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Flooding could worsen Pakistan's water shortage, experts warn

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Author: Saleem Shaikh and Sughra Tunio
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A man looks at the Ghizer river, a tributary of the Indus river, east of the mountain town of Gupis, some 620 kms from Islamabad, Pakistan's capital. THOMSON REUTERS FOUNDATION/Saleem Shaikh

By Saleem Shaikh and Sughra Tunio

ISLAMABAD, Pakistan, Nov 3 (Thomson Reuters Foundation) - In an ironic twist to Pakistan's struggles with extreme weather, experts warn that the increasingly frequent and intense flooding in the country could lead to catastrophic water shortages.

The problem, climate and water experts say, is a worsening lack of groundwater.

Groundwater resources, used to supply Pakistan's growing population with water for agriculture, drinking and sanitation, are depleting rapidly. Such underground reserves usually are replenished naturally by rain and melting snow.

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But **LATEST** warn that the short, intense rainfall that is becoming common during Pakistan's monsoon season between June and

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September results in more runoff, giving the water less time to percolate into the ground.

Scientists at the Pakistan Meteorological Department say weak and moderate rainfall provides the most groundwater recharge - but unfortunately that type of weather is becoming a rarity, they say.

"The frequency and intensity of extreme rainfall events are very likely to escalate and their increasing trend is already quite visible in different parts of Pakistan," said Ghulam Rasul, a senior weather scientist and climatologist at the meteorological department.

"Because of the high intensity rainfall on steep, sloped land areas in the country's northwestern and northeastern parts, groundwater recharge is minimal," he said.

HIGH ON WATER STRESS RANKINGS

Pakistan already suffers from worsening water shortages. In December 2013, the World Resources Institute ranked Pakistan among the 36 **most water-stressed countries** in the world.

A recent report by the Planning Commission of Pakistan, based on data from the Water and Power Development Authority of Pakistan, shows that in 1951 per capita water availability in Pakistan was 5,650 cubic meters.

By 2010, that figure had plunged to 1,000 cubic meters and is expected to further fall to 800 cubic meters by 2025, when Pakistan's population is expected to hit 221 million, the report said.

If groundwater depletion continues at its current rate, experts say, the country could be headed for widespread water poverty.

According to Siddiq Ahmed Khan, country head of Water-Aid UK's Pakistan chapter, any decline in the groundwater recharge could have a severe impact on water available for drinking, sanitation and hygiene in a country where over 1.2 million people die every year from water-borne diseases such as diarrhea, malaria, and typhoid.

"The persistent deterioration of surface and groundwater sources, on which people rely for their livelihoods, drinking, sanitation and daily domestic needs, means that water and sanitation pressures will simply grow from bad to worse," he said.

AGRICULTURE, URBANISATION PRESSURES

While erratic rainfall patterns are exacerbating Pakistan's groundwater shortage, extreme weather is not solely to blame.

Nearly 1.1 million agricultural wells in the country are "among the major causes of the rapidly depleting groundwater levels," said Muhammad Javed, deputy director of Pakistan's Irrigation Research Institute.

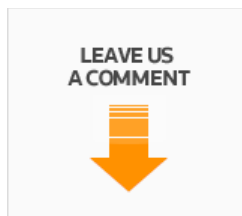
Spreading urbanisation also means more pavement and less chance for water to percolate into the ground, said Daanish Mustafa, professor of water-resources geography and environmental management at King's College London who co-authored the 2013 report "**Understanding Pakistan's water-security nexus**".

According to Pakistan Water Gateway, a non-governmental water-research portal, groundwater levels in the country are dropping by three feet annually.

Using the sprawling city of Lahore in northeastern Pakistan as an example, the Gateway notes that 20 years ago water used to be extracted from a depth of between 20 and 40 feet. Today, wells must reach 800 feet to get sufficient amounts of useable water.

Since the cost of pumping groundwater increases as the water table goes down, Pakistanis are being forced to use more expensive and poorer quality groundwater, the experts say.

"This scenario calls for efforts to check groundwater depletion," said Pervaiz Amir, water-policy expert and country director of the **Pakistan Water Partnership**, a chapter of the Geneva-based Global Water Partnership.



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But the flooding that is exacerbating the problem could become part of the solution, Amir said, if floodwaters are captured in "new small- and medium-sized water storage reservoirs in villages, towns and around urban centers."

Such reservoirs could make up for lost groundwater, with captured rainwater used to supplement underground aquifers and irrigate farms, water-management experts say.

Measures including slowing urbanisation, improving water governance, promoting water-saving technology to farmers and industry, and rainwater harvesting could also help, Amir said.

(Reporting By Saleem Shaikh and Sughra Tunio; editing by Laurie Goering)

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