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THE HINDU

Delhi asked to appoint Food Safety Officers

The Delhi High Court has directed the Aam Aadmi Party government to appoint Food Safety Officers in order to check the presence of pesticide residues in fruits and vegetables sold in the markets of the Capital.

Hearing a matter in which it had taken suo motu cognisance of a newspaper report on pesticides present in fruits and vegetables, which could cause cancer and damage nervous system and liver, a Division Bench asked the Delhi government to fix a time-frame for appointment of officers.

The court had earlier directed the Union Agriculture Ministry to set up a committee and frame guidelines to prevent the use of pesticide residues in fruits and vegetables.

The Bench, comprising Chief Justice G. Rohini and Justice Jayant Nath, was told by the Delhi government's counsel that he would file a status report in the matter. As per an affidavit filed by the Delhi government in November last year, there was requirement of Food Safety Officers.

The court sought to know what the Delhi government had done in the matter so far. Responding to this, the counsel said advertisements had been published and reports forwarded to the Delhi Subordinate Services Selection Board.

As the government's counsel sought time to file a status report in the matter, the court posted the case for further hearing on August 10, saying it would need to get satisfied about the appointment of officers.

Some non-government organisations had submitted survey reports about vegetables and fruits sold in the city markets to the court, saying they contained pesticides in a harmful quantity.

CIFE to introduce new certificate course

In the district that is known for the highest number of shrimp hatcheries in India, a year-long certificate course in 'Fish Culture and Hatcheries Management' is being introduced for the first of its kind.

Designed by the Indian Council for Agriculture Research's (ICAR) Central Institute of Fisheries Education (CIFE), the certificate courses is expected to provide qualified manpower to at least a good number of the 167 hatcheries located in East Godavari district in the years to come.

The absence of qualified technical staff in the hatcheries is having its cascading affect on the aquaculture not only in the State, but in the entire country, as the hatcheries here supply the brood stock to aqua farmers from different States.

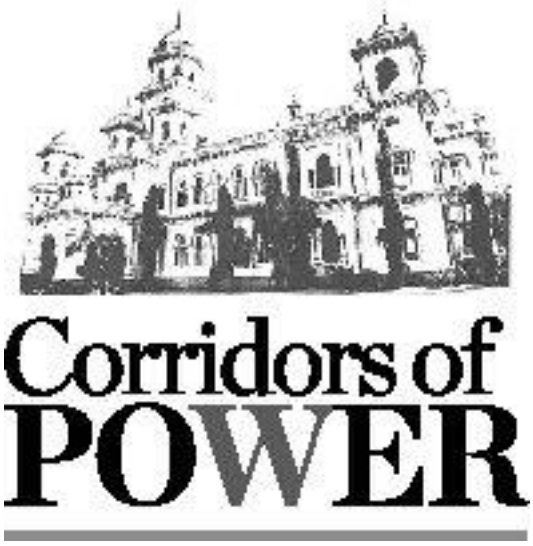
"Those who have passed SSC and in the age group of 15-45 years can apply for this certificate course, which is being introduced for the first time in India.

The CIFE has designed the syllabus and our experienced faculty members will take the classes every day," says Muralidhar P. Andey, scientist and officer in-charge of the CIFE, Kakianda, located near the Burma Shell.

Only 20 seats are available in the course, which will be allocated on 'first come first serve' basis.

This is the first ever long duration course to be taken up by the CIFE"Interested candidates have to send their applications on or before May 17. Further details can be had from phone numbers 0884-2379146 or 2373602," explains Mr. Muralidhar.

Now, trees as security for loans to tribespeople



A recent advisory of the Reserve Bank of India (RBI) to the State-level bankers committee to consider trees as security for loans to tribals in the agency of Telangana has caught the imagination of officials of forest and agriculture departments.

The RBI has mooted in the State replication of a pilot project in Dang district of Gujarat where the banks cover tribals for loans to meet expenditure on health, education and marriages taking the teak trees grown by them as security.

The Forest Department assessed the value of trees and the banks released the full quantum of recommended amount to the accounts of tribals. The money was to be repaid within five years at easy rates of interest.

Interestingly, the forest department permitted felling of trees after five years and the sale proceeds passed on to tribals after recovering the balance of loan.

The RBI was said to have chosen Telangana for the scheme to check the strong arm tactics of micro-finance institutions and money lenders who fleece gullible tribal people, pushing them into permanent debt trap.

FOCUS ON LOCATING EXAM CENTRES

Now that it is all set for the conduct of EAMCET on May 15 in Telangana only in government institutions under the watchful eyes of their staff, the State government is going hammer and tongs to locate the centres.

The government is so desperate to identify the centres that it has not even spared the Andhra Pradesh Police Academy at Himayatsagar on Hyderabad outskirts, apart from using the residential schools since the students have left home for summer vacation

A staggering 2.46 lakh students will take the examination, requiring 466 centres. But such a large number of buildings in government sector are not available which forced the organisers to look for every available accommodation.

For example, in Kukatpally zone alone, about 16,800 students will appear but the Jawaharlal Nehru Technological University Hyderabad campus is the only government institution. So, it is was decided to conduct the exam at the Central Institute of Tool Design in Balanagar which offers training programmes in tool design and manufacture.

NEW DISTRICTS SPELL NEW OPPORTUNITIES

If any section is more delighted with the Telangana Government's decision to decentralise administration by creating new districts, at least 14 of them, by reorganising the existing 10, it's the employees.

At all levels, they are looking at the opportunities (promotions) that are likely to arise with the creation of smaller units of administration. The news is very soothing to the ears of particularly those who are waiting in the wings for promotions with the limited number of posts at higher level.

From clerical cadre to district-level officers, every section is awaiting the new administration units coming into existence for there would be more number of posts created at higher-level enabling promotions for those who are in line.

This doesn't mean that new districts would not mean anything to others -- it would open new opportunities to everyone else too, from politicians to petty businessman.

GALE SHOWS BABUDOM IN POOR LIGHT

The 'global city' in the making which the Chief Minister and now Minister in-charge K.T. Rama Rao keep talking about came crashing down in the early hours of Friday when the super gale hit the capital.

Such was the wind speed and showers that several decade old trees came crashing down while more than double the number electric poles were uprooted. This is besides the hoardings that tumbled down on the roads and power breakdowns.

