

**РОССИЙСКАЯ АКАДЕМИЯ НАУК  
СИБИРСКОЕ ОТДЕЛЕНИЕ  
ИРКУТСКИЙ НАУЧНЫЙ ЦЕНТР**

## **Scientific Conference**



**ИРКУТСК  
2008**

## Section 1

### *The Environmental Problems Today*

**Из этого раздела вы узнаете:**

- как подготовиться и выступить на конференции на английском языке;
- как вести конференцию;
- как составить краткие тезисы вашего доклада;
- как заполнить регистрационный бланк участника конференции.

**Изучив материал этого раздела, вы сможете:**

- принять участие в мини-конференции на тему "Загрязнение окружающей среды" (Unit 1)
- принять участие в мини-конференции на тему "Альтернативные источники энергии" (Unit 2)
- принять участие в мини-конференции на тему "Планета в опасности. Время действовать" (Unit 3)
- вести конференцию в роли председателя

## Unit 1

### *Environmental Pollution*

#### **Preparatory Work**

1. A good report requires a lot of preparatory work. Some specialists distinguish the procedures enumerated below.

Read all of them and:

- a) determine three of them which you find to be the most important;
- b) arrange all of them in the proper order.

- 1) Planning the presentation (aim, time, place, length, form).
- 2) Writing the presentation out in full.
- 3) Producing a plan.
- 4) Writing down all your ideas.
- 5) Choosing the best demonstration materials (documents, pictures, photos, slides, diagrams, tables, graphs, charts, objects, models, etc.) and handouts.
- 6) Producing demonstration materials and handouts.
- 7) Reading the script.
- 8) Using a marker to underline the most important ideas and facts.
- 9) Timing the presentation to fit the available time.
- 10) Reducing the script if necessary.
- 11) Rehearsing the whole presentation in front of the mirror.

12) Organizing the information.

2. The planning stage is really important. At this stage you should provide answers to the seven basic questions: *why? to whom? what? where? when? how long? how?* Say what is meant by these questions matching the question with the information you need to answer them.

<b>why?</b>	<b>to whom?</b>	<b>what?</b>	<b>where?</b>
<b>when?</b>	<b>how long?</b>	<b>how?</b>	

- 1) What the audience knows about the subject, their status, age, culture, specific interests – the information you present should tailor their needs;
  - 2) the time (the first report, the last one, after or before the break, in the evening, etc.);
  - 3) the aims of you report, those evident and hidden;
  - 4) the subject matter of your report;
  - 5) the format, or form of the report including the use of demonstration materials and handouts;
  - 6) the place where the report will be delivered ( a large conference-hall, a small meeting room, with the help of a microphone or without it, etc.)
  - 7) the length of the report including the use of demonstration materials and handouts
3. The next stage is the so-called script stage when you are writing the text of your report. To some extent it is possible to speak about the typical structure of any report and because of that of the typical language used. As far as the structure is concerned, usually we can find three main parts in reports: introduction, main body, conclusion.
4. Now you are standing in front of your audience. Many people are nervous about speaking in front of an audience. Before you begin, try to relax. Breathe deeply and speak with authority. When you appear confident, you will make your audience feel comfortable. They will relax and enjoy your enthusiasm. The most important thing is that the audience should be able to hear what the speaker is saying. Some lecturers appear to think that they are confiding a deadly secret to a few people around them and speak so that those in the front rows can hardly hear what is being said.

Here are the main rules which will help you to be a success

Opening	Signals of the start	To gain the attention of the audience or the people near you in the presidium
	Greetings to the audience	To greet the audience
	Self-identification	To introduce yourself or to thank the person who introduced you.
	Creating a positive emotional atmosphere	To attract attention, to give a smile, to tell a joke, to ask for something, to do something memorable.
Stating the target		To define clearly the purpose of your report.
Providing an overview		To outline the main points of the report.
Stating the rules		To inform the audience of the length of the report, what action, if any, is to be taken, the time and the form of questions.
Making the report itself		
Conclusion	Summary	You repeat briefly the main points of the report or give a summary of the main proposal or conclusion.
	Closing	You thank people for their attention and invite them to ask questions.

### Signaling the start

1) *Read the sentences to signal the start:*

Right. OK.	Now then...	Let's begin/start/get started/
Good. OK.	So.	make a start.
Shall we begin?		
Can I have your attention, please?		

2) *Say which of them are a) the most formal; b) the most informal; c) neutral.*

### Greeting the audience

*1) Read the following expressions:*

Good morning/afternoon/evening  
Hello,

{ ladies and gentlemen.  
friends and colleagues.  
everyone/everybody.

On behalf of .....I'd like to welcome you to...

Welcome to ...

I'd like to extend a welcome to ...

*2) Say which of them are a) the most formal; b) the most informal.*

**Self-identification**

*1) You usually introduce yourself using the following models:*

Let me introduce myself. As you already probably know..., I'm... of...

My name is ...

I represent...

I work for ... as...

*2) Now introduce yourself to the audience:*

- a) You are Russel Brundon, a sociologist, Department of International Business, London, Great Britain
- b) You are Arthur Clarke, a psychologist, MD, Bath Health Center, Bath, Great Britain
- c) You are Bernard Berg, Professor of Linguistics, International Society of Applied Intelligence, Bern, Switzerland
- d) You are Pat Harris, a physicist, Nanotechnology Council, Paris, France
- e) You are Steve McQueen, a biologist, Humanoid Robotics Group, Edinburgh University, Edinburgh, Scotland
- f) You are Kate Pagan, a chemist, Microanalytical Instrumentation Center, Copenhagen, Denmark
- g) You are Win Lynn, a computer specialist, Technical University, Berlin, Germany.

**Creating a positive emotional atmosphere**

*In order to create a positive emotional atmosphere you can give a smile, tell a joke, put a question or you can say:*

- It is my privilege today to be talking to professional experts in this field.
- I think it is a privilege for me to participate in this conference and I greatly appreciate it.

- To begin with, I'd like to say I am very pleased to be here and to be able to take part in this meeting. I hope it will be very stimulating and useful for each of us here.
- I'd like to begin by expressing my appreciation for this opportunity to exchange information on the problems which interest all of us.
- It is a great pleasure for me to attend this representative meeting and to have an opportunity to give a talk here.

### **Stating the target**

- 1) *It is necessary to define the purpose of your report at the beginning to help the audience to follow you. Speaking about the target we can use the words: target, goal, objective, purpose, main aim.*

My goal today/now/this morning is to analyze/ to present...

The goal of my (this) report/ my (this) presentation is to inform/to discuss/to review/to consider/to identify/to report...

The subject of my speech is...

I'm going to deal with...

Besides, I am going to ...

I would like to ...

I'm here to ...

- 2) *You are a participant of an international scientific conference and represent your institute. Greet the audience, introduce yourself and state the target of your report as a beginning of your presentation. Do not forget to give its title.*

### **Providing overview**

*It is good if possible to structure your report. You can use the following language to inform your listeners about it:*

I've divided my report into three parts/sections as follows:...

I'll be developing the following problems in my report...

My report will be in three parts:...

To begin with, I will consider the theory of... . Then I will concern myself with the methods used. In conclusion, I will make an attempt to ... .

I'll start by considering some aspects of ... . Further I'll pass over to the discussion of ... . To conclude, I'll make some comments on ... .

First, I will describe... . Then I will be concerned with ... . Further I will analyze ... . Finally, the results of ... will be presented.

## **Stating the rules**

*At the beginning of your report it is good to inform your listeners of the time the report will take, whether handouts will be provided and the slides demonstrated, when questions can be asked.*

The report will take about  
I am going to speak for about

{	10 minutes
{	a quarter of an hour
{	half an hour

If you have any questions I will be glad to answer them at the end of my report.

If you don't understand please stop me.

## **Making the report itself**

I would like to begin with...

The key thing I'd like to start with is...

I'd like to fix (draw) your attention on (to) the following questions...

Assume that...

These assumptions call attention to...

Let me now make some comments on ...

At this point I'll speak in more detail about...

On the other hand...

That is...

Namely...

On the contrary...

In other words...

In particular...

Strictly speaking...

It is safe to say that...

In order to go more thoroughly into this problem...

It is essential for...

In addition to...

From this it follows that...

Consequently, it is possible that...

As mentioned above...

Let us turn (back) to ...

Now I'll pass/go over to ...

I would like to say a few words on ...

It is necessary to determine here...

It should be stressed here...

It should be noticed that...  
 It is particularly important/interesting that...  
 I'd like to draw/call your attention to...  
 Of special interest/importance is the fact that...  
 Here is an illustrative explanation of...  
 Previous investigations show...  
 From the viewpoint of...  
 Perhaps it will be polemic to...  
 In this sense I would like to emphasize...  
 I would like to raise some questions related to...  
 From this it can be concluded that...  
 Summarizing what I have said ...  
 Summing up/To sum up, it is evident that...  
 In conclusion, we will say that...  
 Thus, we come to the following conclusion...

## **Conclusion**

*Here you can find some useful expressions:*

Thank you for
 

{	your attention.
{	being attentive.
{	listening to me attentively.

You are welcome }  
 Feel free } to ask questions.

If you have any questions, }  
 If there are any questions, } I'll be glad/pleased/happy to answer them.

## **Role Play**

### **Pollution**

Environmental pollution is a term that refers to all the ways that human activity harms the natural environment. Most people have witnessed environmental pollution in the form of an open garbage dump or a factory pouring out black smoke. However, pollution can also be invisible, odorless, and tasteless. Some kinds of pollution do not actually dirty the land, air, or water, but they reduce the quality of life for people and other living things. For example, noise from traffic and machinery can be



considered forms of pollution. Environmental pollution is one of the most serious problems facing humanity and other life forms today. Badly polluted air can harm crops and cause life-threatening illnesses. Some air pollutants have reduced the capacity of the atmosphere to filter out the sun's harmful ultraviolet radiation. Many scientists believe that these and other air pollutants have begun to change climates around the world. Water and soil pollution threaten the ability of farmers to grow enough food. Ocean pollution endangers many marine organisms. Many people think of air, water, and soil pollution as distinct forms of pollution. However, each of the parts of an environment--air, water, and soil--depends upon the others and upon the plants and animals living within the environment. The relationships among all the living and nonliving things in an environment make up an ecological system, called an ecosystem. All the ecosystems of the earth are connected. Thus, pollution that seems to affect only one part of the environment may also affect other parts. For example, sooty smoke from a power plant might appear to harm only the atmosphere. But rain can wash some harmful chemicals in the smoke out of the sky and onto land or into waterways. Water can run off farmland and carry pesticides and fertilizers into rivers. Rain water can wash gasoline, oil and salt from highways and parking lots into the wells that supply drinking water.

More and more people are concerned about environmental problems. There appear a lot of articles in newspapers. There are special movements for environmental protection, "Green Peace" is among them. A lot is being done at the governmental level. But all the decisions taken should be based on scientific research. That is why conferences on ecological problems are very important not only for the specialists but to the public as well. The International Conference "Environmental Pollution" will be held in our Institute.

### **Participation**

You can use your own name if you like. Prepare your business card (first name, last name, profession, address, telephone number, the institution you represent).

Choose one of the topics from the list you are especially interested in. (If necessary you can add your own.)

**Figure 1: Fossil fuel combustion is a major cause of air and water pollution**



### **Topics**

1. Air pollution.
2. Water pollution.
3. Noise pollution.
4. Pollution in cities.
5. Pollution by industries.

### **AIR POLLUTION**

Without air there can be no life. Without air of good quality there cannot be a healthy life. Air pollution is a problem, which has assumed wide economic and social significance. Perhaps the first general realization of the new dangers came with the great London smog of December 1952. For five days the capital of England was enveloped in a grey shroud, and over 4 thousand people had died and incalculable numbers had suffered a worsening of bronchitis and heart disease.

An average person requires over thirty pounds of air a day or about six pints every minute. Daily the individual draws 26000 breaths, between 18 and 22 each minute, many of which are of filthy air. The lungs of town

inhabitants are usually greyish in colour, those of country people are normally pale pink.

The air is being polluted by acid gases, dust, petrol and diesel fumes and poisonous chemicals. These come from cars, factories and power plants.

Of all the pollutants, that taint the air, fine suspended particulate matter, sulphur dioxide and ozone pose the most wide-spread and acute risks. However, airborne lead pollution, coming from car exhausts, is a critical concern in many cities as well.

Suspended particulate matter is nearly ubiquitous urban pollutant. It is a complex mixture of small and large particles of varying origin and chemical composition. Larger particles, ranging from 2,5 microns to 100 microns in diameter, usually comprise smoke and dust from industrial processes, agriculture, construction and road traffic, as well as plant pollen and other natural sources. Smaller particles – those less than 2,5 microns in diameter – generally come from combustion of fossil fuels. These particles include soot from vehicle exhaust, which is often coated with various chemical contaminants or metals. They also include fine sulphate and nitrate aerosols that form when sulphur dioxide and nitrogen oxides condense in the atmosphere. The largest source of fine particles is coal-fired power plants, but auto and diesel exhaust are also prime contributors, especially along busy transportation corridors.

The health effects of particles are strongly linked to their size. Small particles, such as those from fossil fuel combustion, are most dangerous, because they can be inhaled deeply into the lungs, setting in areas, where the body's natural clearance mechanisms can't remove them. The constituents in small particles are more chemically active and may be acidic as well and therefore more damaging.

Particulate pollution causes acute changes in lung function, respiratory illnesses, heart disease and aggravation of asthma and bronchitis. During major pollution events, when particulate levels in the air increase up to 200 micrograms of particulate matter per cubic meter, daily mortality rates could increase as much as 20 per cent.

A major problem with air pollution is that it does not obey national boundaries. The planet's wind cycles and currents can carry pollution hundreds of miles away from its original source. So Britain is a large contributor to air pollution in Sweden and creates more for Norway than

Norway does itself. The pollutants of the USA end up on the eastern coast of Canada.

As evidence grew of the links between air pollution and environmental damage, legislation to curb emissions was put in place. The 1979 Geneva Convention on Long-Range Transboundary Air Pollution set targets for reduction of sulphur and nitrogen emissions in Europe that have largely been achieved. The 1970 and 1990 Clean Air Acts have led to similar improvements in the USA.

Many nations have adopted air quality standards to safeguard the public against the most common pollutants. These include sulphur dioxide, carbon monoxide, suspended particulate matter, ground-level ozone, nitrogen dioxide and lead – all of which are tied directly or indirectly to the combustion of fossil fuels. Substantial investments in pollution control have lowered the levels of these pollutants in many cities of some developed countries. But poor air quality is still a major concern throughout the industrialized world.

#### **VOCABULARY:**

**realization** – осознание, понимание

**to be enveloped** – быть окутанным

**shroud** – пелена, завеса

**incalculable** - неисчислимый

**to suffer** - страдать

**worsening** - ухудшение

**major pollution events** - случаи сильного загрязнения воздуха

**heart disease** – заболевания сердца

**breath** - дыхание

**filthy** - грязный

**lungs** - легкие

**fume** – дым, газы

**ubiquitous** – повсеместный, вездесущий

**sulphur dioxide** - двуокись серы

**airborne** - воздушный

**lead pollution** - загрязнение свинцом

**car exhaust** - выхлопные газы

**plant pollen** – пыльца растений

**combustion** - сгорание

**fossil fuel** - ископаемое топливо

**soot** - сажа

**vehicle** - средство передвижения, автомобиль

**vehicle exhaust** – транспортные выхлопы

**contaminant (pollutant)** - загрязняющее вещество  
**nitrogen oxide** - окись азота  
**to inhale** - вдыхать  
**particles** - частички  
**mortality rate** - смертность  
**acid rain** - кислотный дождь  
**fog** – туман  
**coal** – уголь  
**oil** – нефть  
**pine** – сосна  
**oak** - дуб  
**decline** - гибель  
**growth rate** – темп роста  
**legislation** – законодательство  
**to curb** – сдерживать, усмирять  
**long-range** - долгосрочный  
**emission** - выброс загрязняющих веществ в атмосферу

## **Pollution of Water: Lake Baikal**



Every day it's becoming clearer that people are upset by the deterioration of nature in one place or another. Nature is being victimized by the triumphant march of Industry. Such a vast territory as our world would seem to offer enough space for both. However, over the past decades,

this same evil presence seems to be at work trying to influence its actions against this silent, no-man's land. Every time, for some mysterious reason destructive plans are not made available for prior discussion with concerned people. Let us forget what has been irretrievably lost. The oaks above Tolstoy's grave at Yasnaia Poliana have barely shrivelled in the vapours of a chemical plant, as we learn of new crimes against Lake Baikal. Our grief is not that of a bystander. We can't just say: "Farewell, Barguzin and the omul barrel". Most will not listen to our arguments, as if to say: "Let's get the most out of it; soon it will all be forgotten". No, it



won't be forgotten. Let us all take off our hats on the day when poison gushes into this purest of vessels.

**The Paper-and-Pulp Mill** at Baikalsk has polluted the surrounding region and threatens the pristine conditions that have existed for centuries.

The paper mill produces bleached cellulose that is used in clothing manufacture. The process, however, produces chemicals and effluent that threaten the more than 1,500 species unique to the lake. The success of Lake Baikal has been viewed as critical to other environmental efforts throughout the world. Plans for the paper mill at Baikalsk began in 1954. The public was informed in 1957; protests were held, and ignored. This pollution affects the bottom-dwellers of the lake as well, for Lake Baikal's waters are thoroughly mixed, with oxygen found even at the lowest depths. In addition, the Angara carries some of this pollution westward. Baikalsk releases chlorinated organics from the waste chemicals involved in pulp bleaching. These are of particular concern since they take centuries to biodegrade.

**Air pollution surrounding Baikalsk** is the worst in Baikal region. The larch and pine forests in the area also exhibit degradation effects from the pollution. Furthermore, disabilities in the population are rising, ostensibly a result of the pollution. DDT levels are higher here. Many other chemical levels show similarities to the U.S. Great Lakes. This is particularly worrisome, as the food web for Lake Baikal closely mirrors that of the Great Lakes. While Baikal supports 1,500+ endemic species, however, Lake Superior, by contrast, has only four. This may be a result of age, however; while Lake Baikal is roughly 30 million years old, Lake Superior is only 10,000 years old.



Pollution also occurs from the **Selenga River**. This tributary is the main inlet to Baikal, contributing almost one-half of Baikal's water inflow. Sediment and waste from three large Mongolian cities, as well as human and industrial wastes are carried by the Selenga. Thus far, the most noticeable effect has been decreased spawning rates for the omul, an endemic fish considered a delicacy. The coal-burning plants in Slyudyanka, furthermore, contribute to acid rain, which in turn further pollution in the lake. In April 1987, the Soviet government issued a decree to protect Lake Baikal. Mikhail Grachev, a molecular biologist, was appointed the director of the Institute for Limnology at Irkutsk in 1986, (the Siberian branch of the Soviet Academy of Sciences) and was directed to study Lake Baikal. In 1988 the Center for the Great Lakes Studies entered into a joint project with the Institute of Limnology. An international ecological center was instituted at Baikal in

1990. UNESCO (United Nations Educational, Scientific and Cultural Organization) is considering classifying Lake Baikal as a natural treasure of the world, which would then give it international protection.

Lake Baikal is currently a test area to determine the extent of the spread of manmade pollutants. Considering the levels of pollution, Lake Baikal remains in fairly pristine condition. This is largely the result of its tremendous size. Its size, however, is what led to the pollution in the first place. For years, many Soviet officials believed that factories would not harm the lake; its size would disperse the chemicals harmlessly. Now, however, it has been shown that pollution at any level is detrimental. Baikal has become a symbol of environmental dangers. The similarities of Lake Baikal to other bodies of water indicate these dangers and the urgency of conservation. The Great Lakes, although now on a rebound, were in terrible condition. Lake Baikal has also been compared to Lake Tanganyika, which houses no life. International participation and funding, however, appear crucial to salvaging the Siberian Pearl.

If the pollution continues unabated, which is not foreseen, it may become more crucial. At particular risk are the Baikal seal and several species of endemic fish found nowhere else in the world, including the omul and the golomyanka.

