NUS National University of Singapore | ISAS Institute of South Asian Studies

ISAS Brief
No. 1266 – 4 August 2025

# Prolonged Drought in Nepal's Plains: Causes, Effects and Remedies

Puspa Sharma

**Summary**

*The current prolonged drought in Nepal's Madhesh Province is a result of both local environmental destruction and climate change. Nepal needs to initiate serious reforms to undo the local environmental damages and make its case for global climate justice.*

Nepal's Madhesh Province has been experiencing prolonged drought this monsoon season. There is a severe lack of drinking water. Water unavailability for even basic household needs indicates that the plantation of rice – the staple of most Nepalis – has been disrupted. Rice has been planted in only about 50 per cent of the rice planting area in the province. In areas where plantations have been made, the fields have gone dry.

Due to its significant contribution to national rice production, the Tarai/Madhesh region is commonly referred to as the granary of Nepal. There could be a significant reduction in Nepal's rice production this year. This does not bode well for the country's food security and farmers' livelihoods.

The provincial government of Madhesh Province has declared the province as drought-affected. It distributed drinking water through tankers and fire trucks. Given the precarious situation, the federal government has declared Madhesh Province a disaster-hit zone. Nepal's Prime Minister K P Sharma Oli took an aerial survey of the drought-affected districts. He announced immediate installations of 500 deep-bore wells in several places of the affected region.

Why is Nepal's Madhesh Province facing such an unprecedented crisis? There are two key reasons.

The first is the lack of adequate rainfall in the region this monsoon. Contrary to forecasts that Nepal would experience unusually high rainfall this season, there has been extremely little rainfall, notably in the Tarai/Madhesh region. The prime factor for this is probably climate change. Even weather forecasts have become more erratic.

The second is the depletion of underground water, which is a prime source for both household use and irrigation. The Tarai/Madhesh region has experienced a gradual depletion of groundwater levels over the past decades for several reasons. The most important of them is the destruction of the Chure region.

The Chure hills, also called the Siwaliks, lie immediately north of the Tarai/Madhesh plains. The average elevation of these hills is about 1,000 metres. The Chure region mostly consists of forests and plays a most significant role in maintaining the Tarai/Madhesh's ecological

and environmental balance. It gets more rainfall compared to the Tarai/Madhesh region. Moreover, the soft rocks and soil of the Chure region enable good rainwater absorption and groundwater recharge. Thus, the region is the main source of surface and groundwater for downstream areas in Tarai/Madhesh.

Over the past few decades, activities such as deforestation for infrastructure development (mainly road constructions) and human settlements in and around the Chure region have resulted in massive destruction of Chure's ecology. The most destructive of all the activities has been the uncontrolled and haphazard extraction of sand, gravel and boulders from and around the Chure region, whether legally or illegally. Such extractions have disturbed the natural water absorption and recharging process over many years, which has caused the current dry conditions in Madhesh Province.

Environmental impacts of uncontrolled mining of sand, gravel and boulders from the Chure region have long been identified in Nepal. This had invited enormous debates in the past, particularly when the government announced the extraction and export of these materials to generate revenue. Several local governments have also encouraged these activities for revenue generation purposes.

In 2009, under the initiation of the then President Ram Baran Yadav – the first President of the Republic of Nepal and who hails from Madhesh Province – the government initiated the President Chure-Conservation Programme. This was followed by the setting up of the President Chure-Terai Madhesh Conservation Development Committee in 2014. The Committee prepared the Chure Conservation Masterplan. In the initial years after the formation of the Committee and the release of the Masterplan, there were high hopes that this initiative would halt Chure's destruction. However, after a few years, the initial momentum lost pace. The destructive activities continued unabated. A strong nexus between contractors and politicians with corrupt intentions are said to be among the major reasons for the continued destruction of the Chure region.

To address Madhesh Province's drought crisis, the major, long-term solution is to complete halt Chure's destruction. It is also essential to restore Chure's ecology. If the government is fully committed, it can bring an end to the extraction activities immediately. Restoring Chure's ecology might take some time.

To respond to the current crisis, the government might have found the installation of deep bore wells as the most effective means to provide immediate relief to the affected people in Madhesh Province and, hence, decided accordingly. However, several experts and environmentalists have rightly been sceptical about this measure and warned the government that this could be counterproductive. Due to the massively receded aquifers, it is uncertain whether and how many deep bore wells would be able to function successfully. Even if some of them will be able to reach the aquifers and pump out water, they will further deplete the already receded water table underground. This could further jeopardise the drought conditions in the region in the years to come. Perhaps it is high time to rethink the agricultural development model.

Climate change is certainly an important factor in the current crisis. This is set to worsen in the years ahead. The major climate change contributors should also bear their share of responsibility in addressing the current crisis. When Nepal initiates reforms to address the local conditions that have caused the crisis, it will have a stronger moral standing in making its case for climate justice globally.

. . . . . .

Dr Puspa Sharma is a Visiting Senior Research Fellow at the Institute of South Asian Studies (ISAS), an autonomous research institute in the National University of Singapore (NUS). He can be contacted at puspa.sh@nus.edu.sg. The author bears full responsibility for the facts cited and opinions expressed in this paper.