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# CLIMATE CHANGE AND THE FUTURE OF HUMANITY

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# PREAMBLE

I participated in the Model G20 Virtual Summit held by Knovva Academy from February 12 to February 20, 2021. In the simulation, I represented the French Minister of Infrastructure and Transportation. In this position paper, I will share my observations, ideas, and views, as well as the global problems which address climate change and the future of humankind. I submit this paper for the consideration of member nations of the G20.

Even though I am under 18 years of age, I have drafted effective policies which can benefit not only one country, but the entire world. I believe that the involvement of youth leaders in global issues leads to more unique solutions. I would also like to thank Knovva Academy, the G20 Task Force, and the G20 community.

Climate change is a serious threat to the Earth's ecological balance, and a danger to all its life forms. To protect our planet, there is a pressing need to pay attention to climate change through international cooperation. These policies are applicable for all countries, regardless of their environments, and are dedicated to combating climate change.

# WHAT ARE THE EFFECTS OF CLIMATE CHANGE?

Climate change causes the following:

- A rise in global temperatures
- The melting of polar ice caps, which leads to rising sea levels
- Changes to Earth's habitats which have adverse effects on life forms

Climate change is directly or indirectly linked to industrialization and urbanization. Large amounts of emissions from factories, automobiles, and other human activities have led to a rise in the world's temperatures.

- Climate change is increasing the ocean's temperatures, causing fish to migrate toward the poles. This has had a tremendous impact on the fishing industry, resulting in fewer fish to catch, and forcing ships to go further out in the ocean to find fish.
- The oceans normally absorb heat and CO<sub>2</sub> from the air and thus maintain the temperature of Earth. However, the oceans' temperatures have risen so much that they are not absorbing any heat.
- Rising sea levels have already destroyed many villages on the coast of Bangladesh. The rise in ocean temperature has caused melting in the arctic and Antarctica at a much faster rate than ever.
- In addition to changing the world's oceans, climate change has also caused the greenhouse effect. This is a process that occurs when gases in Earth's atmosphere trap the Sun's heat, making Earth much warmer than it would be without an atmosphere. The greenhouse effect is one of the things that makes Earth a comfortable place to live. Rising CO<sub>2</sub> levels have also led to depletion of the ozone layer.

When climate change disturbs the natural order of even one thing, it can start a chain reaction that affects many other things. Humans are responsible for 90% of global warming, while nature is responsible for the other 10%. Natural events such as volcanoes and changes in the Earth's orbit have led to global warming that is too rapid to be caused entirely by solar activity.

Air pollution is caused by manufacturing industries, cars, agricultural practices, celebrations, and military exercises. These all release harmful particulates in the atmosphere, polluting the air and heating the atmosphere. When combined, greenhouse gases and existing pollution cause the globe to heat up.

What causes the Earth to heat up? What is under our control? Things which cause heating of Earth are:

- The greenhouse effect
- Deforestation
- Air pollution
- Warming of oceans

All four of these things are under our control, and the following section will outline the policies that can help us react to them and mitigate the effects of climate change.

# POLICY INITIATIVES

During the course of the 2021 Model G20 Summit, held by Knovva Academy, my group proposed many policy initiatives in the area of infrastructure and transportation.

These policies supported the need to improve the existing infrastructure, in order for the world to become carbon neutral. These policies aim to reduce air pollution and establish efficient ways of generating electricity and harvesting water, as well as giving the same amount of occupied residential area to trees.

The term “carbon neutral” — also known as “net zero carbon” — is a term used to describe the state of an entity (such as a company, service, product, or event) when its carbon emissions have been balanced out by funding an equivalent amount of carbon savings elsewhere in the world.

The other factors responsible for climate change are:

- **Rising carbon footprints.** As the population is growing rapidly, so are the carbon footprints of each person, contributing to air pollution.
- **Air pollution cannot be zero.** Even if electric transportation becomes mandatory and trees are planted all across the world, industries will still pollute the atmosphere.
- **Solar heating.** The Earth is also being heated by the natural greenhouse effect, volcanic eruptions, and changes in the Earth’s orbit. When the Earth is close to the Sun, it receives more heat. Currently the Earth’s orbit is very circular, which means we should be experiencing relatively cool and consistent temperatures.

# POLICY DESCRIPTIONS

Here is a brief overview of the proposed climate change policies:

1.

