

Climate Change Policy Initiatives Gone Wrong: The Cobra Effect

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Sometimes attempted solutions to a problem makes the problem worse via unintended consequences. In public policy, we label such faux pas as the "[Cobra effect](#)". More commonly, this is just another version of the old joke that goes: the operation was a success, but the patient died. It is well documented that several policy mistakes have occurred in the context of climate change-related initiatives. It is essential, therefore, that when we design, debate, and implement climate change policy initiatives, we carefully consider any unintended consequences that may exacerbate the problem rather than resolve it.

So, what is the back story to the "Cobra effect"? Once under British colonial rule in the 19th century, Delhi was besieged by venomous cobras. As a policy response, the British government offered a bounty for every dead cobra. Initially, this was a successful policy prescription as large numbers of snakes were killed and handed over for the bounty. Eventually, however, some enterprising people of Delhi and nearby lands began to breed cobras to pocket the rewards. When the British government became aware of this, they scrapped the reward program making the reared cobras worthless. It is easy to guess that no one wants cobras in their houses. So, the cobras found themselves let off in the wild, and the cobra population further increased.

I discuss three anecdotal examples where climate change initiatives have misfired owing to the policy practitioners not picking up on the possible cobra effect inherent in the initiatives.

- 1. Carbon credits for Trifluoromethane (HFC-23):** It is known that the UN Intergovernmental Panel on Climate Change (IPCC) has raised the issue of greenhouse gas emissions repeatedly. [Half of all the humans' caused greenhouse gas emissions were emitted within the past 40 years, growing 2.2 per cent per year over the past decade, compared to 0.4 per cent per year over the previous three decades.](#) In 2005, IPCC put in place an incentive scheme to cut down on greenhouse gases. The basic purpose of the policy was that businesses disposing of greenhouse gases would receive carbon credits, and these credits were saleable. The gases were priced based on the damage it caused to the environment. [HFC-23, a by-product of a common coolant, was allocated among the highest prices.](#) Businesses seeking to exploit the gaping design issue in this policy started producing more of this coolant to destroy more of HFC-23 and collected millions of

dollars of carbon credits. [Eventually, after losing much money and depleting the ozone layer even further, this policy was scrapped, and carbon credits from HFC-23 were banned.](#)

- 2. The odd-even scheme in New Delhi:** The Delhi government first introduced the [odd-even scheme](#) in January 2016 for a fortnight and then reintroduced it in April 2016. This scheme laid out that cars with odd numbers and even numbers would drive on the roads on alternate days. The aim of the scheme was laudable, to control air pollution and de-clog the roads. However, the scheme was faulty on many counts. First, the scheme applied only to non-transport four-wheeled vehicles, so there was a surge in ride-carry and native auto-rickshaw operations, auto-rickshaws notably being a significant pollution source. [Second, women driving alone, cars having all women as occupants and women accompanied by children aged less than 12 years were exempted from the scheme, giving rise to behavioural changes among residents to circumvent the scheme.](#) Despite the Central Pollution Control Board of the city reporting that it [did not find any data to suggest that the odd-even scheme had led to any decrease in air pollution levels, the Delhi government reintroduced the scheme in November 2019.](#)
- 3. California offsets program:** Coal mine operators in California have four choices for dealing with methane, a greenhouse gas with more than 80 times the warming effect of carbon dioxide. First, releasing it straight into the atmosphere; Second, capturing and injecting the gas into a pipeline so that it can be used to produce energy; Third, oxidizing it in ventilation systems; Fourth flaring it, that is, setting it on fire on site. The [California offsets program allows polluters to buy credits from coal companies for taking any of the latter three choices, as each is more environment friendly than the first choice of releasing the methane into the atmosphere.](#) But the program perversely incentivises mines to stay open longer or even expand, by boosting profits. [The program has, in fact, extended a lease of life to the industry by increasing the profits by as much as 17 per cent](#)

While these are just three examples of faulty incentive design in the context of climate change policy initiatives, the literature documents other cases as well. The take-home for policymakers from this brief is that policies need to be thoroughly dissected to detect perverse incentives. And, where a potential cobra effect is detected, the design of the policy needs to be reviewed as a matter of urgency.



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