While no one expected the kind of storm to hit the city in the summer, it was the aftermath response that was pitiful.

For hours together there was a power breakdown as civic officials struggled to put things in order. There were also numerous complaints about the tree collapses in different colonies, sludge washed into houses and streets.

(N. RAHUL, SURESH KRISHNAMOORTHY,

B. CHANDRASHEKHAR, & V. GEETANATH)

Cashew yield in Pachamalai hit

New cultivation method in progress

Cashew cultivation in Pachamalai forms a major livelihood for tribal farmers and on an average, every family in 16 major villages owns at least five to six cashew trees, indicating the assured income from the cash crop.

The farmers had resorted to conventional cultivation practices, using cashew seeds. No graft technique had been adopted, as they were not aware of the advantages of the grafting pattern which is widely practised now.

A woman farmer watching the cashew in a tree raised on conventional method at Kambur in Pachamalai.— Photo: B. Velankanni Raj

According to a cross section of farmers, though they had cultivated cashew, they do not adopt any crop protection techniques.

The crop is subjected to two types of problems – withering of flowers during excess humidity – a phenomenon observed during the December-January; problem caused by stem borer which brings down the yield. Against 50 to 60 kg a tree, the yield is reduced anywhere between 40 and 50 kg.

To tide over the problem being faced by the cashew farmers due to conventional practices, the National Bank for Agriculture and Rural Development (NABARD) has introduced six-year 'Integrated Tribal Development Project' for adopting latest cultivation practices.

Under the project, being implemented through the service organisation Hand-in-Hand, the NABARD has covered 41 villages – 16 villages in the Tiruchi side and 25 villages in the Salem district, as the Pachamalai is spread over both districts.

Under the project, 'VRI 3' variety, grafted saplings with high yielding variety had been raised in 970 select villages – 543 in Tiruchi district and the balance 427 in Salem district.

"We develop one orchard in one acre, raising 40 cashew saplings and 54 mango saplings," says an official source. The cashew would be ready for harvest by 2018 and the mango, the following year.

Though the Integrated Tribal Development Project aims at adopting latest agricultural practices, the NABARD and the Hand-in-Hand have been extending assistance to the cashew farmers to protect the trees from the impact of stem borer.

"We supply bio fertilisers such as 'pancha kavya' to check the adverse impact of stem borers on the standing cashew," sources said.

Turmeric auctioned for Rs. 2 crore

Turmeric was auctioned for Rs. 2 crore at the Tiruchengode Cooperative Society here on Saturday.

While 'Virali' turmeric fetched a price between Rs. 8,100 and Rs. 10,699 per quintal; 'Kizhangu' variety fetched a price between Rs. 7,989 and Rs. 8,869 and 'Panankali' variety fetched a price between Rs. 8,102 and Rs. 23,600 per quintal.

About 3,200 bags of turmeric was auctioned for Rs. 2 crore.

At the weekly auction held at the Konganapuram Agricultural Produce Cooperative Society premises near Edappadi, 300 bags of cotton was auctioned for Rs. seven lakhs. While DCH variety fetched a price between Rs. 5,700 and Rs. 6,540; Surabi variety fetched a price between Rs. 4,800 and 5,450 per bag, society sources said.

Officials faulted for farm produce damage

Minister for Irrigation and Marketing T. Harish Rao has expressed concern over the reports of paddy and other agriculture produce getting soaked in the rain in market yards and directed the Marketing Department officials to complete construction of 330 godowns with a storage space of 17.07 lakh tonnes by August 15.

At review meeting held here on Sunday, he faulted the officials for allowing the farm produce getting damaged in the market yards due to untimely rains.

He asked the marketing officials to keep the stocks brought to market yards by farmers either in sheds or cover them with tarpaulin sheets.

Quality seeds, fertilizer to be supplied for kharif

Forest Minister Jogu Ramanna on Sunday promised farmers that the government would ensure supply of quality seeds and fertilizers in the ensuing kharif season.

There will be no shortages too as sufficient quantity of fertilizers and seeds have reached disbursement points in the district, he added.

Inaugurating a power substation built at a cost of Rs. 1.6 crore and additional classrooms in the local primary school at Deepaiguda village in Jainad mandal, the Minister also urged farmers to go in for alternative crops.

He said soyabean could be a better commercial alternative to cotton.

Referring to power supply, Mr. Ramanna said the power substation at Deepaiguda was an example of the government's endeavour to supply quality power to farmers.

He said soon the State will have uninterrupted power supply in all sectors.

Talking about the State government's efforts to usher in economic development in the rural areas, the Minister said the government has

sanctioned Rs. 368 crore for construction of the Chanaka-Korta barrage across Penganga which will irrigate parched lands in Jainad mandal.

He said the government has also sanctioned Rs. 72 crore for construction of a road over bridge on the approach road to agriculture market yards in Adilabad.

A niche for safe-to-eat fruits and vegetables

As the summer season peaks, so does the demand for fruits, including jack and mangoes, which are perennial favourites with the people of Kerala, who go out of their way to get the best in town.

However, reports of the use of chemicals to ripen mangoes and other unsafe methods have gone a long way in reducing the confidence of people in what is commonly available in the market.

The increasing popularity of organically-grown fruits and vegetables and the larger number of people taking up homestead farming of whatever fruits and vegetables they can is also a pointer to the growing niche for safe-to-eat products.

Given the background, the ongoing festival of jack fruits and mangoes at the KADS outlet near Vennala has seen good response, say the organisers.

The Kerala Agricultural Development Society, Thodupuzha, the organisers of the sales, has been in operation over the last 15 years, combining thousands of farmers and getting them to take to the organic way of cultivation of fruits and vegetables.

Organic cultivators

The secretary of the Society V.P. George said that around 5,000 farmers are members of KADS and among them around 900 farmers are organically certified.

There are around 1,200 farmers, who are on their way to being certified as organic cultivators, he said.

The KADS sale is on at its permanent outlet near the Pranavam Hall, Alinchuvadu-Vennala Road and the response has been great, said Mr. George.

He said that the mango and jack festival goes until the end of the season and this year, the sale has been scheduled for 10 days.

Besides the seasonal fruits, KADS has also been mobilising safe-to-eat vegetables from areas like Kanthalloor and Vattavada areas in the High Ranges for sale here.

