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KIRAN SHARMA and ROSEMARY MARANDI *Nikkei* staff writers

# DRY AND DESP

*India's farmers struggle under crushing debt as drought conditions drag on*

**NEW DELHI/MUMBAI** For two years now, Rathore Nagnath Ambadas, a young wheelchair-bound farmer in India's Latur district, has been waiting for rain.

"If this year it doesn't rain, I wouldn't know what to do," the 22-year-old said with tears in his eyes. "We have loans on us, we live on farming, I cannot migrate to other states to work, nor am I able to get a job."

Farming -- the principal source of liveli-

hood for about 60% of the country's population of 1.3 billion -- is not the kind of work Ambadas, a college graduate, would have chosen for himself. But several years of failed job hunting in the government sector left him with no option but to till the land with a cattle-drawn plow and travel miles to get water for his family.

Two straight years of drought have been particularly tough on Latur, located in western Maharashtra State, some 500km



# ERATE

east of its capital, Mumbai.

Ambadas says suicide -- which many debt-laden farmers in the state have resorted to -- is not a solution, but added that enduring his current hardships is the toughest thing he has ever done.

**CRISIS SITUATION** His plight is similar to that of the 330 million others affected by the ongoing drought in one of the world's fastest-growing economies. A to-

tal of 255,000 villages in 254 of India's 678 districts are struggling with shortages of drinking water.

In the whole of Maharashtra, as many as 3,228 farmers committed suicide last year. The state government has announced it will spend 100 billion rupees (\$1.50 billion) on water conservation measures in drought-hit areas.

The situation in the neighboring state of Andhra Pradesh, where many people

from Latur have sought work on sugar plantations, is similarly grim.

Rythu Swarajya Vedika, a nongovernment organization advocating for agricultural communities in Andhra Pradesh and Telangana states, says farmers have

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PHOTO: Two years of drought have left a dried-up pond in Talagoan, 145km northeast of Mumbai.



Rosemary Marandi

faced heavy losses not only due to the drought, but also because of the failure of the government to provide effective crop insurance and disaster compensation.

According to Kiran Kumar Vissa, an RSV official, at least 341 farmers committed suicide in Andhra Pradesh from August 2015 to February 2016. "Most of them were in their 30s or early 40s," he said.

Authorities, he added, are not taking timely action to mitigate people's suffering. "Instead of looking at drought as a routine matter, the government needs to view it as a huge calamity," he said.

Vissa's organization visited the families of 40 farmers who had committed suicide. It found that these farmers had been heavily dependent on private moneylenders who charged exorbitant interest rates ranging from 24% to 60%.

"The total debt per farmer on average

was 446,500 rupees," the group said, adding that in 27 cases, the family members explicitly stated the farmers had faced pressure from the private lenders. "The average bank loans constituted only 13% of their total outstanding loans, while 87% was private loans," RSV said.

Most of the farmers in India cultivate rain-fed fields. Many have little or no education and are unaware of the government loans available to them.

"We want radical change in the government's approach toward the rural and agriculture sector," Vissa said. "What the government is doing right now is highly inadequate, and that's why the crisis is there in the first place."

**RURAL PUSH** Agriculture in India, which accounts for around 15% of gross domestic product, is heavily dependent on monsoon rains. Those rains have been

well below normal during the last two financial years -- 12% below average in the year through March 2015 and 14% below in the subsequent year.

Ten of the country's 29 states have been declared "drought-hit." In a radio address on April 24, Prime Minister Narendra Modi expressed concern over the situation and stressed the need for widespread water conservation efforts.

Recognizing the importance of the sector, the Modi government presented an agriculture-friendly budget for the current fiscal year, which began on April 1. The new budget allocates 877.65 billion rupees for rural development, up from 795.26 billion rupees a year ago.

The government has set aside 359.84 billion rupees for the agriculture sector and farmers' welfare, and 385 billion rupees for a rural employment guarantee scheme that provides 100 days of manual



AP

are currently being hosted across the country, but the Bombay High Court ordered the relocation of games scheduled to be held in Maharashtra in May because of the acute water shortage in the state. And in Rajasthan, the state High Court has sought a response from authorities on how IPL matches are being hosted in the middle of a water crisis.

