

# Trouble on the farm, output to fall

**UPA'S BIG WORRY** Climate change roils India's agriculture, threatens livelihood of 670 million

Zia Haq and Gaurav Choudhury

✉ letters@hindustantimes.com

**NEW DELHI:** Over the last 48 hours, India's ruling combine had two reasons for euphoria: electoral triumphs in three states and the announcement that the economy will grow by 6.5 per cent this year.

But a footnote in the economic data has revealed how the euphoria must be put aside immediately, as climate change poses the next big political challenge for the Congress party.

A season of withering drought and damaging rainstorms is predicted to cut India's agricultural output by 2 per cent, despite a 400 per cent rise in

## A SEASON OF DROUGHT AND RAINSTORMS IS PREDICTED TO CUT INDIA'S AGRICULTURAL GROWTH BY 2 PER CENT THIS YEAR

rural spending on jobs and infrastructure by the government since Prime Minister Manmohan Singh took office in 2004.

With climate-change models predicting harsher droughts, storms and floods across India as the earth warms, rescuing the livelihoods of 670 million Indians who survive on farming

is an immediate and long-term economic and political challenge, a range of experts told the *HT*.

"Despite fiscal and monetary stimulus packages, there are strong risks emanating from poor monsoons that could delay the recovery in the economy," said N.R. Bhanumurthy, professor at the National Institute of Public Finance and Policy, a Delhi think-tank.

Scientists predict a best-worst-case global temperature rise anywhere from 1.1 to 6.4 deg C. But even a half-degree rise in India — the world's second-largest wheat producer — will reduce wheat yield by a fourth.

"The situation will be substantially worse by 2050,

marked by higher temperatures that will certainly affect India's wheat yield," said Gerald C. Nelson, a senior scientist, who led a study completed last month by the International Food Policy Research Institute (IFPRI) in Washington D.C.

Nelson said it was "crucial" for rural incomes to keep going up because people with better incomes were more resilient to climate change impacts.

This year, the UPA government has a Rs 40,000 crore budget for its flagship job scheme against rural poverty, but it will spend 1/40th of that on expanding irrigation facilities. The IFPRI study was based on two models evolved in the

GLOBAL WARMING



US and Australia and released in September. They differ on the intensity of rainfall but what they agree on is in line with earlier predictions on the monsoon: India will have stronger droughts and get more rain. But the rain will also come in damaging storms, as Andhra witnessed last month.

About half of India's farms depend on rains.

CONTINUED ON PAGE 8

» WHY RURAL INDIA MATTERS, P8

## countdowntocopenhagen

Climate change is no longer the threat of tomorrow. It's here, changing the way millions across India live as they feel the effects of a warming

planet. As monsoons get more erratic, summer temperatures soar and winters shorten, India faces big economic, environmental and political

challenges. In the run-up to crucial global negotiations at the United Nations Climate Change Conference in Copenhagen, Denmark (December 7-18) and beyond, *HT* starts today a new national reporting project that will take you from policymaking corridors to farms and glaciers, to prepare you for what is coming. It is time.

FOR FULL COVERAGE, LOG ON TO  
[hindustantimes.com/globalwarming](http://hindustantimes.com/globalwarming)

# जलवायु परिवर्तन का असर



**पानी का संकट-** वैज्ञानिकों के अनुसार बीसवीं सदी के दौरान उत्तरी गोलार्ध में सात फीसद वर्ष पिघला है। इनमें हिमालय के ग्लेशियर भी शामिल हैं। आईपीसीसी की रिपोर्ट के अनुसार भारत और चीन की 50 करोड़ की आबादी इससे प्रभावित होगी। ग्लेशियरों के पिघलने से बाढ़ और सूखे दोनों का खतरा समान रूप से मंडरा रहा है। पानी की प्रति व्यक्ति उपलब्धता जो अभी 1820 क्यूबिक मीटर है, वह 2050 तक प्रति व्यक्ति 1140 क्यूबिक हो जाएगी। बारिश के पैटर्न में परिवर्तन आएगा और कहीं अतिवृष्टि तो कहीं अनावृष्टि की स्थिति होगी।