**Green Residential Areas:** This policy promotes green urban centers. It encourages the use of solar panels and windmills, which can help buildings and houses generate a small amount of green energy. At the core of this policy is the construction of houses with terrace gardens, solar panels, and rooftop water recharging equipment. The policy focuses on making the area occupied by buildings more green by creating terrace gardens.

2.

**Green Technology and Green Structural Designs:** This policy promotes the use of electric vehicles and electric Infrastructure globally. One way to accomplish this is to make E-Vehicles as efficient as gasoline fueled vehicles. Another is to convert ships' away from using fossil fuels. Reusing substances and establishing intelligent ways of manufacturing will be key to reducing carbon footprints of companies around the world. This policy also brings the infrastructure closer to preventing air pollution.

3.

**Modern Rechargers, Generators, and Purifiers:** This is an important policy for industries and cities. This policy is divided into two parts. The first part deals with water recharging techniques and electricity recharging techniques, both based on 21st century technology. The other part deals with clean air.

- Recharging techniques of the 21st century: This part consists of "road water recharging" and generating electricity from speed breakers.
- Air purifiers: Big industrial groups can place air purifiers near their industrial infrastructures, which will generate clean air. This will bring down air pollution levels and help maintain global temperatures.



# POLICY 1: GREEN RESIDENTIAL AREAS



In colder regions that have modern buildings with flat roofs, we propose to heat the roofs with metallic strips, so when snow falls on it and melts, the water can be recycled.

If a building has a slanted roof, it would be good to have built-in metallic heating strips to melt snow for water recycling and installing solar panels. Slanted roofs will need to use plastic flower pots, as they are lightweight, small, and will be made from waste plastic. Plastic flower pots should be hung from the roof using small metallic pipes, and mirrors should be used to reflect sunlight toward the plants to melt snow.

**Encourage the installation of terrace gardens.** Terrace gardens are so useful, but how can they be installed everywhere? Just as governments have given subsidies to people for installing solar panels, the same can be done for terrace gardens.

There are three ways by which the government can make sure that people install terrace gardens.

- The government can list the names of those people who have installed a terrace garden with solar panels on their roof and give them some tax credit for doing so.
- The government can make it mandatory for all citizens to install terrace gardens with solar panels, and those who do not will pay more taxes as a result.
- The government can provide people who are interested in terrace gardens with flower pots, water pipes, and water for trees, all at low prices.

Buildings that house a lot of people can create and maintain terrace gardens and irrigate them on their own. The same can be done in areas where governments construct buildings.

Advanced countries can also use artificial rain, which is a practice of artificially inducing or increasing precipitation through clouds by adding external agents. The foreign particles which are drenched over these clouds can be dry ice, silver iodide, or salt powder, among others. This process of stimulation is known as cloud seeding, which is done by planes or rockets. In all cases, it is important to maintain these terrace gardens so they can flourish.

### **Terrace gardens can create jobs.**

Let us assume that the government has closed two coal power plants. The skills used by the employees of these plants can be used to work on terrace gardens. For instance, there will be people who mined coal, people who tested the quality of the coal, people who transported it, people who processed it, and a few people who may have burned it to create electricity. Technical experts regulated this electricity by transferring it to power grids in urban areas. These workers can be retained in several ways:

- People who mined the coal can be trained to dig soil for terrace gardens.
- People who tested the quality of the coal may be used for testing the soil quality after they have completed a short training course.
- People who used to process the coal can be trained in organic methods to make the soil more nutritious for the gardens.
- The processed soil can be transported to terrace gardens by those who used to transfer coal to the plant.
- People who used to provide the coal plants with furnace moulds and other equipment to burn coal can manufacture high-quality flower pots along with gardening equipment.
- In regions where terrace gardens are planted, if the government wants to know how these gardens are functioning, they can use drones to monitor them. There should be regulations in place so these drones will not be misused. The technical experts who lost their jobs at the coal power plants may be used to monitor, collect, and organize data about the terrace gardens

# POLICY 2: GREEN TECHNOLOGY AND GREEN STRUCTURAL DESIGNS



I propose to reuse materials from our surroundings to lower air pollution. This includes supporting green structural designs and introducing ships that do not run on fuel. First we begin with power lines. Electricity produced by hydro turbines or power plants is sent to step up transformers, after which it is transported to cities through pylons. The pylons terminate into transmission substations, after which the current is sent to distribution substations. Finally, current is carried to our homes through power lines.

