

+ COVER STORY | NEAR AND DEAR | OBITUARY

gobar times

ISSUE NO: 232, August 1-15, 2021

A DOWN TO EARTH SUPPLEMENT FOR THE YOUNG AND CURIOUS

THE FREEDOM PLEDGE

In pursuit of freeing our environment
from degradation and strengthening our
Independence





Green Schools Programme

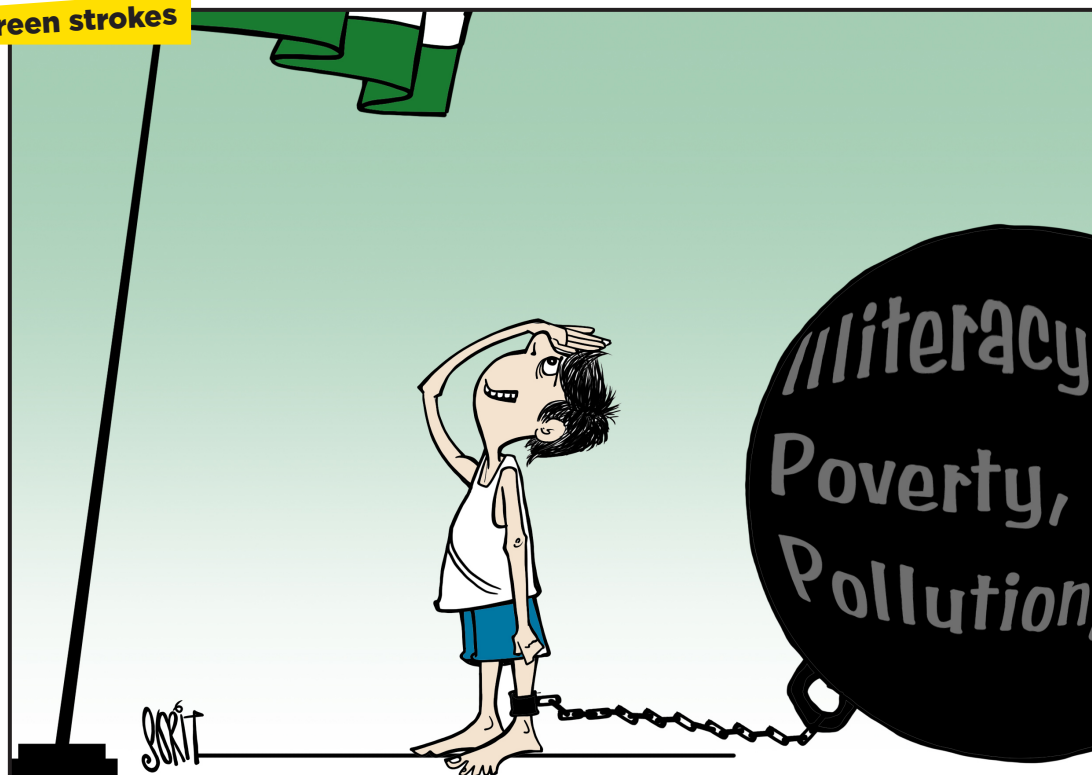
AUDIT@HOME ENERGY MANAGERS

An online energy audit that you can
do in your homes

The last date to submit the audit survey is **Saturday, August 7, 2021**. Participation in the audit is free. Schools from which we receive the highest number of submissions will be featured on the Young Environmentalist website! So, share the survey with all your friends and encourage them to submit it.

To register, please visit: www.greenschoolsprogramme.org

Green strokes



The Freedom Pledge

August is very special for us because it is the month when we got our independence. But do we even understand the meaning of words like, 'Independence', 'Freedom', etc.?

One of the greatest freedom fighters of our times, Nelson Mandela, once said: "To be free is not merely to cast off one's chains, but to live in a way that respects and enhances the freedom of others."

In other words, my freedom is related to the freedom of others. More freedom for me should not mean less freedom for others. Now, let's use this yardstick and judge ourselves for a moment.

We cage animals in the name of keeping pets. We setup zoos for them which are actually a kind-of jail. We destroy their homes when we cut jungles. We kill birds and insects, and pollute our land and air when we use pesticides. We also pollute our waterbodies badly when we dump our garbage into them. We don't even realise that the water which is merely 'Not

fit to drink' for us is in reality not fit to survive for the fishes! And this list is endless...

Enough is enough!

Just celebrating a particular day as our Independence Day is not enough. Let's start respecting the very word—'Freedom' for ourselves and everyone on this planet. And the most sincere way to do so is by taking the following pledges today.

1. We will not pollute our land and throw waste only in dustbins.
2. We will not waste our water and use it only when required.
3. We will not chop our trees because plants also have a right to live.
4. We will not pollute our air by preferring to cycle short distances.
5. We will not treat anyone unfairly because everyone has a right to be free.

Happy Independence Day!

