



Erasmus+



Efficient usage of natural resources



Web site:

Partnership:

Liceul theoretic "Emil Racovita" Galati Romania

IIS "R. Piria" Rosarno, Italy

ES "Politecnico Jesus Marin", Malaga, Spain

"Mwhmet-Hanife Yapici Anadolu" Lisesi, Karatay, Turkey



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FINDING WAYS OF REDUCING THE USAGE OF RESOURCES IN ROMANIA

What is the resource use efficiency and why do we need it?

It is necessary to use the Earth's limited resources in a sustainable way. Our society relies on metals, minerals, fuels, water, wood, fertile soil and clean air, which are equally important in order to maintain our economy. We have used these resources faster than they can restore, and if we don't change our way of doing things, there could be real shortages occurring in the near future.



How could we make this initiative work?

Conservation- We need to fructify the opportunities of saving the resources whenever possible, some european economies are 16 times more efficient than others.

Recycling- It is necessary to raise the recycling level of materials and of reuse of elements that make up products, for example cell phones which have a lot of metal parts that can be reused multiple times.



Substitution- We must replace the main resources with alternative ones which have a bigger efficiency and impact the environment less, for example using solar panels and wind mills instead of coal based electricity plants like the ones in Deva and Bucharest.



Reduction- It is required to change the way in which we satisfy people's needs, through new business models or through goods and services that require a smaller amount of resources, for example buying music and other means of entertainment online rather than buying a DVD, building lighter cars with reusable materials.



Romania is heading in the right direction

Romania has the highest potential in wind energy in south-east Europe, especially in the Dobrogea area which is the second best region for such exploits in the entire continent. Romania has a potential of 3000 MW, equivalent with an annual production of 23 TWh annually. We are only beginning though, in the year 2008 we recorded only 10 MW, but it is believed that by 2020 it could be of 13 TWh if we try our best.



Another plan for until 2020 is to open Plant 3 and 4 of the Cernavodă Nuclear Plant and the increase by 6% of the hydropower exploits of 2011. Other initiatives are to increase efficiency of the means used at present which use old technologies by modernising them and diminishing the import dependency.



Two other plans for the future increase the percentage of water based electricity production to 33%, which is a little over the 2011 level, but small steps are needed in our developing industry. Another plan is to build another nuclear plant in the centre of the country by 2020 which will supply about 2400 MW.

Romania has a good 10th place among the EU states in terms of the usage of energy produced by renewable resources (25%) – solar, water, wind, geothermal and biomass. This energy is for domestic usage as well as exported. The EU average production or renewable energy is 16,7% and it is supposed to reach 20% by 2020.

In Romania, the renewable energy for domestic consumption is 42%, such as:

- Water – 29%
- Wind power – 10%
- Other sources – 3%

The resources are the core of the world. Without any kind of resources, nothing would have ever been possible. Coal, oil and natural gas are the three kinds

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of fossil fuels that we have mostly depended on for our energy needs, from home heating and electricity to fuel for our automobiles and mass transportation.

The problem is fossil fuels are non-renewable. They are limited in supply and will one day be depleted. There is no escaping this conclusion. Fossil fuels formed from plants and animals that lived hundreds of millions of years ago and became buried way underneath the Earth's surface where their remains collectively transformed into the combustible materials we use for fuel. So it is crucial to keep the consumption of the resources to a minimum if possible, especially in a country like Romania, which has more than enough resources to maintain itself, but many companies use too much of these resources. There are many ways to use any kind of resource in an efficient, low-cost manner, though.



Firstly, there are alternative ways and energies which fulfill our needs, helping us reduce the consumption of the oil or charcoal. Fossil fuels, like coal, crude oil and natural gas, are non-renewable resources that exist in finite quantities. Every unit consumed today reduces the amount available for future generations. Walking, biking or using public transportation instead of taking the car can help conserve these natural resources. Sun, wind and water are perfect energy sources...depending on where you are. They are non-polluting, renewable and efficient. They are simple: all you need is sunlight, running water and/or wind. Not only do the use of renewable energy sources help reduce global carbon dioxide emissions, but they also add some much-needed flexibility to the energy resource mix by decreasing our dependence on limited reserves of fossil fuels.

Essentially, these renewable energy sources create their own energy. The object is to capture and harness their mechanical power and convert it to electricity in the most effective and productive manner possible. There's more than enough renewable energy sources to supply all of the world's energy needs forever; however, the challenge is to develop the capability to effectively and economically capture, store and use the energy when needed.

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Take solar energy for example. The ultimate source of energy is the sun. Its energy is found in all things, including fossil fuels. Plants depend on the sun to make food, animals eat the plants, and both ended up becoming the key i

ngredients for fossil fuels. Without the sun, nothing on this planet would exist.

Also, thanks to the invention of the wind turbine, we can now set ourselves for a better future, electrically speaking. These turbines will give us a hand in trying to preserve the natural resources of oil and charcoal by taking their place. Such wind turbines are built in our country in Constanta and Galati, making the most out of the climate and landform. Another form of alternative energy is solar energy. This type of energy is widely spread in Romania, being used in almost every town, being one of the most reliable alternative electricity source.

One big step is for our government and corporations to increase their use and support of solar panels and hydro power. While we may never completely not use fossil fuels, governments can require more fuel- efficient cars. Simple changes, like direct fuel injection technology, can decrease a car's use of fuel by as much as 13 percent. More research and development can reduce our reliance on fuels.

In Romania there are around 962 solar power plants. They accumulate power of 4,871.66 MW. The South-Muntenia region has the most solar fields (302). The cities who have the biggest solar power plants in Romania are: Giurgiu (79.2 MW), Brasov (61 MW) and Calarasi (60 MW).

Furthermore, the Romanian Government gives 20.000 RON (about 4300€) to citizens who want to install solar panels. If citizens who produce more energy that they need, can sell the energy which is in plus to the electrical networks and they will get paid.

