**The results of the analysed surveys**

**Introduction**

At the end of 2018 students, parents and teachers were asked to fill out a questionnaire which was part of the Erasmus project ‘Stop climate change’. 276 people met this request (204 filled it out completely) and below you can find a report with the most important findings.

This report will be shared among the respondents and other people who are interested in this project. The outcomes will be used to develop learning aids for students.

**Respondents**

The questionnaire was filled out by participants of the Erasmus project ‘Stop Climate Change’ in Croatia, Greece, Italy, Lithuania, Poland and the Netherlands. It concerned not only students and teachers, but also parents. Table 1 gives an overview of the number of respondents from each country and whether they were a student, a parent or a teacher.

Table 1: Overview of the number of respondents per country

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Croatia** | **Greece** | **Italy** | **Lithuania** | **Poland** | **The Netherlands** | **Total** |
| Students | 32 | 29 | 28 | 26 | 20 | 24 | 159 |
| Parents | 32 | 16 | 16 | 11 | 10 | 10 | 79 |
| Teachers | 6 | 9 | 6 | 6 | 7 | 2 | 36 |
| Total | 70 | 54 | 50 | 43 | 37 | 36 | 276 |

At the start respondents were given a list of issues and they were requested to tick the three that concerned them most. On top of their list was climate change: 68% of all the participants had selected this option. Second was air pollution (55%), then pollution of rivers/seas (48%), extinction of species (29%) and the hole in the ozone layer (28%). For 26% of the respondents poor waste management was concerning and 16% had selected flooding.

There were no major differences in the division of these categories among students, parents and teachers. Yet there are differences in how urgent the issues were considered among the individual countries, as can be seen from graph 1. From this graph it can be concluded that the differences in opinion between the respondents of the individual countries are relatively small for climate change, air pollution and the pollution of rivers and seas. For flooding, this is different though: whereas only 3% of the participants in Poland believe this is a major concern, in the Netherlands one out of three selected this option. Poor waste management is a major concern for one out of five participants in Italy, whereas nearly half of the Polish respondents believe this to be an urgent problem. Furthermore 7% of the Lithuanian participants fear the extinction of species to be a major concern versus 44% of those in Croatia. And there were similar answers for the hole in the ozone layer.

Graph 1: Overview of how concerned respondents from the participating countries are about air pollution, pollution of rivers/seas, flooding, climate change, flooding , poor waste management, the hole in the ozone layer and extinction of species

**Effect of air pollution on health**

In reply to the question ‘Has air pollution ever affected your health?’ nearly half of the respondents selected ‘no’. 26% answered positively and another 26% ‘I don’t know’. There was hardly any difference in the distribution of answers between teachers and students, though remarkably 44% of the parents confirmed that there had been an effect of air pollution on their health. . Yet another 42% denied this.

From graph 2 it can be concluded that the respondents from Croatia and Lithuania more often believed that air pollution had had an impact on their health. In Italy this was the least considered to be an issue.

Graph 2: Overview of the distribution of answers whether air pollution had had an effect on their health

**Weather damage**

Approximately half of the population had experienced any form of extreme weather damage in the last five years. The averages ranged from 30% in Italy to 63% in Greece (see graph 3). On average 6% said they did not know and 43% answered negatively.

Graph 3: Overview of the distribution of answers whether the respondents had experienced any form of extreme weather damage in the last five years

**Changing pattern of weather**

The next question raised was whether the respondents believed that the pattern of weather is generally changing. The averages per country ranged from 48% in Lithuania to 88% in Poland. On average (totals) 67% answered positively, 22% said that they did not know and another 11% believed that the pattern of weather is not changing generally (see graph 4).

Graph 4: Overview of the distribution of answers whether the respondents believe that the pattern of weather is generally changing

Respondents who answered positively were then asked to specify why they think that the pattern of weather is generally changing (sorted per country):

Respondents from Croatia

* We experienced extremely high temperatures in recent years, not only in summer;
* During the year, there has been too little rainfall;
* The hole in the ozone layer;
* Every season is almost the same;
* Global warming causes storms and periods without rain.

Respondents from Greece

* I think that this is happening because of the increasing temperature of our planet, which leads to ice melting and climate changing;
* The last year in my country the weather changed and some extreme phenomena occurred: floodings, droughts, heat, storms etc.;
* We faced extremely high or low temperatures , the fact that very strong rain showers occur; seasons have characteristics that they never had in the past (winters are warmer than they used to be, temperatures in spring do not differ from summer);
* The pattern of weather in Greece has changed because five years ago in July it was 35 degrees and this summer in July it had 25 to 30 degrees with more rain. I think it will continue in the next few years and we have to stop it;
* The problem is that daily human activities maximize the greenhouse effect, causing the planet’s temperature to increase even more;
* Τhis is due to the change in atmospheric composition and the increase in the mean temperature;
* The average annual temperature rises.

