properly ventilated, not only will it be much harder to fight, but it could also build up enough poorly burned smoke to create a smoke explosion, or enough heat to create a flashover. Contrarily, poorly placed or timed ventilation may increase the fire's air supply, causing it to grow and spread rapidly. The flashover may cause the temperature inside the building to peak at over 1000 °C (1850 °F).

In general, there are two types of ventilation *vertical and horizontal*. Their names refer to the general locations of the intended exit points of the heat and smoke to be ventilated. Vertical ventilation takes place through holes cut in the roof, typically by truck companies during the early stages of a fire in a process known collectively as roof operations, while horizontal ventilation usually takes place through doors and windows. The goal of each is to clear heat and smoke to increase chances of survival for trapped occupants, and/or so that water lines can be advanced into the structure, to more effectively battle the flames. While their goals are similar, their applications are different, but still both require good timing and coordination so that increased air flow through a structure doesn't contribute to fire spread.

Mechanical fans can be used to provide *positive pressure ventilation* when used in tandem with either existing openings such as windows, skylights or heat/smoke vents on the roof; or by cutting new exhaust vents in the building. If there is no suitable existing hole, firefighters may use their equipment to make one, such as specialized saws for cutting a large hole in the roof. A conical hose-stream aimed

around an opening -of a window or door, etc.- entrains smoke and thus increases the exhaust rate of smoke from the space. This is a process called "hydraulic ventilation". This strategy might be used when the fire is small and protecting property from smoke damage can be achieved safely. It can also be used more aggressively when a structure is "fully involved" and the smoke is obstructing the nozzleman's view of the hotspots.

High-rise buildings sometimes also incorporate fans to produce a positive pressure in stairwells and elevator shafts to reduce smoke infiltration into those spaces.

When glass windows in a burning structure burst from internal pressure and heat, or the fire burns through the roof, it may be said to have "auto-ventilated" or "self-ventilated."

3. Look through the text again and answer the following questions:

1) Why is ventilation considered to be an important part of firefighting tactics?
2) What does ventilation involve?
3) Is it dangerous if a large fire is not properly ventilated?
4) What are two types of ventilation?
5) What is the main goal of each type?

4. Give the English equivalents to the Russian ones:

a) найти находящихся в огненной ловушке людей
b) тушить пожар
c) вызвать воспламенение
d) поток воздуха
e) бороться с огнем
f) многоэтажные здания, высотки
g) включать вентиляторы
h) снизить проникновение дыма
i) автоматическая вентиляция

5. Work in pairs and discuss the types of ventilation used nowadays.

6. Look through the text again and give the summary of it using the following phrases:

- The text is devoted to …
- The text is about …
- It puts forward the idea of …
- The main idea of the text is …
- It touches upon the problem of …

UNIT 4
GAS

Part 1

1. Answer the following questions:
   1) What four fundamental states of matter do you know?
   2) What makes gas differ from liquids and solids?

2. New words and expressions:
   matter – материя
   solid – твердый
   liquid – жидкий
   noble gas – инертный газ
   particle – частица
   interaction – взаимодействие
   negligible – незначительный
   velocity – скорость
   density – плотность

3. Read the text and choose the best title to it:

- *The interaction of gas particles*
- *The composition of pure gas*
- *Gas – one of the fundamental states of matter*

Gas is one of the four fundamental states of matter (the others being solid, liquid, and plasma). A pure gas may be made up of individual atoms (e.g. a noble gas or atomic gas like neon), elemental molecules made from one type of atom (e.g. oxygen), or compound molecules made from a variety of atoms (e.g. carbon dioxide). A gas mixture would contain a variety of pure gases much like the air. What distinguishes a gas from liquids and solids is the vast separation of the individual gas particles. This separation usually makes a colorless gas invisible to the human observer. The interaction of gas particles in the presence of electric and gravitational fields are considered negligible as indicated by the constant velocity vectors in the image.

The gaseous state of matter is found between the liquid and plasma states, the latter of which provides the upper temperature boundary for gases. High-density atomic gases super cooled to incredibly low temperatures are classified by their statistical behavior as either a Bose gas or a Fermi gas.

4. Explain the meaning of the following words:

gas, gaseous, pure gas, gas mixture, gas particles, high-density atomic gases, a Bose gas, a Fer- mi gas, solid, liquid, plasma.

5. Answer the following questions:
1) What does a pure gas consist of?
2) What does a gas mixture contain?
3) What distinguishes a gas from liquids and solids?
4) What makes a colorless gas invisible?
5) How can be high-density atomic gases classified?