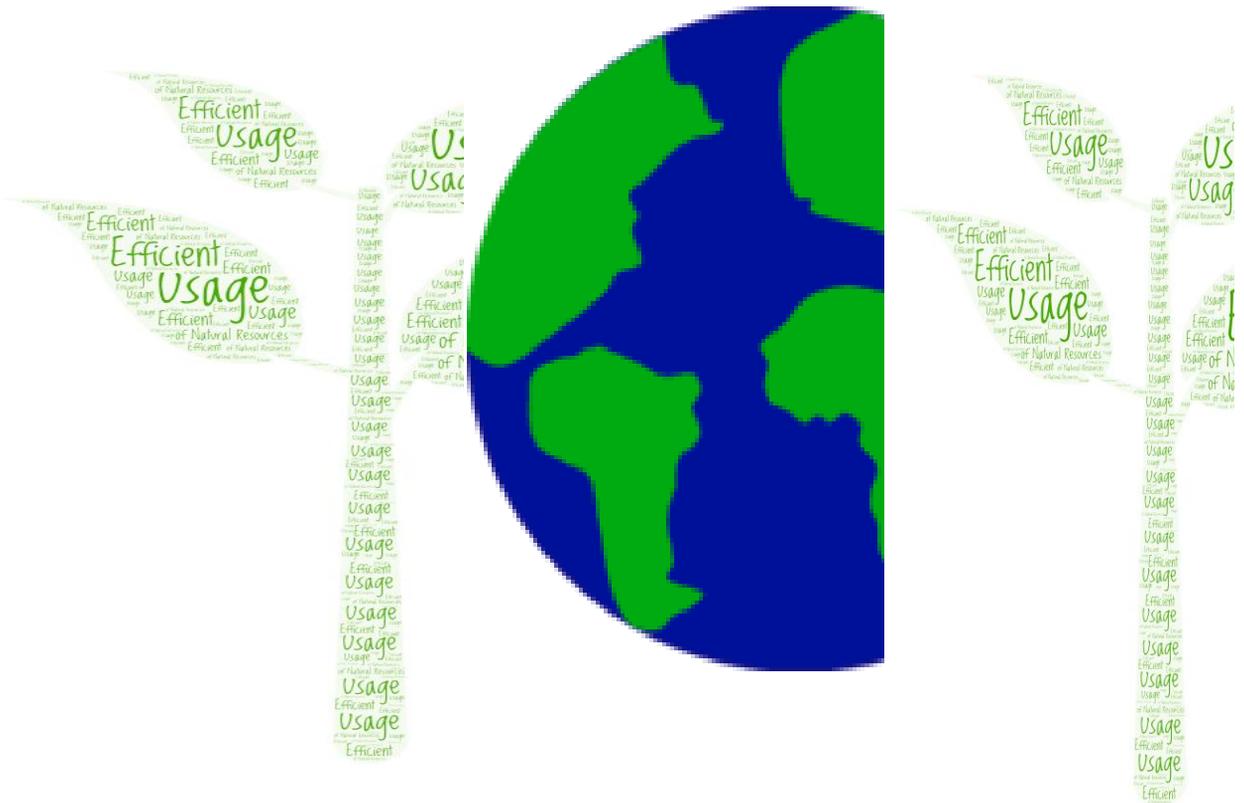


Secondly, reducing the use of forests can go a long way in mitigating problems associated with climate change and ecosystem destruction. One of the most important functions of forests is to convert carbon dioxide into oxygen and retain carbon in their wood, thus reducing the amount of carbon dioxide in the atmosphere. Forests serve numerous other functions, however, including preventing flooding and conserving topsoil and water. Because these functions are all so critical, preserving forests is crucial. Especially as Romania has as much as two thirds of its mountain area covered by forests. But most of them are now history, as the lust for money has turned these green paradises into brown and dead deserts.

In conclusion we should preserve and use the resources of our country more efficiently.



EFFICIENT USAGE OF NATURAL RESOURCES ITALY



Human culture is sustained by the natural environment and argues that philosophers have not usually presented satisfactory frameworks for thinking ecologically. The importance of environmental sustainability can be derived from ancient principles of old philosophy that mandate living in harmony and balance with nature. People should ideally seek harmony and balance with the natural environment in their own country for a better life and for a sustainable existence.

Better resource efficiency will sustain the economic wealth all over Europe, involved in a new strategy aimed at encouraging economic growth based on knowledge and innovation, sustainability and inclusiveness. This new strategy will support an original policy for environment and climate change, energy, transport, industry, agriculture, fisheries and regional development. The aim is to enhance certainty for investment and innovation and to create opportunities for sustainable economic growth.

Growth and job creation will result through new business opportunities. The construction sector, ecosystem and resource management, renewable energy, eco-industries and recycling all have a particularly high potential for employment growth. Stability will increase, as the efficient usage of natural resources is a way to tackle security of supply issues and market volatility in critical resources.

What are natural resources?

First of all, natural resources are essential to our quality of life, so it is vital that we respect the natural limits of our beloved planet.

They can be grouped into: Renewable and Non-renewable Resources

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Renewable resources can be replenished over time by some natural process, are persistently available, like water, or can be replaced or recovered, like vegetative lands.. They can be usually renewed over a short period of time.

Organic renewable resources come from living things whereas inorganic renewable resources derive from non-living things

Non-renewable resources cannot easily be substituted once they are destroyed, such as fossil fuels. Minerals are considered non-renewable because even though they form naturally in a process called the rock cycle, it can take thousands of years, making it non-renewable. There are also animals that are considered non-renewable, because if people hunt for a particular species without ensuring their reproduction, they will be extinct.

Non-renewable resources can be called inorganic resources if they come from non-living things. Examples include

minerals,
wind,
land,
soil
rocks.

Some non-renewable resources come from living things — such as fossil fuels and are called organic non-renewable resources.

Inorganic resources could be metallic or non-metallic. Metallic minerals have metals in them. They are harder, shiny, and can be melted to form new products. Some examples are iron, copper and tin. Non-metallic minerals have no metals in them. They are softer and do not shine. Some examples may include clay and coal.

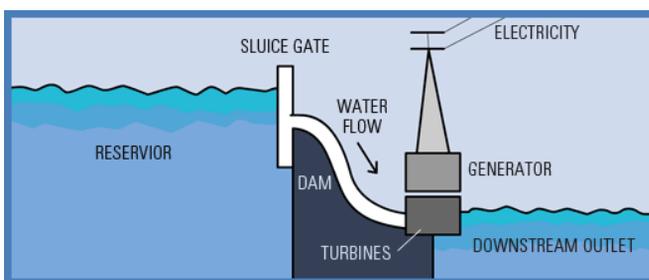
Energy resources:

The main types of energy resources are renewable and renew themselves naturally. water, wind, sun and biomass (vegetation) are all available naturally and were not formed therefore renewable energy resources are always available to be tapped, and will not run out. This is why some people call it Green Energy.

