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# PROPOSAL: ARTIFICIAL RAIN INTO DRINKING WATER

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# Proposal

- Rain is vital for creating a thriving environment supporting abundant life. To solve the issue of droughts, many resort to cloud seeding, a method of conjuring artificial rain.
- US scientists at the General Electric Research Laboratory made the first attempts at cloud seeding in the 1940s. Today, the method is used in various states in the US and countries across the world.
- We would like to propose our innovation of a chemical water filtration system to the the US government. The need for this innovation is to combat the copious amounts of silver iodide pollution as well as other chemicals.
- Ultimately, the artificial rain is not suitable for drinking therefore, there is a need to purify the water. The US government should fund our group so that we can further our research and provide the means of creating clean water from artificial rain.

# Background



GOAL: Provide drinkable water to states and countries in need of drinkable water using artificial rain and filtration techniques



NEED: Rain is essential for thriving ecosystems, but there is a lack of expendable water due to droughts and environmental influences.



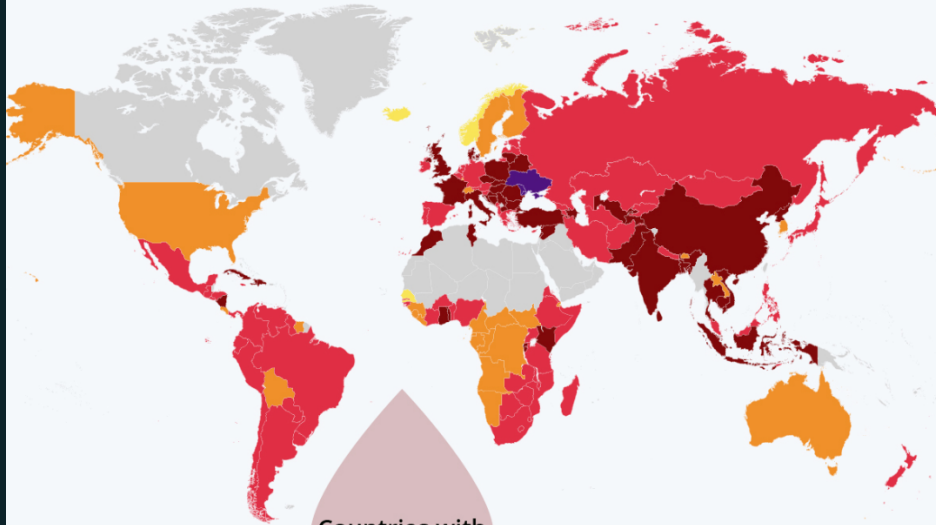
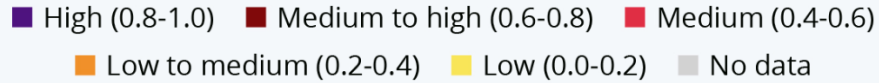
HOW: We will use cloud seeding, a technique used to create artificial rain which was attempted by US Scientists at the General Electric Research Laboratory in the 1940s








HOW: After successful cloud seeding we will develop a filtration system to eliminate any harmful chemicals in the water.

# The World Map of Drought Risk

Countries by their drought risk index score (2019)



Countries with the highest drought risks

1.  Moldova
2.  Ukraine
3.  Bangladesh
4.  India
5.  Serbia

Based on past drought intensity, water stress, drought vulnerability, population, crop and livestock density

Source: Aqueduct by World Resources Institute

# Other Innovations

NYC wastewater management



## The Good:

- filters all kinds of harmful microorganisms and bacteria.

## The Bad:

- unable to filter out harmful chemicals that are added to the water and therefore it is undrinkable
- expensive to be available everywhere.

## The Good:

- well-known and trusted brand
- reduces chlorine, mercury, copper, and other chemicals

## The Bad:

- the filter is not very effective for artificial rain
- Cannot be done on a larger scale.



BJ's wholesale club ad

# How Our Innovation Differs



- Artificial rain is **converted** into clean, drinkable water free of external elements



- Our innovation **filters** out harmful chemical substances like silver iodine that are harmful to the environment and unfit for human consumption



- Our filter does not require heavy duty machines and facilities, it is essentially a DIY project.



- To make it more cost effective and harder to be misplaced and broken, we will implement the filters across **districts, neighborhoods, and communities.**

# TECHNICAL DESCRIPTION



KDF 55 - a filter that reduces the solids and soluble metals.



Activated Carbon - Removes chemicals and organic contaminants



Resin - Removes metals like lead, radium, barium, and copper.



Catalytic carbon - Removes chlorine, sulfide, and other chemicals.



Calcite - Balances the Ph level of water to neutral.



Micro-filter pad - separates the process of the filtration.





# INNOVATION PROCESS

- \$24.83 per kilo of KDF 55
- \$0.45 per kilo of Activated Carbon
- \$5.51 per kilo of Resin
- \$8.60 per kilo of Catalytic Carbon
- \$4.41 per kilo of Calcite
- Micro filter pad



**Materials:** The most commonly used materials in cloud seeding include silver iodide, potassium iodide, and calcium chloride. The cost of – these materials can vary depending on the quality, quantity, and availability of the materials in the local market.



**Labor cost:** The filter can be made by hand so that it is easily accessible and does not require heavy duty tools or machines. Something as simple as a bottle can be used as the body for the filters. Filters that are larger on scale, can require more manpower but can easily be done by a few volunteers. However, the cost of equipment such as planes, helicopters, or other means of transportation used for the seeding materials vary due to the price of fuel, maintenance, repairs, and availability.



**Cost:** In total, it would cost around \$1 – \$1.5 million a year on average to seed clouds for 1,000 hours.



**Why it is worth it:** In times of droughts, clean water will be available for drinking, gardening, washing clothes, cooking, etc.



# CONCLUSION + Q&A



States like California, Utah, and Colorado have faced droughts. With the combination of cloud seeding technology and our advanced filter, we can help prevent such crises. Over 20 countries around the world are at drought risk as well and our technique of filtering after cloud seeding will alleviate that issue.



Filtration of cloud seeding will help Communities and countries with hunger by offering bountiful crops and also help community health because of the water quality.

**Questions, Comments &  
Concerns**

# Referances



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