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# POWER OF DIGITALIZATION IN FIGHTING AGAINST CLIMATE CHANGE

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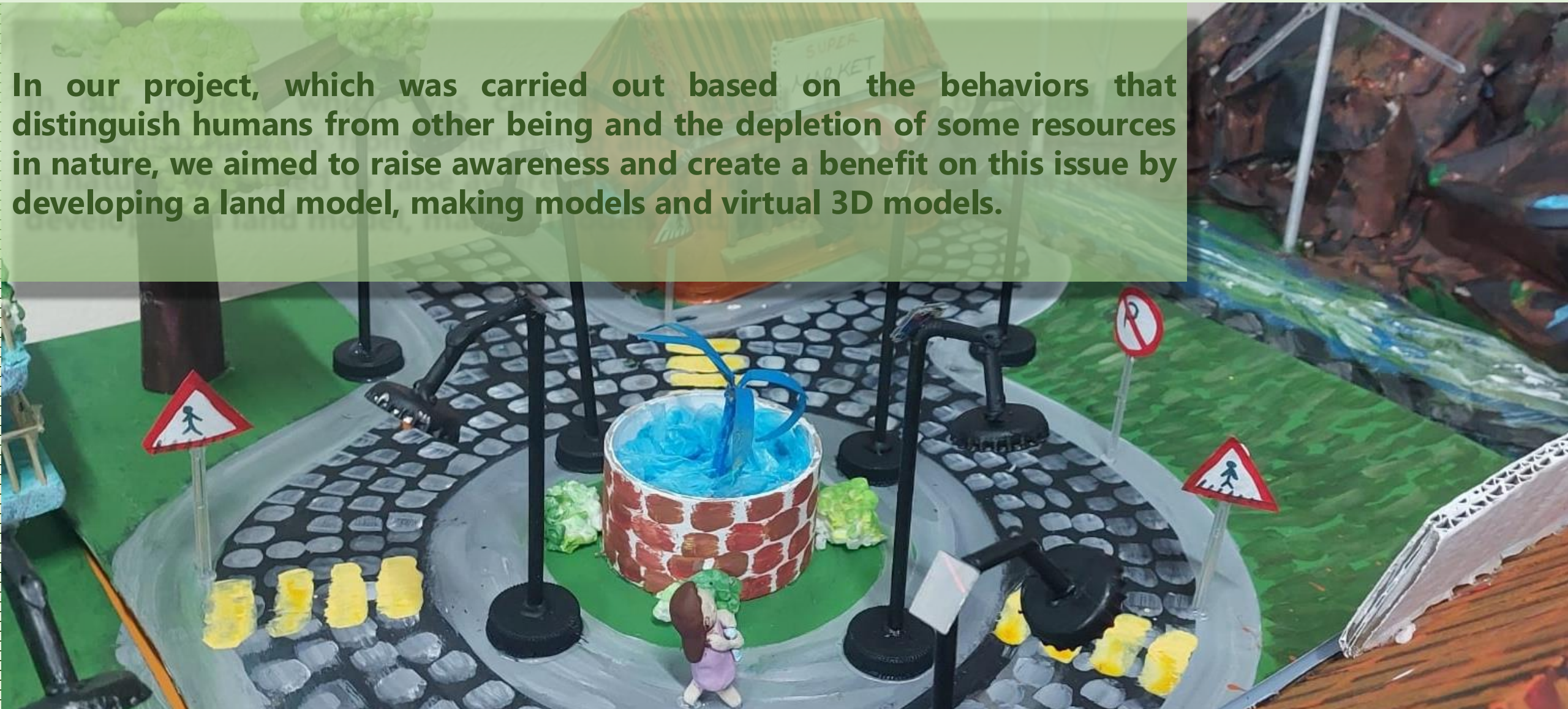
# AIM

- We are aiming to decrease the influence of climate change by using the power of digitalizition.
- To reduce the consumption of harmful resources.
- To increase the use of renewable resources instead of non-renewable resources.
- To decrease the harm towards the environment.
- To create new job opportunities based on renewable resources.
- To minimize climate change and its effects.

# INTRODUCTION

In our project, which was carried out based on the behaviors that distinguish humans from other being and the depletion of some resources in nature, we aimed to raise awareness and create a benefit on this issue by developing a land model, making models and virtual 3D models.



# CLİMATE CHANGE

Although cities constitute only 1% of the world's terrestrial and ice-free USB storage, they have significant impacts on the environment. The most important one among these impacts is climate change, which also has economic and social consequences. Climate change is a major problem that defines our era and is stated in the United Nations Framework Convention on Climate Change (UNFCCC) as "changes that occur over a long period of time as a result of natural changes in climate and directly or indirectly as a result of human activities and that disrupt the composition of the global atmosphere." (UNFCCC, 1992).

# AGRICULTURE

It has great importance in food supply, which is one of the basic needs of humanity. The sector most affected by global warming, which we can consider as the biggest problem of our age, is agricultural activities carried out under the influence of natural conditions. Global warming is an event that increases the rate of greenhouse gases in the atmosphere as a result of human activities.