Freeze Frame by Vikas Choudhary



Tricolours of Independence: Celebrating 74 years of freedom and pledging to improve a lot more about our land, water, the green, and our individual rights!

This space is for young and budding wildlife photographers who wish to share their work with us!

Send us your best pics at young.downtoearth@org.in

Digits speak

India targets to install power plants generating renewable energy of upto 175 gigawatt (GW) by 2022. Until March 2021, we accomplished only 87 GW. Check out the variety of sources used to generate electricity in our country. Note how much are we actually focusing on renewable energy!

230 GW

Thermal

45 GW

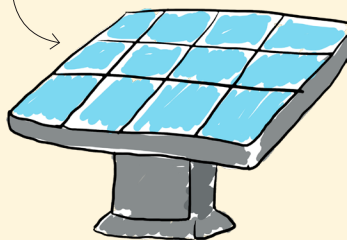
Large hydro

87 GW

Renewable energy

6 GW

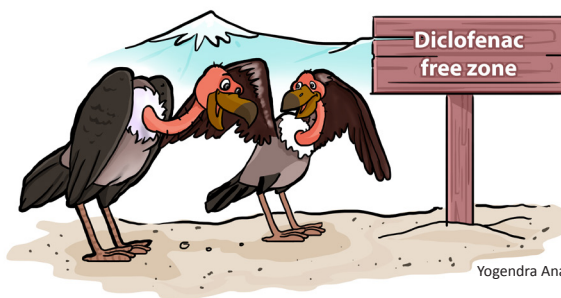
Nuclear



Source: Central Electricity Authority's (CEA) monthly report

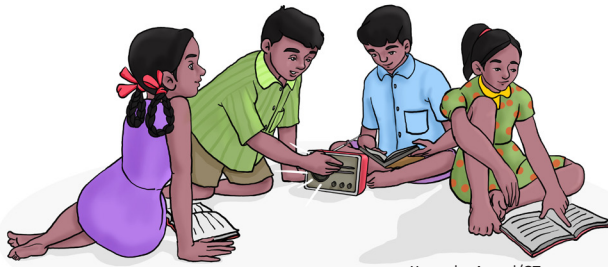
Conserving the Scavenger

Over the years, the vulture population has been declining dramatically mainly due to diclofenac. It is an anti-inflammatory drug (meaning, a medicine to reduce swelling, redness, or infection) used for treating cattle. Vultures feeding on the dead bodies of such cattle suffer with kidney failure and drooping necks, before dying eventually. Recently, in the Valmiki Tiger Reserve in Bihar about 150 vultures varieties were spotted—Egyptian, Griffon, Himalayan griffon, and White-rumped. This prompted the government to setup a vulture rescue centre and involve the local community, through seminars and street meetings, to help save these vital forest-cleaners. Diclofenac-free zones will also be established to save the scavengers.



Yogendra Anand/GT

Tune in to FM Community Radio



Yogendra Anand/GT

Have you ever wondered how poor students without a cellphone studied during the pandemic?

South Odisha Voluntary Action, an NGO, has started *Radio Dhimsa* which broadcasts educational content to over 2,000 students of class I-V. These are heard at several listeners clubs, setup over 62 villages in remote areas. Their programmes are designed by school teachers and comprise a lesson each day, mostly of Maths and English. They also broadcast COVID-19 precautions and all of this in Odiya and Desiya, the local tribal dialect. They speak in both live and recorded sessions so that everyone can learn at their convenience and overcome the digital divide.

Wildlife is not (just) about animals; it is about how we can make our surroundings nice and livable

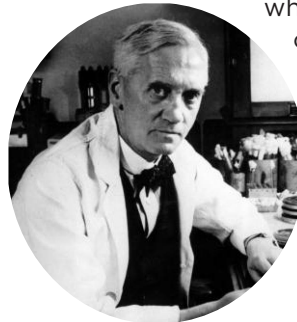
Dr Qamar Qureshi
Scientist, Wildlife
Institute of India

Discovering Penicillin: Alexander Fleming

(1881-1955)

Alexander Fleming was born in a very simple Scottish farmer family and was the seventh among eight kids. When he grew up, he studied at the St. Mary's Hospital Medical School. In 1921, he discovered lysozyme—an enzyme (meaning, substances that quicken a chemical reaction) present in our body fluids. This lysozyme has

a mild antiseptic effect, which became one of his first major discoveries.



One day, when he returned to his lab after summer vacations,

he found it all messy. His petri

dishes were covered

with some fungus-like thing.

When he examined it under microscope, he found that it was ***Penicillium notatum***—a mould.

He was amazed that this mould prevented some bacteria harmful from growing. Then, he reached a phenomenal conclusion—the penicillium mould could not only inhibit the growth of such bacteria but also help combat many infectious diseases!