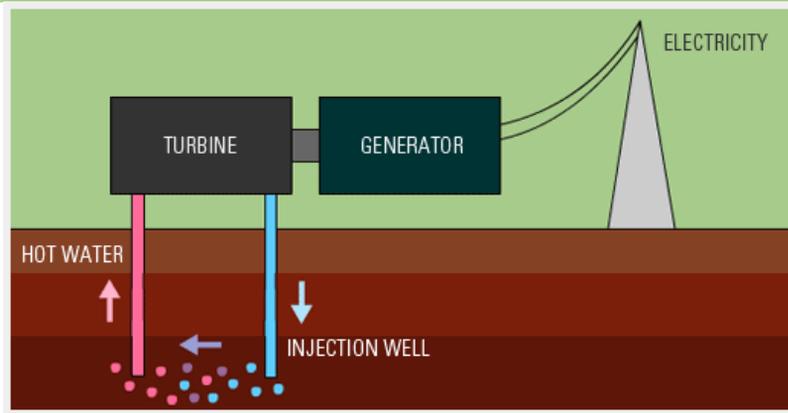
Renewable energy can be converted to electricity, which is stored and transported to our homes for use. How can renewable energy be converted into electricity?

Renewable energy resources include:

-  **Hydropower:** power produced by capturing the potential and kinetic energy of water, usually for generating electricity in hydroelectric plants;



- **Geothermal energy:** the energy available as heat from within the earth's crust, usually in the form of hot water or steam;



- Wind energy: the kinetic energy of wind converted into electricity in wind turbines;



- Solar energy: solar radiation exploited for heat or electricity generation;



- Biomass: organic, non-fossil material of biological origin used in heat production or electricity generation; including mainly wood and wood waste, biogas, biofuels and the organic fraction of solid waste and industrial waste.

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Biomass contains stored energy from the sun. Plants absorb the sun's energy in a process called photosynthesis. When biomass is burned, the chemical energy in biomass is released as heat. Biomass can be burned or converted to liquid biofuels or biogas that can be burned as fuels.

Examples of biomass and their uses for energy are the following:

- Wood and wood processing wastes—burned to heat buildings, to produce process heat in industry, and to generate electricity
- Agricultural crops and waste materials—burned as a fuel or converted to liquid biofuels
- Food and wood waste in garbage—burned to generate electricity in power plants or converted to biogas in landfills
- Animal manure and human sewage—converted to biogas, which can be burned as a fuel



Solid biomass can be burned directly to produce heat. Biomass can also be converted into biogas or into liquid biofuels such as ethanol and biodiesel. These fuels can then be burned for energy. Biogas forms when paper, food scraps, and yard waste decompose in landfills, and it can be produced by processing sewage and animal manure /fertilizer in special vessels called digesters.

Ethanol is made from crops such as corn and sugar cane that are fermented to produce fuel ethanol for use in vehicles. Biodiesel is produced from vegetable oils and animal fats and can be used in vehicles and as heating oil.

How do people consume natural resources?

The three main forms include:

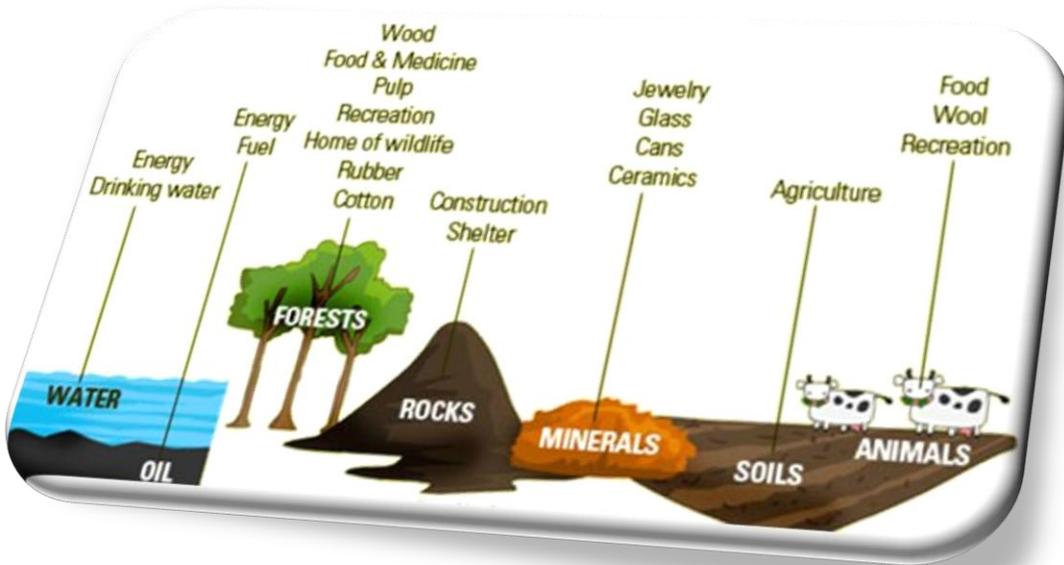
- food and drink
- housing and infrastructure
- mobility

The first one is related to agricultural products as well as naturally occurring foods such as game, fish, seeds and nuts, medicines, herbs and plants. They include drinking water, as well as water for sanitation and household use. Ceramic plates, silverware, cans, milk packages, paper and plastic cups — they are all made from raw materials which come from our natural resources.

Mobility includes automobiles, trains, water vessels, airplanes, together with all the fuel that powers them.

Housing and infrastructure include houses, public places, all the energy for heating and cooling that we consume in our homes.

Beyond these ones, we consume much more resources from our environment on a daily basis. The role of natural resources in sustaining life on earth is really important and we must ensure that we shelter the environment and also make it easy for it to replenish itself naturally.



Which Threats to Natural Resources?

Overpopulation: this is probably the most noteworthy, single threat that natural resources face as far as the world's population is increasing at a very fast rate.

Land Use: with more mouths to feed and people to house, more land will need to be cultivated and developed for housing. More farming chemicals will be applied to increase food production. Many forest or vegetative lands will be converted to settlements for people, roads and farms. These have serious repercussions on natural resources. **Forests:** demand for wood, food, roads and forest products will increase.

Fishing: Fresh water and sea food will face problems too as we will continue to depend heavily



Agriculture, forestry and other land uses represent 24 per cent of global greenhouse gases emissions, second only to the global energy sector. For years, the horticulture industry has been at the forefront of the sustainability discussion. Greenhouses and nurseries were using recycled materials and initiating waste-reduction plans long before other industries recognized the need for environmental stewardship. Today, growers remain under pressure from retail garden centers, big box stores and their competitors to reduce harmful carbon emissions, keep resources, and save money by implementing sustainable programs and systems.