## **PRIBAIKALSKY NATIONAL PARK & NATURE PROTECTION SOCIETY**

on preserving natural environment and wild beauty of the Lake welcomes any proposals on improving ecological situation in Baikal please call: +7(3952) 467437; +7(3952) 467444

<http://www.bww.irk.ru/baikalinfo/baikalpollution.html>

### **VOCABULARY:**

**deterioration** – ухудшение, порча

**to victimize** - уничтожать

**silent** – безмолвный, тихий

**concerned people** – заинтересованные люди

**irretrievably** – безвозвратно, непоправимо

**oak** - дуб

**grave** - могила

**barely** – только, просто

**shrivel** – вянуть, высыхать

**vapour** – пар, пары, испарения

**grief** – горе, беда

**bystander** - наблюдатель  
**barrel** - бочка  
**poison** - яд  
**to gush** - изливаться  
**vessel** - сосуд  
**paper-and-pulp mill** – целлюлозно-бумажный комбинат  
**pristine** – чистый, нетронутый  
**bleached cellulose** – отбеленная целлюлоза  
**effluent** – сток, промышленные отбросы  
**threaten** - угрожать  
**species** - виды  
**bottom-dwellers** – придонные обитатели  
**larch** - лиственница  
**pine** - сосна  
**disability** - инвалидность  
**ostensibly** – как будто, по видимости  
**worrisome** – вызывающий беспокойство  
**food web** – пищевая сеть  
**to mirror** - отражать  
**tributary** - приток  
**inlet** - приток  
**sediment** - осадок  
**spawning** - нерест  
**coal-burning plant** - котельная  
**acid rain** – кислотный дождь  
**to further** – содействовать, способствовать  
**treasure** - сокровище  
**tremendous** - огромный  
**to disperse** – рассеивать, уничтожать  
**detrimental** – вредный, пагубный  
**urgency** – безотлагательность, срочность, крайняя необходимость  
**to be on a rebound** - восстанавливаться  
**to house life** – содержать жизнь  
**crucial** – ключевой, решающий  
**to salvage** – спасать  
**the Siberian Pearl** – жемчужина Сибири  
**unabated** – неослабленный, неутихающий

## **Noise pollution**

Noise pollution has a relatively recent origin. It is a composite of sounds generated by human activities ranging from blasting stereo systems to the roar of SUPERSONIC TRANSPORT jets. Although the frequency (pitch) of noise may be of major importance, most noise sources are measured in



terms of intensity, or strength of the sound field. The standard unit, one decibel (dB), is the amount of sound that is just audible to the average human. The decibel scale is somewhat misleading because it is logarithmic rather than linear; for example, a noise source measuring 70 dB is 10 times as loud as a source measuring 60 dB and 100 times as loud as a source reading 50 dB. Noise may be generally associated with industrial society, where heavy machinery, motor vehicles, and aircraft have become everyday items. 60-80 per cent of noise in the city is emitted by auto transport. The rest amount of noise falls on railway transport, factories and plants. Some examples of high-level sources in the environment are heavy trucks (90 dB at 15 m/50 ft), freight trains (75 dB at 15 m/50 ft), and air conditioning (60 dB at 6 m/20 ft).

Over the whole period when the noise impact upon people was studied the following hygienic norms were fixed: the noise strength mustn't exceed (according to different sources) 30-40 decibel near the walls of apartment building at night; 50 decibel during daylight hours; the norm for workplaces is 70-80 decibel. For instance, the noise emitted by a lathe is 90 decibel, by a sheet-metal press – 100 decibel, a jet engine – 120 decibel and the pain threshold of man's ear is 130 decibel. To compare, the noise caused by movements and conversations of people in a large store is 60 decibel and by grass rustling – 5 decibel.

The most readily measurable physiological effect of noise pollution is damage to hearing, which may be either temporary or permanent. The effect is variable, depending upon individual susceptibility, duration of exposure, nature of noise (loudness), and time distribution of exposure (such as steady or intermittent). On the average an individual will experience a threshold shift (a shift in an individual's upper limit of sound detectability) when exposed to noise levels of 75 to 80 dB for several hours. This shift will last only several hours once the source of noise pollution is removed. A second physiologically important level is the threshold of pain, at which even short-term exposure will cause physical pain (130 to 140 dB). Any noise sustained at this level will cause a permanent threshold shift or permanent partial hearing loss. At the uppermost level of noise (greater than 150 dB), even a single short-term blast may cause traumatic hearing loss and physical damage inside the ear.

Noise is one of those factors to which people cannot get used. You may think that you have got used to noise; however noise pollution ruins people's health if it constantly exerts influence upon people. Noise is a

harmful industrial factor responsible for 15 per cent of all occupational diseases. Acoustic pollution has an unfavourable impact upon all systems of the human organism; the nervous, the cardiovascular system and the digestive apparatus are the first that suffer. There is dependence between the disease incidence and a period within which a man lived under acoustic pollution. It has been noted that diseases increase after 8-10 years of the constant impact of noise that is stronger than 70 decibel. The city noise is one of the causes of essential hypertension and ischemic heart-disease. The impact of noise relaxes attention, reduces the exercise and mental performance. The constant impact of noise of over 80 decibel causes gastritis and stomach ulcer. Although little information is available on the psychological side effects of increased noise levels, many researchers attribute increased irritability, lower productivity, decreased tolerance levels, increased incidence of ulcers, migraine headaches, fatigue, and allergic responses to continued exposures to high-level noises in the workplace and the general environment.

People can protect themselves from noise only if they get out of the city. The only way out we have in city apartments is acoustic insulation. Many of modern construction materials offer this solution of the problem. Protection from noise requires new solutions for usage of acoustic insulation materials in design of building, industrial equipment and transport vehicles. Considerable effect in fighting with noise pollution can be achieved through efficient planning of building up and accomplishment of residential areas. Even a narrow line of bushes along the road helps slightly disperse and absorb the noise.

People in their turn can reduce the noise impact they produce; for instance, make the noise of TV sets and music centers lower. Indeed, this is essential for people's health.

#### **VOCABULARY:**

**erratic** – неустойчивый, переменчивый, неуправляемый

**origin** - происхождение

**blasting** – дребезжание

**roar** – рев, шум

**supersonic transport jet** – сверхзвуковой реактивный транспорт

**pitch** – высота звука

**heavy machinery** – тяжелое механическое оборудование

**motor vehicles** - автомашины

**ambient noise** – шум окружающей среды

**background noise** – фоновый шум  
**heavy truck** – тяжелый грузовой автомобиль  
**freight trains** – товарный поезд  
**lathe** – токарный станок  
**sheet-metal press** – листоштамповочный пресс  
**jet engine** – реактивный двигатель  
**the pain threshold** – порог болевой чувствительности  
**grass rustling** – шелест травы  
**disruption** - нарушение  
**annoyance** – раздражение, беспокойство  
**susceptibility** – чувствительность, восприимчивость  
**duration of exposure** – длительность воздействия  
**intermittent** – периодический, прерывистый  
**sustained** – длительный, продолжительный, непрерывный  
**irritability** – раздражимость, возбудимость  
**migraine headache** - мигрень  
**fatigue** - усталость  
**obstacle** - препятствие  
**humidity** - влажность  
**fog** - туман  
**to get used to** - привыкать к чему-л.  
**to exert influence on (upon) sth.** – оказывать влияние на к.-л.  
**occupational disease** – профессиональное заболевание  
**cardiovascular system** – сердечно-сосудистая система  
**digestive apparatus** – пищеварительная система  
**to suffer** - страдать  
**hypertension** - гипертония  
**mental performance** – умственная деятельность  
**stomach ulcer** – язва желудка  
**acoustic insulation materials** – звукоизоляционные материалы  
**to disperse** - рассеивать  
**to absorb** - поглощать  
**bushes** – кусты

## **Pollution in cities**

Urbanization is one of the most controversial problems of modern society. According to UN report, worldwide, cities produce on average 60 percent of a country's GNP. Bangkok, for example, produces 40 percent of Thailand's output, whereas only 12 percent of its population lives in this city. Cities are undoubtedly the basis for any functioning economy. Cities are the centers of culture and economic prosper, but the mismanagement and poor economical development can turn the cities into centers of unemployment, poverty and pollution.

As the city grows it needs more lumber, more steel, more labor and more land. They absorb the agricultural land for urban use, the forest for construction and all sorts of raw materials for growth. A city the size of San Francisco has more copper and aluminum than a medium size mine; more lumber than some countries have in their forest. Cities behave like a giant growing monster, eating and swallow everything round it, while at the same time spoiling and wasting surrounding areas. High concentration of cars and industries causes the air and water pollution, high demand produces extra wastes and high density requires more land. In many cases cities are the only cause of the instability of the sensitive ecosystem of the region.

Living in a major city places a person at greater risk of early death than living in the radioactive exclusion zone around Chernobyl, according to a study conducted by scientists at the Centre for Ecology and Hydrology in Great Britain.

Approximately 16,000 people are estimated to have been killed by the radioactive plume released from the Chernobyl explosion. In contrast, the Royal Commission on Environmental Pollution has estimated that air [pollution](#) causes 24,000 deaths in Britain each year.

Researchers have found that residents of central London were 2.8 percent more likely to die from pollution-related heart and lung disease than residents of Inverness, the United Kingdom's least polluted city.

Another big ecological problem in cities is indoor air pollution. Indoor air pollution occurs when buildings with poorly designed ventilation systems trap pollutants inside. The main types of indoor pollutants are tobacco smoke, gases from stoves and furnaces, household chemicals, small fiber particles, and hazardous fumes given off by building materials, including insulation, glue, and paint. In some office buildings, high amounts of these substances cause headaches, eye irritation, and other health problems in workers. Such health problems are sometimes called sick building syndrome. Radon, a radioactive gas given off through the decay of uranium in rocks within the earth, is another harmful indoor pollutant. It can cause lung cancer if inhaled in large quantities. People can be exposed to radon when the gas leaks into basements of homes built over radioactive soil or rock. Energy-efficient buildings, which keep in heated or cooled air, can trap radon indoors and lead to high concentrations of the gas.

Meanwhile, urban air pollution has worsened in most large cities in the developing world, a situation driven by population growth, industrialization and increased vehicle use. Despite pollution control effects, air quality has approached the dangerous levels, recorded in London in the 1950s, in such megacities as Delhi, Jakarta and Mexico City.

Many industrial researchers are looking for improvement of this situation. As a result of their research, new automobile engines burn gasoline much more cleanly and efficiently than older engines. Researchers have also developed automobiles that use such clean-burning fuels as methanol (a type of alcohol) and natural gas. In Brazil, some cars use another type of alcohol, called ethanol, as fuel. Scientists are also developing cars that can use hydrogen gas as fuel. Hydrogen creates almost no pollution when it is burned.

## VOCABULARY

**GNP** = Gross National Product – валовой национальный продукт

**output** - продукция

**prosper** - процветание

**unemployment** – безработица

**poverty** – бедность

**lumber** – лесоматериалы

**steel** – сталь

**agricultural land** – сельскохозяйственные угодья

**construction** - строительство

**raw materials** – сырье

**copper** – медь

**mine** – шахта

**to spoil** – портить

**to waste** – тратить, разорять

**attitude** – отношение

**breaking point** – кризис, критическое состояние

**legislation enforcement** – соблюдение законопорядка

**hazardous** – опасный

**security equipment** – средства защиты

**hosting** – размещение

**to bother** – беспокоиться

**mercury poisoning** – отравление ртутью

**downdthrow** – сброс

**exclusion zone** – запретная зона

**plume** – струя, факел (выбросов)

**to reinforce** – укреплять, усиливать

**life expectancy** – средняя продолжительность жизни  
**lungs** – легкие  
**heart** – сердце  
**to trap** – улавливать, поглощать, удерживать  
**stove** – печь  
**furnace** – горн, очаг, топка, печь  
**household chemicals** – бытовая химия  
**fiber** – волокно  
**insulation** - изоляция  
**glue** – клей  
**paint** – краска  
**irritation** – раздражение  
**decay** – распад  
**rock** – порода, камень  
**lung cancer** – рак легких  
**inhale** – вдыхать  
**be exposed to** – подвергаться воздействию  
**to leak** – давать течь, подтекать  
**basement** – фундамент, подвал  
**soil** – почва  
**engine** – двигатель  
**gasoline** – бензин  
**fuel** – топливо  
**hydrogen** - водород

## **Pollution by industries**

About 200 years ago people lived in greater harmony with nature and their environment, because industry was not as developed and the world was not as crowded as now. Aborigines took good care of nature and never took more than they needed for life.

Today the contradictions between man and nature are great. Every year world industry pollutes the atmosphere with about 1000 million of dust and other substances. The waste from factories and plants, electric and atomic power stations gets into lakes, rivers and seas, it poisons the air, it destroys plants and animals.

Hazardous wastes are generated by nearly every industry; those industries that themselves generate few hazardous wastes nonetheless use products from hazardous waste generating industries. For example, in the computer software industry, writing software generates little hazardous waste, but the manufacture of computers involves many industrial processes. Making

a computer circuit board generates spent electroplating baths that contain metal salts, and the production of computer chips uses acids, other caustic chemicals, and solvents. Other hazardous wastes are generated in the manufacture of fiber optics and copper wire used in electronic transmission, as well as magnetic discs, paper for technical manuals, photographs for packaging and publicity, and trucks for the transportation of the finished product.

As nations develop their industrial activities, the production and use of chemicals rise in parallel to the standard of living and the consequent increase in life expectancy. For instance, intensifies use of chemicals in agriculture as fertilizers or pesticides, has enabled communities to become self-sustaining and to become exporters of food. In a wider context, major use of chemicals is made for such things as the production of fibers for clothing, plastics for multiple uses and fuels for transportation. At the same time, substantial quantities of a wide variety of chemicals are released to the air, water and land from these same production and use activities. Given the increases in the production and use of chemicals, it is not surprising that the potential for inadvertent chemical releases has increased, giving rise to a greater risk to human health and ecosystems.

Carbon dioxide, sulfur dioxide, and other types of contamination pouring from industrial smokestacks contribute to worldwide atmospheric pollution. Carbon dioxide contributes significantly to global warming, while sulfur dioxide is the principal cause of acid rain in northeastern United States, southeastern Canada, and Eastern Europe. Other environmental problems stemming from smokestack emissions include respiratory diseases, poisoned lakes and streams, and damaged forests and crops.

At its ninth session in 1981, the Governing Council of the United Nations Environmental Program (UNEP) recognized that a list of selected environmentally dangerous chemical substances harmful at the global level should be prepared. In addition, the council specified that special attention should be paid to the promotion of public awareness of the possible environmental hazards of such chemicals, in order that measures could be adopted to prevent serious impacts. The list was then circulated to governments, international organizations, industry and non-governmental organizations for actions and comments at the request of the Governing Council.

In 1997 in the Japanese city Kyoto the nations of the world agreed on a decisive step to begin tackling the threat of man made climate change. The most rational way of dealing with this problem seems to be the approach advocated by the London-based Global Commons Institute.

Under its scenario, every inhabitant of the planet would be allocated the same quantity of greenhouse gases to emit, divided out of a total which kept climate change within tolerable limits.

This would give every country, whatever its wealth, a certain quota of pollution. Developed countries have more than their fair share of this quota, while many developing nations still have less. The institute says all countries should be able to trade their quotas through a free market. The governments will have to make a prompt start on implementing the policies needed to stop emissions of global-warming gases rising. They have a few years to change the upward trend into a decline in order to comply with the provisions of the new United Nations treaty.

## VOCABULARY

**crowded** – густонаселенный

**contradiction** – противоречие

**dust** – пыль

**hazardous wastes** – опасные отходы

**to poison** – отравлять, заражать

**computer circuit board** - схемная плата компьютера

**spent electroplating bath** – отработанная электролитическая ванна

**metal salts** – соли металлов

**acid** – кислота

**caustic chemicals** – едкие химические вещества

**solvent** – растворитель

**fiber optics** – волоконная оптика

**copper wire** – медная проволока

**electronic transmission** – электронная передача

**technical manual** – техническое руководство

**truck** – грузовик

**standard of living** – уровень жизни

**life expectancy** – средняя продолжительность жизни

**fertilizer** – удобрение

**self-sustaining** – самоподдерживающийся

**multiple use** – многократное использование

**fuel** – топливо

**inadvertent** – небрежный, неосторожный, нечаянный

**contamination** – загрязнение



**smokestack** – дымовая труба  
**to stem** – происходить  
**respiratory disease** – респираторное заболевание  
**damaged** – поврежденный, нарушенный  
**crops** – сельскохозяйственные культуры  
**harmful** – вредный, пагубный, опасный  
**public awareness** – общественная осведомленность  
**non-governmental organization** – неправительственная организация  
**decisive** – решающий  
**to tackle** – взяться за ч.-л.; пытаться найти решение  
**threat** – угроза  
**to allocate** – назначать, распределять, размещать  
**to emit** – выделять, испускать  
**wealth** – богатство, состояние  
**to trade** – торговать, обменивать  
**implementing** – осуществление, исполнение  
**upward trend** – тенденция к повышению  
**decline** – падение, спад  
**to comply with** - подчиняться  
**provision** – положение, условие  
**treaty** – договор, соглашение

## Unit 2

### Alternative Energy Sources

#### *Study the necessary words:*

to hold a conference – проводить конференцию

opening session – открытие конференции

chairman – председатель

items of the agenda – вопросы повестки дня

to present a scientific paper – представить научный доклад

speaker – докладчик

to give smb. the floor – давать слово кому-л.

to take the floor, to address the meeting – брать слово, выступать

to put a question to the vote – поставить вопрос на голосование

to solve the problem – решить проблему

to decide the question – решить вопрос

urgent/pressing/top priority problem – проблема, не терпящая отлагательств, важнейший вопрос

controversial problem – спорный вопрос

on behalf of – от имени

#### **Chairman**

*According to the official program of the conference the chairman is to open it pointing out the importance of the event, its main goals, the number of the participants. He is to introduce all the speakers, to conduct all the procedures and to close it.*

#### *Opening Speech of the Chairman:*

Ladies and gentlemen! Dear friends! I declare the conference open.

On behalf of the Organizing Committee and in my own name I wish to welcome the guests and participants of the Conference to ... (*place*). I wish to add my special words of welcome to our foreign participants.

Four years have passed since the last conference was held in ..., which was very successful. Much progress has been made in the field of ... during these years. However, complete understanding of the process is still lacking. Thoroughly as the questions may have been studied, we still have to go a long way to understand the phenomena in full. Our main goal in holding this meeting is to discuss the current state of knowledge as well as the latest findings in ... .

The total number of participants in our conference is ... .We are very pleased that so many people from all over the world take part in our conference. Leading specialists from several countries have accepted our invitation to present their research findings. It is our hope that this conference will provide a stimulating environment for the exchange of information about the latest scientific results and the generation of new ideas for future research. We hope that this conference will promote new contacts and strengthen cooperation among scientist from different parts of the world. We also hope that the conference will provide opportunities for personal exchanges of scientific results and the strengthening of personal friendships among scientists from different parts of the world. We wish you every success.

The first matter is to read the agenda and to explain briefly the work to be done and problems to be discussed. The range of the subjects to be discussed is very wide indeed. The conference program includes... . Each participant will be allowed 15 minutes for the formal presentation of the paper.

I am very happy to be able to introduce to you our honorary guests and our speakers. Professor Jones of the University of ... is the first to take the floor... . He is well known for his numerous articles in the field of... and for his active participation in an international project on ... . Professor Jones's subject today is ...

The next Speaker is Dr. Sanders of the University of... who will recount his findings on ... . Dr. Sanders is well-known among ... (physicists, etc.) for his numerous articles on ... . Welcome, Dr. Sanders.

The last one to speak is Dr.Stutz of the University of ... whose special interest today is on the problem of ... . Dr.Stutz is the author of many papers on this problem. Today he is going to report his latest data.

## **How to lead the discussion**

### *1. Opening a discussion*

Now I would like to open the discussion. Please feel free to ask questions and make comments. I hope that by the end of the discussion we will achieve an understanding of several important questions. I would like everyone to be brief and keep to the point. Please identify yourselves before asking your questions.

### *2. Introducing the subject*

The topic of the discussion is...

