

## Climate change, human failing behind Pakistan floods

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- \* Combined environmental factors creating risk
- \* Analysts says global weather patterns a catalyst
- \* Calls for tighter river management

By Rebecca Conway

ISLAMABAD, Aug 31 (Reuters) - Global warming might be one explanation for Pakistan's devastating floods, but scientists believe poor land management, outdated irrigation systems and logging are at least as much to blame. Flooding has battered Pakistan since the onset of heavy monsoon rains a month ago, affecting a wide central belt. More than 1,600 people have died and more than 6 million are homeless, according to the U.N. The total population affected is at least 17 million.

Water covers a fifth of the country -- an area the size of Italy -- much of which is agricultural. At least 3.2 million hectares (7.9 million acres) -- about 14 percent of Pakistan's entire cultivated land, have been damaged.

A major factor that led to the massive flooding is illegal logging in the northwest province of Khyber-Pakhtunkhwa, experts said.

Jamshed Ali, Secretary-General of Sarhad Awami Forestry Ittehad (SAFI), an organisation meant to protect forests in the province, said in parts of Malakand district more than 70 per cent of forests had been felled by a well-connected "timber mafia" that was difficult to stop.

In the militant-infested Swat region, the Taliban were behind much of the illegal logging, he said.

The lack of trees leads to soil erosion and exhaustion because tree roots help bind soil, naturally retaining water.

Over-grazing by livestock -- common in rural Pakistan -- can also remove layers of topsoil and stunt plant growth, reducing the soil's ability to hold water, said Asad Jarwar Qureshi of the [International Water Management Institute](#). Abdul Qadir Rafiq of the United Nations Development Programme says without vital topsoil, flash-flooding in northern, mountainous areas can result, sending silt downstream which then reduces the amount of water the river channel can hold.

Diverting the Indus through irrigation channels to increase land for agriculture, may have further contributed to the human toll because it encouraged people to build closer to or even in the river channel.

"We need to clear the river channels of silt every four to five years and stop people living within a kilometre of the river channel. There are irrigation channels built using techniques from the 18th century. We need to react to the present-day," Qureshi said.

### UNUSUAL WEATHER PATTERNS

Extreme weather patterns may also have played a part, another expert said.

Just ahead of the floods, warm temperatures normally experienced across the Middle East were felt over Russia, Ghassem Asra, director of the World Climate Research Programm, said. To the east, heavy monsoon rains overwhelmed the ground's ability to absorb them.

Asrar said warming over the Indian Ocean may have increased evaporation rates and water in the air, encouraging a period of more intense rainfall.

"Climate change is almost always a factor - but one in a number", said journalist Stephan Faris, author of "Forecast: The Surprising - and Immediate Consequences - of Climate Change."

"The United Kingdom, which saw heavy flooding last year, has the reserves to react - a country like Pakistan does not. The areas flooded have factors that make it more difficult to deal with something like this."

(Additional reporting by Zeeshan Haider; Editing by Chris Allbritton and Sanjeev Miglani)

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