Resource conservation and fuel efficiency are often defined as standards of sustainability in agriculture and a measure for sustainable certification. Energy usage varies by case and is based on a great number of factors. However, a greenhouse's energy choices can be a significant factor in both efficiency and emissions.

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For many years, propane has demonstrated value to growers in the space-heating sector, where an estimated 80 percent of greenhouse energy is allocated. In recent decades, technological advances have increased efficiency and expanded propane's versatility.

Today's propane options go far beyond space heating to bring clean, efficient and affordable power to a myriad of applications such as water heating, on-road and off-road vehicles and backup power generation. Most importantly, all of these applications offer reductions in greenhouse gas emissions (GHGs).

A challenge in agriculture is represented in by a Green House in Tuscany which is pushing ahead with what is one of Italy's and Europe's biggest hydroponic tomato growing schemes. That project has seen C-LED involved in the setting up of technologically advanced greenhouses capable of producing tomatoes even in winter thanks to special LED lighting and accurate temperature and humidity control.

In this way, in addition to cutting waste and reducing the need to draw from the water table, the tomato plants grow luxuriantly and healthily because the water used to irrigate them is monitored and free from any chemical residues. In short, all-round sustainability: the greenhouse and all its constituent systems are powered by energy obtained from a biomass cogeneration plant.

on them.



Need for more: Human's demand for a comfortable life means more items such as communication, transport, education, entertainment and recreation will need to be produced. This means more industrial processes and more need for raw materials and natural resources.

Climate Change

CO₂ is hurting biodiversity and natural resources. Species that have acclimatized to their environments may perish and others will have to move to more favorable conditions to survive. Climate change scenarios in Italy show us that temperatures will considerably increase in the future, hot days will become more frequent in number, rainfall patterns will be altered: it will rain less during the year, but heavy rainfall will increase and be produced by fewer, more intense events. These changes have several consequences for cities, where the microclimate is defined by urban heat islands, and where intense precipitation events can affect the urban drainage systems. These conditions can influence the health and welfare of urban residents, the security of urban infrastructures and the quality of the urban environment. Venice is one of the world's most vulnerable cities to the current and expected impacts of climate change. Venice is dominated by tourism, the most waste intensive sector of the local economy. With Venice's 2018 Climathon, the city is looking for ideas and solutions to increase its

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ability to reduce the impacts of resource use and greenhouse gas emissions while minimizing the impacts of consumption on climate change.



The huge challenge is to achieve zero-carbon emissions from materials and industrial processes, supporting cities and regions in their transition towards carbon-neutral societies. The aim is to achieve the following impacts by 2030:

Catalyse a switch to a circular economy and transform production for high-emitting materials.

Partner with key industry stakeholders in cutting value chain emissions.

Transition carbon-intensive regions to become zero-carbon innovation hotspots.



Environmental Pollution

Land, water and air pollution directly affect the health of the environments in which they occur. Pollution affects the chemical make-up of soils, rocks, lands, ocean water, freshwater and underground water, and other natural phenomena. This often leads to catastrophic effects.

Resource Recovery

Recycling is processing used materials (waste) into new ones, useful products. This is done to reduce the use of raw materials that would have been used. Waste that can be potentially recycled is termed "Recyclable waste". Aluminum products (like soda, milk and tomato cans), Plastics (grocery shopping bags, plastic bottles), Glass products (like wine and beer bottles, broken glass), Paper products (used envelopes, newspapers and magazines, cardboard boxes) can be recycled and fall into this category.

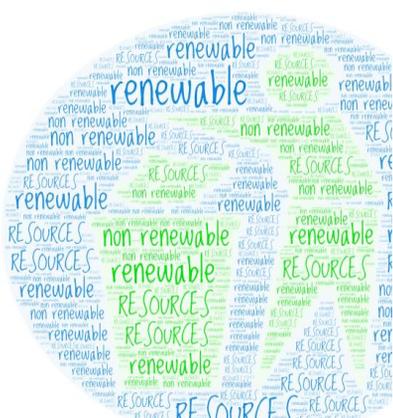
Resource recovery is the separation of certain materials from the waste we produce, with the aim of using them again or turning them into new raw materials for use again.

It involves composting and recycling of materials that are heading to the landfill. Here is an example: Wet organic waste such as food and agricultural waste is considered waste after food consumption or after an agricultural activity. Traditionally, we collect them and send them to a landfill. In Resource Recovery, we collect and divert to

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composting or anaerobic digestion to produce biomethane. We can also recover nutrients through regulator-approved use of residuals.

In recent years, waste has been viewed as a potential resource and not something that must end up in the landfill. From paper, plastics, wood, metals and even wastewater, experts believe that each component of waste can be tapped and turned into something very useful.



Climate Change policy for Europe



Here are listed the most relevant documents on energy policy for Europe

- Discussion Paper on GDP and beyond (CdR 31/2010)
- Draft Opinion of the Committee of the Regions on Improving the EIA and SEA Directives (CdR 38/2010)
- Coordinated and sustainable responses to meet the challenges facing the European automotive sector and to strengthen its links to the regions (CdR 211/2009)
- Sustainable future for transport: towards an integrated, technology-led and user friendly system (CdR 146/2009)
- Competitive rail freight transport (CdR 102/2009)
- The management of bio-waste in the European Union (CdR 74/2009)
- A new impetus for halting biodiversity loss (CdR 22/2009)
- Performance of buildings and the second strategic energy review (CdR 8/2009)
- Action Plan on Urban Mobility (CdR 417/2008)
- Revision of EMAS and the ecolabel (CdR 347/2008)
- Greening the transport sector (CdR 272/2008)
- Addressing the challenge of energy efficiency through information and communication technologies. (CdR 254/2008)
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- How regions contribute to achieving European climate change and energy goals (CdR 241/2008)
- Emission allowance trading (CdR 161/2008)
- Promotion of renewable energy (CdR 160/2008)
- A freight transport package (CdR 88/2008)
- A European ports policy (CdR 237/2007)
- Green Paper on Urban transport (CdR 236/2007)

In 2011, the flagship initiative for a resource-efficient Europe was launched as one of 7 initiatives of the Europe 2020 strategy by the European Union. The initiative offers a long-term framework for actions in many policy areas, supporting policy agendas for climate change, energy, transport, industry, raw materials, agriculture, fisheries, biodiversity and regional development.