The organisers have taken care to source their mangoes from the Muthalamada area in Palakkad. Mr. George said that care had been taken to ensure that the mangoes were safe.

The festival of jack fruits and mangoes at the KADS outlet near Vennala evokes good response.

New-found passion for farming in focus

To encourage youngsters to take up farming, Doordarshan Kendra (DDK) will be producing a new programme called *Pudiyador Ulagam Seiyvom* that will feature professionals from different walks of life who have taken up farming.

“The focus is on people who took up farming without having any prior experience,” said Vasumathi Rajan, Programme Executive, DDK, Chennai and producer of the programme.

The weekly series will be aired on May 15, every Sunday from 8.30 p.m. to 9.30 p.m. on DD Podhigai and as it progresses, on DD Bharati. Each series will showcase one urban farmer or a professional who quit his job to grow fruits, pulses or vegetables and contribute to the economic development of the country as a farmer.

“The show will have people from all over the country,” she said. The show has been conceptualised by M.J. Prabu, consulting media editor, Tamil Nadu Agricultural University, Coimbatore.

“Through this show, we hope more youngsters will take up farming, and realise that it is not meant only for a certain class of society but for everyone,” said Ms. Vasumathi.

FOOTBALL FANS TUNE IN TO WATCH PL FINALS

Many football fans from the city tuned in on Saturday night to watch Leicester City lift the Premier League title after their home match.

The team took on Everton at 9.45 p.m. and emerged victorious with a 3-1 scorecard. Many residents organised parties at homes and gathered at restaurants to watch match screenings.

The team had sealed the title earlier last week after Chelsea and Tottenham Hotspur drew. “Even though the season was disappointing to me as a Chelsea fan, it made for some exciting viewing given Leicester’s fairytale run,” said Krish Prasanth, a fan .

Many fans like him said that the league had been a surprise this year with teams such as Tottenham Hotspur F.C. and Leicester City stealing the limelight from the popular Manchester United, Chelsea, Arsenal and Manchester City that received less spotlight.

With the IPL also being telecast, the last few weeks brought in much excitement for most sports fans in the city with numerous people tuning in.

The month holds more thrill for fans with the FA Cup finals where Manchester United takes on Crystal Palace and the Champions League Finals where Real Madrid plays against Atletico Madrid.

(Reporting by Aditi. R and S. Poorvaja)

Choose from 50 varieties at Mango Mela

This time, you can also order a box of your favourite fruit variety online

PICK THE BEST: Mango Mela will be held in nearly 150 places in the city, including at malls and tech parks. — FILE PHOTO

- The first varieties of mangoes that will come to the city are Alphonso, Mallika, Malgova, Sendura, and Raspuri
- The Neelam and Totapuri varieties will arrive from June onwards
- Alphonso, Mallika, Malgova and Dasheri to cost between Rs. 110 and Rs. 120 a kg
- As they do not get exported, Sendura, Neelam and Totapuri mangoes will be priced at Rs. 30 to Rs. 40 a kg

- Karnataka is the third-largest producer of mangoes in the country after Uttar Pradesh and Maharashtra, with 80 varieties grown across 2 lakh hectares
- Mangoes are grown in 15 districts – Kolar, Chickballapur, Tumakuru, Hassan, Bengaluru Rural and Urban, Belagavi, Dharwad, Haveri, Chitradurga, Chikkamagaluru, Bidar, Raichur, Kalaburagi, and Ramanagaram

Truckloads of mouth-watering mangoes are set to reach Bengaluru in two weeks time at the Mango Mela organised by the Karnataka State Mango Development and Marketing Corporation Limited (KSMDMCL).

Nearly 50 varieties of the fruit will be on sale at the mela. That's not all. For those who prefer enjoying the king of fruits in the comfort of their homes, the mela will also see the inauguration of an online booking system. Consumers will be able to book mangoes on the KSMDMCL website and opt for the cash on delivery option.

For the first time, the mela will branch out all across Bengaluru. It will be held in nearly 150 places, including Lalbagh, Malleswaram playground, Majestic railway station, several malls and tech parks in the city's IT corridors among others.

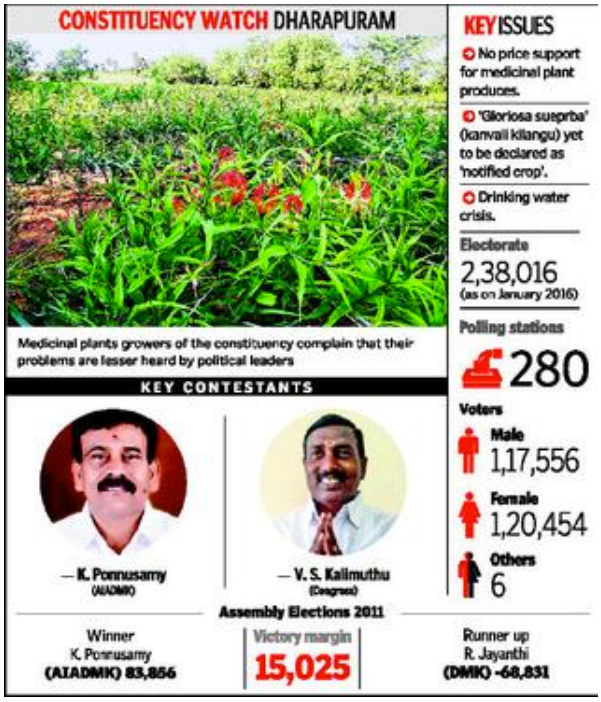
"Our idea is to reach out to techies directly and encourage them to interact with farmers," says M. Kamalakshi Rajanna, Chairman, State Mango Development Corporation.

“The KSMDMCL website will also update the details of farmers and mango varieties, so as to make ordering online easier. Although orders placed online would cost the same as at the mela, people can only purchase complete boxes of mangoes in a door delivery,” Ms. Rajanna said.

The mela would receive fruits from Kolar, Bengaluru Rural and Urban districts Chintamani and Anekal to start with.

“The top qualities of mango in the State include Alphonso, Mallika, Malgova, Dasheri, Banganapalli, Raspuri, Totapuri and Sakreguthi,” Ms. Rajanna added.

