

# Greenhouse gases from rice fields on the rise

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The way some irrigated rice paddies are managed worldwide, with cycles of flooding followed by dry periods, may lead to twice the planet-warming greenhouse gas pollution as previously thought, researchers said.

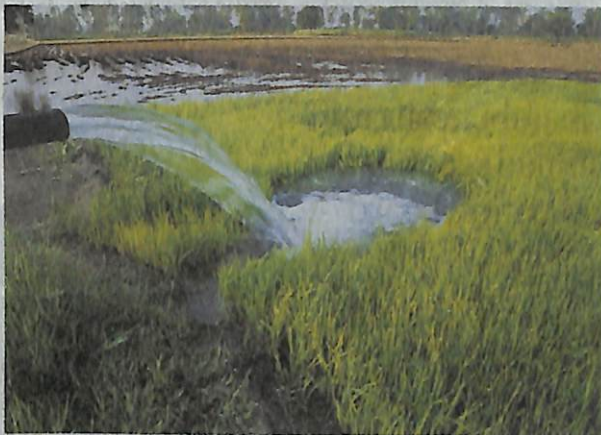
Since rice is a major staple for at least half the world's seven billion people, the way it is managed has significant effects on the Earth's warming climate, said the report in the *Proceedings of the National Academy of Sciences*, a peer-reviewed US journal.

## Rise of N<sub>2</sub>O

For the study, researchers at the non-profit Environmental Defense Fund took a closer look at emissions of nitrous oxide, a long-lasting atmospheric pollutant that is more potent than methane or carbon dioxide.

N<sub>2</sub>O rises when rice fields are allowed to dry before being wetted again. This process, called intermittent flooding, happens when water falls below the soil level several times per year.

It is encouraged by some agricultural organisations affiliated with the United Nations Food and Agriculture



When soil is frequently soaked and dried, it becomes an ideal environment for microbes that produce N<sub>2</sub>O

Organisation as a way of saving water and reducing methane, another major greenhouse gas emitted by rice paddies.

"When the soils are frequently wetted and dried, they repeatedly become ideal environments for microbes that produce nitrous oxide," said lead author Kritee Kritee, senior scientist at the EDF.

## 200 coal plants

Currently, the amount of unaccounted-for N<sub>2</sub>O global emissions from rice may be as high as the annual climate pollution from about 200

coal power plants, according to the authors. In India alone, where the study took place across five intermittently flooded rice fields, nitrous oxide emissions "could be 30-45 times higher than reported under continuous flooding," researchers estimated.

But as water becomes scarcer around the globe, many rice farmers may look to wet and dry cycles as a solution, not knowing the danger they are posing to the planet. To avoid that, scientists need better tracking and reporting of N<sub>2</sub>O worldwide, the EDF said.