# Where is Turkey in the disaster?

Turkey experienced one of its hottest summers in 2003, together with Europe, and this will continue and increase in the coming years. Sudden weather changes and extreme temperatures will increasingly become a part of our daily lives.

Temperatures in Turkey will increase by 2 degrees in winter and 2 to 3 degrees in summer.

The Mediterranean basin will see a rise of 18 cm - 12 cm in water level by 2030, 38 cm - 14 cm by 2050 and 65 - 35 cm by 2100.

# The Importance of the Research and Our Difference

Although there are many projects that have been added to the literature and support the subject, there is no project that transforms a land model into something we can see and touch with our eyes and supports that model with a 3D virtual model. In this respect, our project is original.

# PROBLEM


Gases such as CO2, CH4, N2O, CFC, O3, and CO in the atmosphere surrounding the Earth create a greenhouse effect and ensure that the Earth remains at its current temperature. The gradual increase in greenhouse gases in the troposphere, which is an average of 11 km above the Earth's surface, causes a chain of events that threaten the lives of all living things, which we call global warming.

Human activities, especially excessive use of fossil fuels, rapid population growth, and increasing living standards, are events that increase the effects of global warming. Natural disasters observed as a result of global warming make life difficult for plants and animals, especially human life. It is estimated that these sudden, extreme, and drastic changes in the Earth's climate system will leave no land for agriculture or a place to live in 30-40 years from now.

# RESEARCH QUESTİONS

1. What is climate change?
2. What are the negative effects of living spaces in different areas?
3. How not living in enviromentally sensitive places affects on people?
4. How the use of non-renewable resources effect on human health?

# DATA COLLECTİON TOOLS


- Literature review
- Consulting our school teachers on necessary issues
- Using materials such as videos, photos, etc. that will help us use the SketchUp Program

# Field Work and Studies Conducted on this model and its details


First, we designed a sustainable village model. In this model, we designed 3 types of houses, 1 market and 1 school. Technologies that aim to make all designed structures sustainable were used.

# Field Work and Studies Conducted on this model and its details


Pipes that collect and collect waste rainwater were used for the market, which aim to store and reuse rainwater. These pipes were placed on the slope of the building's roof, facilitating the collection of wastewater.

This collected water was then transferred to the water tank next to the building, aiming to reuse the water.

# Field Work and Studies Conducted on this model and its details

As for the first of our houses, we designed an ecological tree house. We positioned this tree house next to the nature-friendly park we built. Thus, we aimed for the living creatures in the area to stay safely and for this building to be environmentally friendly and useful. In addition to the bird nests in the natural park we built, a bird nest was also placed on this building, creating a suitable living environment for birds.

# Field Work and Studies Conducted on this model and its details



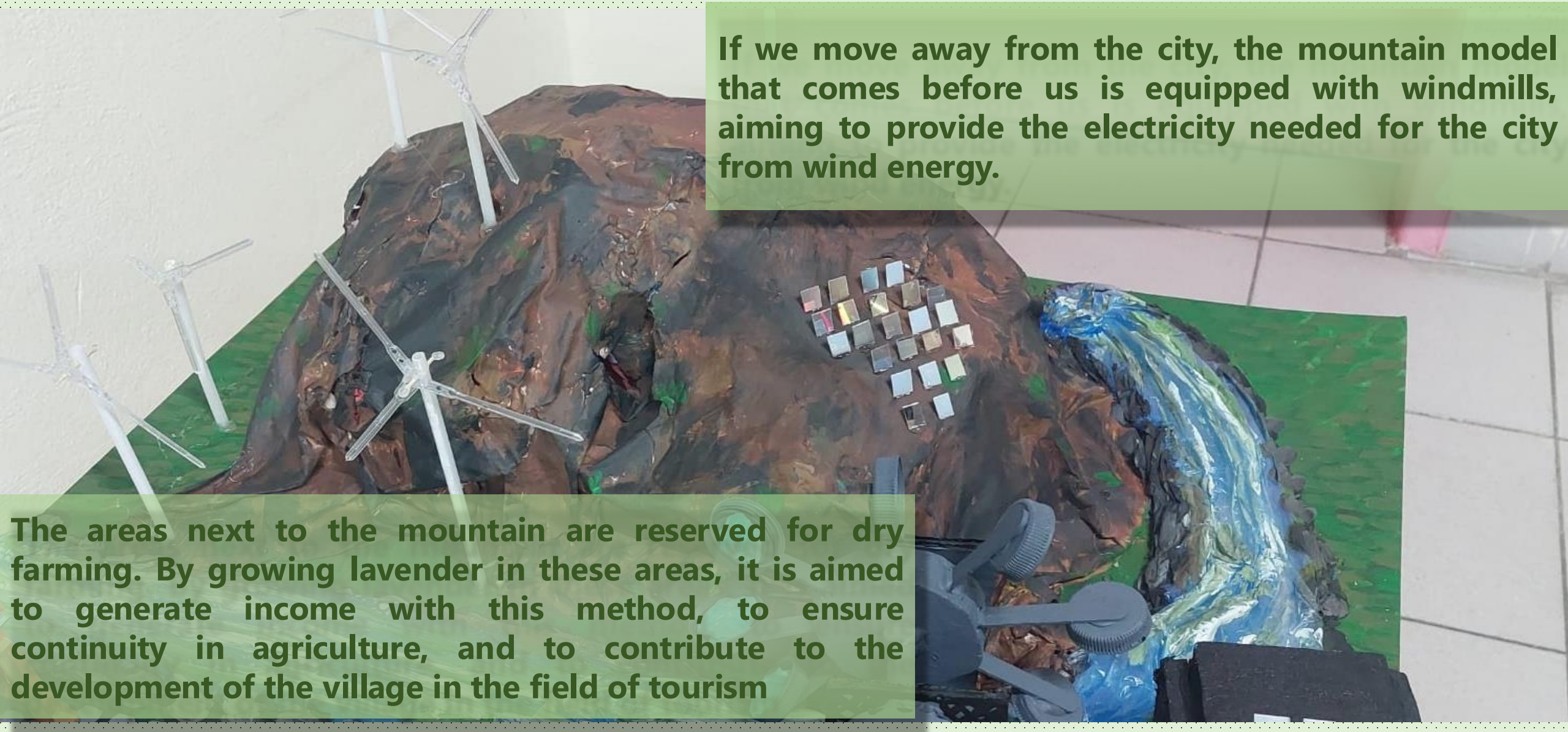
In the remaining building designs, the aim was to recycle water by using waste rainwater gutters in all of them. Solar panels were placed on all buildings to meet some of the energy needs of the houses in this way. We provided fertile agricultural areas by placing large gardens in front of our houses. In this way, the homeowners obtained products that were sufficient for themselves by doing agriculture without pesticides and also ensured their health.

