

Carbon footprint of marine fisheries lower than global average. Efforts on to green sector: CMFRI

Active fishing consumes more than 90% of the fuel used in the sector



India's marine fisheries produced 1.32 tonnes of carbon dioxide (CO₂) to produce one kilogram of fish in 2016, lower than the global average of 2 tonnes, according to the Central Marine Fisheries Research Institute (CMFRI). This estimate covers emissions during the entire chain of operations of marine fisheries — from the construction of boats to retail. The findings were discussed at a review meeting of the fisheries component of the National Innovations in Climate Resilient Agriculture (NICRA), a research project launched in 2011. "We used our 2016 census data to make the assessment. Within one or two months, we'll have estimates for up to 2022," AP Dineshbabu, principal scientist at CMFRI, told *Down To Earth (DTE)*.

Active fishing consumes more than 90 per cent of the fuel used in the sector, contributing 4,934 million kilograms of CO₂ emissions annually, the expert noted. "The country's carbon emissions from the marine mechanised fisheries sector is 16.3 per cent, lower than the global level," A Gopalakrishnan, director of CMFRI, said in a statement. The carbon footprint from Indian marine fisheries is smaller because they depend largely on human force. "Our usage of fuel in the seas is smaller compared to other countries," Dineshbabu noted.

Large mechanised fishing boats were introduced in India in the late 1950s, but the fleet size is growing. Their number increased to 72,559 in 2010 from 6,708 in 1961. In 2010, these boats with inboard engines released 1.18 tonnes CO₂ per kilogram of fish caught, according to a 2013 study. "While the use of fossil fuels has increased the availability of fish to fisheries, the dependence of the fishing sector on fossil fuels raises concerns related to climate change," the 2013 study read.

Though India's emissions from marine fisheries are smaller than global emissions, CMFRI is looking at how fishing contributes to climate change and how India can reduce carbon emissions from the fishing sector. "We are all looking at greener fishing methods to reduce carbon emissions. This includes optimising fuel usage and reducing fuel wastage," Dineshbabu said.

Impacts on marine ecosystems

Marine ecosystems are changing due to an increase in the intensity of cyclones, sea-level rise and the warming of the Indian Ocean, according to CMFRI. The diversity of species is changing. During coral bleaching, for example, reef-associated fish deplete, Grinson George, principal scientist at CMFRI, told *DTE*. Researchers are trying to identify critical climate change control points in the value chain system. Based on this, they will make relevant interventions. "We initially considered jellyfish as a menace due to their increasing abundance. Some took it as an opportunity and developed it as an export item," George said. During transportation of fish from production to wholesalers or retailers, the quality of fish deteriorates before it reaches the consumer due to an increased temperature, the expert highlighted. This may require an expansion of the cold chain, he added. CMFRI is developing a climate-smart value chain, which will use science to decide where interventions are needed. Further, the institute is also developing a Coastal Climate Risk Atlas to identify vulnerable areas in the coastal districts of India.