The Roadmap to a resource efficient Europe is a central pillar of the resource efficiency flagship initiative. It sets out a framework for the design and implementation of future actions. The set of resource efficiency indicators was selected with the aim of covering as many as possible of the themes and subthemes identified in the roadmap. link to the roadmap:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0571>





WHY DO WE NEED AN EFFICIENT USAGE OF NATURAL RESOURCES?

The growth of the economy and the increase of the population in the world means that the Earth's natural resources are running out at high speed

Our society depends on metals, minerals, fuels, water, wood, fertile soil and clean air. However, we have been depleting these limited resources at a much faster rate than the one that allows their recovery, and if we do not change the way of acting there will be great shortages.



That is why it is necessary to **"use resources efficiently"**, that is, to generate more value by using less materials and consuming in a different way.

This will reduce the risk of scarcity, and the environmental impacts will remain within the natural limits of our planet.



THE MAIN PROBLEMS OF WASTE

The production of waste is growing all over the world. The generation of garbage brings the following environmental impacts:

- The consumption of energy and materials used to make packaging and products that we later discard.
- Water, air and ground pollution.
- All this has negative effects on human health & the environment.

This is a diagram that show how the circular economy works. The raw materials are collected, they are used in the production and sold to the consumer, after that the

consumer collects it and recycles it, leading it again to the start of the process, making it a circular process.



ENERGY

We used a hand turning off a light bulb to make reference to the energy's saving by turning off the lights.

Between 1990 and 2010, the number of people with access to electricity has increased by 1.7 billion.



This is a fact of the utilization of electricity since 1990, and we can observe that it has increased in 1.7 US billion people.

ENERGY - KEY FACTS

- Energy is the dominant contributor to climate change, accounting for around 60 per cent of total global greenhouse gas emission.



- 3 billion people rely on wood, coal, charcoal or animal waste for cooking and heating.
- One in five people still lacks access to modern electricity.
- Reducing the carbon intensity of energy is a key objective in long-term climate goals.

These are facts about the precarious distribution of energy in the world. Here, we can see how not everyone has access to modern electricity in their house to cook or to do stuff, and how energy is a very important factor in the climate change.

SUSTAINABLE DEVELOPMENT GOALS” FROM THE UNITED NATIONS

The main global initiative on the sustainable use of energy resources is part of the Sustainable Development Goals of the United Nations



These are the objectives from the project “Sustainable Development”...and the good use of energy is one of those objectives.

TARGETS:

The targets from the point 7 *Affordable and Clean energy* from the project of ONU are:

- By 2030, ensure universal access to affordable, reliable and modern energy services.
- By 2030, increase substantially the share of renewable energy in the global energy mix.
- By 2030, double the global rate of improvement in energy efficiency.
- By 2030, enhance international cooperation to facilitate access to clean

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energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.

We have to choose in which part of the planet we want to live.



We propose to start from our homes with a good use of energy.

No more non-renewable energies should be used because they pollute a lot and have a close limit.

Therefore, from our homes we would have to start encouraging the use of new sources of energy, for example by promoting the installation of solar panels in our urbanization.

THINGS WE CAN DO

We now show different ways to help with the change. Have a look at just a few of the many things you can do to make an impact!

- Save electricity by plugging appliances into a power strip and turning them off completely when not in use, including your computer.
- Stop paper bank statements and pay your bills online or via mobile. No paper, no need for forest destruction.
- Don't print. See something online you need to remember? Jot it down in a notebook or better yet a digital post-it note and spare the paper.
- Turn off the lights. Your TV set or computer screen provides a cosy glow, so turn off other lights if you don't need them.
- Do a bit of online research and buy only from companies that you know have sustainable practices and don't harm the environment.
- Air dry. Let your hair and clothes dry naturally instead of running a machine. If you do wash your clothes, make sure the load is full.

- Take short showers. Bathtubs require gallons more water than a 5-10 minute shower.
- Eat less meat, poultry, and fish. More resources are used to provide meat than plants.



This is a good example to follow:

The Ecuadorian archipelago of the Galapagos Islands, has the first ecological airport in the world. It works through solar energy, the reuse of water and the use of wind.



ACTUALLY WATER CONSUMPTION

Now we're going to show what's the actually water consumption.

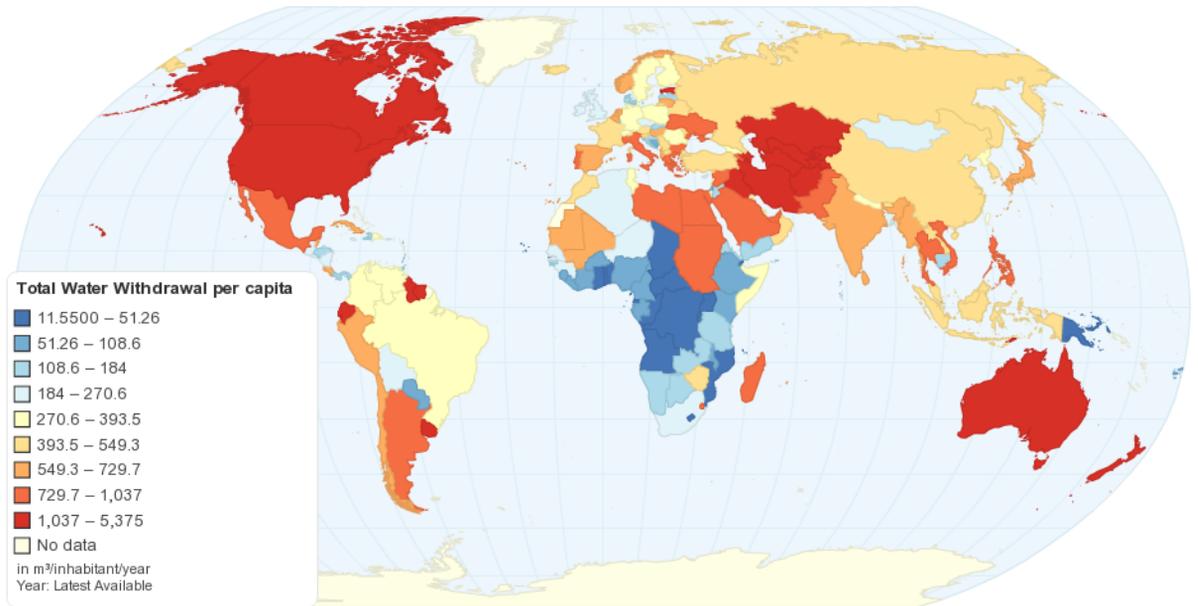
Domestic consumption of water per inhabitant is understood as the amount of water a person has for their daily consumption, cleaning, irrigation, etc.