The first thing we have to discuss is...  
The next item of our agenda is ...  
We need to discuss.../ Let's discuss...  
And now we proceed to the last question/point.

*3. Encouraging everyone to participate*

Are there any questions to the speaker?  
Who wants to ask a question?  
So, would you like to comment on what Prof. Brown said?  
What do you think about Dr. Lane's point?  
Do you have anything to add?  
What do you suggest?

*4. Asking for an opinion*

Are there any questions/comments/opinions?  
What do you think of that?  
What's your opinion about that?  
Have you got any views on this?

*5. Giving an opinion*

In my opinion, ...  
To my mind...  
Personally, I think...  
It seems to me...  
As far as I'm concerned...  
As I see it ...  
As far as I can judge...  
As far as I know...  
I believe/suppose...  
I don't think...  
In this connection I want to give you my views on this subject.

*6. Asking questions to the speakers*

Mr. Chairman, may I ask a question to the speaker?  
I have a question for Dr. Taylor.  
I would like to ask Dr. Jones a question.  
I want Dr. Goodman to answer my question.  
I have two questions/several questions.  
I would like to ask a simple/difficult/controversial/brief question.

Let me put my question differently/in a different way.  
I have another question.

### 7. *Answering questions*

This is a good/interesting/excellent/controversial/difficult question.  
I would answer your questions as follows.  
Your question raises two problems that should be investigated.  
May I begin by answering the last question?  
I'd like to think about that for a while, if you don't mind.  
I can only answer your question from my own very limited experience.  
I can't answer your question because ...

that is a very difficult problem  
this goes beyond the scope of my investigation  
we have no information.

I don't have an answer to your question.  
I'm afraid I'm not prepared to answer your question at this point.  
I think nobody can answer your question.  
We do not have that information.  
I'm not an expert on this problem.  
This is currently not known.

### 8. *Agreeing/disagreeing*

That's right. / You are right.	I don't really agree with you.
I am of the same opinion.	Yes, that may be true, but ...
I think so, too.	Well, I can see your point, but ...
I agree with you.	I have some doubts about that.
I completely agree with you.	I'm not sure about that.
That's a good idea.	I'm afraid I don't agree with you because...
	It seems unlikely.
	I came to other conclusions.
	Quite the opposite!

### 9. *Claryfying*

Formal:

- I'm very sorry, but I'm afraid I didn't quite understand your last point.
- I would appreciate it if you could explain it again.
- Would you be so kind as to repeat your last point?

- Neutral:                   - Would you mind explaining your past point, please?  
                               - Could you please explain that again?
- Informal:                 - Excuse me?  
                               - Please, explain that.
- Highly informal         - What are you talking about?  
                               - What did you say?  
                               - What?

*10. Thanking the speaker and assessing the presentation*

I am sure I am speaking for everyone when I say how grateful we are to Dr. Bennett for his informative report covering various aspects of the problem discussed.

Thank you, Professor Soller. I'm sure my colleagues join me in thanking you for an extremely clear and concise presentation of the main problem confronting us.

Thank you, Professor Payne, for your highly interesting talk. your paper raises an important problem of ... .

Dr. Hill, I was very impressed by your talk. It was a comprehensive account of the present state of things in ... . Thank you very much.

Dr. Sanders has given a very complete analysis of ... . On behalf of the audience, I thank him.

What you have reported here, Dr. Olson, is really very interesting. I'm sure the problems you have raised will promote comprehensive discussions.

*11. Keeping the discussion moving*

Perhaps we should go on to the next point.

We have only ten minutes left, so we'd better move on.

I'm afraid your time's up.

Keep to the point, please.

This point is not under discussion today.

I'm afraid we are moving away from the main problem.

I think we should discuss this point later.

I'm very sorry but due to the shortage of time we have to stop the discussion.

We can discuss it later when we get necessary information.

I hope we have all benefited from this discussion.

With this I close the discussion.

## *12. Summing up*

And now it is time to sum up the discussion and suggest conclusions I'd like to summarize what has been said so far.

So, to sum up, we have decided to ...

First I want to thank all participants for their active cooperation.

An extensive exchange of opinions took place at this conference.

In conclusion, I would like to say that we seem to have covered a very complex area in a remarkably short space of time.

I thank everyone present here today for being active in our discussion. And to conclude our today's meeting I must say it has been stimulating and professionally rewarding.

### *Closing remarks of the Chairman:*

- Ladies and gentlemen, before I close this conference it is with great pleasure that I express thanks on behalf of the Organizing Committee and myself to all who helped to make this conference the great success it has been.
- I must thank the speakers for their most interesting and most informative representations.
- This exchange of opinions will be of great value for further scientific work.
- The conference provided many interesting discussions and important results.
- I wish you all a safe journey home and continued success in your scientific achievements'.
- I'm looking forward to meet you again next year in ...
- I now declare this conference closed.

### *Study carefully the materials given above and do the following:*

**1. Imagine that you have been invited to open a conference devoted to the problems of your science. Start your Opening Speech according to the following outline:**

- a) *Welcome the participants;*
- b) *give a special welcome to high ranking personalities and distinguished guests;*
- c) *make reference to the previous conference and to the progress made in your field of science since then;*
- d) *point out the gaps in the present knowledge of the subject;*

- e) *introduce the main theme and goal of the conference;*
- f) *give information about its participation, structure and organization;*
- g) *express your expectations from the conference and extend best wishes to the participants.*

**2. Introduce the speakers according to the following outline:**

- a) *presentation of the speaker by name;*
- b) *some gracious remarks about the speaker;*
- c) *a brief summary of the speaker's background or special interests;*
- d) *statements of the speaker's topic.*

**Here is some information about speakers:**

- 1) *Dr. Bennett is going to deal with the problem of atmospheric pollution. The subject of his presentation is "The Effects of Air Pollution on Living Organisms". Introduce him to the audience making some appropriate remarks. Use your imagination to give a brief summary of Dr. Bennett's professional background. State the topic of his talk.*
- 2) *Dr. Hefferlin is concerned with seismic phenomena. The title of his paper is: "Earthquakes: Is It Possible To Predict Them?" Introduce him to the audience and try to make him feel warmly welcome. Mention the areas of his special interest. Present the theme of his paper.*
- 3) *Dr. Freund's paper will focus on the social aspects of environmental pollution. The title of his presentation is: "Atmospheric Pollution and Its Impact on Man's Health". Before giving him the floor, introduce him to the audience. Make some comments on his professional background. State the topic of his presentation, underline its importance.*
- 4) *Dr. Sittler works in the area of astrophysics. The subject matter of his talk is the influence of solar flares on the processes occurring in the Earth's atmosphere. Introduce him to the audience. Refer to his professional background. Present the theme of his paper.*

**3. As chair of the conference thank the speaker and assess his or her presentation in the following situations:**

- a) *Dr. Wagner has just given a talk on the causes of volcanic eruption. The data presented have aroused much interest in the*



*audience. Thank the speaker for the fine presentation and make your assessment.*

*b) Professor Sharp has read a paper on the origin of ozone holes. The audience appears greatly impressed by the data reported. Thank the speaker for the comprehensive treatment of the problem.*

*c) Dr. Burnett has just made a report on the problems of atmospheric pollution and its affects on climatic changes. The paper is a great success. Give your assessment of the presentation and thank the speaker.*

*d) Professor Shive has reported his/her findings on the mechanism of memory. Thank the speaker for his/her contribution, making some complementary remarks about the way it has been done.*

**4. *The audience has just heard papers on the subjects listed below. As chair of the conference open a discussion to these subjects:***

*a) Carbon dioxide and the world climate.*

*b) Possible consequences of global warming.*

*c) Ozone holes.*

*d) Methods of nuclear waste disposal.*

**5. *The discussion is not very active. The audience needs encouragement. Stimulate the discussion.***

**6. *The discussion of one problem is over. Introduce a new topic into the discussion. Mention the point discussed and pass over to another one.***

**7. *One of the speakers is getting off the point. Remind him he should not move away from the problem under discussion.***

**8. *Summarize the discussion emphasizing the importance of cooperation in the field. Close the discussion.***

**9. *Close the conference you are chairing.***

### **Role play**

***Act the conference “Alternative Energy Sources”. Choose the chairman to lead the conference.***

In our modern industrial society we consume vast amounts of energy to make our daily life more comfortable, productive and enjoyable. All of us use energy every day - for heat and light in living and working areas, cooking, transportation, manufacturing, and entertainment.

Energy comes from several different sources. These sources can be split into two main categories: non-renewable and renewable. Non-renewable types of energy include the three major types of fossil fuels – coal, oil and natural gas. Fossil fuels supply more than 90% of the world's energy. Oil leads with a share of about 37 percent of total world energy consumption, followed by coal (24 percent) and natural gas (21 percent). All of these are burned to produce power.

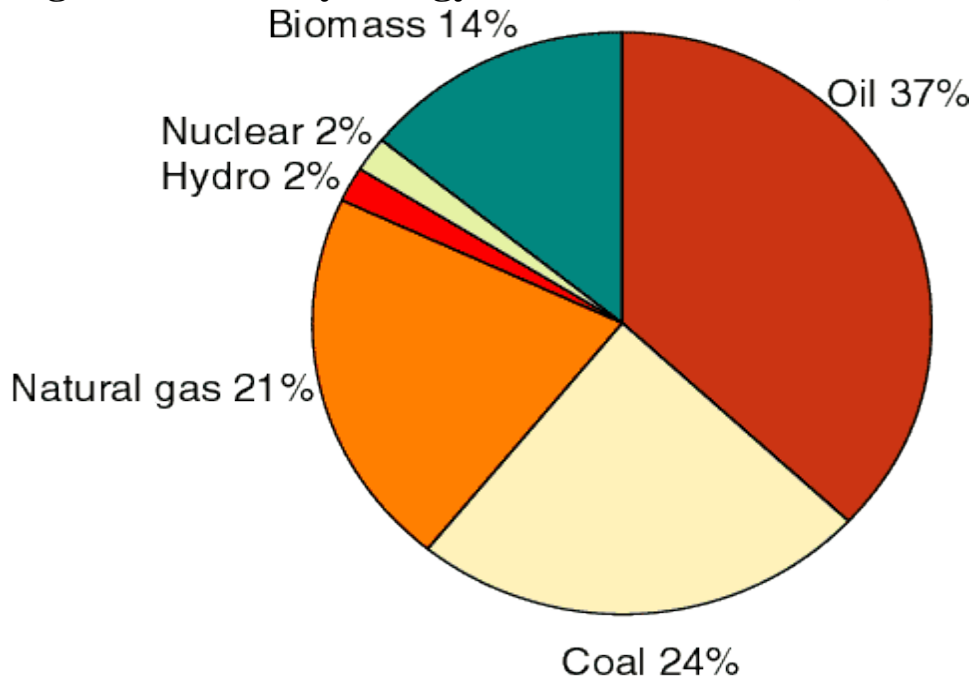
Fossil fuels are relatively easy to use to generate energy because they only require a simple direct combustion. However, a problem with fossil fuels is their environmental impact. Not only does their excavation from the ground significantly alter the environment, but their combustion leads to a great deal of air pollution. Carbon dioxide (  $\text{CO}_2$  ) from burning fossil fuels is the largest source of greenhouse gases from human activities. Extra greenhouse gases we are putting into the atmosphere are causing global warming and climate change. Besides, these are fuels that are being consumed more rapidly than they are being replaced. That means that someday we could run out of these fuels. According to numerous researches, by the year of 2020 fossil fuel will be able to satisfy world energy requests only partly.

Another non-renewable source is uranium. Uranium is an element that gives us nuclear energy by splitting an atom's nucleus, and this process is called fission. Nuclear energy is a better source of energy because it doesn't put carbon dioxide into the atmosphere. But like all industrial processes, nuclear power generation has by-product wastes: tremendous steam of radioactive products and heat. Hazardous wastes and the possibility of a nuclear disaster are the principal concerns for nuclear power.

With the growing concerns over the environmental problems today (air pollution, global climate change, massive flooding in river systems, etc.) and the price of non-renewable energy sources soaring, we have to take a closer look at the alternative energy sources. Alternatives to the fossil fuels and nuclear power are renewable sources of energy and they are considerably more attractive in many ways. Renewable sources are derived and replenish quickly from nature and usually do not pollute our

environment when used to generate electricity. The five renewable sources used most often include solar, hydropower (water), wind, biomass, and geothermal.

**Figure 1: Primary energy use in the world (2004)**



### **Topics**

1. Solar Energy.
2. Hydropower.
3. Wind Energy.
4. Bio Energy.
5. Geothermal Energy.

### **SOLAR ENERGY**

The yearly input of energy from the sun which reaches the surface of the earth is an inexhaustible supply of energy, and its use in any form does not contribute additional heat to the biosphere, unlike fossil fuel or nuclear energy. There are no problems of pollution associated with its use, except those related to the devices that may be used to capture or transport this energy.

Obviously we already use solar energy either directly as the principal means of keeping warm, or indirectly, in food and other materials produced by plant and animal life. Solar energy also provides the energy available in wind power, water power, fuels made from wood or other

vegetation, and in thermal gradients in the oceans or other water bodies. In the past solar energy was captured and stored in the form of coal and petroleum.

Solar energy can be used directly for space heating and cooling in all areas which have a high percentage of sunny days in each year. The dry tropics, of course, have an advantage, and it is here that the greatest potential for future use lies. Many homes are now heated by solar panels, which capture sunlight, and use it to heat water, which provides heat for home. Solar stills have been manufactured and are used in some places. These can provide freshwater from saline or alkaline water. Solar cookers are also in use in various parts of the world and can eliminate the need for wood or other fuels. Solar furnaces can generate the high temperatures required in many industrial processes.

Solar power can be used to generate electricity making use of photovoltaic cells. This is still relatively expensive compared to other means of electricity generation, but comparatively little research and development has gone into this fuel, and it seems likely that in the future it will be both practical and economical. In Australia, it has been calculated that at 10 percent efficiency of conversion, from solar energy to electricity, 0.03 percent of the land surface could generate all of that country's energy needs. In the United States, to generate electric power requirements, it is estimated that 5000 square miles of desert surface, an area slightly more than 70 miles square, could produce all of the electric power needs of the nation.

In this respect a question may arise: "What happens when the sun goes down?" Obviously, one can use solar power during the daytime, when it is present in excess, to store energy in some other form. Batteries can be used on a small scale, but are expensive. For large-scale operations solar power can be used to pump water during the day-time. This water can then be used to generate power hydroelectrically when the sun is not shining. Another approach is to use solar power to produce hydrogen from electrolytic dissociation of water. Hydrogen can be used as a fuel to run automobiles or other engines in much the same way as petroleum, but without the polluting effects of petroleum.

The use of solar distilling plants on a reasonably large scale, to provide freshwater from sea water, is one endeavor toward which sea-coast communities should be giving serious attention. The use of solar heat to process municipal waste for the production of methane gas as a fuel and

fertilizers, or other useful end products, is another possibility that needs research and development.

Solar energy demand has grown at about 25% per year over the past 15 years but it has clearly not reached its full potential. The main reason for the lack of mass exploitation of solar power technologies is economics. In order for widespread generation of electricity using solar panels to be feasible it needs to be economically advantageous. In order for solar panels to be an economically viable choice for the production of electricity, production costs must go down and efficiency of the final product must go up.

The hidden factor behind the lack of widespread solar power production is the absence of mass consumer demand for solar technologies. If there is a demand for a product, there will be people that will supply that product at a cost that fulfills that demand. As a result, economic and efficient solar power technologies will be developed and exploited more quickly.

## VOCABULARY

**input** – входящий поток

**surface** – поверхность

**inexhaustible supply** – неисчерпаемые запасы

**additional** - дополнительный

**fossil fuel** – ископаемое топливо

**to capture** – захватывать, улавливать

**principal means** – основное средство

**petroleum** – нефть

**heating** – обогрев

**cooling** – охлаждение

**still** – дистиллятор

**freshwater** – пресная вода

**saline** – соленый

**alkaline** – щелочной

**cooker** – кухонная плита

**photovoltaic cell** – фотоэлемент

**expensive** – дорогостоящий

**comparatively** - сравнительно

**research and development (R&D)**– научные исследования и опытно-конструкторские разработки

**desert** – пустыня

**in excess** – в избытке

**to store** – хранить, запасать

**to pump** – накачивать

**hydrogen** – водород  
**electrolytic dissociation of water** – электролитическая диссоциация воды  
**engine** – двигатель, мотор  
**solar distilling plant** – солнечно-опреснительный завод  
**endeavor** – попытка, стремление, старание, усилие  
**sea-coast community** – государство, расположенное на морском берегу  
**municipal waste** – городские отходы  
**fertilizer** – удобрение  
**demand** – спрос  
**feasible** – реальный, выполнимый, осуществимый  
**advantageous** – выгодный, полезный, благоприятный  
**viable** – жизнеспособный  
**hidden** – скрытый, спрятанный

## **WIND ENERGY**

People have been harnessing the wind's energy for hundreds of years. From old Holland to farms in the United States, windmills have been used for pumping water or grinding grain. Today, the windmill's modern equivalent – a wind turbine – can use the wind's energy to generate electricity.

**Wind power** is the conversion of wind energy into useful form, such as electricity, using [wind turbines](#). At the end of 2007, worldwide capacity of wind-powered generators was 94.1 [gigawatts](#). Although wind currently produces just over 1% of world-wide electricity use, it accounts for approximately 19% of electricity production in [Denmark](#), 9% in [Spain](#) and [Portugal](#), and 6% in [Germany](#) and the [Republic of Ireland](#) (2007 data). Globally, wind power generation increased more than fivefold between 2000 and 2007.

There is an estimated 72 TW of wind energy on the Earth that potentially can be commercially viable (One Terawatt-Year equals about 1 billion tons of High Quality Coal.).

It is known that the main reason of wind is uneven sun heating of the ground surface. The ground surface is heterogeneous: land, oceans, mountains, forests. This provides different heating of the surface under the same width. The Earth rotation also causes air current deviation. All these reasons complicate general atmosphere circulation. A series of separate circulations appears, these circulations are connected to each other. In the North Hemisphere constant winds come from the north-east, in the South Hemisphere – from the south-east. Average speed of south-east trade-

winds of the North Hemisphere at the ground surface is 6-8m/s. Most places of the European part of Russia are related to the zone of average wind intensity. In these places average annual wind speed is 3,5...6m/s. Average annual speed of air flows at 100 meter height is more than 7 m/s.

Wind power is produced in large scale [wind farms](#) connected to electrical grids, as well as in individual turbines for providing electricity to isolated locations.

Wind turbines, like windmills, are mounted on a tower to capture the most energy. At 100 feet (30 meters) or more above ground, they can take advantage of the faster and less turbulent wind. Turbines catch the wind's energy with their propeller-like blades. Usually, two or three blades are mounted on a shaft to form a rotor. A blade acts much like an airplane wing. When the wind blows, a pocket of low-pressure air forms on the downwind side of the blade. The low-pressure air pocket then pulls the blade toward it, causing the rotor to turn. This is called lift. The force of the lift is actually much stronger than the wind's force against the front side of the blade, which is called drag. The combination of lift and drag causes the rotor to spin like a propeller, and the turning shaft spins a generator to make electricity. Wind turbines can be used as stand-alone applications, or they can be connected to a utility power grid or even combined with a photovoltaic (solar cell) system. Stand-alone wind turbines are typically used for water pumping or communications. However, homeowners or farmers in windy areas can also use wind turbines as a way to cut their electric bills. For utility-scale sources of wind energy, a large number of wind turbines are usually built close together to form a wind plant. Several electricity providers today use wind plants to supply power to their customers.

There are many places world wide where there is no traditional electricity. They occupy about 70% of territory of Russia on which about 30% of population live. In such places usually there are diesel or petrol generators which generate power. Thousands tons of diesel and petrol fuel are transformed into the smoke, and the energy which is got due to this is much more expensive than that which is generated by large power stations. Most such places have rather high wind potential and stand-alone wind power plants together with heat-engines would save up to 90% of hydrocarbon fuel.

The main advantage of stand-alone wind power plants is possibility of power generating not depending on the grid, they operate like diesel generators, but don't need any fuel.