Poor price for medicinal plants a major issue in Dharapuram



Poor price realisation for medicinal plants grown in the area and inadequate drinking water supply are some of the major grievances expressed by people in Dharapuram Assembly constituency whenever Assembly or Lok Sabha polls arrive during the past many years.

But, voters are of general view that the pre-poll promises from candidates remain as rhetoric.

“We have been pleading with the government machinery for many years to declare the kanvali kilangu (gloriosa superba), the major medicinal plant grown in the area, as ‘notified crop’ and also to announce support price for it.

“Since the crop is not notified, farmers are not able to use these to obtain ‘pledge loan’ for raising next set of crop whenever there is a glut in the market,” pointed out B. Lingasamy, president of Tamil Nadu Gloriosa Superba Growers Association.

Drinking water crisis in many rural areas of the constituency has triggered agitations at periodic intervals. Similarly, people have been appealing for better solid waste management system in Dharapuram town and nearby hamlets.

K. Ponnusamy of AIADMK, who is seeking re-election, is expected to experience a tough fight on this occasion as he has to counter an anti-incumbency wave expected across the district.

AIADMK candidates came out triumphant in all the eight Assembly constituencies in Tirupur district in 2011 elections.

A glance through the poll history in the constituency reveals that AIADMK and DMK candidates won on five occasions each out of the 14 elections held till now. Congress won on two occasions, and Pattali Makkal Katchi candidate and an Independent won once each.

Severe summer bites into mango production

Output expected to be hit by 20 p.c.-25 p.c.

Farmer Thumbenahalli Shivakumar showing the fruits that dropped from his trees at Thumbenahalli in Ramanagaram district.

The extreme temperatures and the absence of moisture in the air have badly hit the mango farms in Ramanagaram district, and the output is expected to decline drastically this season.

According to the Horticulture Department, the situation is similar in other areas growing mango across the State.

Sources say the total production is expected to dip by 20 to 25 per cent this time.

Mango is cultivated on around 1.7 lakh hectares in the State.

While the fruit is grown on 50,000 hectares in Kolar district, it is cultivated on 25,000 hectares in Ramanagaram district. Raspuri, Alphonso, Malgova, Bainganpalli, Neelam, Mallika, and Thothapuri are some of the popular varieties grown in Karnataka.

The production this season is likely to hover between 7.5 lakh and eight lakh tonnes. The target was nine lakh tonnes, a senior official in the department said.

Of this, Kolar growers are expected to produce 4.2 lakh tonnes, while the farmers in Ramanagaram are expected to produce 2.5 lakh tonnes.

The prevailing drought conditions have severely affected the mango farms in Ramanagaram.

Hundreds of mango trees in Ramanagaram and Magadi taluks have already withered because of the non-arrival of rain, says Thumbenahalli Shivakumar, a mango grower and senior Karnataka Rajya Raitha Sangha (KRRS) leader.

Mr. Shivakumar is one of the many growers who have suffered huge losses due to the fruit-droppings caused by the lack of moisture in the atmosphere.

In the past three weeks, more than 2,000 fruits have dropped at his farm in Thumbenahalli. “The size of fruits has also shrunk significantly,” he adds. According to a Nagaraj, a wholesale trader, the prolonged drought conditions have significantly brought down productivity across the State.

He says the mango season has commenced and the fruit has started arriving in domestic markets in almost all districts, but the size of all varieties has shrunk by around 25 per cent.

According to K.N. Roopashree, Deputy Director, Department of Horticulture (Ramanagaram), the production fall estimation is 20 per cent.

“Ramanagaram is one of the major mango producing districts in South India. Fruits dropping off trees is being observed in almost all the taluks,” she says.

Also, fungal infection has affected crops in some parts of the district, Ms. Roopashree adds.

And with supply set to take a hit, the price of mangoes is expected to increase in the domestic markets.

Bitter harvest

- ***Farmers cultivate mango on 1.7 lakh hectares in the State***
- ***Absence of moisture and heat wave affecting crops***
- ***Total estimated production this season in Karnataka is around 8 lakh tonnes, including 2.5 lakh tonnes in Ramanagaram***
- ***Popular varieties in Karnataka are Raspuri, Alphonso, Malgova, Bainganpalli, Neelam, Mallika, and Thothapuri***
- ***Price is expected to increase following steep fall in production***

Fishermen, farmers wait for ‘Chithra Maasa Puyal’

Every time the skies turn dark, fishermen who use traditional craft watch the seas intently.

They eagerly wait for the Chithra Maasa Puyal, a cyclone that comes during the Tamil months of Chithirai and Vaikasi (corresponding to April- May).

“Such a cyclone is usually short but brings in fish from the deep seas to the shore. We would get good catches of shrimp and Vanjaram fish,” explained Joseph, a fisherman from Nettukuppam.

As the 45-day ban on mechanised fishing is in force, those who fish on catamarans and ‘vallam’s look forward to the Kodai Mazhai as they can

make a killing. However, fishermen say that after the tsunami, it hasn't rained much this time of the year. Kalaivanan, another fisherman, said that only last year it rained for about four days. "It wasn't a cyclone," he added.

For the farmers, heavy rains are good, said Ranganathan, an organic farmer of Kelambakkam.

Safe-to-eat fruits and vegetables

As the summer season peaks, so does the demand for fruits, including jack and mangoes, which are perennial favourites with the people of Kerala, who go out of their way to get the best in town.

However, reports of the use of chemicals to ripen mangoes and other unsafe methods have gone a long way in reducing the confidence of people in what is commonly available in the market.

The increasing popularity of organically-grown fruits and vegetables and the larger number of people taking up homestead farming of whatever fruits and vegetables they can is also a pointer to the growing niche for safe-to-eat products.

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Bird flu alert sounded across Karnataka

An alert has been sounded across Karnataka after a suspected outbreak of bird flu in a private poultry farm at a village in Humnabad taluk of Bidar district.

About 1.5 lakh chicken in the farm are to be culled as a preventive measure against the risk of avian influenza (H5N1) outbreak.

All poultry farm owners across the State have been instructed to take precautionary measures to prevent infection of chicken with H5N1.

In case of infection, scientists have advised the farm owners not to sell or move any of the birds/eggs and material out. They have been instructed to adopt adequate bio-security measures.

Officials of the Health and Family Welfare Department have appealed to the public not to consume chicken infected with H5N1 since it has the potential of being transmitted from birds to human beings.