Respondents from Lithuania

* The amount of carbon dioxide in the atmosphere is increasing due to the use of a lot of transport, burning fossil fuels, deforestation;
* Winters are becoming warmer with less snow and summers are becoming hotter. There are more storms;
* Some summers are hot, others are rainy.

Respondents from the Netherlands

* If it is winter, there will not be any snow, probably because of the climate change;
* There is too much air pollution, due to the factories;
* The temperatures in the winter are higher than a few years ago.

Respondents from Poland

* There are unusual weather phenomena, for example hail storms in summer or high temperatures in November;
* Rivers rise and the water flows into the cities;
* There is a lack of springs and autumns. For example the weather in November this year is like in summer;
* Climate change is natural, the climate has always changed cyclically. We only accelerate changes, for example by emitting large amounts of CO2;
* I think that the weather is changing, because I can see sometimes unusual natural phenomena, for example snow in summer or high temperatures in October;
* The temperature is getting higher, which affects the weather and causes natural disasters in different parts of the world. There are also unusual symptoms proving the climate change: snow in Africa or Rome, floodings in Asia, landslides and so on.

Respondents from Italy

* I think that climate change is caused by pollution and atmospheric phenomena (fires, tornados, melting glaciers, rising temperatures...);
* The weather no longer follows the seasons.

**Background information**

The next question raised, was ‘What do you know about climate change?’ Below you will find a list with answers:

* It is the biggest problem and we can solve it if we all act now;
* It will be disastrous if temperature rises one more degree;
* Some world leaders will not admit that their countries cause it and poor countries suffer the most;
* It is sure that it is happening, maybe it is a normal Earths' cycle;
* The term climate change refers to the change of our planet's climate due to the Greenhouse effect. A hole in the Ozone layer is allowing sun rays to enter the atmosphere but they never get out. This leads to global warming;
* Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time. Climate change may refer to a change in average weather conditions, or in the time variation of weather within the context of longer-term average conditions. Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming;
* The ice at the poles of earth are melting and the sea level is rising;
* A lot of fires and floods are threaten the cities;
* Climate change is the violent change of the periodicity of weather patterns. This is the result of human intervention which has affected the atmosphere;
* Although it is certain that Earth has naturally warmed up and got colder during other eras, such cycles have always been much slower, taking millions of years, whereas now, within a period of just 200 years, we are reaching levels that in the past brought about extinctions;
* The main cause of climate change is global warming, which has many negative consequences on physical, biological and human systems, as well as other effects;
* CO2 emissions provoke higher temperature and many consequences such as floods, fires and other extreme conditions;
* Pollution is the cause of global warming: smoke from factories and vehicles gives rise to the green house effect, the first step for the climate change;
* Scientific studies indicate that extreme weather events such as heat waves and large storms are likely to become more frequent or more intense with human-induced climate change. The evidence for rapid climate change is compelling: Global temperature rises, ice sheets are shrinking, glaciers are retreating almost everywhere around the world, the snow is melting earlier, both the extent and thickness of Arctic sea ice has declined rapidly over the last several decades, the number of record high temperature events has been increasing;
* Years ago we had four seasons in the year. Now it is changing, winters are not so cold, summers are not so warm, spring and autumn are like summer or winter often. We hear often about hurricanes, droughts, floods;
* It is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time. Climate change may refer to a change in average weather conditions, or in the time variation of weather within the context of longer-term average conditions. Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming;
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* Climate change is the direct consequence of global warming. In a short time it turns out that it is not only carbon dioxide (CO2, also known as carbon dioxide) that causes global warming, but a group of gases such as methane (CH4), diazotal oxide (N2O), ozone (O3) and, indirectly, water vapor (H2O). All contribute to giving life to the so-called ‘greenhouse effect’;
* It is a huge threat for mankind because of global warming which causes huge fires, floods, increase of sea level etc.;
* Some say that it is caused by us, the others say it is a part of natural change;
* Average sea and air temperatures are increasing due to global warming. As a result of higher temperatures in Poland we notice the disappearance of 4 seasons. These days we have light winters and hot summers - springs and autumns gradually disappear;
* On Earth there are natural causes of climate changes, but human activities are changing the natural greenhouse. Over the last century the burning of fossil fuels like coal and oil has increased the concentration of atmospheric carbon dioxide (CO2). So that why we have got the following effects: - more drought, - less ice and snow; - more extreme weather incidents; - the warmer climate will probably cause more heatwaves, more violent rainfall and also an increase in the number and/or severity of storms; - rising sea level.