Wind energy is plentiful, [renewable](#), widely distributed, clean and reduces [greenhouse gas emissions](#) when it displaces fossil-fuel-derived electricity.

## VOCABULARY

**to harness** – использовать

**to pump** – накачивать

**windmill** - мельница

**to grind grain** – перемалывать зерно

**capacity** – мощность, производительность

**to account for** – составлять

**fivefold** – пятикратный

**commercially viable** – эффективный в промышленном масштабе

**uneven** – неравномерный

**ground surface** – поверхность земли

**heterogeneous** – неоднородный

**width** – ширина

**air current deviation** – отклонение тока воздуха

**trade wind** – пассат

**to be related to** – относиться к чему-л.

**average** – средний

**annual** – годовой, ежегодный

**air flow** – воздушный поток

**height** – высота

**grid** – энергетическая система

**to be mounted** – поднятый, водруженный

**tower** – башня

**to capture** – захватывать, улавливать

**to take advantage of** – воспользоваться чем-л.

**turbulent** – вихревой, турбулентный

**blade** – лопасть

**shaft** – стержень, вал, ось, шахта

**airplane wing** – крыло самолета

**pocket** – пазуха, гнездо, карман

**low pressure** – низкое давление

**to turn** – поворачивать, вращать

**lift** – подъем

**drag** – торможение, сопротивление

**to spin** – вращать, крутить

**stand-alone application** – автономная производственная установка

**utility power grid** – система энергоснабжения

**photovoltaic** – фотогальванический



**solar cell** – фотоэлемент  
**homeowner** – домовладелец  
**to cut** - сокращать  
**electric bill** – счет за электричество  
**petrol** – бензин  
**to displace** – заменять  
**fossil fuel** – ископаемое топливо

## HYDROPOWER

**Hydropower** or **hydraulic power** is the [force](#) or [energy](#) of moving water. The energy of moving water has been exploited for millennia. In [India](#), [water wheels](#) and [watermills](#) were built; in [Imperial Rome](#), water powered mills produced flour from grain, and in China and the rest of the Far East, hydraulically operated "pot wheel" pumps raised water into irrigation canals. In the 1830s, at the peak of the [canal](#)-building era, hydropower was used to transport [barge](#) traffic up and down steep hills using [inclined plane railroads](#). Direct mechanical [power transmission](#) required that industries using hydropower had to locate near the waterfall. For example, during the last half of the 19th century, many [grist mills](#) were built at [Saint Anthony Falls](#), utilizing the 50 foot (15 meter) drop in the [Mississippi River](#). The mills contributed to the growth of [Minneapolis](#). [Hydraulic power networks](#) also existed, using pipes carrying pressurized liquid to transmit mechanical power from a power source, such as a pump, to end users.

Today the largest use of hydropower is for the creation of [hydroelectricity](#), which allows low cost energy to be used at long distances from the water source.

There are several forms of water power:

- [Waterwheels](#), used for hundreds of years to power mills and machinery
- [Hydroelectricity](#), usually referring to hydroelectric dams, or run-of-the-river setups (e.g. hydroelectric-powered watermills).
- [Tidal power](#), which captures energy from the tides
- [Wave power](#), which uses the energy in waves

**Hydroelectric dams.** Hydroelectric power now supplies about 715,000 [MWe](#) or 19% of world electricity (16% in 2003). Large dams are still being designed. The world's largest is the [three gorges dam](#) on the third longest river in the world, the Yangtze River. Apart from a few countries with an abundance of hydro power, this energy source is normally applied to peak

load demand, because it is readily stopped and started. It also provides a high-capacity, low-cost means of energy storage, known as "[pumped storage](#)".

The major advantage of hydroelectric systems is the elimination of the cost of fuel. Other advantages include longer life than fuel-fired generation, low operating costs, and the provision of facilities for water sports. Operation of pumped-storage plants improves the daily load factor of the generation system. Overall, hydroelectric power can be far less expensive than electricity generated from fossil fuels or nuclear energy, and areas with abundant hydroelectric power attract industry.

However, there are several major disadvantages of hydroelectric systems. These include: dislocation of people living where the reservoirs are planned, release of significant amounts of carbon dioxide at construction and flooding of the reservoir, disruption of aquatic ecosystems and birdlife, adverse impacts on the river environment, potential risks of sabotage and terrorism, and in rare cases catastrophic failure of the dam wall.

**Tidal power.** Harnessing the tides in a bay or estuary has been achieved in [France](#) (since 1966), [Canada](#) and [Russia](#), and could be achieved in other areas with a large tidal range. The trapped water turns [turbines](#) as it is released through the tidal barrage in either direction. A possible fault is that the system would generate electricity most efficiently in bursts every six hours (once every tide). This limits the applications of tidal energy; tidal power is highly predictable but not able to follow changing electrical demand.

**Wave power.** Harnessing power from [ocean surface wave](#) motion might yield much more energy than tides. The feasibility of this has been investigated, particularly in Scotland in the UK. Wave energy is captured by an air driven generator and converted to electricity. For countries with large coastlines and rough sea conditions, the energy of waves offers the possibility of generating electricity in utility volumes. Excess power during rough seas could be used to produce hydrogen.

## VOCABULARY

**millennia** – тысячелетия

**wheel** – колесо

**watermill** – водяная мельница

**flour** – мука

**grain** – зерно

**pump** – насос

**steep hill** – крутой холм

**inclined plane** – наклонная плоскость  
**waterfall** – водопад  
**grist mill** – мельница для помола зерна  
**pipe** – труба  
**run-of-river setup** - водохозяйственная установка, работающая в естественном режиме реки  
**dam** – плотина  
**to capture** – захватывать, улавливать  
**stream** – поток  
**tide** – прилив и отлив  
**wave** – волна  
**gorge dam** – плотина, перегораживающая ущелье  
**peak load** – пиковая (максимальная) нагрузка  
**high-capacity** – мощный, высокопроизводительный  
**low cost means** – малозатратные (низкозатратные) средства  
**elimination** – устранение, исключение  
**fossil fuel** – ископаемое топливо  
**low operating costs** – низкие эксплуатационные расходы  
**provision** – обеспечение, снабжение  
**facility** – возможность  
**load factor** – коэффициент нагрузки  
**abundant** – обильный  
**disadvantage** – недостаток  
**dislocation** – перемещение  
**release** – выпуск, высвобождение  
**flooding** – затопление  
**disruption** – разрушение  
**aquatic ecosystem** – водная экосистема  
**adverse impact** – вредное влияние  
**to harness** – использовать  
**bay** – бухта, залив  
**estuary** – дельта, устье реки  
**trapped** – захваченный  
**to turn** – поворачивать, вращать  
**barrage** – плотина, дамба, запруда  
**in bursts** – порывами, толчками  
**surface** – поверхность  
**feasibility** – осуществимость, выполнимость  
**coupled** – соединенный  
**to float** – плавать на поверхности  
**hollow** – полый  
**concrete** – бетон  
**to frustrate** – мешать, препятствовать  
**to exceed expectations** – превзойти ожидания  
**rough** – бурный, суровый

**utility volume** – полезный объем

## **BIOENERGY**

Bioenergy is the energy from biomass (organic matter). **Biomass** refers to living and recently dead [biological material](#) that can be used as fuel or for industrial production. Most commonly, biomass refers to plant matter grown for use as [biofuel](#), but it also includes plant or animal matter used for production of fibres, [chemicals](#) or heat. Biomass may also include [biodegradable wastes](#) that can be burnt as fuel. For example, manure, garden waste and crop residues are all sources of biomass. It excludes [organic material](#) which has been [transformed by geological processes](#) into substances such as [coal](#) or [petroleum](#).

Although [fossil fuels](#) have their origin in ancient biomass, they are not considered biomass by the generally accepted definition because they contain carbon that has been "out" of the carbon cycle for a very long time. Their combustion therefore disturbs the carbon dioxide content in the atmosphere.

[Agricultural](#) products specifically grown for biofuel production include [corn](#), [switch-grass](#), and [soybeans](#), primarily in the United States; [rapeseed](#), [wheat](#) and [sugar beet](#) primarily in Europe; [sugar cane](#) in Brazil; [palm oil](#) and [miscanthus](#) in South-East Asia; [sorghum](#) and [cassava](#) in China; and [jatropha](#) in India. [Hemp](#) has also been proven to work as a biofuel. Production of biomass is a growing [industry](#) as interest in sustainable fuel sources is growing.

[Biodegradable](#) outputs from industry, agriculture, forestry and households can be used for biofuel production, either using [anaerobic digestion](#) to produce [biogas](#), or using [second generation biofuels](#); examples include straw, timber, manure, rice husks, sewage, and food waste. The use of biomass fuels can therefore contribute to waste management as well as fuel security and help to prevent climate change, though alone they are not a comprehensive solution to these problems.

Biomass is part of the [carbon cycle](#). Carbon from the atmosphere is converted into biological matter by [photosynthesis](#). On death or combustion the carbon goes back into the atmosphere as carbon dioxide. This happens over a relatively short timescale and plant matter used as a fuel can be constantly replaced by planting for new growth. Therefore a reasonably stable level of atmospheric carbon results from its use as a fuel. It is commonly

accepted that the amount of carbon stored in dry wood is approximately 50% by weight.

Though biomass is a [renewable](#) fuel, and is sometimes called a "carbon neutral" fuel, its use can still contribute to [global warming](#). This happens when the natural carbon equilibrium is disturbed; for example by deforestation or urbanization of green sites. When biomass is used as a fuel, as a replacement for fossil fuels, it still puts the same amount of CO<sub>2</sub> into the atmosphere, and is not a solution to global warming.

## VOCABULARY

**to refer to** – относиться, иметь отношение

**most commonly** – чаще всего

**matter** – вещество

**fibre** – волокно

**chemical** – химическое вещество

**biodegradable wastes** – отходы, поддающиеся биологическому разложению

**manure** – навоз

**crop residue** – остатки от урожая

**to exclude** – исключать

**coal** – уголь

**petroleum** – нефть

**fossil fuel** – ископаемое топливо

**origin** – происхождение

**ancient** – древний

**combustion** – сгорание, сжигание

**to disturb** – нарушать

**corn** – зерно, зерновые

**switch-grass** – просо

**soybeans** – соя

**rapeseed** – семена рапса

**wheat** – пшеница

**sugar beet** – сахарная свекла

**sugar cane** – сахарный тростник

**palm oil** – пальмовое масло

**miscanthus** – многолетнее бамбукоподобное растение вида *Miscanthus*

**sorghum** – сорго

**cassava** – маниока

**hemp** – конопля

**sustainable fuel** – экологически устойчивое топливо

**output** – продукция

**forestry** – лесное хозяйство, лесничество

**household** – домашнее хозяйство

**anaerobic digestion** – анаэробное перегнивание

**straw** – солома

**timber** – древесина

**rice husk** – рисовая шелуха

**sewage** – сточные воды

**waste management** – организация сбора и удаления отходов

**to prevent** – предотвращать, предупреждать

**comprehensive solution** – всеобъемлющее решение

**convert into** – превращать в...

**dry wood** – сухая древесина

**equilibrium** – равновесие

**deforestation** – вырубка леса, обезлесение

## **GEOHERMAL POWER**

Energy from the hot rocks and water at the centre of the Earth is another kind of natural energy. Geothermal power is derived from heating which takes place within the earth's crust. It is manifested in volcanoes, geysers, and hot springs and in some parts of the world it has already been tapped and used for space heating or electricity generation. Unlike the other sustainable energy sources such as wind or solar, geothermal resources provide firm power, 24 hours per day, 365 days per year. It is not unusual to find geothermal plant with annual availability factors in excess of 98%, so load factors can be high, the energy supplied by geothermal is some 3.5 times greater than for wind plant. This firmness in itself can be a considerable asset to the utilities. By operating geothermal systems as a closed loop, and reinjecting the contaminants along with the cooled water, the environmental impact can be reduced almost to zero.

Geothermal heat pumps, or ground-source heat pumps, for heating and cooling buildings are a rapidly growing example of a geothermal direct use application. The concept was developed independently in the US and Europe and, although Sweden and Switzerland have installed many thousands of units to provide winter heating in houses, the pace of installation in the USA and Canada during the last fifteen years has overtaken the European rate. There are now believed to be well over a quarter of a million installations in place in North America.

**Australia.** Australia's best resources of conventional geothermal energy are located in the Great Artesian Basin region of central Australia where there are many bores which discharge water at high enough temperatures (above 80°C) to operate a heat engine. Although these resources are not appropriate for large-scale electricity generation, they can be used to generate electricity for remote homesteads and communities

in this area. Geothermal energy is also available from ‘hot dry rocks’ (HDR) buried several kilometers below the earth’s surface. Recent studies of the prospects for HDR in Australia have established that a very significant resource exists, particularly in eastern Australia. Moreover, the economics of energy extraction based on HDR in Australia appear to be favorable, owing to a very advantageous combination of geological factors: high rate of heat generation in the crust, low-conductivity sedimentary rocks which retain the heat, and horizontally oriented HDR reservoirs which provide the cheapest drilling access.

**Iceland.** Geothermal energy has been utilized on a commercial scale since 1930. The country lies atop a fault, or crack, in the earth’s crust, which allows underground heat to escape as steam. Geothermal plants convert steam from the country’s many hot springs into electricity and also use it to heat water, which is then piped to homes and factories. Reykjavik, the capital, is heated entirely by geothermal steam. Iceland is the site of 14 high-temperature geothermal fields, and the largest – in the southern Turfa glacier area – has a potential electrical power output of 1.5 billion watts.

**Russian Federation.** Geothermal resources have been identified in various parts of the Federation but utilization is very largely confined to direct uses. Two electricity-generating facilities are situated in the Kamchatka peninsula. Geothermal-based district heating schemes are in operation in the Pre-Caucasus and Northern Caucasus regions. Much use is made of geothermal heat in greenhouses.

**United States of America.** The utilization of geothermal energy for generating electricity can be dated back to 1960, when the first large-scale power plant began operation at the Geysers, north of San Francisco, California. By 1997, 69 geothermal generating facilities were in operation at 18 resource sites in six states. The USA remains the world’s largest producer of geothermal electricity.

To sum up: geothermal technology offers many benefits – clean, indigenous, firm energy – but suffers from economic uncertainties and geographical limitations. These problems are being actively addressed and future prospects seem bright.

### Vocabulary

**rock** – порода

**the earth’s crust** – земная кора

**hot spring** – горячий источник

**to tap** – использовать

**space heating** – отопление помещений

**sustainable energy source** – постоянный источник энергии

**firm power** – гарантированная мощность (*энергосистемы*)  
**in excess of** – свыше  
**load factor** – коэффициент нагрузки  
**asset** – ресурсы  
**utility** – коммунальное предприятие  
**closed loop** – замкнутый цикл  
**to reinject** – повторно закачивать  
**contaminant** – загрязняющее вещество  
**pump** – насос  
**pace** – скорость, темп  
**to overtake** – обогнать  
**bore** – скважина  
**to discharge** – подавать  
**homestead** – усадьба, ферма  
**community** – сообщество  
**extraction** – добыча  
**sedimentary rocks** – осадочные породы  
**on a commercial scale** – в коммерческом масштабе  
**fault** – разлом  
**crack** – трещина  
**steam** – пар  
**to confine** – ограничивать  
**greenhouse** – теплица  
**large-scale** – крупномасштабный  
**power plant** – электростанция  
**indigenous** - местный



## Unit 3

### ***The Planet Is In Danger, It's Time To Act***

- *Mankind is disposing to environment 2000 more biological wastes that the rest of biosphere.*
- *10 billion tons of natural raw materials are excavated annually from our planet entrails.*
- *Geomechanical resistance limit has been already achieved in some regions due to Earth exposure to resource consumption.*
- *Currently one biological species is put to extinction every two hours.*

UNO data

### **Letter of convocation**

#### **To the Authors of Papers and Participants in the Conference**

#### **“The Planet is in danger. It's time to Act”**

#### **Welcome to the Conference**

*The Conference is to be held in ...(place) from... (date) under the joint sponsorship of “The Green Peace” and “The Friends of the Earth” organizations.*

*The organizing committee has designed a very full program. We hope that the papers will arm you with information. Send your abstracts and take part in our conference.*

Please find enclosed:

- \* program
- \* information for participants

*Yours sincerely,*

*(signature)*

*General Secretary*

*Study the necessary words:*

convocation - созыв

theme – тема

subject – тема

to devote to – посвятить

to hold a conference – проводить конференцию

to sponsor/ organize – организовать  
 to invite a speaker – пригласить докладчика  
 to send out invitations – рассылать приглашения  
 at/ by the invitation – по приглашению  
 speaker/ reporter – докладчик  
 to participate/ to take part (in) – участвовать  
 a participant – участник  
 a working group / committee – рабочая группа/ комиссия  
 Chairman – председатель  
 Vice-chairman – вице-председатель  
 to chair a conference – быть председателем  
 to elect a Chairman – избрать председателя  
 to address the Chairman – обратиться к председателю  
 opening address – вступительное слово  
 to direct the meeting – вести заседание  
 abstract/ brief summary – аннотация, тезисы  
 to welcome – приветствовать  
 to read a paper – читать доклад

***Send a brief summary of your paper (3-5 key sentences) to the Organizing Committee. The word combinations in the box are usually used for the purpose. As an example read the abstract Dr. Brown has sent to the Organizing Committee.***

The paper	examines
	demonstrates
	analyses
The report	shows
	deals with the problem of ...
It	touches upon the problem of ...
	draws attention to ...
	presents
	points out
	discusses
	describes
	reviews
	sketches
	consists of
	is devoted to...

throws light on ...  
 gives some comments on...  
 traces the history of...  
 outlines the development of ...

**“Two sides of one problem”**

The paper deals with the problem of the northern spotted owl listed as threatened in 1990. It analyses the reasons of extinction and draws attention to Amazonian rainforests – the habitat of the owl. 90% of the forest has been cut. The paper shows that the owls and loggers (вальщики леса) alike are victims of the system that chooses quick profits.

*You have got a confirmation about your paper acceptance. Now you should fill in the Reservation form for your hotel accommodation. Do it in the form provided below.*

**Reservation Form**

(Hotel Accommodation, Sightseeing Tours, Social Events, and Post Congress Tour)

Please write your name in block letters

Family name ..... First name

Company/Affiliation:.....

Mailing address: .....

Country .....tel: ..... fax

Name of accompanying person .....

Accommodation: arrival .... departure

	Number of rooms	
	Single room incl. breakfast	Double room incl. breakfast
A	200-250	250-300
B	150-200	200-250

Hotel deposit

Price category	A	B
per room	100	75

Administration fee 150

Taxi Voucher 30

Social events 100

Sightseeing tour 200

Payment

Payment should be made in USD  
Banker's Draft..... Eurocard/Mastercard..  
Diners Club.....American Express.....  
Visa.....  
Bank account.....  
Charge my card No.....with expiry date  
Total USD:.....  
Date..... Signature .....

### **Role play**

*Hold a conference according to the program. Elect Chairman and Vice-chairman who are to direct the Conference.*

### **Appeal**

Our Planet is in danger. The ozone layer is thinning. Acid rains are destroying forests and lakes. Water in the oceans, seas and rivers is polluted. Many species of fish and animals are disappearing. The warming of the atmosphere may threaten the world with hunger. **A single country can't solve these problems.** All over the world people voice their worry and concern. So we want to address the international ecological organizations to voice our worry and concern. Let's join together! The most effective step we can do to help our planet is to plant trees. **“The globe needs tree-planters more than soldiers!”**

### **Topics**

1. The Wholeness of the Environment.
2. Man and Environment.
3. Deforestation.
4. Animals in danger.
5. How our food gets contaminated.
6. Some advice about waste: Don't!