About 1.5 lakh chicken are to be culled .— File Photo

Minister for Animal Husbandry A. Manju told farmers to regularly conduct inspections and closely monitor the movement of wild and migratory birds which carry the highly pathogenic H5N1.

The alert followed the death of 23,000 chicken due to bird flu in a farm owned by Ramesh Gupta.

Emergency meeting

Mr. Manju, who chaired an emergency meeting with top officials of the department on Sunday, told presspersons that it had been decided to cull poultry birds within a radius of one km of the infected farm and the government would provide compensation to farmers.

Doctors and scientists of the Institute of Animal Health and Veterinary, Biologicals, (IAH&VB) Bengaluru, visited the farm in Bidar and collected samples for testing at the National Institute High Security Animal Diseases, Bhopal. They were tested positive for H5N1, the Minister said.

A team of experts would oversee the process of culling and preventive measures being taken to contain its spread. Scientists told Mr. Gupta not to sell or move any of the birds or eggs out of his farm.

‘No need to panic’

A team comprising Joint Director IAH&VB would visit Bidar and take steps to control the disease. Required materials would be kept ready and a rapid response team would be set up for culling birds and sanitising.

The Minister said: “There is no need to panic as there are no other farms in the village.”

Farm owners have been asked to step up vigil and surveillance for potential sources of infection, such as indigenous chicken and poultry farm chicken, ducks and migratory birds.

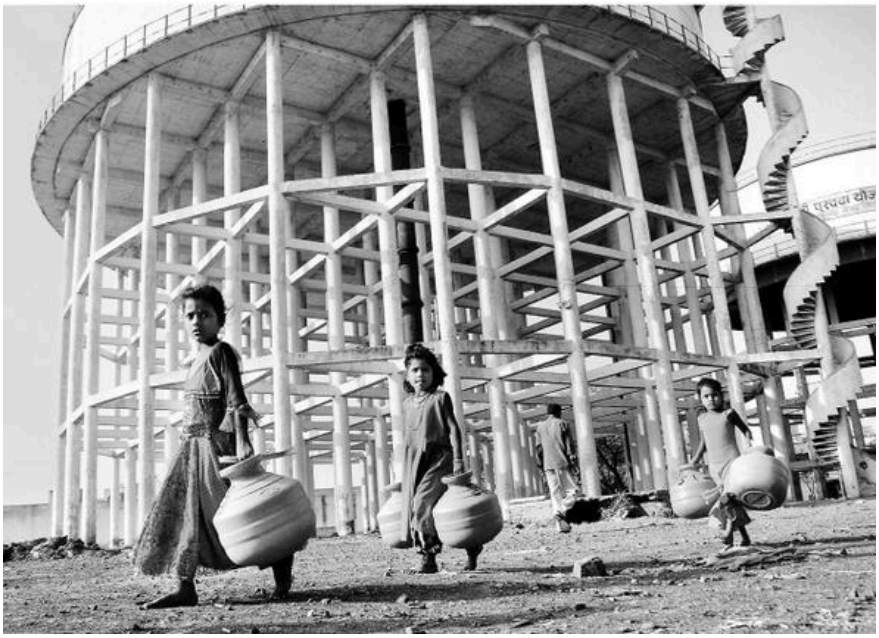
The State has around 7,000 farms, with a stock of more than five crore birds and a daily egg production of about 1.2 crore, according to officials.

Conserving the last drop

The way forward may be to not rely only on dams, interlinked rivers, and borewell drilling — but to supplant these with effective water conservation, storage and groundwater recharge

For the past one week, *The Hindu* has explored the multi-faceted crisis of water scarcity that has gripped India this summer, through a daily series titled ‘Last Drop’.

The series sought to give our readers a comprehensive understanding of six critical themes underpinning the scarcity question.



bone dry:“Establishing harmony between water extraction and restoration could help us avoid a bleak future.” Girls heading to fetch potable water in Latur city.— Photo: Vivek Bendre

For each theme the series outlined the contours of the crisis at a national level; it also supplied grassroots context, telling compelling stories from villages across the country, to illustrate the hard realities that millions of water-starved rural poor live with daily.

The series kicked off with a close look at the frenzied pace of borewell drilling that can be found across many parts of India, from the suburban neighbourhoods of Hyderabad to the parched dry lands of Latur.

Land of 90,000 borewells

In the first article of the series (“Drilling for their lives”, May 3), we visited the heartland of Marathwada, which is in some ways the epicentre of the 2016 drought. There we discovered a land of 90,000 borewells, a number so

breathtaking that it even defied calculations of the official well-enumerators of the area. It had also driven the water table 1,300 feet into the ground in some parts.

We next visited the heartland of the Deccan plateau in Telangana ("Telangana's tanker economy", May 4), where a severe deficit of rainfall has pushed distressed households into the arms of the private water tanker economy.

At this early stage in the series, it was becoming increasingly evident that to avoid suffering the worst effects of the water-scarce months, a bridge had to be built between flood and drought, in the words of Professor S. Janakarajan, Professorial Consultant at the Madras Institute of Development Studies and President, South Asia Consortium for Interdisciplinary Water Resources Studies.

In our goal to provide our readers with a 360 degree view of water problems in India, we shifted our gaze from quantity to quality concerns, and nowhere in the country were water quality issues more starkly exemplified than in a small pocket of northwestern Tamil Nadu, in the districts of Krishnagiri and Dharmapuri ("Drinking water, sipping poison", May 5).

This region has been seriously afflicted by fluoride-contaminated groundwater, with sometimes catastrophic health consequences for the population.

Our report shone a light upon the unusually high prevalence of kidney disease, renal failure, epileptic seizures, and mental retardation among the people here, notwithstanding a major Japan-financed fluorosis mitigation project.

Delving further into some of the solutions that the Indian government has come up with over the years to stave off periodic droughts, the 'Last Drop' series re-examined the logic and potential pitfalls associated with big dams and the proposal to interlink major rivers ("Interlinking: An idea with flaws, May 7").

In the Mettur region of Tamil Nadu, we unearthed a curious paradox of poverty amidst plenty, in the currency of water ("Scarcity in Mettur's vicinity", May 6). At the heart of this conundrum was the ever-prevalent problem of wasted runoff, or water that is improperly channelled and fails to efficiently recharge groundwater levels.