Millions of liters of water is needed to prepare cricket pitches for the matches. If drought conditions continue, organizers may be forced to look outside of India for venues capable of hosting the next edition of the hugely popular IPL.

**GOOD NEWS** As farmers kept their fingers crossed, weather officials in April predicted “above-normal” monsoon rainfall, at 106% of the long-period average, with a fair distribution across the country during the June-September growing season. In India, monsoon rains within 96% to 104% of average are considered “normal.”

The long-period average is the average monsoon rainfall across the country over 50 years, starting from 1951. This year, 94cm of rainfall is expected, compared to the average of 89cm. Above-normal rains could support food grain output and lift agricultural incomes, acting as a tailwind for GDP growth.

The Confederation of Indian Industry said the rain forecast will be a great mood changer for industry, as a revival of rural demand tends to spur broader economic activity.

“This would take the economy to a higher trajectory of around 8% growth,” CII Director General Chandrajit Banerjee said, adding that above-normal monsoon rains would help raise farm productivity, alleviate rural distress, boost rural incomes and spur consumption. Higher rainfall would also augment food supplies and help keep inflation in check, he said.

India’s economic growth in the current fiscal year, which ends in March 2017, is officially pegged at 7% to 7.75%. Estimates put growth for the just-concluded fiscal year at 7.6%.

The rainfall predictions, however, did not move Mohanrao Abbasahab, a villager from Shivni, in Maharashtra. “Let’s see if things turn any better this year,” he said. “If not, I would probably have to migrate elsewhere. At 65, I don’t have much choice.”

Abbasahab said he has not seen a drought like this since 1972, describing how the ponds in his village have dried up and people must travel nearly 2km to receive government-supplied water.

On a hot afternoon in Bhuja, a village in the western state of Rajasthan, 18-year-old Ajaypratap Singh Gurjar, glanced toward the dried bed of the Bhanda River. A decade ago, it was full of water. Gurjar, a college student, said the river disappeared a long time ago, giving way to a small pond a meter or two deep.

“The pond had been providing water to the neighboring 700 farmer households till recently,” Gurjar said, adding they were also able to cultivate some crops on the river bed in the past. “The drought has snatched that opportunity, with most of the region’s farming families moving to construction sites more than a kilometer away to find work as laborers.”

For drinking water, villagers from Bhuja, which is 120km north of the state capital Jaipur, rely on government tankers or lorries. They trudge 10km in the blazing sun to fetch water from these tankers, which arrive with a fresh supply every five days.

Their only hope, as for the hundreds of millions affected nationwide, is the coming monsoon rains, rightly dubbed “the farmers’ lifeline.” **N**

*Nikkei staff writer Yuji Kuronuma in New Delhi contributed to this story.*

work each year for every rural household in the country.

On April 9, the central government announced it had released 122.3 billion rupees to the states under the employment scheme. For regions in the 10 drought-affected states, the entitlement was extended from 100 to 150 days of work.

“We are grateful to our farmers for being the backbone of the country’s food security,” Finance Minister Arun Jaitley said when announcing the budget on Feb. 29. “We need to think beyond food security and give back to our farmers a sense of income security,” he added, pledging to double the income of farmers by 2022.

**NO TIME FOR GAMES** The impact of the drought is spreading beyond agriculture and into the world of sports.

Indian Premier League cricket matches

**LEFT:** Rathore Nagnath Ambadas, a 22-year-old physically disabled farmer, tills land in the drought-hit Latur district of Maharashtra, India. **RIGHT:** A woman walks with her son to get water from a communal well in Raichi Wadi village, 120km northeast of Mumbai.

MARWAAN MACAN-MARKAR Contributing writer

# MISERY ALONG THE MEKONG 2

*A severe Southeast Asian drought is choking farmers and increasing water's political value*

**KHON KAEN, Thailand** Trucks packed with sugar cane raise clouds of dust as they cross a flat, parched field in northeast Thailand. The stout brown stalks they carry are among the last to be harvested outside Khon Kaen, the region's largest city. But this year's crop in Asia's biggest sugar-exporting nation is leaving a bitter taste in the mouths of sugar farmers, due to a devastating drought.