### **THE WHOLENESS OF THE ENVIRONMENT**

The degree of man's mastery over the earth is, of course, dependent on his understanding of it, and while we have made much progress in this regard there is still much work to do. We often forget that the component parts of the earth environment are parts of a larger whole, interrelated with each other in a variety of ways and on a variety of scales. In urban settings, we are surrounded almost entirely by other people and by objects. We can

think that it is the economy that delivers our food, air, water, and energy and deals with our sewage and waste. But in reality, of course, it is the Earth itself that provides these services and makes our economy possible. Increasingly, today, people are remembering that we are biological beings, as dependent on the biosphere as any life form. We undermine our own survival if we pollute our air and water, if we destroy the rain forests and deplete our natural resources, and if our activities release carbon dioxide and other greenhouse gases faster than the Earth can reabsorb them. As the awareness has grown that we are part of our fragile planet and inextricably dependent upon it, people have begun to take notice of how their lives impact the environment. The understanding of the wholeness of the environment, with man as part of it, and the study of its interrelationships not only locally but also on a regional, interregional, and world-wide scale is very important.

Differences in the scale of such environmental interrelationships are well illustrated by the Everglades National Park in southern Florida. Drought inflicted that area, with disastrous destruction of its unique flora and fauna. To begin with, the drought's lowering of the water surface reduced the number of alligators, and this in turn meant fewer of the water holes that are hollowed out by these largest inhabitants of the swamp. As a result there are fewer of the smaller aquatic organisms that live in the 'gator holes and that furnish food for the birds of the region, and so there are fewer birds. On the interregional basis, we find that the water level in the Everglades is determined not only by the rainfall within the region but also by the inflow of water from adjacent swampy areas to the north. And of course drought in southern Florida resulted not from any local conditions but from changes in the world-wide weather patterns.

Thus the web of interactions exists not only within the earth environment of a specific region but also between regions.

These local and regional interrelationships make the earth environment a very vulnerable one, for change of just one factor may set in motion a sequence of reactions that will upset the whole system. For instance, widespread use of insecticides can eliminate not only insects (the good with bad) but also both the birds that feed on them and the plants that are polluted by them. It is now realized that much of man's destructive effect on the environment results from such chain reactions; and even when there seems to be only a simple and direct attack on nature the probability of

related effects must always be taken into account, as brief mention of other examples will illustrate.

Within the Everglades, for example, man has made this sort of direct attack by illegally killing large number of alligators to profit by the sale of their skins. And inflow of water from the regions to the north has been reduced not only by the drought but also by drainage schemes developed there in support of agricultural and settlement programs.

Deforestation of a hillside offers another case of both direct and indirect damage. Where the trees have been cut down there are also local changes in the microclimate, in the vegetation, and in the fauna, and there is increased runoff, with resulting flooding, soil erosion, siltation, and lowering of the water table. Floods initiated in such an area may also spread far out into distant regions, as may the accompanying siltation.

Thus we see that the earth is not indestructible and inexhaustible, as was so long thought, but highly vulnerable to the destructive impact of man. It is a delicately balanced system that can easily be damaged, and some of its individual parts can be completely destroyed, beyond man's power to reconstruct them.

Earth scientists of many kinds must work toward developing an ever fuller understanding of the earth environment, especially its interrelations, and geographers should help to carry on this work, both by undertaking some of the basic research and by correlating the work done by others and interpreting its significance. Their task is also to inform the citizenry on environmental matters. The citizenry must learn to recognize our fundamental dependence on the earth, and they must recognize that the earth environment is a wonderful, beautiful, and complex system of interrelated parts, easily damaged by man's thoughtless attacks upon it.

## **VOCABULARY**

**mastery** – власть, влияние, мастерство

**wholeness** – единство

**drought** – засуха

**to inflict** – наносить, причинять

**disastrous** – бедственный, гибельный

**destruction** – разрушение, уничтожение

**in turn** – в свою очередь

**hole** – яма

**to hollow out** – выкапывать

**swamp** – болото

**aquatic** – водный  
**to furnish** – снабжать, предоставлять  
**inflow** – приток, наплыв  
**adjacent** – смежный, соседний  
**vulnerable** – уязвимый  
**to set in motion** – приводить в действие  
**sequence** – последовательность  
**to upset** – расстраивать, нарушать  
**to eliminate** – устранять, уничтожать  
**to feed on** – питаться чем-л.  
**skin** – кожа  
**deforestation** – вырубка леса  
**hillside** – склон холма  
**to cut down** – рубить (деревья)  
**vegetation** – растительность  
**runoff** – сток  
**flooding** – затопление  
**soil erosion** – эрозия почвы  
**siltation** – заиление  
**water table** – зеркало грунтовых вод  
**indestructible** – неразрушаемый  
**inexhaustible** – неистощаемый  
**to destroy** – разрушать  
**citizenry** – население

## **MAN AND ENVIRONMENT**

Human progress has reached the stage of intensive exploration of nuclear and solar energy, to World Ocean and outer space. It is evident now, however, that often man is adversely affecting the environment and his activity is sometimes fraught with fatal consequences.

It is becoming increasingly clear that man cannot and must not use his tremendous power so carelessly, infinitely interfere in nature and radically try to change it, without taking into account possible negative effects of his economic activity. The more material wealth people create, the more they realize that they cannot but be concerned about how the biosphere is changing as a result of productive activity. Current ecological research shows, that man, when overconcerned with technicism, far from turning deserts into oases, can turn oases into deserts, threatening to destroy everything on earth, if he continues exerting mostly uncontrolled impact on the biosphere.

In the 19<sup>th</sup> century and even in the first half of the 20<sup>th</sup> century, material production did not require taking into account the consequences which man's interference in nature may have in the distant future, and it was not considered an objectively essential condition for the existence of the whole of mankind, whereas, in the second half of the 20<sup>th</sup> century such a consideration became vitally important because nowadays man has the power to reshape not just regions or countries but the entire planet.

Man is changing the global climate. Human activities have triggered a catastrophic epidemic of extinctions – conservatively estimated at 25,000 species per year. The human population has expanded beyond the world's carrying capacity. And people have built an arsenal of powerful bombs capable of causing more destruction than an asteroid collision. The mankind is rapidly polluting the earth, as well as water and air with its activity wastes already threatening the mankind itself with irreversible habitat change. Natural resources are taken out so quickly that some of them will run out in a few dozen years.

Hence man should carefully study the impact of his activity on various components of the surrounding nature. It is not only possible but necessary to transform the wild natural environment, which often has a disastrous effect on man into a safe environment suitable for man and meeting his needs. This means that the ecological problem is not simply the problem of environmental pollution and other adverse effects on man's economic activity, but the problem of turning man's uncontrolled impact on nature into a purposeful and planned interaction with the latter.

Of course, the biosphere as a complex system also possesses enormous possibilities for self-regulation. Despite the fact that certain biological species, i.e., individual elements of the biosphere, may become extinct as a result of various impacts thereon, it is still capable on the whole of existing and developing. The impact of industry on the biosphere is compensated for by the inner resources of homeostatic self-organization. Today, however, this impact has reached such proportions that the biosphere's inner resources can no longer compensate for society's harmful influence on the environment, both on individual species and on all of life on earth without help from the outside. Many ecologists consider that the disappearance of particular living species constitutes the main ecological and social problem of the day. The world's famous biologists warn that the present situation is fraught with the extinction of animals and plants on a



scale much greater than their both natural and man-caused extinction during the preceding millions of years.

In this massive biological depletion of the earth's resources goes on uncontrolled for several decades to come, the world environment will change irreversibly. All this means that at present there has arisen a pressing necessity to change the character of the interaction between man and nature.

## VOCABULARY

**outer space** – космическое пространство

**adversely** – неблагоприятно

**to be fraught with** – полный

**tremendous power** – огромная сила

**carelessly** – неосторожно, небрежно, беспечно

**infinitely** - бесконечно

**to interfere in** – вмешиваться, влиять

**to take into account** – принимать во внимание, в расчет

**material wealth** – материальные блага

**they cannot but be concerned** – они не могут не быть озабочены

**to turn into** – превращаться в

**desert** – пустыня

**to threaten** – угрожать

**to exert impact on** – оказывать влияние на

**existence** – существование

**to reshape** – придавать новый вид или форму

**to expand** – расширяться, увеличиваться

**to trigger** – приводить в действие

**collision** – столкновение

**habitat** – среда обитания

**to run out** - заканчиваться

**surrounding** – окружающий

**harmful** – вредный

**to warn** – предупреждать, предостерегать

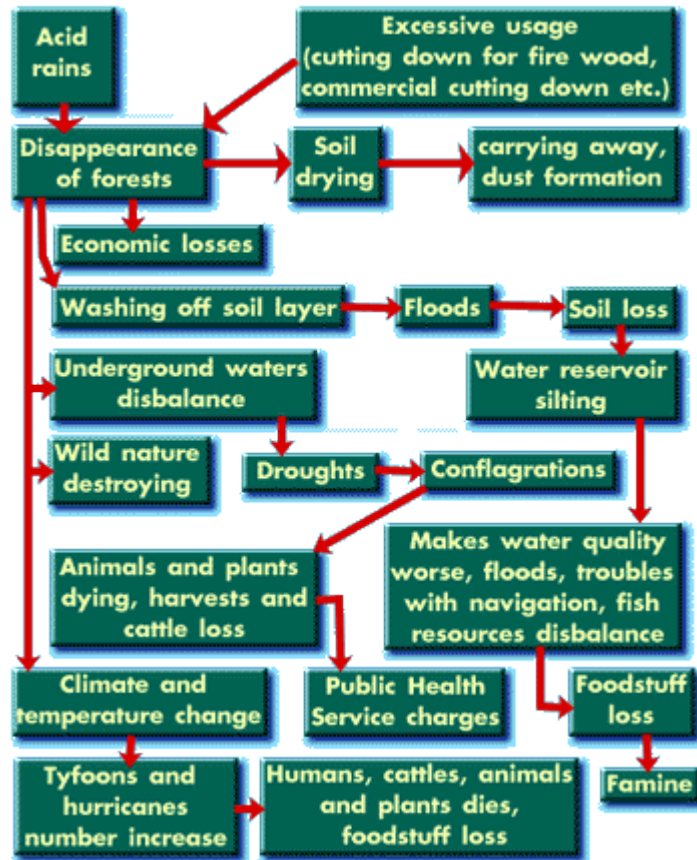
**depletion** – уменьшение, истощение

**irreversibly** – безвозвратно, необратимо

## DEFORESTATION

"Deforestation" is the term used to describe the disappearance of forests from large parts of the world's surface. Deforestation has been occurring steadily over the course of the last century, with a rapid acceleration since the Second World War.

## *Structure Of Factors That Cause Forest Disappearing*



The tropical rainforests are of crucial environmental importance because of the diversity of plants and animals that inhabit them. More than 50% of the world's plant and animal species exist only in rainforests. The Ice Age destroyed vast area of forest in the more temperate zones but not nearer the equator: many rainforests maintained their existing populations and provided shelter for those species that managed to escape from the north.

As the temperature never sinks below zero in the tropical forests, plant species don't need to concentrate their energy on survival during a cold winter, but can go for maximum growth. The intense competition for survival means that species do not tend to dominate, as in parts of the north, but proliferate in a shoulder-to-shoulder existence. About 155,000 of the 250,000 known species of plants are to be found in the rainforests, 80% of all insects, nine-tenth of the world's primates (monkeys and related animals). Many of the plants, animals and insects are likely to be endemic (i.e., found in one place, and nowhere else).

Since just 1950, the world's population has more than doubled to more than 6 billion people, with the fastest population growth being in the tropics. Today, more than 3 billion people live in the tropics alone, more than lived in the entire world in 1950. To provide food, wood, fuel and

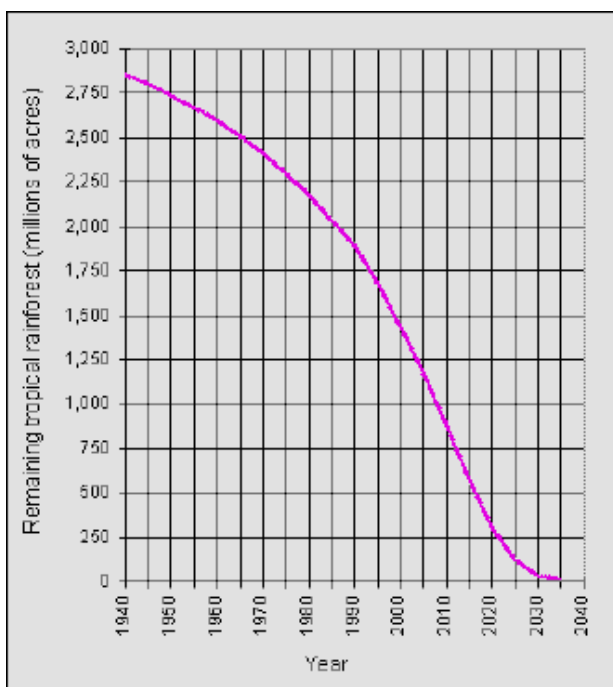
resources for the world's rapidly growing population, and to make room for the exploding tropical population, the world's tropical rainforests are literally disappearing.

By 1950, we had a little less than 2.8 billion acres of rainforest. It was then being cut down at the rate of about 10 to 15 million acres per year. Today we have less than 1.5 billion acres left, and we are clearing this remaining rainforest at the rate of 30 to 50 million acres per year, two to three times as rapidly as just a few decades ago. If the present rate of tropical deforestation continues, there will be nearly *no tropical rainforests left* in just 30 years.

Deforestation has significant consequences. The forests fix soil to the earth; when the trees are removed, the soil blows away or is removed by rains. The erosion of the soil makes the area useless for farming; clogs up local water-courses, to the extent of silting up major canals and dams; and leads to floods in the rainy season, as the soil is no longer able to retain the rains in sufficiently large quantities. In extreme cases, the deforested area will become a desert.

Forests absorb more of the sun's energy than open land: deforestation can disrupt local weather patterns by warming air that was previously kept cool. Deforested zones experience greater fluctuations in air and soil temperature than the forest that they have replaced. Humidity is another factor that is altered.

### ***Rates of deforestation***



## VOCABULARY

**diversity** – разнообразие, многообразие  
**to inhabit** – населять  
**the Ice Age** – Ледниковый период  
**vast** – обширный, громадный  
**shelter** – приют, убежище  
**to escape** – бежать, спастись  
**survival** – выживание  
**to dominate** – господствовать, преобладать  
**to proliferate** – распространяться, размножаться  
**insect** – насекомое  
**to clog up** – закупоривать  
**to silt up** – заиливать  
**dam** – дамба, плотина  
**to retain** – держать, сохранять  
**to disrupt** – разрушать, нарушать  
**fluctuation** – колебание, неустойчивость  
**humidity** – влажность  
**to alter** – менять, изменять

## ANIMALS IN DANGER

By the year 2030, 25% of all animals, birds, fish and insects may be extinct. Why is this happening? Well, there are three main reasons. The first is pollution. Millions of animals die every year because man has polluted their natural home or "habitat". A habitat contains everything a living thing needs: food, water, shelter, space, light.

Pollution and destruction change the balance of nature. Each species in a habitat – wood, jungle, marsh or forest – needs and helps the rest. If one animal, bird or insect disappears, all the rest suffer, too, because some plants and animals provide food for other animals. Forests help to regulate water supplies. We all need the help of all living things to maintain chemical balance of the atmosphere.

After pollution or destruction, habitats take many years (sometimes hundreds or even thousands) to grow again. This is what's happening in the rainforests of South America, Africa and Asia. These are some of the world's oldest habitats. But the problem doesn't stop there.

The second reason is the environment itself. It is becoming smaller. Every year man cuts down more trees, builds more roads and uses more land for farming. This leaves fewer jungles, fields and forests for wildlife.

Today many more species are in danger not only because man destroys and pollutes their habitat, but because man hunts them. Man has always been a hunter. He still is. But many modern hunters don't just kill for food – they kill for profit. That is why so many rare and protected animals are still dying. Hunters like these are called poachers. In 1981 there were 15,000 black rhinos in Africa. Today, because of illegal hunting, that number is 4,500. There used to be 300 species of elephant, today there are just the African and Indian. In Africa, where an estimated 75000 still survive, 10,000 a year are shot by poachers for their tusks. The trade has a street value of \$1 billion. Emblem of the World Wildlife Fund, the giant panda, faced extinction by the end of the century until, ironically, man stepped in.

The blue whale, the largest animal ever to have lived on earth is reaching lengths of 100 feet and weighing up to 150 tons. The whale was exploited as a source of meat, fats and oils. Its food-sieving plates (baleen) were used to make whalebone corsets. Despite repeated warnings from scientists, whalers continued to slaughter blue whales until their number was one thirtieth of its original level.

A threatened species is at significant risk of extinction in the near future. Defining the level of risk and predicting exactly when extinction may occur is difficult. The World Conservation Union publishes a Red List of Threatened Animals. This is the only accepted worldwide attempt to list threatened animal species individually. The Animal Red List has been compiled every two years since 1986 by the World Conservation Monitoring Center. Each species in the Animal Red List is assigned a threat category by reviewing different factors affecting it. The main threat categories currently used are: extinct (species not definitely located in the wild during past 50 years); endangered (in danger of extinction if threats are not removed); vulnerable (likely to move into the endangered category if threats are not removed); and rare (neither endangered nor vulnerable, but considered at risk).

The two classes with the greatest number of threatened species are birds (1029) and insects (1083). Other listings include mammals (507), reptiles (169), amphibians (57), fish (713), mollusks (409), corals and sponges (154), annelid worms (139) and crustaceans (126).

Most threatened mammal species live in tropical countries: Brazil, China, Indonesia and Madagascar. Other countries with high numbers of species at risk include Australia, India, Mexico, Tanzania, the United States and

Zaire. This is probably because species richness is higher in these areas than in temperate areas. The high rate of human population increase in tropical countries also plays a role. Mammals and birds are obviously not the only animals under threat of extinction. At least 20% of the world freshwater fish species are known to be seriously threatened or already extinct. Some of the reasons for this are habitat modification (competition for water, drainage, pollution), introduced species and commercial exploitation.

## **VOCABULARY**

**habitat** – ареал, место распространения

**shelter** – приют, убежище

**marsh** – болото

**to suffer** – страдать

**to hunt** – охотиться

**hunter** – охотник

**poacher** – браконьер

**rhino** – носорог

**tusk** – бивень

**World Wildlife Fund** – Всемирный фонд дикой природы

**to step in** – вмешиваться

**blue whale** – голубой кит

**baleen** – китовый ус

**to slaughter** – убивать

**to compile** – составлять

**to assign** – определять, устанавливать

**extinct** – вымерший, исчезнувший

**endangered** – подвергающийся опасности

**rare** – редкий

**mammal** – млекопитающее

**sponge** – губка

**annelid** – аннелид

**crustaceans** – ракообразный

**freshwater** – пресноводный

**modification** – изменение, трансформация

## **HOW OUR FOOD GETS CONTAMINATED**

The apple, a symbol of healthy eating, came under suspicion in 1989 as fears that the pesticide spray 'Alar' could cause cancer led worried parents to stop feeding their children apple juice.

As the environment becomes more polluted, so the risk of food contamination increases. Contaminants from human activities pass into the air, into soil and water, and hence into fish, crops, and animals. Once contaminants enter the food chain they can increase in concentration by up to 100-fold at each stage along it. Food is described as 'contaminated' when any chemical or organism in it reaches a level which is potentially harmful to human health.

A major cause of food contamination is the pollution of air, water and soil. Emissions from industry and vehicle exhausts are a common cause of air pollution, and dangerous air-borne elements such as lead can be deposited onto and absorbed into fruit, vegetables and cereal crops.

Industrial and domestic waste is often discharged into water, in which some harmful chemicals can be broken down by biological or chemical action. However, large amounts of untreated waste and certain chemicals cannot be detoxified, and contaminants therefore remain in the water, from which they are absorbed into the ecosystem and enter our food supply. Water can also become contaminated as rain water passes through contaminated soil and drains into rivers and lakes.

Soil and plant contamination often occurs as a result of industrial or mining activities which produce poisonous wastes, particularly if the waste is not stored carefully or is disposed of near agricultural land. Other common sources of agricultural contamination are fertilizers and pesticides which are deposited on crops and may build up in the soil as they are used over a number of years. Substances such as cadmium can be passed into human and animal food in this way.

As air, water, land, plants and animals are linked by a complex web of natural processes, contamination of any one element is likely to affect all the others. The contaminants from a chemical leak, for instance, or – more dramatically – the radioactive substance released from nuclear accidents such as Chernobyl, can contaminate land, air, water and, hence, the food supply over a wide area for many years.