**Sources of information**

The next question raised was where the respondents had heard of climate change, and a few options were listed. In the table below (table 2), the average percentages are shown. There were only minor differences in the answers among countries.

Table 2: Overview of where respondents had heard of climate change

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Television | radio | newspaper | internet | school/college | family/friends | energy suppliers | others |
| Average | 93% | 33% | 46% | 86% | 63% | 40% | 13% | 14% |

**Importance of climate change**

The question was raised how important the issue of climate change is to the respondents individually. In the graph below (graph 5) it can be seen that the participants in Greece, Italy and Poland consider the climate change as (very) important to them. There are only few respondents who said that they did not find it (very) important. In Lithuania though the majority of the respondents (58%) wrote that the climate change is not important to them.

Graph 5: Overview of the distribution of answers of how important the issue of climate change is

The people who replied positively to the previous question were asked why climate change is important to them. Their answers are listed below, sorted per country:

* Summers have become very hot and dry, experts say that our region will become a desert (Croatia);
* The human being and his life depend on the environment he lives. The weather is part of the environment, so the climate change that is going to cause many problems to the environment threaten also human life (Greece);
* It is important to me because all of that consequences are going to appear in the next years when we grow up. We have to do anything possible to stop climate change because we must give to the other generations a better planet, not a worse (Greece);
* Climate change is bad for our health, means more extreme weather, is bad for water security, for our agriculture and food, for our economy (Greece);
* Earth is our home. Air is our breath. They belong to us and to the future generations (Greece);
* Weather changes are all over the world, this also applies to my country and place of residence. Because of this, different species of animals that are very much needed in our ecosystem may become extinct (Poland);
* It influences the agriculture. There are more floods, hurricanes, tornados, tsunamis (Poland);
* It will be hard to grow food without rain and water in eastern Croatia (Croatia);
* I think It is important to live a healthy life and to protect the environment for future generations (Italy);
* Earth is home to millions of people and animals. When people are destroying the earth, they are destroying each other (Poland);
* In a few decades there will be no escape plan from the climate change disaster (Greece);
* Due to the climate change nature is changing and some species are in danger of extinction. Also in our area summers are hotter and sometimes very dry (Lithuania);
* It is just damaging the world. It is bad for us (the people on earth) and if we do nothing, there will be no trees left here on earth and people would not even notice it. Every day there are animals missing a place and it's not good for all of us (the Netherlands);
* Climate change will have major and unpredictable effects on the world because the increase of the floods and droughts will cause in turn, an impact on food supply, displacement and conflict. Moreover the rising sea levels threaten entire nations on low-lying islands in the Pacific and Indian Oceans (Greece).

**Causes climate change**

​Next, the respondents were asked what they think causes climate change. Below is a list with their answers:

* Human activities like industry and transport, too much driving around (Croatia);
* Coal, gas, oil used by factories (Croatia);
* Industry and transport that use fossil fuels (Croatia);
* The basic reasons of climate change are: 1]The use of fossil fuels; 2]The destruction of the forests; 3]The greenhouse effect (Greece);
* As most climate scientists agree the main cause of the current global warming trend is human expansion of the ‘greenhouse effect’ — warming that results when the atmosphere traps heat radiating from Earth towards space (Greece);
* The disregard and apathy of many people and nations and also the cruel exploitation of environment (Greece);
* Humans are increasingly influencing the climate and the earth's temperature by burning fossil fuels, cutting down rain forests and farming livestock (Lithuania);
* Too much garbage that is not sorted (Croatia);
* The climate change has been provoked by the humans actions, for example the industry is one of the most dangerous activities of man to the environment and the humans activities cause the hole of ozone (Greece);
* 1) Increase in greenhouse gases; 2) destruction of marine ecosystems; 3) deforestation and 4) population increase;
* CO2 emissions, industry, waste mismanagement, ineffective policies (Greece);
* Bad waste management, bad natural resources management, supporting product oversupply and definitely our way of living (Greece);
* I think it is a natural process. and you cannot do nothing (Lithuania);
* Air pollution, deforestation, traffic in cities and agriculture (Lithuania);
* By people: Burning of oil and gasses, too many people on the planet, throwing away huge amounts of garbage. By nature: once in a while the earth wants to gain back its balance in nature (the Netherlands);
* The biggest issue is the hole in the ozone layer, which is causing global warming effect and a chain reaction to Earth climate (Greece);
* Human activity, industry, CO2 causes global warming and the consequence is melting polar ice caps, rising sea levels, etc. (Croatia);
* Modern industry, transport of unnecessary goods from China (Croatia);
* The main drivers of a global increase in carbon dioxide are the fossil fuels that are burned by man to produce energy and for transport sector and deforestation (Italy);
* Human carelessness, being selfish. Also some countries do not respect Tokyo Agreement, so the emission of CO2 into the atmosphere is really high. In addition, the deforestation in South America leads to the enlargement of the hole in the ozone layer as much as the use of freon. Ice caps melt, which affects the currents in the oceans and that leads to the changes in the weather (Poland);
* Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming (Lithuania).