6. Look through the text again and give the summary of it using the following phrases:

- The text is devoted to …
- The text is about …
- It puts forward the idea of …
- The main idea of the text is …
- It touches upon the problem of …

Part 2

1. Answer the following questions:
1) What physical characteristics of the gas do you know?

2. New words and expressions:
properties – свойства
to repel – отталкивать
to attract – притягивать
charged – заряженные (частицы)
covalent bonds – ковалентные связи
transient – летучий
boiling point – точка кипения
viscosity – вязкость
compressibility – способность сжиматься

3. Read and translate the text:

Physical characteristics

As most gases are difficult to observe directly, they are described through the use of four physical properties or macroscopic characteristics: pressure, volume, number of particles and temperature.

Gas particles are widely separated from one another, and consequently have weaker intermolecular bonds than liquids or solids. These intermolecular forces result from electrostatic interactions between gas particles. Like-charged areas of different gas particles repel, while oppositely charged regions of different gas particles attract one another; gases that contain permanently charged ions are

known as plasmas.

Gaseous compounds with polar covalent bonds contain permanent charge imbalances and so experience relatively strong intermolecular forces, although the molecule while the compound's net charge remains neutral. Transient, randomly-induced charges exist across non-polar covalent bonds of molecules and electrostatic interactions caused by them are referred to as Van der Waals forces. The interaction of these intermolecular forces varies within a substance which determines many of the physical properties unique to each gas. A comparison of boiling points for compounds formed by ionic and covalent bonds leads us to this conclusion. The drifting smoke particles in the image provide some insight into low pressure gas behavior.

Compared to the other states of matter, gases have low density and viscosity. Pressure and temperature influence the particles within a certain volume. This variation in particle separation and speed is referred to as compressibility. Gas particles spread apart or diffuse in order to homogeneously distribute themselves throughout any container.

4. Answer the following questions:
   1) Name four physical properties of the gas?
   2) How are gas particles bound?
   3) What is there between gas particles?
   4) How do you understand the meaning "Van der Waals forces"?
   5) What is the compressibility?

5. Give the English equivalents to the Russian ones:
   1) физические свойства
   2) частицы газа
   3) межмолекулярные связи
   4) одинаково-заряженные частицы
   5) противоположно-заряженные частицы
   6) низкое давление
   7) молекула
   8) электростатическое взаимодействие

6. Work in pairs and discuss the physical characteristics of the gas:

7. Look through the text again and divide it into logical parts. Give the message of each part.

UNIT 5

FIRE SAFETY

1. New words and expressions:

National Fire Protection Association (NFPA) – Национальная организация по защите от пожаров

home structure fire – бытовой пожар
damage – ущерб
firefighter – пожарный
injury – повреждение
appliance – прибор
light bulb – лампочка
cord – провод
plug – штепсельная вилка
fire hazard – риск возникновения пожара

2. Read and translate the text. Choose the best title to it:

- *Fire Protection*
- *Fire Safety*
- *Fire Prevention*

Home structure fires are not at all uncommon. According to the National Fire Protection Association (NFPA) there were 396,000 home structure fires in 2006. These fires resulted in 2,580 deaths and 12,500 injuries (not including firefighters), and nearly $6.8 billion in damages. And although cooking is the number one cause of home structure fires and injuries, electrical fires also cause there fair share of damage.

In 2005 approximately 20,900 home structure fires involved electrical distribution or lighting, including sources from lamps, light fixtures, light bulbs, cords and plugs. From these fires 500 lives were lost, 1,100 people (not including firefighters) were injured and $862 million in property damage was incurred. NFPA reported that from 2002-2005 fire resulting from cords or plugs was the largest cause of death in the electrical distribution or lighting equipment fire category!

So how can you protect yourself and your family from these easily overlooked fire dangers? Treat fire safety at home with the same caution that you would do with other hazards and apply thorough risk management. First, go through your home with a checklist and look for any obvious fire hazards.

- Check the condition of electrical cords for cracks or damage to make sure wires are not exposed
- Make sure cords are not hidden under carpet or rugs
- Move any cords that run across doorways or are located

near water sources

- Check that all switches and outlets have faceplates
- Install outlet caps if you have small children
- Make sure light bulbs in lamps do not exceed the maximum wattage
- Check that all light bulbs have shades or globes to prevent overheating
- Unplug appliances that are not being used
- Limit each outlet to one heat producing appliance plugged in at a time, such as coffee makers, toasters or microwaves

Finally, call an electrician if you notice any of the following: 1) circuit breakers that regularly trip, 2) flickering lights, 3) discolored or warm outlets, 4) burning smell from appliances 5) sparks from outlets.

