

INTRODUCTION TO SMOG FREE TOWER

To Built Pollution Free Environment

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Abstract— Smog free tower project is a series of urban innovations led by Mr. Dann Roosegaarde to reduce pollution and provide an inspirational experience of clean future. Smog free tower provide a local solution of clean air in public places.

Here along with government students and clean tech industry people can work together to make a whole city smog free. Recent smog free projects are launched in China, the Netherlands and Poland.

Keywords- Fog, Smog, Smog Tower, Pollution, Carbon, etc.

I. INTRODUCTION

Smog free tower is 23-feet tall tower that vacuum in the smog particle. It is a modular system, energy friendly and patented ionization technology, light weight construction. The smog free tower captures and collects more than 75% of the PM2.5 and PM10 air bound smog particles and releases clean air around the tower with a 360 degree coverage coating an almost circular zone of clean air in its surrounding. The tower is designed by Dutch designer and architect Dann Roosegaarde who is famous for innovative designs such as smart highway and glowing cycle path.

Smog is a yellowish or blackish fog formed mainly by a mixture of pollutants in the atmosphere, which contains fine particles and ground level ozone. Smog, which occurs mainly because of air pollution, can also be defined as a mixture of various gases with dust and water vapor. Smog also refers to hazy air that makes breathing difficult. The atmospheric pollutants or gases that form smog are released in the air when fuels are burnt. When sunlight and its heat react with these gases and fine particles in the atmosphere, smog is formed. It is purely caused by air pollution. The main sources of these precursors are pollutants released directly into the air by gasoline and diesel-run vehicles, industrial plants and activities, and heating due to human activities. Smog is harmful and it is evident from the components that form it and effects that can happen from it. It is harmful to humans, animals, plants and the nature as a whole. Many people deaths were recorded, notably those relating to bronchial diseases. The tiny toxic particles known as PM 2.5 can be inhaled into the lungs. Research from Berkeley Earth, a non-profit that conducts scientific investigations on climate change, shows that 1.6 million people die each year of air pollution in China a harsh reality of modernization.

II. ELEMENTS OF SMOG FREE TOWER

2.1 THE TOWER

Smog Free Tower is 23-feet tall tower that vacuum in the smog particles. It is a 7.0×3.5 m modular system, energy-friendly and patented ionization technology, lightweight construction with LEDs. The tower sucks in dirty air like a giant vacuum cleaner. Ion technology then filters it, before returning smog-free air through the tower's vents. By creating a field of ions, all the particles on the nano scale gets positively charged, therefore when the ground is negatively charged, you can drag them to the ground, and purify the air – 80 percent more clean. The great thing about the technology is that is safe and to have 30,000 cubic meters of clean air purified, it takes an hour and only uses about 30 Watts, which is like a light bulb, says Daan Roosegaarde.



2.2 THE JWELERY

One of the greatest things about the whole project is that Roosegaarde thinks about the future as a place where we should not have waste. He decided instead of throwing the dust gathered from the tower, to use it as something, which

can give joy to people. Roosegaarde designed Smog Free Rings, Smog Free Cubes, Smog Free Cufflinks, Smoke Free Earrings and Smog Free Awards of compressed smog particles. “We started to look at the smog particles and realized that most of it exists out of carbon. And what happens when you put carbon under a lot of pressure for two or three weeks, you get... diamonds. We are taking a thousand cubic meters of smog air and compressing this in a sort of smog ring, and there will be different versions, so if we compress it really, really a lot, you get like a real Diamond. The largest series will be that we compress it a little bit less so it gets crystallized, so you still see it is smog, but it’s beautiful and by sharing or selling a diamond ring like that, a smog ring, you donate a thousand cubic meters of clean air to the city of Beijing.” – Said Roosegaarde.



III. WORKING OF SMOG FREE TOWER

The tower works in simple way, it sucks in dirty air like a giant vacuum cleaner. Ion technology then filters it, before returning smog free air through the towers vents. By creating a field of ions, all the particles on the nano scale gets positively charged, therefore when the ground is negatively charged, they are dragged to the ground, and 75% more clean air is obtained.

The technology is safe and in one hour it can purify 30,000 cubic meters of air and with consumption of power of 30 watts which is around the light bulb consumption. This technology manages to capture ultra-fine smog particles which regular filter systems fail to do. The tower was first tested at Rotterdam, Netherlands and after that in Beijing, China it was used for 41 days and significant reduction was seen in the smog around the place. The tower is also planned to be placed in Paris, Mexico, Los Angeles, New Zealand and Japan.

ADVANTAGES OF SMOG FREE TOWER

- a) Smog free tower can be very useful in the area where the air pollution is at very high rate
- b) Such towers can be provided in open public places such as gardens and green areas where people gather for getting fresh air.
- c) The carbon which is absorbed by the tower can be used to make the crystals of diamond.
- d) It works on less power consumption so no need for any special arrangements for its power source.

LIMITATIONS OF SMOG FREE TOWER

- a) Its initial cost is high
- b) It would require large funding to make tower in mass production.
- c) The tower can't be a permanent solution as it covers only small area of surrounding or large numbers of such tower are required to carry

IV. CONCLUSION

We humans have created machines to develop ourselves, we invented the wheel and cars to liberate ourselves and travel. But now these machines are striking back. In areas affected by severe air pollution, the smog free tower will harvest enough smog. Each smog free cube literally contains the smog out of 1000 cubic meters of air. It's a beautiful way of carrying the message of this project with you and perceiving the tangible environmental impact you have made by supporting this project.

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