**Impacts of climate change**

The next question raised, was what impacts, if any, climate change may have:

* Sea levels will rise, cities will be flooded, there will be more forest fires and droughts (Croatia);
* Impact on our health and agriculture (Croatia);
* Climate change affects our health and this is one reason that we must protect the environment. Moreover, animals are in danger. This is because some of them cannot find food and they don't have water [droughts]. The extreme weather phenomena influence the rural production (Greece);
* 1. On average, Earth will become warmer. Some regions may welcome warmer temperatures, but others may not; 2. Warmer conditions will probably lead to more evaporation and precipitation overall, but individual regions will vary, some becoming wetter and others dryer; 3. A stronger greenhouse effect will warm the oceans and partially melt glaciers and other ice, increasing sea level. Ocean water also will expand if it warms, contributing further to sea level rise; 4. Some crops and other plants may respond favorably to increased atmospheric CO2, growing more vigorously and using water more efficiently. At the same time, higher temperatures and shifting climate patterns may change the areas where crops grow best and affect the makeup of natural plant communities (Greece);
* It can cause floods, earthquakes, droughts, different diseases (Lithuania);
* Cities will flood, some animals may go extinct like polar bears or some fish. Climate changes drastically in some parts of the worlds (The Netherlands);
* Flooding, fires, ice melting are some the impacts that are started to appear. they may be much bigger in the next years and they are very dangerous for us and our planet. In the southern Greece some places have begun to be abandoned (Greece);
* Damage to human health, floods and storms, rising sea levels, desertification, changes in agricultural production (Italy);
* Impact on health, endangered species will disappear, there will be no food and water for everyone (Croatia);
* With climate change we are likely to experience many more natural disasters such as floodings, droughts, tornados, landslides, hurricanes. Some scientists predict that the average temperature will get higher up to 4 degrees in the next 30 years or so. Right now Fiji island are in danger of being flooded by the ocean. Also, some species might die out too due to the rise of temperature (polar bears) (Poland);
* Climate change affects all the areas of the Earth. The ices of the polar regions are melting and the sea level is increasing. Many places are affected by extreme weather phenomena like flooding and intense rainfalls and others are becoming desserts due to extend drought periods. Also diseases are spread due to climate conditions. Very rapidly species extinct since they do not fit in the new environment (Greece);
* Melting ice and rising seas: when water warms up, it expands. At the same time global warming causes polar ice sheets and glaciers to melt. The combination of these changes is causing sea levels to rise, resulting in flooding and erosion of coastal and low lying areas. Extreme weather, shifting rainfall. Heavy rain and other extreme weather events are becoming more frequent. This can lead to floods and decreasing water quality, but also decreasing availability of water resources in some regions. Southern and central Europe are seeing more frequent heat waves, forest fires and droughts. The Mediterranean area is becoming drier, making it even more vulnerable to drought and wildfires. Northern Europe is getting significantly wetter, and winter floods could become common. Urban areas, where 4 out of 5 Europeans now live, are exposed to heat waves, flooding or rising sea levels, but are often ill-equipped for adapting to climate change. Many poor developing countries are among the most affected. People living there often depend heavily on their natural environment and they have the least resources to cope with the changing climate. Climate change is already having an impact on health: There has been an increase in the number of heat-related deaths in some regions and a decrease in cold-related deaths in others. We are already seeing changes in the distribution of some water-borne illnesses and disease vectors. Damage to property and infrastructure and to human health imposes heavy costs on society and the economy. Sectors that rely strongly on certain temperatures and precipitation levels such as agriculture, forestry, energy and tourism are particularly affected. Climate change is happening so fast that many plants and animal species are struggling. Many terrestrial, freshwater and marine species have already moved to new locations. Some plant and animal species will be at increased risk of extinction if global average temperatures continue to rise unchecked.