The optimal access, finally, is the consumption of an average amount of 100 litres per person of water supplied continuously through several faucets in which all the consumption and hygiene needs are met.



WHAT IS THE WATER CONSUMPTION PER PERSON?

In the next picture you can see the comparison from different parts of the world. Highlights the contrast between North America and Africa.



Total Water Withdrawal per capita

CONSEQUENCES OF WASTING WATER

There are some situations in which the lack of water reaches inhumane limits.



SOME TIPS FOR SAVE WATER

Here we have different tips for save the water:

- Throw the toilet paper in the wastebasket and not in the toilet.
- Use the dishwasher only when it is completely full and using a water saving program.
- Check that all faucets have water aerators.
- Showering instead of bathing.
- Use thermostatic faucets.
- Place systems of double discharge or interruption in toilets.

ZERO WASTE MOVEMENT

The main global initiative in defence of water resources is part of the Sustainable Development Goals of the United Nations.

There is the **Zero Waste movement**. It is a new recycle movement. It consists on the reuse of waste garbage that otherwise. They would be burned or stored. Basically to **help the environment**.



This project try to reuse our waste in a continuous cycle.

It uses recycled products like bottles, plastic, paper, cardboards, etc... Just any rubbish that you have.

It is a good solve to erase garbage. This movement works so that the business and people work together to solve the problem of garbage.

This is Bea Johnson's the leader of the Zero Waste movement and she was the first person in the world that made possible this project.

elements of a Zero Waste economy.



- Jobs
- Transport
- Education
- Manufacturing
- New Rules
- Smart Spending
- Product Redesign
- Resource Recovery

Zero waste is one of the best options to fight against the climate change.

Visit: <https://www.youtube.com/watch?v=KEeH4EniM3E>

WHAT IS NATURAL RESOURCE?



All the resources of wealth that are not spontaneously formed in the nature, and which are not the product of human intelligence and technique, and which are not part of any role of human being in the process of coming to the stage are called "natural resources". In short, it is all that is found in nature and can meet human needs.

WIND

It is inspired by the change of air. If you know how to use it correctly, this breeze can give us energy. With the rapid displacement of air, the movement of the particles inside is also fast. The process of converting this characteristic of air into kinetic energy is called wind energy. Wind energy, abundant and free in the atmosphere, is a renewable and clean energy source. Storage of the energy is possible by turning another energy. It does not create environmental pollution. Using wind turbines, we can turn this energy into electricity

WATER

Water, which constitutes a large part of the biological structures of living things, is a life support with vital importance indispensable for all living things during times of coming to earth, growth and development. Water is found in the life of the creature with different sources

Although the fact that $\frac{3}{4}$ of the earth is covered with water gives the appearance of water abundance in the world, the water content in drinkable water is only 0.74%.

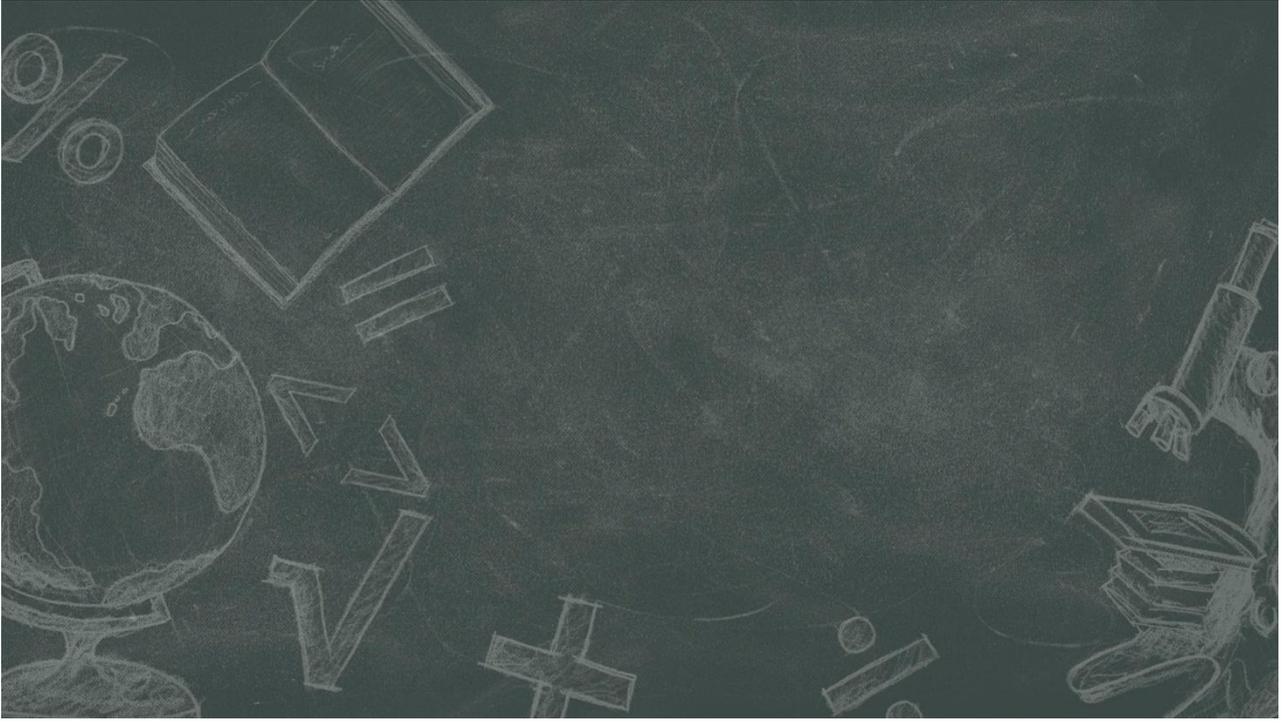
Estimates show that increasing water demand and increasingly declining clean water source curves will cut in 2030. This would naturally mean a universal crisis.

If we assume that our country's population today is estimated at 72

million, it can be said that we are a country with a water shortage with an annual amount of usable water of 1555 m³ per capita.

WHAT ARE NATURAL RESOURCES?

| RENEWABLE | NON RENEWABLE |
|-------------------|--|
| AIR, SOLAR ENERGY | OTHER, FOSSIL, FUELS, MINES, OIL, COAL |
| WATER WIND SOIL | |
| | |



MEASURES TO BE OBTAINED FROM WATER POLLUTION

The measures that can be taken in this regard can be summarized in two main groups. The first group is the implementation of practices that will save water usage, reduce the amount of polluted water (waste water) and prevent others from polluting the water.