The failure to upgrade water storage capacity can be traced back to inadequate policy attention towards de-silting dams, tanks and canals, and also on repair and maintenance to plug leaks along the way.

Problem in policy

Policy is also to blame in some parts of the country, for deeper, systemic failures with regards to water scarcity. For example, in Maharashtra, endemic corruption has beset large-scale construction deals, and drought expert P. Sainath explained that Rs. 1,18,000 crore was spent in that State over 12 years, and yet only 18 per cent of gross cropped area was under irrigation.

Similarly, Maharashtra and parts of the Deccan peninsula exemplify the distorting effects of crop subsidies and a skewed agricultural produce market that rewards farmers who cultivate unsuitably water-intensive crops such as sugarcane and other cash crops.

Yet policy is also shaping the very fundamentals of river-based irrigation and drinking water systems, especially through the mega project of interlinking the key river basins across the country.

This proposal has found enthusiastic supporters in the present government. But as our article on its flaws explained, there are several monumental consequences that it will have to reckon with.

These include the risk that it could displace nearly 1.5 million people due to the submergence of 27.66 lakh hectares of land.

If such risks are rigorously managed, then there could be tangible benefits in terms of 35 million additional hectares of irrigation, the generation of 34,000

additional megawatts of power, and "incidental benefits" of flood control, navigation, fisheries, salinity and pollution control, according to the Central government.

If India is to boldly march into a water-secure future that it builds for itself, then it must also glance backward to learn how our ancestors invested meticulously in conserving water, harvesting rainfall and allowing these savings to nurture the aquifer and water table.

Rounding off the 'Last Drop' series, we therefore invited our readers to join us on a delectable journey through time for a glimpse into how the ancient bawari system, or stepwells, of Rajasthan promoted a sustainable, community-focused approach towards water conservation ("Conservation: Lessons from ancient India", May 8).

Indeed the way forward may be for India to not rely only on large dams, interlinked rivers, and borewell drilling, but also supplant these extraction-focussed projects with more effective and widespread water conservation, storage and groundwater recharge.

Establishing this harmony between water extraction and restoration could help us avoid a bleak future ravaged by endless cycles of floods and droughts.

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If India is to march into a water-secure future, it must also glance backward to learn how our ancestors conserved water

CM launches loan waiver scheme for horticulturists

Chief Minister N. Chandrababu Naidu on Saturday launched the "runa upasamanam" programme in Kadapa, under which loan waiver of Rs. 10,000 per acre would be extended to horticulturists in the State.

Horticultural crops are more remunerative and fetch about 12 times the revenue compared with agricultural crops, Mr. Naidu said after launching

the programme at the Kadapa municipal stadium. Loans of horticulturists to the tune of Rs. 380 crore would be waived in the State.

THE HINDU BusinessLine

Darjeeling tea labourers' union threatens stir

The Gorkha Janmukti Morcha-affiliated Darjeeling Terai Dooars Plantation Labour Union (DTDPLU) has threatened to launch an aggressive movement if there was no headway by the last week of this month regarding the Panighata tea estate.

Joint Labour Commissioner Sunil Kumar said the tripartite meet, which was scheduled for Sunday to decide fate of the closed plantation, could not take place as the owner Shankar Sharaf sent a letter requesting for more time and the said letter was later sent to the Darjeeling district magistrate.

Next meeting

With the next meeting's date decided on May 25, the participating unions and the government decided to give the owner time till May 20, Kumar said.

Harihar Acharya, the Terai chief of the DTDPLU, said if the owner failed to attend that meeting too and the tea estate did not re-open by May 25-26, they will start a massive agitation in support of the hapless workers of Panighata, which is in its seventh month of closure now.

Other unions

Besides DTDPLU, the Himalayan Plantation Workers' Union (HPWU) of the Gorkha National Liberation Front was also present during the deliberations.

"Despite several rounds of meetings for reopening the tea estate, the owner has not shown any interest to that effect. Now that we have given the May 25 deadline, he will stand responsible for the outcome of the agitation we have threatened to launch," warned Acharya.

Panighata Tea Estate is spread across an area of about 1,200 acres and lies adjacent to forest area.

Since October 10 last year, when the garden was shut down indefinitely, 13 labourer deaths had been reported till date by the unions.

PM reviews drought situation, meets CMs of UP, Karnataka and Maharashtra

Prime Minister Narendra Modi met Chief Ministers of Maharashtra, Karnataka and Uttar Pradesh separately here on Saturday to assess the situation of drought in these States.

Chief Minister of Uttar Pradesh Akhilesh Yadav and senior officials told the Prime Minister about the efforts undertaken to address the situation, including provision of drinking water, food to the needy in Bundelkhand, employment, water and fodder for cattle, and efforts for long and medium term solutions.

The State also shared the action plan for revival and restoration of 78,000 water-bodies including tanks, ponds, and farm ponds; one lakh new water-bodies and recharge structures.

“This will be achieved by utilizing funds available in schemes such as MNREGA and Pradhan Mantri Krishi Sinchai Yojana,” a release from the Prime Minister’s Office said.

The Prime Minister said the Centre and States have to work together to mitigate the problems faced by the people. He also called for focus on medium and long term solutions for drought-proofing.

“The Prime Minister stressed on the use of technologies like remote sensing and satellite imaging for planning of water conservation and recharge structures.

The need to change cropping patterns based on scientific advice, use of drip and sprinkler irrigation, and fertigation for increasing water use efficiency, community participation, especially women, for better water management, was stressed,” the release added.

The Chief Minister of Maharashtra Devendra Fadnavis informed the meeting that good progress has been made in preparatory works for Pradhan Mantri Fasal Bima Yojana.

Fadnavis said the State Government is working on a plan to ensure that 100 per cent of the sugarcane growing area in Maharashtra comes under drip irrigation in three years.

The Prime Minister told the delegation that the Centre, States, Local Bodies, NGOs and citizens have to work together to resolve the problems posed by drought. He also stressed the need to adopt a judicious mix of traditional and modern water conservation and storage mechanisms.

“Appreciating the efforts of the State Government, the Prime Minister emphasized crop diversification, value-addition, and broadbasing the sources of income for farmers, by connecting dairying, fishery, poultry, bee-keeping etc.

