

# Study: Shrinking glaciers to spark food shortages

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(AP) -- Nearly 60 million people living around the Himalayas will suffer food shortages in the coming decades as glaciers shrink and the water sources for crops dry up, a study said Thursday.

But Dutch scientists writing in the journal *Science* concluded the impact would be much less than previously estimated a few years ago by the U.N. Intergovernmental Panel on [Climate Change](#). The U.N. report in 2007 warned that hundred of millions of people were at risk from disappearing glaciers.

The reason for the discrepancy, scientists said, is that some basins surrounding the [Himalayas](#) depend more on rainfall than melting glaciers for their [water](#) sources.

Those that do count heavily on glaciers like the Indus, Ganges and Brahmaputra basins in South Asia could see their [water supplies](#) decline by as much as 19.6 percent by 2050. China's Yellow River basin , in contrast, would see a 9.5 percent increase precipitation as monsoon patterns change due to the [changing climate](#).

"We show that it's only a certain areas that will be effected," said Utrecht University Hydrology Prof. Marc Bierkens, who along with Walter Immerzee and Ludovicus van Beek conducted the study. "The amount of people effected is still large. Every person is one too many but its much less than was first anticipated."

The study is one of the first to examine the impact of shrinking glaciers on the Himalayan river basins. It will likely further fuel the debate on the degree that climate change will devastate the river basins that are mostly located in India, Pakistan, Nepal, Bangladesh, Bhutan and China.

Scientists for the most part agree glaciers are melting at an accelerated rate as temperatures increase. Most scientists tie that warming directly to higher atmospheric concentrations of greenhouse gases such as carbon dioxide.

Some glaciers, such as in the Himalayas, could hold out for centuries in a warmer world. But more than 90 percent of [glaciers](#) worldwide are in retreat, with major losses already seen across much of Alaska, the Alps, the Andes and numerous other ranges, according to researchers in the United States and Europe.

Some scientists have come under fire for the 2007 U.N. report, which includes several errors that suggested the Himalayas could disappear by 2035, hundreds of years earlier than data actual indicates. The mistake - the 2350 apparently was transposed as 2035 - opened the door for attacks by climate change skeptics.

The findings by the Dutch team in Science were greeted with caution with glacial experts who did not take part in the research. They said the uncertainties and lack of data for the region makes it difficult to say what will happen in the next few decades to the water supply.

Others like Zhongqin Li, director of the Tianshan Glaciological Station in China, said the study omitted several other key basins in central Asia and northwest China which will be hit hard by the loss of water from [melting glaciers](#).

Still, several of these outside researchers said the findings should

reaffirm concerns that the region will suffer [food shortages](#) due to climate change, exasperating already existing concerns such as overpopulation, poverty, pollution and weakening monsoon rains in parts of South Asia.

"The paper teaches us there's a lot of uncertainty in the future water supply of Asia and within the realm of plausibility are scenarios that may give us concern," said Casey Brown, an assistant professor of civil and environmental engineering at the University of Massachusetts.

"At present, we know that water concerns are already a certainty - the large and growing populations and high dependence on irrigated agriculture which makes the region vulnerable to present climate variability," he said.

"This paper is additional motivation to address these present concerns through wise investments in better management of water resources in the region, which for me means forecasts, incentives, efficiency."

Birkens and his fellow researchers said governments in the region should adapt to the projected water shortages by shifting to crops that use less water, engaging in better irrigation practices and building more and larger facilities to store water for extended periods of time.

"We estimate that the food security of 4.5 percent of the total population will be threatened as a result of reduced water availability," the researchers wrote. "The strong need for prioritizing adaptation options and further increasing water productivity is therefore eminent."

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