

# 'After WWII, America thought it could create 'designer weather' — few feared a downside'

**Kristine C. Harper** is professor of history and philosophy of the Earth sciences at the University of Copenhagen. Speaking to Srijana Mitra Das at Times Evoke, Harper discussed attempts to manipulate the climate — which continue today:

**You write of the earth sciences growing particularly important during the Cold War era — why was this so?**

■ There was a huge arms build-up between the former Soviet Union and the United States then — if you are aiming to launch missiles or submarines at people, landing these correctly is central to your plan. That depends on topography, gravitational pull, weather patterns, etc. These weapons' effectiveness thus relied on knowing about the atmosphere, climate and how Earth operates. So, these sciences became very important for military success.



**Did other groups benefit as well?**

■ There were advantages to the civilian population too. With the large funds available, combined with the development of computing power and data gathering abilities happening just then, weather forecasting improved — this was important for everyone,



**I'LL BE WATCHING YOU...** The 1950s onwards, satellite data has boomed

from farmers to fisherfolk, civilian pilots, businesspeople building infrastructure and transporting goods, even parents readying their kids for school. This also helped the US government understand where earthquake, volcanic and landslide-prone zones were and safeguard citizens better.

Until World War I, most money had gone into the development of physics and chemistry by the US military — the earth sciences received significant funding now,



**THE RAIN NEEDN'T STAY MAINLY ON THE PLAIN...** Scientists in post-WWII America devised a strategy to pour rain down on dry zones — it was later wound up over cost and effectiveness concerns but for some years, it created a storm

primarily for military uses, but also for bettering the civilian economy and life.

**Which projects developed then?**

■ Earlier, American meteorologists were trained only through the US Weather Service. During WWII, thousands got thoroughly educated in this science — and a large corps continued scientific research in graduate school afterwards. Digital computers also developed then — this allowed weather models to emerge. A push began towards numerically forecasting weather, with better predictions over a longer number of days.

In the 1960s, a second push started towards climate modelling. Then, an interest grew in weather modification — some of that extended from the International Geophysical Year held in 1957-58. This was all boosted by a growing number of satellites — and their ability to track what was happening across Earth.

**What are your findings on weather in 'Make It Rain'?**

■ Before the 1950s, meteorologists didn't know why some clouds precipitated while others didn't. People began studying

cloud physics then — meanwhile, researchers were also trying to figure out how to protect crops from frost or dry conditions. Parts of the US are warm and grow citrus fruit like oranges and grapefruit — often, those areas suffer a hard freeze which ruins the fruit. Farmers kept their orchards in tubs, micro-influencing the climate.

After the war, Irving Langmuir, a renowned chemist who'd worked in WWII on aircraft icing and 'cloaking smoke', or clouds of smoke made to hide human activity, grew interested in why some clouds rain and others don't — his lab began research on making clouds rain artificially. They tested multiple chemicals in a freezer — one day, someone put dry ice in and caused a snowstorm. So, they decided to take crunched-up dry ice and throw this into a cloud from an airplane — the cloud bubbled up and rained. A quick call to the Department of Defense followed, they got grant money and started testing this.

The original plan

**IN YOUR HAND:** Weather data is easily available



was for military use — to make it rain or snow on an enemy's battlefield or even dry up clouds, so your opponent wouldn't have water. But a few entrepreneurial meteorologists began selling this to civilian communities needing water — by



**RAIN REIGN:** Lyndon Johnson (R), first John F. Kennedy's VP, oversaw this

now, they were using silver iodide, dissolved in acetone, soaking charcoal and setting this on fire. The smoke carried silver iodide seeds aloft into clouds, gathering water vapour there and making drops large enough to fall. They sold this to farmers across the western US, making considerable amounts.

Importantly, there wasn't much proof this strategy always worked. Many scientists expressed their doubts — but several Congressmen wanted to give this technique to

their constituents and so, huge funds were poured into it.

**You write of this project as creating 'designer weather' — had human fear of nature's elements vanished?**

■ After WWII, America had an overall feeling there wasn't anything science and technology couldn't solve. We had satellites, radar, nuclear power, penicillin, advanced jet planes and other breakthroughs — so, if someone said, 'We can have the weather we want at the push of a button', not many thought that was a bit strange. Some raised concerns about chemicals raining down but it was established that silver iodide wasn't harmful. Some wrote to President Lyndon Johnson in the 1960s, accusing him of trying to play God and not knowing his place in the universe — but that was not the prevailing view. People felt there was no such thing as 'bad technology' and we should create the environment we want — with little thought about a downside.

**Do you see an evolution in such approaches today?**

■ Many such ideas are still out there. Easy-to-do weather control is still done to prevent hail in wheat and grape-growing areas, enhance snow in the mountains for run-off water, etc. However, some emerging ideas — like putting sulphurous mixes into the atmosphere, aimed at reflecting sun rays back to lower global warming, or putting iron shavings into the sea to attract carbon — are causing worry now.

These echo the same arguments of the 1950s-60s, saying we must do something and any problems can be fixed with more tech — yet, technology often comes back to bite us. Global warming exists today because fossil fuels seemed like a great idea — but nobody thought of their pollutants. Today, climate change is extremely serious but thinking there's a quick fix could worsen the situation — it's better to meaningfully modify our own lives.

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