"I had to replant my sugar field after the first crop dried up because of the drought," said Rawee Phokheng, a 67-year-old farmer. "I had no choice but to go to the money lenders for me and my family to cope."

Water shortages are creating hardship in his village of Ban Pa Mak Faen, populat-

ed largely by rice and sugar farmers, near Khon Kaen. The taps here produce water for just one hour a day, starting at 6 a.m., for the 350 households. In previous dry years, tap water flowed for four hours a day. But the village is more fortunate than others nearby, which have not received water from their taps for weeks.

People are growing desperate to find water for basic needs across parts of Thailand, where nearly 30 of the country's 77 provinces are in the grip of the worst drought in 20 years. The reservoir at the Ubolrat dam, the largest source of water in Khon Kaen Province, reflects the impact of the El Nino weather pattern that is being blamed for the drought. Since March, it has been in a state of "dead storage," which means the water level has sunk below the dam's pumps for water distribution.

To meet their water needs, some villages have been digging wells with the help of government funds. The fortunate have hit aquifers after digging deeper than in previous years -- 40 meters in some cases. But those supplies may soon run out, as the water table has been tapped for farming since the drought began late last year. "Not every village can have access to underground water, and not everywhere can you get clean water because of high salinity," said Buapun Promphakping, professor of sociology at Khon Kaen University.



Original photo by Reuters

## INDIA

330 mln  
people affected

10

of 29 states declared  
drought-hit

Government forced  
to impose mass water  
conservation measures

## THAILAND

27

of 77 provinces, including  
administrative area  
of Bangkok, officially  
listed as drought-  
stricken disaster areas

2016 economic growth  
down by estimated

0.85  
percentage point

The pain is being felt in other Southeast Asian countries as well.

In Vietnam, nearly 140,000 hectares of the Mekong Delta -- the key rice-growing area -- are bone dry. The fields there have also been contaminated by salt water, which flowed in from the sea as the once-mighty river dropped to its lowest level since 1926.

"If it doesn't rain enough, we are going to quit growing rice this year," said Ho Minh Phuc, a farmer in the Chu Se District of Gia Lai Province, in the central highlands. "Because of the water shortage, we don't have profits on the pepper crop this year, and the coffee crop is in serious condition, too."

He added that his 2016 pepper output is likely to decline by 70% on the year, to 3 tons.

In Cambodia's northwestern province of Banteay Meanchey, farmer Sim Vanna normally grows rice on about 30 hectares



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**VIETNAM**

Over  
**360,000**  
households lacking  
water for daily use

Agricultural sector,  
country's main industry,  
severely affected

HSBC country growth  
forecast cut from  
6.7% to

**6.3%**

**CAMBODIA**

2015 agricultural growth  
dropped sharply to

**1%**

from 5% average  
for 2004-2012

2016 growth expected  
to be even lower  
as conditions worsen

Adryel Talamantes



Marwaan Macan-Markar



**LEFT:** A farmer walks through her parched rice field in Suphan Buri Province, west of Bangkok. **TOP RIGHT:** In Suphan Buri, rice farmer Sanan Phangnue, 68, has started raising cattle because the drought made it impossible to grow a second crop. **BOTTOM RIGHT:** Thai farmer Rawee Phokheng in his sugar cane field before the harvest in February

of land and cassava on 40 hectares. But after losing \$20,000 due to a poor crop in 2015, he opted to sit this year out to “wait and see if the weather gets better.” Instead, he rented rice paddies at \$100 per hectare to anyone brave enough to take the risk.

**DESPAIR AND SUCCESS** The drought has been a boon to those in the water trade. One supplier in Thailand, who abandoned rice farming to ferry water in 2,000-liter tanks on the back of pickup trucks, is reaping windfall profits from filling large household jars in communities. “The demand is so high I can’t serve them all,” he said.