Contaminants are often found in animals, particularly as a result of modern farming methods. If animals are not free-ranging, any contamination of feed will affect a large number of animals, and contaminants are likely to build up to dangerous levels in their body tissues.

Contamination can occur during food storage. Coatings containing polychlorinated biphenyls (PCBs) have been used inside silos, for example, and caused high levels of PCBs in milk.

Another potential period of chemical contamination is during food processing. In processing plants there have been instances of heat exchangers, transformers and capacitors containing PCB-based fluids leaking and contaminating food. Commercial and domestic cooking utensils have been identified as a source of lead and cadmium in food.

Not all food contaminants are man-made, some occur naturally in the environment. Moulds which produce the biological poisons known as aflatoxins are found on crops which have undergone stress conditions such as insect infestation or drought. They also develop in crops once they are harvested, mainly because of improper drying and inadequate protection against damp during storage.

Storage of fresh or processed food in warm or humid conditions, or in damaged containers can lead to biological contamination. Bacteria are widespread in the environment and if they are allowed to develop in food it can lead to diseases such as listeriosis and to salmonella poisoning.

Irradiation of food to prevent deterioration has been introduced in a number of countries and is being considered by others. Scientific data have clearly established the benefits of irradiation, but public opinion is at present generally ambivalent towards this process.

## VOCABULARY

**to come under suspicion** – вызвать подозрения, опасения

**fear** – страх, боязнь

**cancer** – рак

**to feed** – кормить

**apple juice** – яблочный сок

**contamination** – загрязнение, заражение

**contaminant** – загрязняющее вещество

**health** – здоровье

**emission** – выпуск, выделение

**vehicle exhausts** – выхлопные газы

**air-borne** – переносимый по воздуху

**lead** – свинец

**vegetables** – овощи

**cereal crop** – зерновая культура

**domestic waste** – бытовые отходы

**to discharge** – выпускать, сливать



**to detoxify** – детоксифицировать  
**drain** – водосток, труба, канализация  
**mining** – разработка месторождения  
**poisonous** – ядовитый  
**to store** – хранить, накапливать  
**to dispose of** – избавиться, ликвидировать  
**fertilizer** – удобрение  
**to deposit** – осаждаться, отлагаться  
**leak** – течь, утечка  
**free-ranging** – находящийся на свободном выгуле  
**coating** – покрытие  
**silo** – силосная яма или башня  
**food processing** – технология производства пищевых продуктов  
**heat exchanger** – теплообменник  
**capacitor** – конденсатор  
**fluid** – жидкость  
**cooking utensils** – кухонная утварь  
**mould** – плесень  
**insect infestation** – заражение насекомыми  
**to harvest** – собирать урожай  
**listeriosis** – листериоз  
**salmonella** – сальмонелла  
**irradiation** – облучение  
**deterioration** – порча, повреждение  
**ambivalent** – противоположный, противоречивый, двойственный

## **THROW-AWAY SOCIETY**

*Waste, Rubbish, Trash, Garbage, Litter, Refuse* – all these words mean things which we throw away.

When you throw something away, it goes in a garbage can or plastic bag for litter. Regularly the garbage truck comes and the can is emptied or the bags are taken away, and that's the last you see of it. But what do you think happens to the garbage then? Does it disappear? No way!

Land pollution has many causes. The over-use of agricultural fertilizers and pesticides, oil spillages and the leakage or dumping of hazardous waste are among them. But though important, none of these compare in volume with that of ordinary rubbish. Much of this is household waste, plastic, metal and glass collected every week from people's homes. This is a typical list of waste produced by every one of us each year:

- 100 dustbins of rubbish;
- 2 trees-worth of paper and board;

- 90 drink cans;
- 100 food and pet-food cans;
- over 100 bottles and jars;
- 45 kilos of plastic.



The international recycling symbol

Much of that could be saved for other uses and not simply destroyed. Glass, metal, paper, plastics, textiles, used motor oil, wood – all of these things are recyclable or re-usable. 80% of what we throw away could have been used again.

We all know how unpleasantly piles of litter look and how they ruin the appearance of our towns, beaches and countryside. What is often forgotten is that it is us who have to pay to have it cleared up. In the country and even in towns, it is an enormous danger to people and animals alike.

Hundreds of accidents to children and thousands of deaths of animals are caused every year by thoughtlessly discarded waste. Even when waste disposal sites are well controlled, there is an ever present risk of pollution. Many people are now worried about the dangers of the by-products from decomposing waste soaking into the ground and getting into rivers and lakes.

On top of that, when things decompose, they give off gases such as methane and carbon dioxide which add to the greenhouse effect. It is estimated that certain plastics will take over 400 years to disintegrate, that is why it is important to introduce more recyclable plastic, which can be melted down and re-used. Containers like our soft drink bottles are made of material which could be recycled into other packaging. We can now often see the symbol "Biodegradable material" on many packaging and products, which means that the material can break down and disappear into the soil. This is done by adding starch to the material and this gives the soil bacteria something to feed on when the plastic is buried in the rubbish tip. But even this is not always the solution to the problem. If biodegradable materials are dumped together with non-biodegradable wastes which surround them and prevent the access of oxygen, it is very hard for biodegradable materials and even vegetable waste to decompose. That is why recyclability is preferable to biodegradability.

A lot of what we throw away has been made from raw materials which are not renewable. That is to say, once we have used them all up and thrown them away, they won't be any more – ever. There is the waste of energy, most of which comes from coal, gas or oil which are also non-

renewable resources. Throwing away an aluminum beer can or a copy of "The Times" has been compared to pouring away the equivalent of a beer can half filled with petrol. It takes 20 times as much energy to make new aluminum as it does to melt down recycled aluminum, 4 times as much energy to make new steel as recycled, almost twice as much to create new paper and half as much again to make new glass.

Just under 2/3 of our domestic waste is made up of paper and cardboard. It has to be buried in holes in the ground. Not only are we rapidly filling up these refuse sites but the disposal is also costing us a lot of money – all from our rates. Production of "new" paper causes the cutting of trees as well as chemical pollution with toxic waste products in the course of the production process. We can cut down on paper production and waste by using recycled paper instead.

## VOCABULARY

**rubbish** – мусор, хлам, отбросы

**trash** – мусор, хлам, отбросы

**garbage** – отбросы, гниющие остатки

**litter** – сор, мусор

**refuse** – мусор, отходы

**truck** – грузовик

**spillage** – утечка, утриска

**board** - картон

**hazardous** – опасный

**household waste** – бытовые отходы

**dustbin** – мусорный ящик

**pet-food** – еда для домашних животных

**jar** – банка

**recyclable** – повторно используемый

**pile** – куча, груда

**beach** – берег моря

**countryside** – сельская местность

**to clear up** – прибирать, убирать

**discarded** – отброшенный, отвергнутый

**disposal** – удаление

**by-product** – побочный продукт

**decomposing** – разложение

**soaking** – пропитывание, размачивание

**to melt down** – расплавлять

**packaging** – упаковка

**biodegradable** – разлагаемый микроорганизмами

**starch** – крахмал

**to bury** – хоронить, зарывать в землю

**rubbish tip** – свалка  
**to dump** – сваливать, сбрасывать  
**to surround** – окружать  
**access** – доступ  
**raw material** – сырье  
**pour away** – выливать  
**petrol** - бензин

## Section 2

### ***Scientific Correspondence***

**Из этого раздела вы узнаете:**

- как ведется официальная деловая переписка на английском языке.

**Изучив материал этого раздела, вы сможете:**

- написать письмо ученому от имени организационного комитета, приглашая его для участия в конференции;
- написать письмо-благодарность о согласии участвовать в международной конференции;
- написать письмо-извинение о невозможности принять участие в международной конференции;
- написать письмо ученому, который не смог участвовать в международной конференции, на которой были Вы;
- написать сопроводительное письмо в организационный комитет о своем научном достижении;
- написать письмо-заявку на участие в интересующей вас конференции.

### **LETTER OF INVITATION**

*Suppose you are a member of the Organizing Committee. Compile the text of invitation letters to the Symposium on the Latest Discoveries in the field of... which is going to be held... You are given three letters as an example.*

June 3, 20...

Dear Dr. Samson:

On behalf of the Russian Academy of Sciences and the Organizing Committee of the 10th International Congress on... I have the honour and pleasure of extending to you an invitation to participate in the work of Congress and to give a lecture at the Plenary Session covering your area of research.

An early reply to this letter would be appreciated.

Sincerely yours,

F.N. Frolov, Professor

Chairman of the Organizing

Committee

15th August, 20..

Dear Dr. Sorkin,

On behalf of the National Committee of Biology I should like to inform you that the Section of Ichthyology proposes organizing an International Symposium on Salt-water Fish in R... on 20th September, 20...

I consider that this will provide an excellent opportunity for most eminent world scientists to meet and discuss the many problems of Ichthyology both on a national and international level.

We would kindly ask you to prepare a paper on the work of your section in this field of research. It would be much appreciated if you could reply to this letter at your earliest convenience.

With best regards,

Yours sincerely,

Ferdinand R. Ainsweld

10 Feb, 20..

Dear Dr. Baskin,

The Organizing Committee for convening the III International Congress on... officially invites you to participate in the work of the Congress to be held in C... from 3rd to 9th July.

We would appreciate an early reply to this invitation and hope we shall have the pleasure of seeing you at the Congress. Further arrangements will be expedited if your immediate acceptance of the invitation is written directly to the Organizing Committee.

Please find enclosed a preliminary list of topics, which can cover your field of scientific activities. We kindly request you to inform us the title of your paper/poster.

Yours truly,

Frank R. Williams

Chairman of the Organizing  
Committee

Enc.: List of topics

***Choose two scientists out of the ones given below and write letters of invitation for them to take part in different gatherings:***

Scientists:

- a) Charles A. Cornwell, Montana University, USA
- b) Dr. Frank G. Jones, the Sherwood Research Center
- c) Professor Robert Sparrow, Cambridge University, U.K.
- d) Professor Jennings, McGill University, Canada.

***Use the following words and word combinations to write various letters of the same kind:***

(1)

(On behalf of...) I have the pleasure of extending to you an invitation (to...);  
may I have the pleasure of inviting you (to...);  
may we sincerely invite you (to...);  
officially (cordially) invite you (to...);  
It gives me a great pleasure to invite you (to...);  
It's a great pleasure (and honor) to extend to you an invitation (to...)

(2)

to participate in the Congress (Conference, Symposium) on;  
to attend the Congress (Conference, Symposium);  
to be a participant of...

(3)

to be held in (London) from... to...;  
which is scheduled on (the 1st) to (the 5th) of (September);  
in the... Hotel at... o'clock on (Friday), (the 10th) of (May), 200...

## A LETTER OF CONTENT

*You've received an invitation to participate in the work of the International Congress. Fill in the gaps. Agree to take part in the conference and write a letter of content to the Organizing Committee. The letter of Prof. Baskin will serve as an example:*

16 Feb., 20...

Dear Dr. Williams,

I wish to inform you that I have received your letter of 10 Feb. 20... in which you officially invite me to participate in the work of the III International Congress on... to be held in C... from 3rd to 9th July, 20...

It gives me great pleasure to accept your kind invitation to the Congress. From the list of topics enclosed in your letter I could present a paper under the title "...".

Please confirm agreement as to the title as soon as possible so as to have enough time to prepare my paper. I am looking forward to receiving further information from you.

Sincerely yours,  
Andrei S. Baskin,  
professor

*The next letter is for you to reply positively adding the necessary information in place of dots:*

18 September, 20..

Dear Dr.....,

The National Geographical Society is very happy to invite all scientists interested in... to participate in the work of the 14th International Congress on "... " to be held in..., June 15—21, 20...

We intend to arrange into different sections presentations of about 600 papers and posters.

The program of the Congress will include 4 lectures and 6 invited papers in the plenary sessions on subjects of general interest. Apart from the contributed paper sessions, we are planning round-table discussions with the participation of outstanding scientists in the area of "...", workshops and a panel.



The Scientific Program will be complemented with visits to scientific institutions and research centres in the country.

A diversified Social Program will be drawn up for the pleasure of the participants and accompanying persons.

If you wish to participate in the work of the Congress, please complete the forms enclosed and return them at your earliest convenience so as to put your name on our mailing list for further information.

Sincerely yours,

J. L. Phillips

Conference Secretary

*You're given additional words and word combinations to write different letters of this kind:*

(1)

I am very grateful to you for your invitation to participate in the conference on...;

Thank you very much for your letter of January 24 inviting me to attend and give/present a paper at the conference devoted to ...;

I am honoured by your invitation to participate in the conference to be held on May 10, 20...;

I greatly appreciate your kind invitation to attend the forthcoming/upcoming conference on ...;

I wish to thank you (for);

I would like to thank you (for);

May I express my gratitude to you (for);

I wish to express my gratitude to you for your kind invitation to attend the conference on...

(2)

I accept your kind invitation with great pleasure.

It is a great pleasure to accept your kind invitation to ...

I am pleased to receive your invitation to...

Thank you for your kind (sincere) invitation which I accept with great pleasure.

I am very pleased to accept your kind invitation and will be looking forward to participating in this conference.

It is a great honour and pleasure for me to accept your kind invitation. I am sure it will be a most stimulating and interesting experience.

I will indeed be most happy to attend your conference and give a talk on the topic suggested by the Committee.

I am very much interested in the subject of this meeting and I shall be very pleased to participate.

It is with great pleasure that I accept your invitation;

I shall be happy to participate in....

(3)

I plan to speak on ...

I would like to present/give a paper with the following title:...

The title of my paper will be ...

I would like to suggest the following title for my paper:...

I would like to give a talk on ...

I would be pleased to present a paper/to make presentation on ...

(4)

Please find enclosed/attached an abstract of my paper.

Please find my proposal attached/enclosed.

Enclosed/attached is ... .

**Note** that 'enclosed' refers to a document sent by regular mail, while 'attached' refers to an e-mail attachment.

## A LETTER OF DECLINE

*Sometimes it's impossible to attend the conference you've been invited to. In this case you should write a letter in which you decline the invitation and explain why you can't attend the gathering.*

*Two letters are given to you as an example:*

22 April, 20..

Dear Dr. Jackson,

I wish to express my deep gratitude to you for your invitation to participate in the XIX International Symposium on... to be held in L... in early June, 20...

I very much regret to inform you that I have to decline your invitation owing to the fact that our experiment is in full swing and cannot put it off. I believe you understand my situation.

With kind regards,

Sincerely yours,

Andrei S. Kudryavtsev

January 20, 20..

Dear Professor Smith:

I am grateful to for your letter of August 3rd and kind invitation to participate in the 10th Congress of Physiologists in Pennsylvania, but I very much regret to inform you that I am unable to be present as I have a number of urgent matters to attend to in this country.

As far as my report is concerned I have asked Dr. Bukovich of the Institute of Physiology to read my paper and to present a copy to you for publication in the Proceedings of Physiology.

With best wishes,

Yours sincerely,

A.P.Mukhin

*You've been invited to take part in the International Conference on.... You can't comply with the invitation because you'll be very busy. Write a*

***letter to your correspondent (Prof. Smith), declining the invitation, expressing your gratitude and explaining the reason for it:***

1. Symposium on *Environmental Problems* to be held in Washington D.C., USA, September 25-30, 200...

2. Conference on *Mathematics in Our World* to be held in London, UK, January 10-12, 200...

3. Conference on *Natural Sciences and Their Role in Environment Protection* to be held in Toronto, Canada, May 15-20, 200...

***You are given additional words combinations to write different letters of this kind:***

(1)

I very much regret that I am unable to accept (it);

I am very sorry to decline your kind invitation;

It is with great regret that I have to decline your invitation;

I am afraid I must decline;

(2)

I am not in a position to accept your invitation to the conference.

I am unable/not able to attend (the conference);

I have to decline your kind invitation to attend the conference;

It is not possible for me to participate in the conference;

(3)

My research is not directly concerned with the problems to be discussed;

I have other commitments at the same time;

I am already obliged to give a series of lectures on practically the same days;

I have to complete my monograph by the end of February;

as I have already accepted a previous invitation;

as I have an urgent business to attend to;

as I see no prospects of attending the Conference/Congress/Symposium owing to (because of) my poor health/my illness/other obligations;

owing to another previously arranged engagement for that time.

## A LETTER OF REGRET

*In your future life you'll probably need to write a letter to a scientist who couldn't attend the conference you have taken part in. You know this scientist, that's why write a letter to him/her expressing your disappointment and hope to see him/her at another conference. The following letter is given to you as an example:*

Chemistry Faculty  
University of London  
England  
15 October, 200...

Dr. Hill  
Montana University  
Missoula, USA

Dear Dr. Hill,

I was disappointed that it was not possible for you to attend the 16th International Conference on New Applications of Biochemical Research although I fully appreciate your obligations. I enclose the program and abstracts of the Conference for your information. When the proceedings are available, I will send you a copy, too.

We were fortunate, indeed, that Dr. Lookenbill could attend and actively participate in the Conference work. I am sure you will hear a report from him about many details of the scientific program.

For myself, let me close this brief letter with the hope that some time in the future it will be possible for us to meet again and discuss scientific problems of mutual interest. In particular, I shall be greatly interested in discussing *bacteria in nature* as well as the problems of *cells and genetics* which I mentioned to you last year in Paris. I have made some progress on the latter problem and would like to have your opinion on directions for further work. All your colleagues here send you their best wishes.

Yours sincerely,  
R. Housemann

*Write letters to those unable to participate in the conferences. Some of the scientists will not have the opportunity to attend. Choose a conference and a scientist and write him a letter of understanding.*

1. International Conference on Chemical Sciences in Development. May 14-18, 200...
2. The 10th International Conference on Computers in Research and Education. July 14-19, 200...
3. The 11th International Conference on Science Education. August 25-30, 200...

Scientists: a) Roger Black, Montana University, USA  
 b) Dr. Cyril Smith, Institute of Chemistry, Ceylon  
 c) Professor David Wood, Department of Organic Chemistry, University of York, Heslington, U.K.  
 d) N. N. Greenwood, Department of Chemistry, University of Leeds, U.K.

*You may use the following expressions to write different letters of this kind:*

(1)

I/we was/were sorry/frustrated/upset;  
 I very much regret

(2)

to attend/to visit/to participate/to be a participant

(3)

I fully understand;  
 I'm fully aware;  
 I realize that

(4)

your duties/responsibilities/business

(5)

We were lucky/happy/fortunate

(6)

I'd like to have your point of view/comment/thoughts/ideas

## A COVERING LETTER

*Leonid Matveyev has synthesized a new element and wants to present his investigation in front of the participants of the next Conference on New Discoveries in Chemistry. He's written a covering letter (сопроводительное письмо) to the Organizing Committee.*

MSU Chemistry Faculty  
Moscow, Russia  
July 17, 200...

Montana University  
Missoula, USA  
Dr. R. Houseman  
Organizing Committee  
Chairperson

Dear Dr. Houseman,

In the recent issue of *Chemical Review* I've found information-on the New Discoveries in Chemistry Conference to be held in December 9—11, 200... in Missoula. I'm looking forward to reporting my new discovery to scientific establishment and listening to what they think about it.

For you to know what I mean some information on a new element follows.

I named it Bodium (Bo). It is a solid at room temperature, but is easily cut with a knife to reveal a shiny surface which rapidly tarnishes. It reacts vigorously with water liberating a flammable gas and forming a solution with a high pH value. When Bodium reacts with chlorine, it forms a white solid containing 29.5 percent by mass of chlorine.  $A(\text{Bo})=85$ .

If you think my work is worth being spoken about, give me a chance to present it. I'll appreciate it very much.

I'm looking forward to hearing from you soon.

Truly yours,

Leonid Matveyev

P.S. Enclosed are my CV and two recommendation letters.