समुद्र तटीय इलाकों में बदलाव- अनुमान है कि अगली सदी तक समुद्र के जलस्तर में 40 सेंटीमीटर की बढ़ोतरी होगी। इससे पूरे विश्व में समुद्र तटीय इलाकों में रहने वाले करीब 9 करोड़ लोगों को हर साल बाढ़ का सामना करना होगा। इस बर्बादी में 60 फीसद दक्षिण एशिया के हॉंगे और इनमें करीब आधे भारत के। कोलकाता, चेन्नई, मुंबई जैसे समुद्रतटीय शहर जल जमाव और बाढ़ जैसी समस्याओं से जूझेंगे। सुंदरबन के अस्तित्व पर संकट आ जाएगा और प्रवाल भित्तियां भी मिट जाएंगी। प्रवाल भित्तियों पर पाए जाने वाले जीव तापमान बढ़ने पर खुद को मौसम के हिसाब से बदलने में असमर्थ होते हैं, इसलिए लक्षद्वीप का अस्तित्व मिट जाएगा।



**जैव विविधता पर संकट-** 2050 तक पूरी दुनिया में पाए जाने वाले 20-30 फीसद पौधों और जानवरों की प्रजातियां विलुप्त होने के कगार पर होंगी। कार्बन डाइऑक्साइड जैसे-जैसे बढ़ेगा जीव प्रजातियां अपना आशियाना तब बदलने को मजबूर हो जाएंगी। देश में चारागाहों पर इसका सीधा असर होगा और पशुपालन सबसे कठिन पेशा में से एक होगा। इसी तरह सूखे के कारण रेगिस्तान का दायरा बढ़ेगा और खेती योग्य भूमि कम होगी। डेल्टाई इलाकों की जीवों पर इसका सबसे बुरा असर होगा।

तापमान में बढ़ोतरी- सदी के अंत तक तापमान में 1.8 फीसद से लेकर 4 फीसद तक बढ़ोतरी होगी। हीट वेव के लंबा खिंचने का खतरा है। 20 से 40 वर्ष के लोगों पर गर्मी का असर सबसे अधिक होगा।



**स्वास्थ्य-** डायरिया और कुपोषण को लेकर सबसे अधिक खतरा महसूस किया जा रहा है। दक्षिण एशियाई देशों में इससे प्रभावितों की संख्या में लगातार इजाफा होगा। इसी तरह डेंगू के वायरस का खतरा भी बढ़ेगा। अध्ययन बताते हैं कि तापमान में बढ़ोतरी के साथ ही कई तरह के विषाणुओं का हमला बढ़ेगा। पानी की कमी और बढ़ते जल प्रदूषण के कारण जल जनित बीमारियों में काफी इजाफा होगा।

**फसलों का उत्पादन-** वर्षा चक्र प्रभावित होने से फसलों की पैदावार प्रभावित होगी। जाड़े के आंसत तापमान में अगर आधे फीसद की बढ़ोतरी होती है तो गेहूं की पैदावार पर प्रति हेक्टेयर आधे टन की कमी देखा जा सकती है। चावल की पैदावार में भी अनिश्चितता बढ़ेगी। मक्का की पैदावार में भी कमी होगी। मछलियों के अस्तित्व पर खतरा होने से मछली पालन उद्योग खतरे में पड़ जाएगा।



# Women BEAR BRUNT Of CLIMATE CHANGE

In dry fields and flooded villages, women are the worst off, forced to walk farther for water, giving up their food to feed kids

Nandita Sengupta | TNN

**New Delhi:** In Kamlawati's Compierganj village in eastern UP's Gorakhpur summer, winter and monsoon have turned erratic. When did spring start? When was monsoon over? She knew Holi indicated winter's end when she'd fry paddy in the Holika fire. But the last two years, Holi's been cold and paddy's not grown fully either as sowing itself was delayed because of late winter. The 52-year-old is one among millions of women farmers bearing the brunt of climate change in parched fields, flooded villages and mountain climes. From walking further to collect water and firewood to ploughing fields, from premature deliveries to malnutrition, women are taking the first direct hit of altered climate.