Such traders are not the only ones tapping into this year’s drought for opportunity. There are also diplomatic points up for grabs. China, as the source of the 4,660km Mekong River, took the unusual step of publicizing a mid-March decision to release water from one of its giant dams

to help the drought-hit riparian countries in the Mekong basin -- Cambodia, Laos, Thailand and Vietnam. The move followed an appeal by Vietnam.

Cambodian Prime Minister Hun Sen, China’s strongest ally in the Mekong region, praised Beijing. Cambodia’s fishing communities along the Mekong depend on the river and Tonle Sap, the country’s largest lake, which has been running low on water.

Environmentalists have voiced concerns that the series of Chinese mega-dams along the upper Mekong, in fact, exacerbates water shortages in downstream countries. “It confirms who is actually running this river,” said Piaporn Deetes, a Thai campaigner for International Rivers, an environmental group.

China’s gesture, though, has helped Thailand’s military rulers. The fresh surge of water is being sucked up by four temporary pumps installed along the Mekong’s

banks on the Thai side to feed a river in the parched province of Nong Khai. The Thais hope to divert 47 million cu. meters of water over three months to supply drought-hit communities.

This unilateral move by Thailand has left rice farmers in Vietnam high and dry. Vietnamese environmentalists are angry with Bangkok because it has not consulted the three other Mekong basin countries -- as previously agreed -- when it comes to harnessing Southeast Asia’s largest body of water.

With the monsoon rains still weeks away, Thailand’s action highlights the crucial role of water in times of drought to keep governments afloat. For Rawee and his fellow farmers, the question is whether such help can prevent their livelihoods from withering away. **N**

*Kim Dung Tong in Ho Chi Minh City and Nguon Serath in Phnom Penh contributed to this article.*

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BRAHMA CHELLANEY

# THE BIG SQUEEZE

*As climate change and rapid development take their toll, new ways must be found to manage Asia's water resources*

The record drought that is ravaging large parts of Asia will end when the annual monsoon rains come in June. This will bring much-needed relief to those suffering in parched lands -- from the millions who live in Vietnam's Mekong Delta to more than a quarter of India's 1.25 billion people. The searing heat and drought have already claimed several hundred lives and destroyed vast areas of rice paddies and other farms.

But make no mistake: The latest in a

string of droughts to hit Asia this century offers a telling preview of the hotter, drier future that awaits much of the region. This likelihood arises largely from the strains placed on natural resources, the environment and the climate by rapid development, breakneck urbanization, large-scale irrigated farming and lifestyle changes in the world's largest and most populous continent.

Recurrent drought will exacerbate Asia's already serious water challenges and thus

potentially affect economic growth, social peace and relations between countries or regions that share rivers or aquifers.

Yet little policy attention has been paid to combating droughts because of their episodic character. Scientists are still unable to reliably predict the arrival, extent or duration of rainfall shortages. Unlike other natural and human-made disasters, from earthquakes and hurricanes to flooding and industrial accidents, drought is a silently creeping calamity. However, without resource conservation, ecological restoration and more sustainable development, droughts in Asia are likely to become more frequent and severe.

A little known fact is that Asia, not Africa, is the world's most water-stressed continent. Water stress is internationally defined as the availability of less than 1,700 cu. meters per person, per year. Asia already has less freshwater per person than any other continent, and some of the world's worst water pollution.

Water is not just the most undervalued and underappreciated resource; in the coming years, it is likely to be the most contested resource in Asia. This is due both to its increasing scarcity and Asia's distinctive water map.

Asia's most important rivers traverse national boundaries and are thus international systems. Indeed, most Asian nations with land frontiers -- with the prominent exception of China, which controls Asia's riverheads on the Tibetan Plateau -- are highly dependent on cross-border water inflows. Such dependency is greatest in countries like Bangladesh and Vietnam that are located far downstream along international rivers.

**TAKE ME TO THE RIVER** Against this background, interstate and intrastate water disputes have become common. Asia starkly demonstrates how transboundary water resources, instead of linking countries or provinces in a system of hydrological interdependence, are sharpening competition for relative gain. This competition extends to moves by countries to appropri-

ate the resources of shared rivers by building dams, reservoirs and other diversions, thus roiling intertribal relations.