***Do you agree that Leo's discovery is really interesting for science? Why?***

***Write a covering letter with the information about your contribution to the Chairperson of Organizing Committee for Symposium on Greenhouse Effect to be held in June, 3-7, 200... , in Florida State University, USA. The Chairperson's name is Dr. F. Rowland.***

***You can use some other words and expressions to write letters of this kind:***

(1)

publication, reprint, material, copy

(2)

the paper, the material, the data

(3)

to be held, to take place, to schedule, to fix

(4)

I'd like to, I'm very much interested in, I'm eager, I'm very keen on

(5)

is worth being discussed/presented/listened to

(6)

I'm sending you/ I have the pleasure of sending you



## A LETTER OF INQUIRY

*Sometimes you will need to write a letter asking for more information about a forthcoming conference in the field of your activities and offering a presentation for it. Two letters below will help you to write letters of these kinds.*

January 17, 20..

Dear Prof. Borkov,

I have recently come across an announcement in the Journal of ... calling for papers for presentation at the ... Conference which you are convening in August 20...

I would appreciate to have more information about the meeting so that I could prepare a paper/poster on the following theme "...".

If you find my work to be of interest, I shall be looking forward to receiving an invitation to attend.

Yours sincerely,

John P. Wittermarm

12 March, 20..

Dear Sir:

I am writing to inquire about the... Congress which is to be held in K\_, in August 20...

I would be grateful if you would send me detailed information concerning the program of the Congress. I am engaged in the following area of exploration: "...".

I would be interested in presenting a paper if my work is related to the scope of the Congress.

Sincerely yours,

Michial S. Strommer

***Write a similar letter. The following words and expressions will help you:***

(1)

May I; Would you kindly; Will you be so kind as

(2)

ask you (for); request you (for); make a request about; (to) approach you  
with a request about

(3)

advice; help; information (to) give me; send me; supply me with; help me  
with; inform me about

## Section 3

### ***Doing Translation during a Conference***

**Из этого раздела вы узнаете:**

- что говорит председатель конференции в своем вступительном слове;
- что говорит председатель конференции в своем заключительном слове;
- что говорят участники конференции о себе.

**Изучив материал этого раздела, вы сможете:**

- побыть в роли переводчика – глядя на текст либо на русском, либо на английском языке (закрыв листом бумаги вторую половину), переведите его на другой язык – пусть ваш партнер проверит правильность вашего перевода; затем поменяйтесь ролями в паре.

***One of the most important things during an international gathering is a good translation. May be you will have an opportunity to try your translating skills during a conference or during a private talk with your foreign colleagues some day. Imagine that you are in that situation now. Work with a partner. First study two texts carefully. Then close the text either in Russian or in English. Translate the other text orally and let your partner check your translation. Then change your roles in your pair.***

#### **OPENING ADDRESS**

It is a great pleasure and a great honour for me to open this two-day International Conference devoted to "New Methods in Biophysics". I would like to welcome, on behalf of the organizing committee and in my own name, all the personalities who are attending this meeting and extend specific greetings to my friend Professor Gale, to Professor Bergman and also Professor Newman. Unfortunately they are detained in London for the preparation of the 10<sup>th</sup> International Congress. They accepted to act as the Honorary Committee of this Conference. Without them our

#### **ВСТУПИТЕЛЬНОЕ СЛОВО**

Для меня большое удовольствие и большая честь открывать эту двухдневную международную конференцию, посвященную "Новым методам в биофизике". От имени организационного комитета и от себя лично, я хотел бы приветствовать всех тех, кто принимает участие в этой встрече и передать особый привет моему другу проф. Гейлу, проф. Бергману и также проф. Ньюману. К сожалению, они задержались в Лондоне для подготовки 10-го Международного конгресса. Они согласились выполнять обязанности почетного комитета

Conference could have never taken place. I would also like to excuse Professor Reel from the University of Leeds, who is unable to be with us today. Further I would like to thank the departments of Physics and Biology of the Ministry of Research for sponsoring this Conference and also thank all the firms who have contributed to the material organization of the meeting. I hope that this Conference, which is the satellite Conference of the 10<sup>th</sup> International Congress of Biophysics in London, will be profitable to us all.

этой конференции. Без них наша конференция не смогла бы состояться. Я также хотел бы передать извинения проф. Рила из Лидского ун-та, который не может быть сегодня с нами. Далее, я хотел бы поблагодарить отдел физики и биологии Министерства научных исследований за организацию этой конференции и также поблагодарить все фирмы, которые внесли свой вклад в материальное обеспечение данной встречи. Я надеюсь, что эта конференция, которая проходит в рамках 10-го международного биофизического конгресса в Лондоне, принесет всем нам большую пользу.

Let me first express our sincere thanks to you for accepting our invitation and for participating in the present meeting in this small, quiet university town, which some of you have never heard of before. Our colleagues are often complaining that the huge international congresses and even the smaller national conferences tend to be more and more costly and formal day by day. Therefore, the participants have less and less opportunity for intimate discussions. One of the motives for organizing this meeting was to create quiet

Разрешите мне, прежде всего, выразить вам нашу искреннюю благодарность за то, что вы приняли наше приглашение и участвуете в настоящей встрече в этом маленьком, спокойном университетском городке, о котором, возможно, некоторые из вас никогда прежде не слышали. Наши коллеги часто жалуются, что огромные международные конгрессы и даже менее масштабные национальные конференции имеют тенденцию становиться все более дорогими и официальными день ото дня. Поэтому у участников все меньше и меньше возможностей для дискуссий в тесном кругу. Одним из мотивов организации этой встречи было создание спокойных условий и благоприятной

conditions and a calm atmosphere for exchanging ideas of mutual interest. I wish you a pleasant stay at our meeting and a useful exchange of ideas and opinions, which, hopefully, will stimulate our future research activities.

атмосферы для обмена идеями, представляющими взаимный интерес. Я желаю вам приятного пребывания на нашем заседании и полезного обмена идеями и мнениями, который, я надеюсь, будет стимулировать нашу будущую исследовательскую деятельность.

It is a great honour to have been asked to preside at this conference. Let me emphasize a few points. Firstly, what we would like to achieve here is the generation of ideas – ideas that will not necessarily be fully expressed in the printed proceedings, but that each of us can take back and attribute to this conference. However, if we have a good and fruitful discussion, it may help to inspire those who later read the book. We may not be able to reach conclusions, but by concentrating on these problems, I hope we will achieve a clear understanding of several outstanding questions.

Для меня большая честь быть приглашенным председательствовать на этой конференции. Позвольте мне подчеркнуть несколько моментов. Во-первых, то, чего мы хотели бы достичь здесь – это генерация идей – идей, которые не обязательно должны быть полностью выражены в напечатанных трудах, но которые каждый из нас может взять с собой и связать их с этой конференцией. Однако, если у нас будет хорошая и плодотворная дискуссия, это может помочь вдохновить тех, кто позднее будет читать сборник трудов. Возможно, мы не сможем прийти к окончательным выводам, но концентрируя внимание на этих проблемах, я надеюсь, мы достигнем более ясного понимания важнейших вопросов.

As a member of the organizing committee of the previous conference in 2005 in Vienna I am very pleased to offer my best wishes for a successful conference. We are pleased that this conference is being held here in Nordburg in conjunction with the 500<sup>th</sup>

Как член оргкомитета предыдущей конференции, состоявшейся в 2005 г. в Вене, я очень рад пожелать вам успешного проведения конференции. Нам приятно, что эта конференция проводится здесь в Нордбурге в связи с 500-летней годовщиной Университета

anniversary of the University of Nordburg, which is one of the oldest and best known universities in Europe. We are very grateful to Professor Kunz and his collaborators for making this conference a reality.

г.Нордбурга, который является одним из старейших университетов Европы. Мы благодарны проф. Кунцу и его сотрудникам за то, что они сделали эту конференцию реальностью.

I have the honour and pleasure today of greeting you, the participants of the conference of molecular biologists in Nordburg most sincerely on behalf of the minister of Science, Professor Richter. We are delighted to see that such a great number of distinguished scientists from home and abroad have accepted the invitation to this conference in the beautiful city of Nordburg.

Сегодня я имею честь и удовольствие искренне приветствовать вас – участников конференции молекулярных биологов в Нордбурге – от имени министра науки проф. Рихтера. Нам приятно видеть, что такое большое число уважаемых отечественных и зарубежных ученых приняли приглашение участвовать в этой конференции в прекрасном г. Нордбурге.

It is a great pleasure for me to welcome you here on behalf of the International Union of Pure and Applied Physics, which is sponsoring this conference. The topics and program impressively show nuclear physics is playing an important role in the study of the fundamental laws of physics. The President of our Union, Professor John Briggs, has asked me to convey his greetings to you. Personally, may I wish you pleasant days here in Brighton and many fruitful discussions.

Мне доставляет большое удовольствие приветствовать вас от имени Международного Союза фундаментальной и прикладной физики – спонсора этой конференции. Темы и программа конференции убедительно показывают, что ядерная физика играет важную роль в изучении фундаментальных физических законов. Президент нашего союза просил меня передать вам его наилучшие пожелания. От себя лично позвольте пожелать вам приятного пребывания здесь, в Брайтоне, и многих плодотворных дискуссий.

I welcome the international Я приветствую делегатов из разных

delegates who have come to participate. I am sure you will find the opportunity for useful discussions and I hope that you will also have a chance to see something of Australia and of Australians while you are here. I take great pleasure in declaring the Seventh International Conference on Computer Communication open.

### **CLOSING ADDRESS**

On behalf of the 18 participants from the United States, I wish to thank Professor Mironov and his organizing committee for excellent work they have done which has resulted in such a successful conference. It was a great pleasure for us to participate in the technical proceedings and also to visit Moscow, the beautiful capital of Russia.

We are now at the end of this session and at the end of our conference. The general discussion in this final session has been, as I strongly feel, highly spirited. Many questions have been posed that will long occupy our minds and invite new studies. I believe that you will share my appraisal.

In closing this conference I would like to thank all the speakers and

стран мира, которые приехали на конференцию. Я уверен, что у нас будет возможность принять участие в полезных дискуссиях, и я надеюсь, что у вас также будет шанс познакомиться с Австралией и австралийцами во время пребывания в нашей стране. Я с большим удовольствием объявляю Седьмую международную конференцию по компьютерной коммуникации открытой.

### **ЗАКЛЮЧИТЕЛЬНОЕ СЛОВО**

От имени 18 участников из Соединенных Штатов я хочу поблагодарить проф. Миронова и его организационный комитет за проделанную ими прекрасную работу, результатом которой стала так успешно проведенная конференция. Для нас было огромным удовольствием участвовать в научных заседаниях, а также побывать в Москве, прекрасной столице России.

Сейчас мы подошли к концу этого заседания и к концу нашей конференции. Общая дискуссия на этом заключительном заседании проходила, как я вижу, с большим подъемом. Было задано много вопросов, которые еще долго будут занимать наши умы, и потребуют новых исследований. Я верю, что вы разделите мою оценку.

Закрывая эту конференцию, я хотел бы поблагодарить

chairpersons of the sessions for докладчиков и председателей  
their contributions as well as заседаний за их вклад, а также всех  
everyone who came from many тех, кто приехал из многих мест и  
places and countries, mainly from стран, в основном, издалека, на эту  
far away, to this meeting. This встречу. Настоящая  
International Conference has now международная конференция стала  
become part of the history of теперь частью истории  
analytical chemistry. аналитической химии.

I have the distinct honour and privilege to represent the Council in thanking our Australian conference organizers for holding an outstanding meeting – an excellent technical program and a delightful social program. I am sure all of you in this hall also join with me in expressing our thanks and appreciation.

Для меня особенно большая честь и привилегия поблагодарить от лица Совета наших австралийских организаторов конференции за проведение замечательной встречи, отличную научную программу и прекрасную культурную программу. Я уверен, что все вы в этом зале также присоединитесь ко мне в выражении нашей благодарности и признательности.

The success of the symposium reflected the energetic support of many people. We thank our colleagues for their successful handling of catering, slide projecting and many other practicalities. We are also indebted to Professor Simon for his opening remarks and for leading the closing discussion.

Успеху симпозиума способствовала энергичная поддержка многих людей. Мы благодарим наших коллег за успешную организацию питания, обеспечение демонстрации слайдов и решение многих других практических вопросов. Мы также признательны проф. Саймону за вступительное слово и за проведение заключительной дискуссии.

## **CONFERENCE PARTICIPANTS SPEAKING**

I am an ichtiologist and marine zoogeographer, which means that I am interested in fishes, their life cycles and relationships. I am also

## **ГОВОРЯТ УЧАСТНИКИ КОНФЕРЕНЦИИ**

Я ихтиолог и морской зоогеограф, что означает, что я интересуюсь рыбами, их жизненными циклами и их взаимосвязями. Я также интересуюсь общими вопросами



interested in the general распространения морских distribution patterns of marine организмов в мире. Однако, на работе life throughout world. However, у меня в основном административные my main responsibilities at work обязанности. Я руковожу кафедрой are administrative. I run the морских наук, и на это уходит Department of Marine Science, большая часть моего времени. Кроме and this takes much of my time. того, я преподаю, руковожу работой In addition I teach, supervise аспирантов и пытаюсь найти немного graduate students, and try to времени для моих собственных find some time for my own исследований. research.

I also enjoy art, especially painting. Еще я люблю искусство, особенно For example, on this trip I was very живопись. Например, во время pleased to visit the Pushkin этой поездки мне было очень Museum in Moscow, where I saw приятно побывать в музее им. many wonderful paintings, I have Пушкина в Москве, где я увидел also had the great pleasure of много прекрасных картин. Я также meeting a number of people about имел огромное удовольствие whom I've read, whose work I have встретиться с целым рядом людей, studied, and with whom I have not о которых я читал, чьи работы yet had an opportunity to meet изучал, но не имел до сих пор personally. So the whole trip has возможности познакомиться been very good. I have also had a лично. Так что вся поездка была chance to renew my acquaintance очень хорошей. У меня также была with Russian colleagues whom I возможность возобновить met on previous trips or at the знакомство с российскими meetings before. коллегами, которых я знал по предыдущим поездкам или встречаю.

I am a biologist. My home is in San Francisco and I work for the Californian Academy of Sciences. We have a ship that is used to combine our interest in making films and doing research, mostly about what happens on water, on the ocean. We go underwater to look back on ourselves from the point of view of a fish or a whale and to see that we are a part of the whole living system, whales, fish and people, part of a system, we're not detached from but dependent on. And what we do to the Earth may determine not only the fate of whales, the fate of fish, tigers, lions, forests and deserts, but our own fate as well. Right now we have the ability to make decisions that are perhaps more important and have more consequences than at any time before in history because changes happen so fast. And I try to share my experiences with as many people as possible. If I write a scientific paper it's very exciting, maybe thirty people in the world would read it. But if I work with film, then it is possible to share the experiences and information with millions of people.

Я биолог. Живу в Сан-Франциско и работаю в Калифорнийской Академии наук. У нас есть судно, которое используется нами одновременно как для съемки фильмов, так и для проведения исследований, в основном, того, что происходит на воде, в океане. Мы опускаемся под воду, чтобы взглянуть на себя с точки зрения рыбы или кита, и увидеть, что мы – часть целостной живой системы; киты, рыбы и люди – часть системы, от которой мы не отделены, и от которой зависим. И то, что мы делаем с Землей, может определить не только судьбу китов, судьбу рыб, тигров, львов, лесов и пустынь, но также и нашу собственную судьбу. Сейчас у нас есть возможность принимать решения, которые, возможно, являются более важными и приводят к большим последствиям, чем в любой другой период истории, потому что изменения происходят так быстро. И я стараюсь делиться моим опытом как можно с большим числом людей. Если я напишу научную статью, это очень интересно, возможно, 30 человек в мире ее и прочтут. Но если я сниму фильм, тогда есть возможность поделиться опытом и информацией с миллионами людей.

I'm an oceanographer and the Director of the International Tsunami Information Center. We monitor all the activities of

Я океанограф и являюсь директором Международного информационного центра по цунами. То, чем мы занимаемся, связано с наблюдением

the tsunami warning system throughout the Pacific. There are 19 member countries right now in the International Tsunami Coordination Group. We also provide educational materials. We coordinate workshops and proposals to different international organizations. In short, we make sure that people become aware of tsunamis and the Tsunami Warning System, and we help them with the technological problems that they have. I have a very small staff, about four or five people, and I prefer it that way – you don't have too many administrative problems. You can concentrate on work. However, I have contacts with many people in different countries in the Pacific. I do not supervise them directly, but I do supervise their activities and try to coordinate their work.

за деятельностью системы оповещения о цунами во всем Тихоокеанском регионе. В настоящее время в состав Международной координационной группы по цунами входит 19 стран-участниц. Мы также готовим учебные материалы. Мы координируем семинары и предложения для различных международных организаций. Короче говоря, мы делаем все, чтобы люди знали о цунами, и мы помогаем им решать имеющиеся у них технологические проблемы. У меня очень мало сотрудников – 4-5 человек, и я предпочитаю, чтобы это было именно так: нет слишком больших административных проблем. Вы можете сосредоточиться на своей работе. Однако я сотрудничаю со многими людьми в различных странах Тихоокеанского региона. Я не руковожу ими непосредственно, но все же руковожу их деятельностью и стараюсь координировать их работу.

I am the Assistant Director of the Oceanographic Institute, which concerns itself with the study of the seas around New Zealand. It's a very interesting country. In the north you would think you're in the tropics, because there are oranges and lemons on the trees. Quite a warm humid atmosphere and more people you'd find in Auckland which is the first city you come to. As you travel

Я заместитель директора Океанографического института, который занимается изучением морей вокруг Новой Зеландии. Это очень интересная страна. На севере вы бы подумали, что вы находитесь в тропиках, потому что там на деревьях растут апельсины и лимоны. Довольно теплую влажную атмосферу и большое число людей вы найдете в Окленде, который будет первым городом на вашем

further south, the temperature decreases and the vegetation changes. But no part of New Zealand is very far from the sea, so we're always reminded about it by the beaches and the very pleasant seashores.

I am a professor at the University of Washington. My area of research is the population dynamics of marine animals, especially fish, mammals and invertebrates. I am also the Director of the Center for Quantitative Science, which is an organization which studies the use of statistics and mathematics or how populations change over time. I came to this congress in order to take part in the sessions, meet other people, learn new things that are going on in this region. And I am impressed by what I have seen here, and certainly the people have been friendly.

The coral reef group, which I belong to, was a pretty close knit group. We seem to have a lot of interests in common. And so the discussions between different participants, I think, were very useful and very interesting. I've had an opportunity to meet many people who are doing research similar to my own that I wasn't

пути. По мере вашего продвижения на юг, температура понижается, и растительность меняется. Но ни одна из частей Новой Зеландии не находится очень далеко от моря – нам всегда напоминают об этом пляжи и очень красивые морские берега.

Я профессор в Вашингтонском университете. Область моих исследований – популяционная динамика морских животных, особенно рыб, млекопитающих и беспозвоночных. Я также являюсь директором Центра количественных наук – организации, которая изучает использование статистики и математики, или как популяции изменяются во времени. Я приехал на этот конгресс для того, чтобы принять участие в заседаниях, встретиться с другими людьми, узнать о том новом, что происходит в этом регионе. И я нахожусь под впечатлением того, что я увидел здесь, а люди, конечно, были дружелюбными.

Группа по изучению коралловых рифов, в которую я входил, была достаточно сплоченной группой. Похоже, что у нас было много общих интересов. И поэтому дискуссии между различными участниками, я думаю, были очень полезны и интересны. У меня была возможность встретиться со многими людьми, которые занимаются исследованиями, похожими на мои, о

aware of before. I think, it will help us to cooperate better in our work. чем я раньше не знал. Я думаю, это поможет нам лучше сотрудничать в нашей работе.

I'm a geographer trained originally as a physical geographer, but I have become professor of human geography, specializing in the development of the Arctic countries. So, in my teaching I have the difficult job of lecturing to Canadian students about Alaska, Northern Canada and Greenland, North Scandinavia and to some extent about the northern part of Russia. I lived in Greenland, have done research in North Norway and North Finland, and of course I know Northern Canada quite well. So, to summarize it, I'm a professor of geography specializing in the Arctic countries and attached to a University in Canada, McGill University, which is the one, which has the longest record in dealing with the Arctic. Я географ, получивший образование по специальности "физическая география", но я стал профессором социальной географии, и специализируюсь в вопросах развития Арктических стран. Итак, в моей преподавательской деятельности я выполняю сложную работу, связанную с чтением лекций канадским студентам об Аляске, Северной Канаде и Гренландии, Северной Скандинавии и, в некоторой степени, о северной части России. Я жил в Гренландии, проводил исследования в Северной Норвегии и Северной Финляндии, и я, конечно, довольно хорошо знаю Северную Канаду. Таким образом, если подвести итог, я являюсь профессором географии и специализируюсь по арктическим странам в одном из канадских университетов, Мак-Гильском университете, который дольше всех изучает арктические проблемы.