Remember – accidents and fires don't just happen when you are away. Be prepared at all times by installing smoke alarms in your home. Every level of your house, including the basement, should have smoke alarms. Interconnected alarms are the best and provide warning regardless of where the fire is located, giving family members extra time to escape. NFPA estimates that smoke alarms could save 890 lives a year, and the death rate per 100 fires is double for those homes without working smoke alarms. Check your alarms once a month to make sure that they function properly.

Above all, use common sense and take precautions. Safety features don't always work the way they should, but extra attention to detail can provide a better defence against avoidable home structure fires. Don't let an oversight cost you your home – or worse, your life.

3. Answer the following questions:

1) Are home structure fires a serious problem?
2) What is the number one cause of home structure fires and injuries?
3) What did 20,900 home structure fires involve in 2005?
4) How many people were injured?
5) What did NFPA report about home structure fires during 2002-2005?
6) How can you protect yourself and your family?
7) What helps to protect houses from fires?
8) Do you have any safety features in your house?

4. Fill in the blanks in the sentences according to the context and translate them:

1) Check the condition of … cords for … or damage to make

sure wires are not exposed.

2) Make sure cords are not … under carpet or rugs.

3) Move any cords that run across … or are located near … sources.

4) Install … caps if you have small children.

5) Check that all … bulbs have shades or globes to prevent …. .

6) Unplug … that are not being used.

7) Limit each … to one heat producing appliance … at a time, such as coffee makers, toasters or microwaves.

5. Give the English equivalents to the Russian ones:

a) наносить ущерб имуществу
b) освещение
c) вызвать электрика
d) запах гари
e) установить пожарную сигнализацию
f) принимать меры предосторожности
g) дополнительное время для спасения

6. Look through the text again and divide it into logical parts.

7. Make a plan of the text.

8. Summarize the text according to the plan.

APPENDIX
LIST OF ENVIRONMENTAL ISSUES

- **Climate change** — Global warming • Global dimming • Fossil fuels • Sea level rise • Greenhouse gas • Ocean acidification • Shutdown of thermohaline circulation • Environmental impact of the coal industry • Urban Heat Islands
- **Conservation** — Species extinction • Pollinator decline • Coral bleaching • Holocene extinction • Invasive species • Poaching •Endangered species
- **Energy** — Energy conservation • Renewable energy • Efficient energy use • Renewable energy commercialization • Environmental impact of the coal industry • Environmental impact of hydraulic fracturing
- **Environmental degradation** — Eutrophication • Habitat destruction • Invasive species
- **Environmental health** — Air quality • Asthma • Environmental impact of the coal industry • Electromagnetic fields • Electromagnetic radiation and health • Indoor air quality • Lead poisoning • Sick Building Syndrome • Environmental impact of hydraulic fracturing
- **Genetic engineering** — Genetic pollution • Genetically modified food controversies
- **Intensive farming** — Overgrazing • Irrigation • Monoculture • Environmental effects of meat production • Slash and burn • Pesticide drift •Plasticulture
- **Land degradation** — Land pollution • Desertification
- **Soil** — Soil conservation • Soil erosion • Soil contamination • Soil salination
- **Land use** — Urban sprawl • Habitat fragmentation • Habitat destruction
- **Nanotechnology** — Nanotoxicology • Nanopollution
- **Nuclear issues** — Nuclear fallout • Nuclear meltdown • Nuclear power • Nuclear weapons • Nuclear and radiation accidents • Nuclear safety • High-level radioactive waste management
- **Overpopulation** — Burial • Water crisis • Overpopulation in companion animals • Tragedy of the commons • Gender Imbalance in Developing Countries • Sub-replacement fertility levels in developed countries
- **Ozone depletion** — CFC • Biological effects of UV exposure
- **Pollution** — Environmental impact of the coal industry •

Nonpoint source pollution • Point source pollution • Light pollution • Noise pollution • Visual pollution