Asia is already the world's most dam-dotted continent: It has more dams than the rest of the world combined. But this statistic does not tell the real story: Most of Asia's dams are in China, which alone has slightly more than half of the world's approximately 50,000 large dams. With its massive infrastructure of dams and other storage facilities, China has built an impressive capacity to stockpile water for the dry season.

But China's overdamming of rivers has contributed to river fragmentation -- that is, the interruption of natural flows -- and depletion, causing downstream basins to dry up or rivers to discharge only small amounts of water and nutrient-rich silt into the oceans. China's dying Yellow River exemplifies this problem. And its cascade of six giant dams on the Mekong, just before it leaves Chinese territory, is being blamed for accentuating the current drought in Southeast Asia, with river depletion extending to the delta region.

Adding to Asia's vulnerability to droughts and other effects of environmental and climate change are factors including groundwater depletion and deforestation, especially in the upstream catchment areas. Deforestation is most notable in the Himalayan-Tibetan region, source of the great rivers of Asia. But it also extends to other regions, including rain forests.

Through its environmentally destabilizing impact, deforestation amplifies the frequency and severity of extreme events such as droughts and floods. The depletion of many Asian swamps -- which serve as nature's water storage and absorption cover -- also contributes to a cycle of chronic flooding and drought, besides allowing deserts to advance and swallow up grasslands.

For its part, the extraction of groundwater at rates surpassing nature's recharge capacity has resulted in a rapidly falling water table across much of Asia. Because groundwater is often a source of supply for

streams, springs, lakes and wetlands, the overexploitation of this strategic resource, which traditionally has served as a sort of drought insurance, creates parched conditions and thus fosters recurrent droughts.

**HIGH AND DRY** The entire belt stretching from the Korean Peninsula to the Iran-Afghanistan-Pakistan region is becoming increasingly prone to the ravages of drought. But even before the current drought hit South and Southeast Asia, scientific studies on global drought hot spots showed that risks are highest in these two regions, at least in terms of the number of people exposed.

It is past time for Asian policymakers to

tackling the serious problem of groundwater depletion. Groundwater in Asia is being pumped and consumed by human activities at such a rate that, for example, NASA scientists in the U.S. observed several years ago that the subterranean reserves in northwest India are vanishing.

Groundwater resources are recklessly exploited because there are few controls on their extraction. Contributing to this practice is the fact that, unlike surface water, degradation of groundwater is not visible to the human eye. Surface water and groundwater, however, are linked hydrologically and should be managed as a single resource.

The specter of permanent water losses

## In the coming years, water is likely to be the most contested resource in Asia

start addressing drought risks, the core of which is the nexus between water, energy and food. For example, the current drought is roiling world food markets through its destructive impact on crops. And by reducing cooling-water availability, it is decreasing generation by some power plants, just when electricity demand has peaked.

Drought risks can be reduced by ensuring the protection and ecological restoration of watercourses, securing water-efficiency gains through agricultural productivity measures, developing drought-resistant crop varieties, improving water quality to offset decreases in quantity and utilizing alternative cooling technologies for power generation. Increasing water storage by channeling excess water during the monsoons to artificial recharge aquifers, especially in Asia's densely populated and economically booming coastal regions, holds promise for coping with droughts.

Policymakers must appreciate that drought risks cannot be lowered without

is just one reason why Asia's drought-related challenges demand an integrated, holistic approach. Water, food and energy, for example, must be managed jointly by policymakers to promote synergistic approaches. Also, ecological restoration programs, by aiding the recovery of damaged ecosystems, can help bring wider benefits in slowing soil and water degradation, stemming coastal erosion, augmenting freshwater storage and supply, and controlling droughts.

Nature is indivisible: Communities and states cannot continue to prosper by bending nature to the extent that it undercuts environmental sustainability. **N**

*Brahma Chellaney is a geostrategist and the author of the award-winning book "Water: Asia's New Battleground," published by Georgetown University Press.*

PHOTO: A boy climbs down a well to get drinking water in Latur, India on April 23.