He also underlined the natural hedging from vagaries of nature because of broadbasing of income,” the release said.

Karnataka Chief Minister Siddaramaiah led the delegation from Karnataka. He told PM that major rivers and reservoirs in the State are facing acute water shortage.

“He explained the various measures undertaken by the State Government, including desilting, construction of farm ponds, steps towards drip irrigation, and ensuring adequate drinking water supply,” the release said.

THE ECONOMIC TIMES

To beat drought, ICAR eyes GM sugarcane

The move is significant considering the govt is treading cautiously on the path of GM crop amid strong opposition from environmentalists.

NEW DELHI: As water-guzzling sugarcane is blamed for worsening the water crisis in parched areas of Maharashtra, the central government's premier research institution - Indian Council of Agricultural Research (ICAR) - has decided to join hands with former agriculture minister Sharad Pawar-led Vasantdada Sugar Institute (VSI) to develop drought-tolerant genetically modified (GM) sugarcane that will not need huge quantities of water.

The move is significant considering the government is treading cautiously on the path of genetically engineered crop amid strong opposition from anti-GM crop environmentalists and the RSS-linked Swadeshi Jagran Manch (SJM).

"It will, however, be a long-term project. Developing drought-tolerant (less water-consuming) GM sugarcane is not an end in itself. We know how difficult it is in India to go for commercial release of any transgenic crop," said an ICAR scientist.

Citing the recent example of GM mustard, sources claimed that even positive reports based on field trials and bio-safety examinations of the crop could not get this transgenic variety - developed by a Delhi University institution - green signal.

But the effects of back-to-back droughts, mounting rural distress and the

sheer economic and ecological costs of water-intense crops might make planners keen to develop GM sugarcane. Authorities hope that once the benefits of the new crop become evident, its acceptance will grow.

The final call will be that of the central regulator - Genetic Engineering Appraisal Committee - of the environment ministry.

So far, GM brinjal hasn't been allowed commercial release even after the regulator's nod whereas a similar transgenic variety is being cultivated by Bangladesh.

But GM sugarcane in water-stressed areas can offer hope in Maharashtra and other parts of India.

Already, extreme water shortages have turned the focus on how to use water judiciously with PM Narendra Modi calling for all out efforts to implement drip irrigation on a massive scale.

Referring to the urgency, an ICAR scientist said the GM route could be a long-term approach, keeping in mind the global demand scenario and India's role in it, whereas drip irrigation was the need of the hour.

The research body, nevertheless, appears to be preparing for the future. ICAR director general Trilochan Mohapatra had last month written to Pawar while apprising him of the work done by ICAR-Sugarcane Breeding Institute in Coimbatore in the field of GM sugarcane and how it could join hands with VSI, Pune. Pawar is chairman of the board of trustees that manages VSI.

Responding to Pawar's letter on the issue, Mohapatra said an MoU was ready to be signed between ICAR and VSI.

How climate-smart agriculture is crucial for India's food security at a time of farm distress

Tilling involves the digging and overturning of soil to prepare it for farming every season. Zero tillage improves water and nutrient retention.

Just as we hit Karnal, 130 km north of New Delhi, in Haryana on National Highway 1, a noxious odour and a mild haze are all but obvious.

As we turn left off the highway, their source comes into view: large stretches of agricultural fields coated in various shades of black, with the embers still fresh on some.

Burning the residues of the rice crop after harvest in winter, and of wheat in March-April, is quite common among the farmers of Haryana and Punjab and the effects of the pollution are felt even in the national capital.

But in Taraori village, most fields are populated by wheat residues a few centimetres to a couple of feet tall.

Known for its export-quality basmati rice, Taraori is among the 27 villages in Karnal district which are showing the rest why it makes much sense to not burn the crop residues and why it is even essential.

Playing Smart These villages are part of a research project of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

The five-year-old global project on climate-smart agriculture, which covers 21 countries in Asia, Africa and Latin America, looks to make agriculture sustainable and resilient to climate change while at the same time increasing food production and farm incomes.

CGIAR, or the Consultative Group on International Agricultural Research, is an umbrella body of 15 research centres.

Among the 27 villages, Taraori has emerged as a model climate-smart village of sorts with farmers who are progressive and receptive of new technologies, helped by the efforts of a farmers' group in the village.

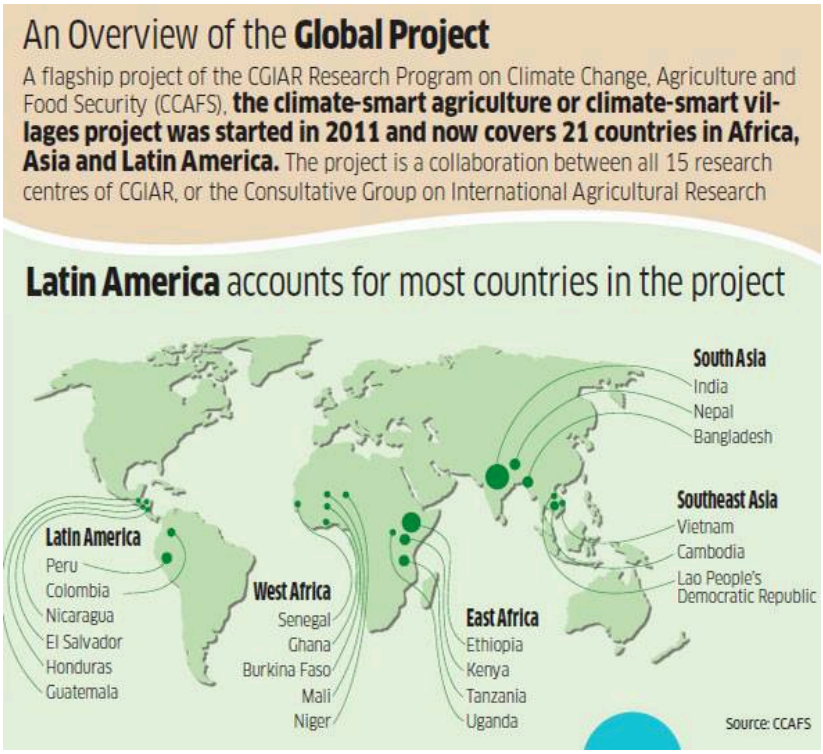
Vikas Chaudhary, who is secretary of the group, says eight out of ten farmers in Taraori did zero tillage on their land this rabi season and very few burned the residues.