- **Water pollution** — Environmental impact of the coal industry • Acid rain • Eutrophication • Marine pollution • Ocean dumping • Oil spills • Thermal pollution • Urban runoff •Water crisis • Marine debris • Microplastics • Ocean acidification • Ship pollution • Wastewater • Fish kill • Algal bloom • Mercury in fish • Environmental impact of hydraulic fracturing
- **Air pollution** — Environmental impact of the coal industry • Smog • Tropospheric ozone • Indoor air quality • Volatile organic compound • Atmospheric particulate matter•Environmental impact of hydraulic fracturing
- **Reservoirs** — Environmental impacts of reservoirs
- **Resource depletion** — Exploitation of natural resources • Overdrafting
- **Consumerism** — Consumer capitalism • Planned obsolescence • Over-consumption
- **Fishing** — Blast fishing • Bottom trawling • Cyanide fishing • Ghost nets • Illegal, unreported and unregulated fishing • Overfishing • Shark finning • Whaling
- **Logging** — Clearcutting • Deforestation • Illegal logging
- **Mining** — Acid mine drainage • Environmental impact of hydraulic fracturing • Mountaintop removal mining • Slurry impoundments
- **Toxins** — Chlorofluorocarbons • DDT • Endocrine disruptors • Dioxin • Toxic heavy metals • Environmental impact of the coal industry • Herbicides • Pesticides • Toxic waste •PCB • Bioaccumulation • Biomagnification • Environmental impact of hydraulic fracturing
- **Waste** — Electronic waste • Litter • Waste disposal incidents • Marine debris • Medical waste • Landfill • Leachate • Environmental impact of the coal industry • Incineration •Great Pacific Garbage Patch • Exporting of hazardous waste• Environmental impact of hydraulic fracturing

Secondary pollutants

- Particulates created from gaseous primary pollutants and compounds in photochemical smog. Smog is a kind of air pollution; the word "smog" is a portmanteau of smoke and fog. Classic smog results from large amounts of coal burning in an area caused by a mixture of smoke and sulfur dioxide. Modern smog does not usually come from coal but from vehicular and industrial emissions that are acted on in the atmosphere by ultraviolet light from the sun to form

secondary pollutants that also combine with the primary emissions to form photochemical smog.

- Ground level ozone (O_3) formed from NO_x and VOCs. Ozone (O_3) is a key constituent of the troposphere. It is also an important constituent of certain regions of the stratosphere commonly known as the Ozone layer. Photochemical and chemical reactions involving it drive many of the chemical processes that occur in the atmosphere by day and by night. At abnormally high concentrations brought about by human activities (largely the combustion of fossil fuel), it is a pollutant, and a constituent of smog.
- Peroxyacetyl nitrate (PAN) - similarly formed from NO_x and VOCs.

Minor air pollutants include:

- A large number of minor hazardous air pollutants. Some of these are regulated in the USA under the Clean Air Act and in Europe under the Air Framework Directive.
- A variety of persistent organic pollutants, which can attach to particulates.

Persistent organic pollutants (POPs) are organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. Because of this, they have been observed to persist in the environment, to be capable of long-range transport, bioaccumulate in human and animal tissue, biomagnify in food chains, and to have potential significant impacts on human health and the environment.

Human activity pollutants

- "Stationary Sources" include smoke stacks of power plants, manufacturing facilities (factories) and waste incinerators, as well as furnaces and other types of fuel-burning heating devices. In developing and poor countries, traditional biomass burning is the major source of air pollutants; traditional biomass includes wood, crop waste and dung.
- "Mobile Sources" include motor vehicles, marine vessels, aircraft and the effect of sound etc.
- Chemicals, dust and controlled burn practices in agriculture and forestry management. Controlled or prescribed burning is a technique sometimes used in forest management, farming, prairie restoration or greenhouse gas abatement. Fire is a natural part of both forest and grassland ecology and controlled fire can be a tool for foresters. Controlled burning stimulates the germination of some desirable forest trees, thus renewing the forest.

- Fumes from paint, hair spray, varnish, aerosol sprays and other solvents
- Waste deposition in landfills, which generate methane. Methane is highly flammable and may form explosive mixtures with air. Methane is also an asphyxiant and may displace oxygen in an enclosed space. Asphyxia or suffocation may result if the oxygen concentration is reduced to below 19.5% by displacement.
- Military, such as nuclear weapons, toxic gases, germ warfare and rocketry

Natural source pollutants

- Dust from natural sources, usually large areas of land with little or no vegetation
- Methane, emitted by the digestion of food by animals, for example cattle
- Radon gas from radioactive decay within the Earth's crust. Radon is a colorless, odorless, naturally occurring, radioactive noble gas that is formed from the decay of radium. It is considered to be a health hazard. Radon gas from natural sources can accumulate in buildings, especially in confined areas such as the basement and it is the second most frequent cause of lung cancer, after cigarette smoking.
- Smoke and carbon monoxide from wildfires
- Vegetation, in some regions, emits environmentally significant amounts of VOCs on warmer days. These VOCs react with primary anthropogenic pollutants—specifically, NO_x, SO_2, and anthropogenic organic carbon compounds—to produce a seasonal haze of secondary pollutants.
- Volcanic activity, which produce sulfur, chlorine, and ash particulates.

LITERATURE

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