I started there something called "The Center for Northern Studies and Research", which includes disciplines from medicine to Eskimo music, to permafrost, to biology, to transportation – all the work done in the University. Three years ago the Canadian Universities, like McGill Я создал там что-то вроде "Центра северных исследований", который занимается изучением всех дисциплин от медицины до эскимосской музыки, вечной мерзлоты, биологии, транспортных проблем – причем вся эта работа проводится в университете. 3 года тому назад, канадские университеты, которые, как и Мак-Гильский университет, занимаются

working on the Arctic, арктическими исследованиями,  
combined to form an объединились, чтобы образовать  
association with an office in ассоциацию со штаб-квартирой в  
Ottawa, the capital of Canada. Оттаве, столице Канады. Таким  
So I spent part of my time образом, я трачу часть своего времени  
administering that association на руководство этой ассоциацией и  
and part in being a university часть на исполнение обязанности  
professor. профессора университета.

## Section 4

### Describing your participation in a conference

**Из этого раздела вы узнаете:**

- как рассказать о конференции, в которой вы принимали или будете принимать участие.

**Изучив материал этого раздела, вы сможете:**

- описать конференцию, в которой вы принимали участие, взяв за основу образцы 1 и 2;
- описать конференцию, в которой вам предстоит участвовать, взяв за основу образец 3;
- описать ваше участие в конференции, используя ваше чувство юмора, взяв за основу образец 4.

*Suppose you are asked to talk about a scientific conference. If you have already participated in any scientific gathering, choose Sample 1 and 2 as your models. If you are going to attend a conference in the near future, choose Sample 3. If you want to talk about your conference in an original style, choose Sample 4 for your ideas. Pay special attention to the underlined words and expressions, they may be very helpful to prepare your talk.*

#### *Sample #1*

The International Conferences on Polyphenols take place every two years. The 20<sup>th</sup> Conference was organized as a joint meeting of "Group Polyphenols" and the "Photochemical Society of Europe", and, for the first time, it was held in Germany at the Center of Life and Food Sciences of the Technical University of Munich in Freising-Weihenstephan in September 11-15, 2000.

With more than 350 delegates from all over the world, this conference was very successful and offered a meeting platform for scientists involved in genetic and molecular biological, chemical, biochemical and physiological research on polyphenols and for professionals involved in industrial applications.

The conference started with the foundation of the sub-organization "Young Researchers" of the "Group Polyphenols" and communications by young researchers. 15 plenary lectures, 39 communications, 4 workshops and more than 260 posters provided a deep and broad insight into the topics: Genetics and Biosynthesis, Analytical Aspects and Synthesis, Pharmacology and Nutrition, Food and Polyphenols, and Ecology and Plant Resistance.

The first part of the proceedings (around 670 pages), entitled "Polyphenols Communications" and gathering the abstracts of oral communications and posters, was already available at the conference. This second part of the proceedings, "Polyphenols 2000", contains 12 major contributions by invited lecturers and provides comprehensive state of the art information of the main topics of the conference.

We would like to express our gratitude to all people, who kindly took charge to the running and the success of the 20<sup>th</sup> Conference and to the preparation of "Polyphenols Communications" and "Polyphenols 2000".

*The Organizers: Gert Forkmann and Dieter Treutter*

### ***Sample #2***

The 6<sup>th</sup> JOM symposium on Frontiers in Organometallic Chemistry was held in Honolulu, Hawaii at the 2005 Pacificchem conference. The theme of this symposium was New Organometallic Compounds for Applications in Homogenous Catalysis. A number of distinguished leaders in this field were invited to give presentations including Professor Robert H. Gubbs, 2005 Nobel Laureate. A number of contributed presentations were also accepted for presentation in the form of oral and poster presentations. All participants were invited submit their results in a written form for publication in this special issue of the Journal of Organometallic Chemistry. Homogeneous catalysis has been one of the great success stories that has emerged from research in organometallic chemistry. Homogenous hydroformylation catalysts, now in wide-spread industrial use, are used to prepare over a million tons of "oxo" products/year worldwide. Organopalladium catalysts are widely used in organic synthesis. Metallocene olefin polymerization catalysts and metallocarbene ring-opening metathesis polymerization (ROMP) catalysts with great efficiencies are now revolutionizing the polymer industry and are creating much stronger materials. Asymmetric homogenous hydrogenation catalysts are providing new, enantiomerically-pure drugs to treat a variety of diseases and genetic disorders. It is hoped that the results contained herein will promote a greater awareness of this important field and will stimulate new directions of future research.

Richard D. Adams

*Department of Chemistry and Biochemistry,  
University of South Carolina,*



Columbia, SC 29208, USA

### **Sample #3**

The Conference on the Electric Power Supply Industry (CEPSI) will once again be held in Thailand, from November 2-6, 1998. Thailand was the host country back in 1982, when around 600 delegates participated in the 4<sup>th</sup> CEPSI. Since then, the Conference has gained in popularity, with the number of participants soaring to around 2,000 in 1996. At least the same number of delegates are expected to attend the 12<sup>th</sup> CEPSI.

The host city of the 12<sup>th</sup> CEPSI is Pattaya, internationally renowned as one of Asia's top beach resorts. The conference will be held at the Dusit Resort Hotel and rooms have been reserved at five satellite hotels in Pattaya.

Delegates from power companies and utilities from all over the world will meet to share experiences, exchange views and information, and discuss prevailing problems in this major international electric power forum under the theme: "Electricity – the Challenge for Sustainable Development".

Throughout four days of technical conference, approximately 400 papers will be presented, covering the development of electrical products and services, electric utility management, power generation, transmission and environmental management.

Three Keynote Addresses by internationally recognized speakers and one Panel Discussion will be presented. Five Technical Visits will be provided for delegates to visit power generation and distribution plants and some of the area's interesting attractions. There will also be a selection of pre, post, daily tours and golfing for Delegates and Accompanying Persons.

The Trade Exhibition will be organized outdoors in air-conditioned pavilions set amidst tropical trees, offering 108 booths.

### **Sample #4**

*May be these words will be useful for you while reading the text below:*

**bunch** – группа, компания

**geek** – чокнутый, помешанный

**to stand around** – стоять, торчать

**obvious** – тривиальный, банальный

**awkward** – неудобно, затруднительно

**delight** – развлечение, удовольствие

**beach** - пляж

**hosts** - хозяева

**to give a buzz** – придать интерес

**suspect** – подозреваемый

**attendance** – аудитория, публика

**tutorial** – обучающая программа

**invited talk** – доклад приглашенного участника

## **The XP 2000 Conference**

*Take a bunch of geeks to the beautiful beach of Poetta and what do they do? Stand around and talk about software!*

*In late June over a hundred people gathered on the Mediterranean island of Sardinia to take part in the XP2000 conference to discuss Extreme Programming (XP) and other flexible methodologies.*

Sardinia is not the obvious choice for an international software conference. It is a bit awkward to get to and the delights of its beaches are lost on conference attendees who spend all their time indoors. The important thing was that the hosts were warm, the food was excellent, and the conference was also pretty good.

The conference was a nice size. Program Chair Michele Marchesi and his team expected around 60 people to show, but got 160. So there were enough people to give the whole thing a buzz, but not so many that you couldn't easily talk to the people there. The expected XP suspects were in attendance, including Ron Jeffries, Robert Martin, Don Wells, and of course Kent Beck. There were also a few less directly connected with XP, such as Erich Gamma, Dave Thomas, Ralph Johnson, and Alistair Cockburn.

The conference had tutorials on the first day, followed by two days of papers, panels, and invited talks.

## APPENDIX

### RECOMMENDATIONS ON BUSINESS LETTER WRITING

1. There are two kinds of letters: personal letters and business letters. Business letters should be written in a simple, clear and concise style. Personal letters are written in a colloquial style. A successful letter is the one written in a natural way, just as if the writer were actually in conversation with the recipient.
2. The order of the address should be the following: name of the person, number of the house, name of the street, town, country.
3. The main parts in a letter are: 1) the sender's name and address; 2) the date; 3) the recipient's name and address (in business letters); 4) the greeting; 5) the body of the letter; 6) the complimentary close; 7) the signature.
4. If the sender's address is not already printed on the paper, we must write it together with the date in the top right-hand corner. A little lower on the left, we begin:

**Dear Sir, (:)**

**Dear Madam(e), (:)**

**Dear Colleague, (:)**

**Dear Dr.B.,(:)**

**Dear Prof. N.,(:)**

**Dear Mr. (Ms.) Brown, (:) etc.**

Notice that in England the name is followed by a comma, but in the United States it may be followed by a colon. Under the comma, or colon we begin with a capital letter.

6. The letter should be written legibly, well punctuated and divided into short paragraphs.
7. Some phrases used in ending the letters (the complimentary close):

**With best wishes and regards, I remain...**

**Waiting for your prompt reply...**

**I hope to hear from you soon and remain with kindest regards...**

**We look forward to hearing from you soon...**

**In anticipation of your reply, we remain...**

**We would greatly appreciate your answer.**

**A prompt (early) reply will be appreciated.**

**It would be very much appreciated if you could reply at your earliest convenience.**

We finish a letter with "*Yours sincerely*" if the letter began with a person's name or «*Yours faithfully*» if it began "*Dear Sir*" or "*Dear Madam*".

The letter may also be finished with "*Yours truly*", "*Sincerely*", "*Yours*".

## **USEFUL EXPRESSIONS TO BE USED IN LETTERS**

### **Questions, Inquiries**

**I'm anxious to know...**

**I would be glad to know of...**

**Could you please tell me...**

**Please let me know if...**

**I should be glad to know if...**

**Would you be kind enough to let me know...**

**Would it be possible for you to tell me...**

**Would you be good enough to let me know in due course what...**

**May I hope for...**

**We suggest you let us know as soon as you can.**

**I would be very much obliged if you could acknowledge me...**

**I shall be interested to hear what you think about...**

**I would be grateful if you could let me know what... and inform me when...**

**I will be most interested to hear your reaction to this.**

**I would be very much obliged if you could give me a short explanation...**

**I wonder if you could give me some information...**

**It would be greatly appreciated if you would kindly inform me at your earliest convenience of your opinion and decision concerning.**

### **Information, Notification**

**I have the pleasure to inform/in informing you that...**

**We beg to inform you that...**

**This is to inform you that...**

**This is to certify that...**

**Please take due note of...**

**I am just writing to confirm that...**

**As you know from previous correspondence...**

**This is hereby confirmed that...**

**I shall of course let you know if the situation changes.**

**Enclosed please find...**

**Herewith please find...**

### **Assurance, Offers of Help**

**Please rest assured that...**

**We (I) shall do our (my) best to...**

**I trust you will not hesitate to contact me.**

**Please do not hesitate to let us know if you require any other information...**

**Should any questions arise during... please do not hesitate to contact us.**

**Should you require further details, we would of course be happy to supply this upon request.**

**Should you have any problems regarding... please do not hesitate to contact me.**

### **Expressing Hope**

**I hope that all is going well with...**

**I hope that you are keeping well.**

**We very much hope that you will come on a positive decision on...**

**We trust your kind attention to the matter...**

**I hope to have further news for you before long.**

**I do hope I am not putting you to too much trouble if...**

**I sincerely hope you will be able to help me in this matter.**

**I believe that... does not pose a problem for you.**

### **Requests**

**Please let me know...**

**Please inform me about...**

**Please forgive me for troubling you, but I should be very grateful if you could...**

**Would you do me a great kindness and...**

**I am writing to ask you a very great favour...**

**I wonder if you could do me a favour...**

**I would very much appreciate hearing from you so that I may...**

### **Satisfaction**

**I take pleasure of...**

**We are delighted that...**

**I shall be happy to discuss with you...**

**We were pleased to learn your interest in...**

**We were very pleased to hear that you have decided to undertake...**

**I am glad to learn of your decision...**

**It would be truly wonderful.**

### **Excuses**

**Apologizing for...**

**My apologies for...**

**We offer an apology for...**

**Please accept my apologies for...**

**I am sorry that...**

**I must apologize that...**

**I sincerely regret that...**

**I wish to offer my sincere apologies for...**

**With my repeated apologies for...**

**...taking so long to answer your letter.**

**...the trouble it may have caused you.**

**I was extremely sorry that...**

**I am sorry to have taken so long to reply to your letter.**

## RECOMMENDATIONS FOR SCIENTIFIC REPORT WRITING

Scientists often need to write reports on their research; in an extended form these become dissertations or theses. The framework or structure of research reports is as follows.

### 1. Basic Framework for a Research Report

#### **Preliminaries:**

1. *The title* The fewest words possible that adequately describe the paper.
2. *Acknowledgments* Thanking colleagues, supervisors, sponsors, etc. for their assistance.
3. *List of contents* The sections, in sequence, included in the report.
4. *List of figures/ tables* The sequence of charts or diagrams that appear in the text.

#### **Introduction:**

5. *The abstract* An extremely concise summary of the contents of the report, including the conclusions. It provides an overview of the whole report for the reader.
6. *Statement of the problem* A brief discussion of the nature of the research and the reasons for undertaking it. A clear declaration of proposals and hypotheses.

#### **Main body:**

7. *Review of the literature* A survey of selective, relevant and appropriate reading, both of primary and secondary source materials. Evidence of original and critical thought applied to books and journals.
8. *Design of the investigation* A statement and discussion of the hypotheses, and the theoretical structure in which they will be tested and examined, together with the methods used.
9. *Measurement techniques used* Detailed descriptions and discussion of testing devices used. Presentation of data supporting validity and reliability. A discussion of the analysis to be applied to the results to test the hypotheses.

10. *Results* The presentation in a logical order of information and data on which a decision can be made to accept or reject the hypotheses.

**Conclusion:**

11. *Discussion and conclusion* The presentation of principles, relationships, correlations and generalizations shown by the results. The interpretation of the results and their relationship to the research problem and hypotheses. The making of deductions and inferences, and the implications for the research. The making of recommendations.

12. *Summary of conclusions* A concise account of the main findings, and the inferences drawn from them.

**Extras:**

13. *Bibliography* An accurate listing in strict alphabetical order of all the sources cited in the text.

14. *Appendices* A compilation of important data and explanatory and illustrative material, placed outside the main body of the text.

Notes: 1. There may be slight variations to the above. For example, the abstract may be separate and appear at the very beginning of the report. In its place there may be a section entitled "Outline of the research". 9 may be called "Methods and procedures". 11 may include "Recommendations and suggestions for further research".

2. In abbreviated form, the traditional structure of a scientific or technical report is IMRAD = Introduction, Methods, Results and Discussion.

## **2. Headings, Sub-headings and Numbering**

The sections and sub-sections of reports are usually headed and numbered according to the decimal numbering system. Notice how the numbering is used below together with indentation (starting writing further away from the left margin), e. g.

5. SECTION HEADING (bold or underlined)

5.1 Sub-section heading (often underlined)

5.2.1. sub-section

5.2.2. sub-section

5.2.3. sub-section

Note: It is best not to use more than a total of three decimal numbers in the sections, otherwise it becomes too complicated to read. Not every paragraph is numbered — just sections or subsections. Lists within a subsection can be numbered simply: e.g. 1.2.3.

### **3. Checklists**

When writing any kind of report, it is important that none of the items, contents or procedures are forgotten and omitted. To help in this, a checklist of the details needed is extremely useful: they can be referred to and ticked off as they are covered or included. Some of the kinds of items to include are as follows:

- the aim of the report;
- collecting information/data;
- noting all references;
- analysis of questionnaires;
- organizing the information;
- providing appropriate diagrams and tables;
- layout of the report.



## **RECOMMENDATIONS FOR AN ORAL SCIENTIFIC REPORT PRESENTATION**

The escalation of all scientific activities has resulted not only in a vast increase in scientific publications but also in meetings, symposia, international conferences and lectures. With the ever increasing pressure on the time of all professional people it is obviously important that the time spent at such meetings should be used as efficiently as possible. This can only be achieved if the lectures and communications are given effectively. But it is surprising how many scientists, even quite senior ones, go on making the most elementary blunders when giving their talks.

### **1. Preparation**

If you aim at achieving success, read your paper in front of a mirror even if you dislike doing it.

Many people are nervous about speaking in front of an audience. Before you begin, try to relax. Breathe deeply and speak with authority. When you appear confident, you will make your audience feel comfortable. They will relax and enjoy your enthusiasms.

Some criticism of those responsible for general organization. Is it too much to ask someone who knows where the light switches are, and how to work the auxiliary aids?

Nothing is more annoying than to find that the lecturer wishes to show his first slide when no one knows how to switch off the lights, or how to switch on projector.

A time limit should always be emphasized to speakers.

### **2. Speaking Strategy**

The classical advice "*Stand up, speak up, shut up*" could be put in front of some speakers.

The most important thing is that the audience should be able to hear what the speaker is saying. Some lecturers appear to think that they are confiding a deadly secret to a few people around them and speak so that those in the front rows can hardly hear what is being said.

#### **While reading or speaking in front of an audience:**

- Control your voice.

Speak loudly and clearly so that your audience can hear you.

Don't rush. Take time to pause between sentences to give meaning to your words.

Use an upbeat and moderate pace. You may want to vary your pace to enhance certain portions of your review and to keep your audience interested.

If you try to speak as monotonously as you can, the listeners will start thinking of their own affairs or dozing off.

You may want to raise or lower your voice to represent different characters, to show emotions, or to enliven descriptive language.

- Try to behave properly.

Even if you cannot help feeling excited, stop swinging the pointer over the heads of the listeners, keep from waving hands, abstain from shouting and blowing your nose loudly.

Do not hide your head in your paper. Look up from time to time and make eye contact with your audience.

Concentrate on looking relaxed and self-confident. Don't shuffle your feet, move your paper excessively, or sway from side to side.

- Use visual aids,

such as charts, diagrams, photographs, and transparencies to make difficult information clear to your audience. Proceed demonstrating slides, tables, graphs and you will succeed in hitting the target.

### **3. What Should a Slide Do?**

Many people fail to realize what a slide should do. Some think. That it is only necessary to photograph a few tables (usually very extensive ones) and sections of text, and give a talk round them. Slides can be used for an excellent talk if the speaker is experienced and knows how to select and design the material on the slides. Unfortunately, what happens is that a slide containing a vast amount of information in tabular or graphical form is projected on the screen and when the audience has understood about half of it the lecturer moves on to the next.

We expect not only scientific knowledge from a lecturer but also intelligence, but this is often lacking.

A slide should never attempt to make more than one point, the number of figures or statements should be strictly limited, and the matter should be clearly seen at the back of the theater.

Placards pinned up on the wall have the advantage that those seriously interested can go up afterwards and inspect them.

Why should slides so often be shown upside down or sideways? This may be the fault of the person who has made the slide, but there is no excuse for any of these annoying interruptions to the flow of the speaker's ideas. It should be regularly duty of the organizers of any lecture or meeting to check all this before the meeting in order to ensure that everything should go smoothly once the meeting has started.

### **4. Summing up**

Summing up, express your appreciation and gratitude to all the people present, keeping strictly to the table of ranks.

When the formal procedure is over, providing you were a success, do not forget to invite everybody for refreshment and a cup of coffee or tea.

### **5. Listening strategy**

**If you are in the audience:**

- Listen carefully to learn all you can about the speaker's topic. You will make the speaker feel at ease if you are attentive and show interest in what is being said.
- Remember to watch the speaker, to show the speaker that you're listening, and to help to concentrate on what is being said. Maintain eye contact with the speaker.
- Listen whether the review has supported the opinions in the evaluation and the recommendation.
- Allow yourself to become involved in the report being made. Discover what does and doesn't work for you in the report.
- Listen carefully, take notes quietly, imagine how you would respond.

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