**Main responsibility**

Who should have the main responsibility for tackling climate change?

For the next question ‘Who should have the main responsibility to tackle climate change’, respondents were asked to put a sequence of the organizations listed. They could choose a (1) for the organization that they believe should bear the main responsibility and then the following three (numbers 2, 3 and 4). The options they were given, were ‘international organizations’ ‘national government’, ‘local government’, ‘business and industry’, ‘environmental organizations’, and ‘individuals’.

A weighted average was calculated following all the answers. It turned out that both ‘international organizations’ and ‘business and industry’ were considered to take the main responsibility to tackle climate change, followed by the national government. However, the division per group respondents was different (see table 3).

Table 3: Overview of the organizations that respondents believe should take responsibility in tackling climate change (listed in number of priority, per group)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1** | **2** | **3** |
| Parents | International organizations | National government | Business and industry |
| Students | Business and industry | National government | Individuals |
| teachers | Both international organizations and business and industry | | individuals |

With regard to the outcomes of the previous question though, it must be taken into account that the number of teachers participating was low, therefore the answers must be interpreted carefully.

Table 4 gives an overview of the ranking of organizations that should take responsibility to tackle the climate problem, according to the respondents of the different countries.

Table 4: Overview of the ranking of organizations that should take responsibility in tackling the climate problem, according to the respondents, sorted per country

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Croatia** | **Greece** | **Italy** | **Lithuania** | **Poland** | **The Nether-lands** |
| international organizations | 2 | 2 | 1 | 3 |  |  |
| national government | 1 | 3 | 2 |  | 3 | 1 |
| local government |  |  |  |  |  |  |
| business and industry | 3 |  |  | 2 | 1 | 3 |
| environmental organizations |  |  |  |  | 2 |  |
| individuals |  | 1 | 3 | 1 |  | 2 |

**Statements**

Next, the respondents were asked to give their opinion about a few statements. The options they were given ranged from ‘strongly agree’ to ‘strongly disagree’.

From graph 6 can be concluded that respondents from Croatia, Poland and Lithuania more often believe that climate change inevitable is. Respondents from Italy and Greece were more optimistic.

Graph 6: Overview of the division of opinions of respondents on the statement ‘Climate change is inevitable’

Respondents from Poland are most committed to do their bit to reduce climate change, if everyone else does as well. Nearly 80% answered positively. On the contrary, respondents from Greece disagreed most often (see graph 7).

Graph 7: Overview of the division of opinions of respondents on the statement ‘I would do my bit to reduce climate change if everyone else did as well’

The answers from respondents from Croatia are different from those from the other countries on the next statement: they believe most often (more than one out of three) that it is too late to do anything about climate change. Respondents from Greece, Italy and Poland are more optimistic (see graph 8).

Graph 8: Overview of the division of opinions of respondents on the statement ‘It is already too late to do anything about climate change’

Of all countries, respondents from Croatia and Lithuania most often believe that jobs are more important than protecting the environment. In Greece though, most respondents disagreed with this statement (see graph 9).

Graph 9: Overview of the division of opinions of respondents on the statement ‘Jobs today are more important than protecting the environment’

The Italian respondents most often are willing to make personal sacrifices for the sake of the environment (see graph 10). In the Netherlands and in Lithuania respondents agreed the least often.

Graph 10: Overview of the division of opinions of respondents on the statement ‘I am willing to make personal sacrifices for the sake of the environment’

From graph 11 it can be concluded that there are not many differences in opinion among the several countries with regard to the statement ‘Plants and animals have the same rights as humans to exist’.

Graph 11: Overview of the division of opinions of respondents on the statement ‘Plants and animals have the same rights as humans to exist’

Quality public transport

In general 40% of the respondents are satisfied with the quality of public transport in their local area, 24% believe that this needs to be improved and 36% answered ‘average’. There are differences per country, as shown in graph 12. In Greece, Poland and the Netherlands people are more often satisfied with the quality of public transport, in Croatia and Lithuania this is less often the case.

Graph 12: Overview of the division of opinions of respondents on the statement ‘How would you rate the quality of public transport in your local area?’

**Membership environmental organization**

The final question was whether the respondents were members of an environmental organization. On average 10% confirmed this, in general more students and parents than teachers. In Greece (6%) and Croatia (8%) fewer respondents were members of an environmental organization, in Poland (13%) and the Netherlands (20%) relatively more often.