PREVENTION FOR WATER POLLUTION

Use of phosphate-free or phosphate-free detergents to avoid pollution of lakes and streams by biological means, cleaning with minimal amounts when using detergents,

To ensure that all domestic, institutional and industrial wastewaters are cleaned at the treatment facilities and used and recycled in certain areas or they are poured into the rivers, lakes or seas after the wastewater is thoroughly cleaned and to establish mechanical, chemical and biological treatment plants,

Prevent the disposal of solid and liquid garbage from sea, rivers and ponds,

To make planting projects to prevent soil erosion and to live them,

The institutions that store and pack drinking water are strictly inspected and provide water production and distribution according to the limit values which are important for human health.

SOLAR

The sun is a medium-sized star that is the source of life on Earth. Solar power plants are power plants that convert energy

particles from the sunlight into electricity. At the plants, similar to the calculators, solar cells are used in large sizes. Electricity generation with solar energy plants; in addition to the advantages of easy installation, long life, environmental friendly and low operating costs advantages and ease of use that provides energy production.

Tekno Ray Solar, established as a joint venture between Italian Enerray and Tekno Group of Companies, opened Turkey's largest solar energy plant in Konya Kızören.

WAVE

Wave energy is the type of energy derived from the fluctuating motion of the wind as a result of movement on the sea and ocean surfaces. The waves generated by the winds of the friction created by the boundary layer cause the sea surface to move randomly up and down. Wave energy is better than other renewable energy sources.

FOREST

Forests are one of the worlds most a precious natural resources. Forests cover 4.03 billion hectares globally, approximately 30% of Earth's total land area.

People began life on this planet as forest dwellers. They were food gatherers and depended on the forest for all their needs: food, clothing, and shelter. They gradually became food growers, clearing a small patch in the forest to grow food.

HOW WE CAN USE OUR FOREST ?

Forests pump out oxygen we need to live and absorb the carbon dioxide.

It contains minerals and gravel from the chemical and physical weathering of rocks, decaying organic matter (humus), microorganism, insects, nutrients, water, and air soils are the loose mineral or organic materials found on the earth's surface, usually (or averagely) made up of about 25% air, 25% water, 45% mineral and 5% organic matter (humus, tiny living organisms and sometimes plant residue) It is the stuff that supports rooted plants in a natural environment. There are soils practically on every land that is not covered by water

1. Nitrogen
2. Oxygen
3. Use Public Transportation
4. Drive Smart
5. Do Regular Car Check Up
6. Keep Car Tires Properly Inflated
7. Buy Energy Efficient Vehicles
8. Consider "going green"
9. Plant a Garden
10. Use Low-VOC or Water-based Paints
11. Turn Off Lights When Not in Use
12. Buy Green Electricity
13. Make use of Solar Energy
14. Use Natural Gas Instead of Charcoal
15. Use a EPA Certified Woodstove
16. Dry Clothes on Clothesline
17. Always Use Recyclable Products
18. Use Both Sides of Paper
19. Reuse Paper Bags
20. Avoid Plastic Bags
21. Choose Products With Minimal Packaging.
22. Use Broom Instead of Leaf Blower
23. Don't Use Hazardous Chemicals
24. Quit Smoking
25. Insulate the Leakages
26. Consolidate Your Trips
27. Get an Energy Audit Done
28. Use Surge Protectors
29. Use Fan Instead of AC
30. Use Blankets When it is Cold Outside
31. Reduce, Reuse, Recycle
32. Buy Items Made From Recycled Materials
33. Cut Down on Junk Mail
34. Buy Rechargeable Batteries
35. Buy ENERGY STAR Products
36. Use Cold Water Instead of Hot
37. Eat Organic Food
38. Grow Your Own Fruits and Vegetables
37. Ask your Employer For WFH Facility
38. Contribute
39. Talk to Local Representatives
40. 40: Educate your companions
- 41.
42. 41: join an environmental group

WHAT IS THE FOSSIL FUEL?

Fossil fuels are non-renewable energy resources; these are coal, oil and natural gas. They were formed from the remains of living organisms millions of years ago.

Some of the usage areas: transportation, heating, electricity generation etc.

What Are The Fossil Fuels?

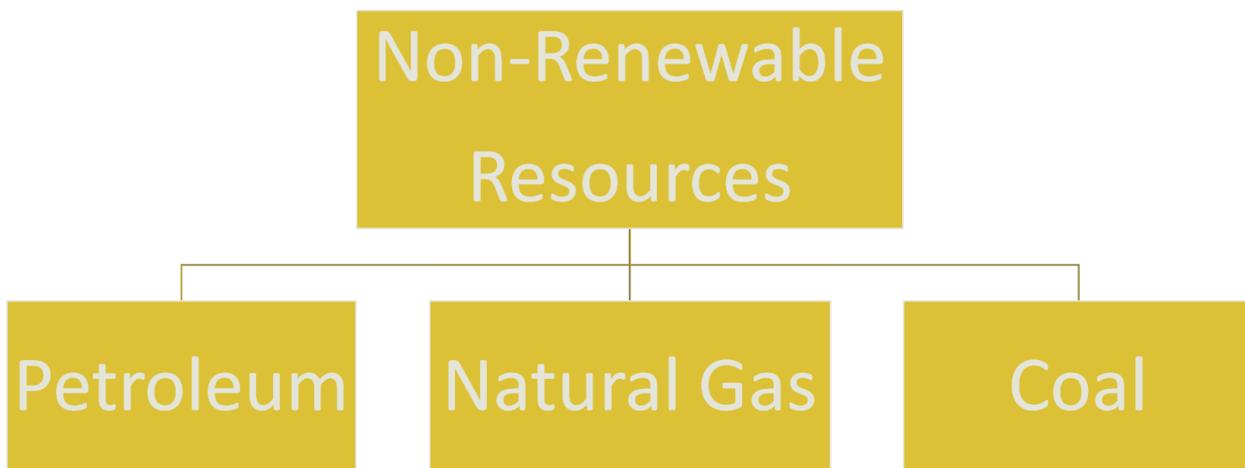
How They Formed?

Fossil fuels are formed over millions of years from the fossils, or remains, of dead animals and plants that were buried under dirt and rock.