Women's vulnerability to climate change cannot be overstated. "It's the poor — especially poor women — who are most vulnerable," says ADB's Ursula Schaefer-Preuss, referring to a report that said rural women in developing countries are among the most affected given their limited access to resources and lack of decision-making power.

Fish-farmer Shyamali Das of 24 South Parganas knows that first-hand. It's a struggle managing an income. Their villages ravished by cyclones, the men headed to big towns for work. Fish yield is at an all-time low. "We lost 20 fish species. Ten years ago, we earned Rs 1000 by fishing for a fortnight, now it's Rs 300," says Das. They used to fish eight months, now erratic patterns has brought that down to three.

In hard times, a woman's the first hit. For starters, "with less food to go around, it's invariably the woman who gives up her food to feed the family," says Harsh Mander, special commissioner of Supreme Court. In a report on malnutrition for the SC, Mander noted, "Women of every age have disproportionately higher rates of malnutrition than men. In India, 2 out of 3 women are anaemic. Economists acknowledge a phenomenon of what is described as 'feminisation of poverty', i.e., poverty among women is rising faster than



## What Affects Them

▶ Limited access to resources, livelihood. Takes toll on health

▶ They have to walk much longer distances for drinking water, firewood

▶ With men migrating to cities for work, women are even ploughing fields

▶ Giving up their portion to feed family

▶ Stress leading to premature deliveries

▶ Dalits, adivasi women are the worst affected

## WHAT THEY NEED

Recognition as farmers so they can avail credit, other benefits

poverty among men."

There are other less obvious impacts. "In last year's Kosi floods, the biggest problem was helping pregnant women. In one camp, out of 15 pregnant ones, eight had premature deliveries," says Akhtari Begum, social worker in Bihar's Saharsa district. Trafficking of girls is also at an all-time high, says Kanta Marathery, social worker in Chhatisgarh's Bilaspur.

But women are fighting. "In flood areas, they're farming at different levels, are growing beans which are creepers, cucumbers which grow at higher levels, trying organic and coarse crops," says Aditi Chadha Kapoor, Oxfam's Economic Justice specialist. To manage, Kamlawati's tweaked her crop mix, sowing corn, groundnut, arhar and veggies. Her village's men too have migrated; women manage farms and families.

But efforts for survival will be in vain if Kamlawati can't access government help for farmers. Simply because the State doesn't recognize her, a woman, as a farmer, says Sandhya Venkateswar, of Wada Na Todo Abhiyan, also a risk ana-

lyst at JP Morgan Chase. "The first thing is to highlight that 70% farmers in India are women. Interpretation throughout is that farmers are men, and so women get neither credit nor the benefits of various schemes," says Venkateswar. According to the FAO, women produce more than 50 per cent of food cultivated on the planet. In Africa, women produce 80 per cent, in Asia 60, and in South America upto 40 per cent. In place after place, adds Venkateswar, women are even ploughing fields.

Kamlawati and hundreds others have now come together to devise a charter where they urge it to take into account experiences/learnings of those already fighting climate change. Recognise women as farmers, it says, which in itself will reduce their vulnerability. "Visibilising them is the first step to reduce vulnerability. Dalit and adivasi women are worst off because they have the least capacity to deal with climate change as they have less access to everything," says Venkateswar.

It's never been so bad. Traditionally, women have been custodians of farming knowledge. "Women stored seeds, knew various seed varieties," says Kapoor. "Existing market-led agriculture systems do not cater to women." Kamlawati waits for mindsets to change, as she takes on climate change.