Another way to counter air pollution is to create efficient electric transportation and infrastructure. Cars have always run on gasoline, which is now easily available on any road. This has made travel by vehicle more efficient, but today Earth is being degraded by the use of these fossil fuels, and it has to be stopped.

Electric vehicles do not use fuel at all. Instead, they have a battery which powers them. This battery is charged through an electric charger. In order to ensure the success of electric vehicles, there must be accessible charging stations. This infrastructure can be set up in countries in the following ways:

- Set up charging points as individual stations, similar to petrol stations. This method can be achieved in developed countries.
- Set up charging points in existing petrol stations. This is quite cost-effective as one doesn't need to set up alternative charging points. This is great for developing countries.

Thus, nations can slowly increase the use of electric vehicles by making beneficial schemes for E-car manufacturers, purchasers and dealers and also popularize it by making chargers available in easy and convenient ways.

## **Green structural design benefits everyone.**

What exactly is green structural design? Firstly, the word “green” means something eco-friendly, and “structure” means any kind of building, like a house or a restaurant. The age of spectacular, tower-like buildings is over. It is time to make eco-friendly buildings with green structural designs. It is important to make buildings out of sustainable materials, such as hard waste plastic glass holders. In order to make sure all buildings are eco-friendly, regulations must be put in place that require:

- Green structural designs
- The use of recycled material to make buildings
- The addition of terrace gardens
- The installation of solar panels on every structure
- The installation of equipment to harvest rainwater

## **Creating fuel-free ships will save energy and use less gas.**

I propose to convert ships that burn fossil fuel into ones powered by wind turbines and batteries. An average cruise can have 3,000 to 4,000 guests and require a great deal of power, but it is possible to obtain that from solar and wind energy. If the ship does not find enough wind or sunlight to propel the boat, it can carry a small amount of fuel as a safety precaution.

This will help save a lot of fuel. The solar panels can be placed on the top of the ship’s cabin or on the walls of the ship, and with master engineering, the wind turbines can be placed anywhere by adjusting the weight. Another possibility is to power a ship with two hydro turbines, which can generate enough power to move a cruise ship.



# POLICY 3: MODERN RECHARGERS, GENERATORS, AND PURIFIERS

This policy deals with air pollution, problems related to water shortages, and electricity problems.

Recycling road water is a great way for countries with less rainfall to save water. For this, there can be a separate network of pipes underneath the roads which will collect the water and transport it to a purifying center. Then, when the water is purified, it can be used for irrigation, washing, cooling, and more.

Saving water using this technique will lead to a decrease in consumers who depend on groundwater for irrigation purposes or cooling industrial machines. It will also replenish the water table.

The second aspect of this policy is generating electricity using speed breakers, which are a class of traffic calming devices that use vertical deflection to slow traffic and improve safety conditions.

The speed breaker power generator (SBPG) is a machine that produces electrical power with minimal input. In this system, a rack and pinion mechanism is used to produce electricity. When a car reaches the speed breaker, the rack moves downward to generate linear to rotary motion using pinions. The rotary motion is transferred to the DC generator, which generates DC power and stores it in batteries, similar to what happens with solar technology.

A single SBPG can generate 273.24W from a single push under the application of 400kg. In an hour, a hundred cars of the same weight can generate 54.59 kWh. This mechanism utilizes both the downward and upward motion of the rack.

These generators should be set up in areas with continuous traffic, such as roads to international airports, highways, entrances and exits of malls, offices, hotels, or other busy road junctions.

An air purifier is a device which cleans the air by taking in harmful pollutants from the air and releasing the purified air.

To clean the air:

- The government can install air purifier towers in various polluted regions of a state or a country.
- The government can make laws making it mandatory for medium or large companies to install air purifiers near their industrial operations.
- The government can also give relaxations to those companies which install these air purifiers, in terms of either tax or electricity. The waste may be treated chemically and be used to manufacture ink, cosmetics, or other products. The waste that can not be processed should be disposed of chemically.



When we cut trees, they release a lot of stored carbon. This carbon is not good for the atmosphere. The best option is to transplant trees. To reduce this, we need to consider two situations:

- Development: If the trees are being cut for the sake of development, then there is no need to cut them. Instead, they should be transplanted.
- Furniture: If trees are being cut to make furniture, then this should be done in labs which immediately capture carbon released from trees.

The government can set up a separate body which caters to supervision of tree cutting.

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