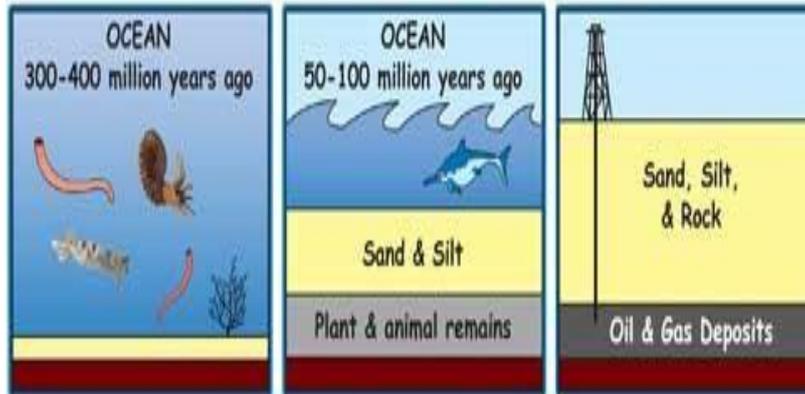
Heat from inside the earth and pressure from dirt and rock changes these fossils into oil, natural gas and coal.

We are currently using the fuels that were made more than 65 million years ago.

Formation of Oil and Natural Gas



OIL AND NATURAL GAS FORMATION

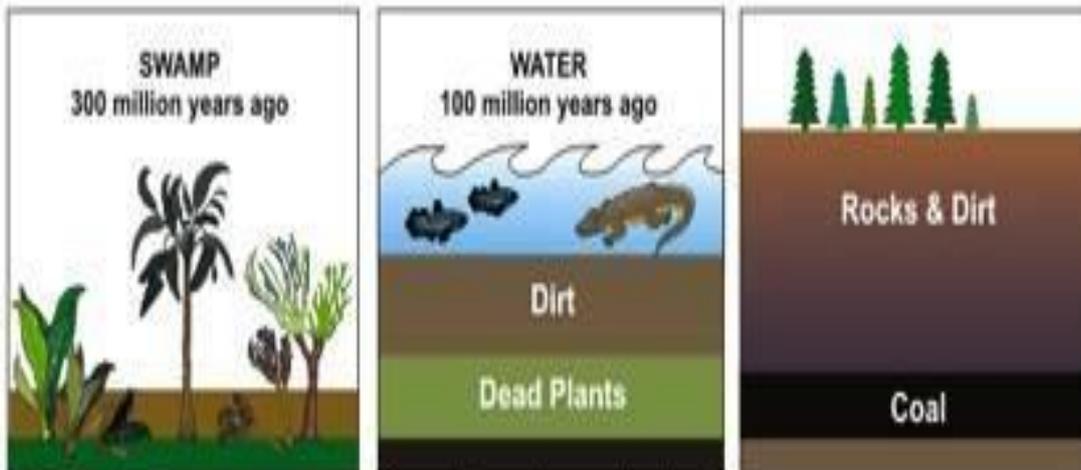


Tiny sea plants and animals died and were buried on the ocean floor. Over time, they were covered by layers of silt and sand.

Over millions of years, the remains were buried deeper and deeper. The enormous heat and pressure turned them into oil and gas.

Today, we drill down through layers of sand, silt, and rock to reach the rock formations that contain oil and gas deposits.

HOW COAL WAS FORMED



Before the dinosaurs, many giant plants died in swamps.

Over millions of years, the plants were buried under water and dirt.

Heat and pressure turned the dead plants into coal.

Advantages Of Fossil Fuels

Supplies are abundant so the cost is cheap.

Can produce large amount of energy.

Oil can be transported through the use of pipes, allowing it to be transported relatively easily.

Disadvantages Of Fossil Fuel

Not sustainable. Fossil fuels will run out.

One of the main disadvantages of fossil fuels is the fact that they are burned, they produce carbon dioxide.

It causes global warming.

Comparing Advantages & Disadvantages

| Energy Type | Advantage | Disadvantage |
|---------------|----------------------------------|---|
| Coal | Easy to transport | Pollutes air |
| Oil | Produces large amounts of energy | Nonrenewable |
| Solar | Renewable, does not pollute | Requires sunshine |
| Wind | Renewable, does not pollute | Requires steady winds, generators noisy |
| Hydroelectric | No pollution | Dams cause environmental harm |
| Geothermal | Renewable, does not pollute | Limited availability, deep drilling expensive |
| Nuclear | Produces huge amount of energy | Radioactive waste |

Situation Of Resources

As world population continues to grow and the limited amount of fossil fuels begin to diminish, it may not be possible to provide the amount of energy demanded by the world by only using fossil fuels to convert energy.

There are plenty of ways to convert energy without fossil fuels, and many of are being used, but not nearly to their full potential.

Turkey 27 ton crude oil imported in 2017. We can see how much the consumption is with this example.

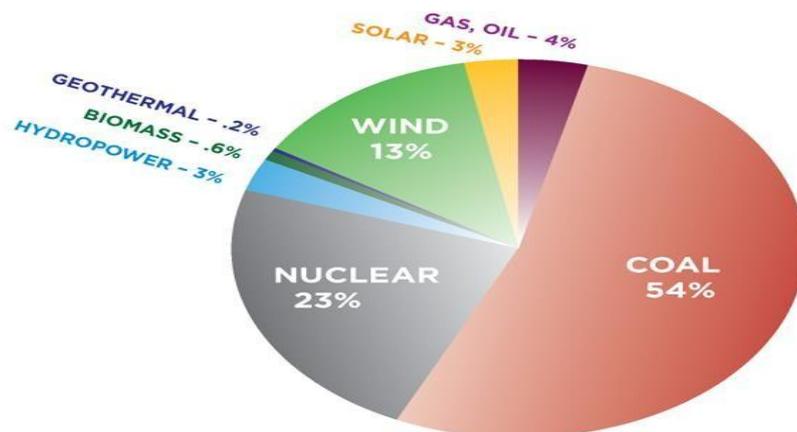
How We Use Efficient?

Improving the energy efficiency of buildings, vehicles, industrial processes, appliances and equipment is the most immediate and cost effective way to reduce energy use.

Planning communities where people can safely and conveniently use public transit, walk, or bike, instead of using private vehicles.

There are several alternative resources that can supply clean, renewable energy to replace fossil fuels, including water, biomass, wind, geothermal, and solar energy.

The Percentage Of Using Resources



What Should We Do?

We need to choose renewable resources anymore.

Countries must take action to promote a greater use of renewable energy resources, such as geothermal energy or nuclear power.

Reduce plastic and petrol-based everything.

Refuse plastic as often as possible.

Recycle what you can't reduce or reuse materials.

**Don't Forget That Our Goal Is
Construct a Renewable World!**