Tilling involves the digging and overturning of soil to prepare it for farming every season.

Zero tillage improves water and nutrient retention, and is one of the key components of climate-smart agriculture.

"All it takes is for farmers to see how we do things differently and most of them are quick to adapt," says 35-year-old Chaudhary, a graduate in political science and geography, who has followed his father into agriculture.

HS Jat of the International Maize and Wheat Improvement Center, a unit of CGIAR, who has been involved with the project, says zero tillage along with residue management and diversification of crops reduce the fertiliser requirement by a fifth after three years.



A tonne of rice and wheat residues, about 40% of which is carbon, is said to contain 5-8 kg of nitrogen, 1-2 kg of phosphorus and 11-13 kg of potassium.

Som Dutt, a farmer from near Karnal city, says that in the last five-six years, he hasn't burned the residues or tilled his land, and as a result his wheat yields have gone up from 16-17 quintals to 20 quintals an acre.

"My diesel use has also come down 80-85% in zero tillage compared with conventional tilling."

Even direct seeded rice, which involves the sowing of rice seeds directly, compared to the traditional method of sprouting rice in a nursery and

transferring the seedlings to a field with standing water, reduces methane emissions by 40% and water use by 25%.

Among the tools to optimise fertiliser use is a sensor called Green Seeker which, when held over the crop, gives a reading.

The data is fed into an app for the farmer to know how much fertiliser he should use.

There is also a leaf-colour chart to help farmers decide how much nitrogen the crop needs. Farmers also use weather information and a technology to measure soil moisture.

Tackling Climate Change What makes climate-smart agriculture all the more important are occurrences of climatic variability, making farming more vulnerable to the vagaries of nature.

For instance, the number of rainy days Karnal has every year has dropped from 40-45 two decades ago to 25 days, and the intensity of rainfall has risen, which is counter-productive to groundwater recharge because of the runoff of rainwater.

Moreover, unseasonal rains have also been witnessed in February over the last couple of years, something which other parts of the country have also experienced.

Warmer summers and droughts have also made agriculture, which more than half the Indian population relies on for a living, riskier.

Last year was the world's hottest year on record and 2016 is expected to be even warmer, with the global average temperature being 1.14 degree Celsius higher than pre-industrial levels.

This is worrying because over 170 countries have agreed to cap the increase at 1.5-2 degree Celsius this century.

In India

Trials are being conducted in around 70 villages in Haryana, Bihar, Punjab, Odisha and Karnataka, out of which evidence has been collected in around 60

Looking at the **success of the trials in 27 villages** in Karnal district, the Haryana government has decided to expand it to 500 more villages in the state

The Bihar government has also sought an action plan to take it across the state

There is a **similar homegrown project in India**, National Innovations in Climate Resilient Agriculture, also started in 2011. This project of the Indian Council of Agricultural Research (ICAR) **covers 151 villages across the country**

Source: CCAFS and Central Research Institute for Dryland Agriculture

Impact of Climate-Smart Agriculture in Karnal, Haryana

Zero tillage and line sowing instead of broadcasting of seeds **increase rice and wheat yields by 10-15%**

Zero tillage cuts diesel use by 80-85% per hectare

Direct seeded rice, which involves the sowing of rice seeds directly, compared to the traditional method of sprouting rice in a nursery and transferring the seedlings to a field with standing water, **reduces water use by 25% and methane emissions by 40%**

Bed planting of maize and wheat, which is at a level raised from the soil, **cuts water use by 30-35%**

Zero tillage, residue management and crop diversification brings down fertiliser use by 20% after three years

Source: CCAFS

Climate-smart agriculture assumes even greater significance given its link to food security.

According to a World Bank-commissioned study in 2013, total crop production in India is expected to rise 60% by the 2050s without climate change, but in the event of a temperature increase of 2 degree Celsius since the industrial revolution, the increase will only be 12%.
Moreover, it will have to import twice the amount of food grains than in a scenario without climate change.

Pramod Aggarwal, South Asia regional programme leader, CCAFS, says we should not get lost in the debate of the magnitude of climate change.

"The trend (in climate change) is clear and farmers are already suffering. We should develop strategies to address that."

Aggarwal adds that since CGIAR is only a research body it is up to the government and the farmers to scale up climatesmart agriculture.

Helping Oneself Looking at the success of the trials in Karnal, the Haryana government has planned to take them to 500 more villages.

Bihar is also looking to scale up climate-smart agriculture.

The CCAFS project now includes 70 villages in Punjab, Odisha and Karnataka, besides Haryana and Bihar.

Punjab and Haryana were among the states transformed by the Green Revolution in the 1960s.

A similar project of the Indian Council of Agricultural Research, called National Innovations in Climate Resilient Agriculture, has now covered 151 villages across the country and plans to add another 100.

Alok Sikka of the International Water Management Institute believes climate-smart agriculture is so structured that in a good monsoon year, the rains are sufficient for farming; in a bad monsoon year, there are water management and conservation practices which come to the farmer's rescue; and in a very bad year, the farmer can turn to crop insurance.

What is **climate-smart** agriculture?

With climate change being a looming threat to agriculture, **climate-smart agriculture looks to develop resilience to it and sustainably increase productivity and farm income**, while at the same time reduce greenhouse gas emissions

According to the Food and Agricultural Organization, **food production needs to increase 60% by 2050** over 2005-07 in order to meet the requirements of a **global population of over nine billion, a 28% growth from now.** This coupled with the challenges of climate change means that **climate-smart agriculture is crucial to food security**

The CCAFS project is developing customised, region-specific crop insurance schemes based on short-term and long-term climatic risks.

As stories of farm and farmer distress, for which climate variability is partially responsible, have become more common over the years, it is very clear that for agriculture to be a viable source of livelihood, and to ensure India's food security, the government and farmers themselves will have to ensure the latter's land and crops are more sustainable and climate-resistant in the long run.

Total crop production in India is expected to rise 60% by the 2050s without climate change, but in the event of a temperature increase of 2 degree Celsius since the industrial revolution the increase will only be 12%. Moreover, the **country will have to import twice the amount of food grains** than in a scenario without climate change