# Field Work and Studies Conducted on this model and its details

Apart from the structural elements, the pavements were used to convert the energy released by footsteps first into kinetic energy and then into electrical energy, a renewable electricity generation method also seen in Japan. Solar panels were placed on the street lamps, aiming for the street lamps to provide their own electricity, thus saving electricity. An ornamental placed in the middle of these structures to provide an aesthetic appearance.

# Field Work and Studies Conducted on this model and its details

If we move away from the city, the mountain model that comes before us is equipped with windmills, aiming to provide the electricity needed for the city from wind energy.



The areas next to the mountain are reserved for dry farming. By growing lavender in these areas, it is aimed to generate income with this method, to ensure continuity in agriculture, and to contribute to the development of the village in the field of tourism

# Field Work and Studies Conducted on this model and its details

There is a river passing in front of the mountain. With a system built on this river, electricity is generated by using the kinetic energy of the water carried by the river.

In this way, every element placed in the village is supported by sustainable technologies and all the electrical energy the city needs is met from sustainable energy sources such as wind energy, solar energy, hydroelectricity.

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# Benefits of Our Project

With the construction of this land model, although it is small at first, later on, large-scale awareness can be created and research and studies can be conducted, and thus a beautiful change can be made worldwide

If this study is put into practice, a generation can aim to save other living and non-living beings besides their own lives and increase such areas. This project can even be implemented in big cities and support more people to hear and produce their own electricity.

The number of employers will also increase as it will provide new job opportunities

Most importantly, this project will provide a great benefit to nature. It can also ensure that the effects of climate change are felt less.

# SUGGESTIONS

More extensive research can be done on this subject.

Efforts can be made to reduce the impact of effective resources on the world.

Efforts can be made to increase the impact of renewable resources.

There could be more suggestions about this subject, that affects the world and everything that on the planet.

# REFERENCES


- Tıraşcı, S., & Erdoğan, Ümmügülsüm. (2021). The Impact of Global Warming on Agriculture . Journal of Agriculture, Food, Environment and Animal Sciences, 2(1), 16-33.
- Şanlı, B., & Özekicioğlu, H. (2007). Küresel Isınmayı Önlemeye Yönelik Çabalar ve Türkiye. Karamanoğlu Mehmetbey Üniversitesi Sosyal Ve Ekonomik Araştırmalar Dergisi, 2007(2), 456-482.
- Çetinkaya, Z., & Ciravoğlu, A. (2016). Sürdürülebilir yerleşim modellerinin karşılaştırılması: Eko-kent ve yavaş kent. İdealkent, 7(18), 246-267
- Küresel Isınma ve İklim Değişikliği Sayı 25 (2005) 29 -41, KONYA Aksay, C.S., Ketenoğlu, O., Kurt, L
- Tuğaç, Ç. (2022). "İklim Değişikliği Krizi ve Şehirler", Çevre, Şehir ve İklim Dergisi. Yıl: 1. Sayı: 1. ss. 38-60.

# THANK YOU

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