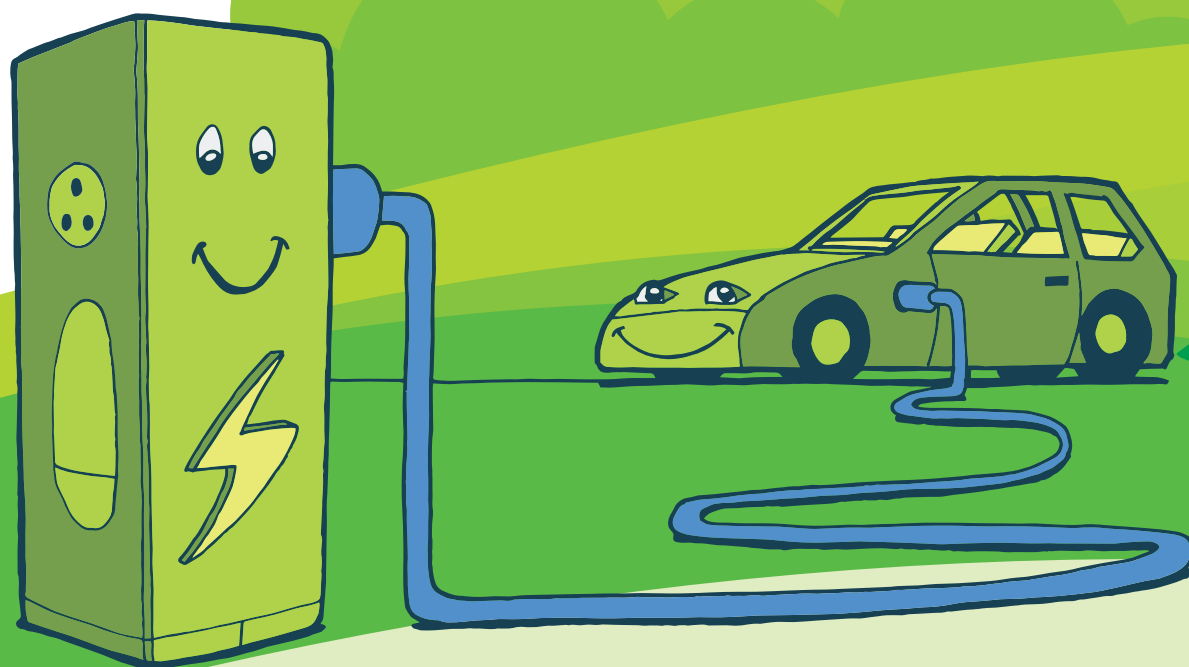
As Dr Fleming famously wrote: "When I woke up just after dawn on September 28, 1928, I certainly didn't plan to revolutionize all medicine by discovering the world's first antibiotic, or bacteria-killer. But, I guess, that was exactly what I did!" In 1945, he was awarded the Nobel Prize in Physiology or Medicine.

Compiled by Arjun Lahkar and
Anubhuti Sharma

Zooming Ahead with E-Vehicles

Why are e-vehicles important and what makes them so?

Neeraj Kumar and Anubhuti Sharma



Automobiles, like our cars and buses, cause a lot of pollution. It is because they are based on fossil fuels. So, our government is promoting vehicles which can use clean fuel. When it comes to such vehicles, the first thing which attracts the attention of the people is electric vehicles or 'e-vehicles'. Unlike the common vehicles which run on petrol and diesel, the e-vehicles run on electricity. Hence, they do not produce any harmful emissions and are 'clean' vehicles.

These days, there are several options available among e-vehicles. In addition to electric cars, there are many electric two-wheelers, three-wheelers, buses and even rickshaws riding on the roads. Many governments in our country, like those of Delhi and Maharashtra, are also providing hefty subsidies for a long time for purchasing e-vehicles.

However, there is a catch! Most people are still hesitant to buy these vehicles. Why? Why? Why?... The biggest reason is

their heavy prices! Further, people don't know much about them. Hence, there is a lack of interest in e-vehicles.

But you know what? Very soon these e-vehicles would become much cheaper and might even cost the same as the petrol and diesel vehicles. Moreover, their biggest advantage is that they are highly

eco-friendly! In a world where automobile exhaust has caused among the greatest damages to our air quality, e-vehicles can help us fight best against rising global warming. Plus, we already know that one fine day our fossil fuels will get over. So, switching to e-vehicles is our best opportunity to continue riding ahead.

How does an E-Vehicle work?

CHARGE PORT: The charge port acts as a connector or a plug-point on the vehicle to help it charge and meet its power requirement.

ON-BOARD CHARGER:

This charger converts the Alternative Current (AC) supplied from outside to Direct Current (DC). It also converts high-voltage DC power into low-voltage DC power that is used to charge the battery and drive the vehicle.

POWER ELECTRONICS CONTROLLER:

The main work of the controller is to control the electricity produced by the battery. It also controls the torque (a kind of force that causes something to rotate) generated and the speed of the motor.

BATTERY: This battery provides electricity to different parts of the vehicle.

ELECTRIC TRACTION MOTOR:

The main work of rotating and driving the vehicle is done by this motor. It does so by giving power to its wheels.

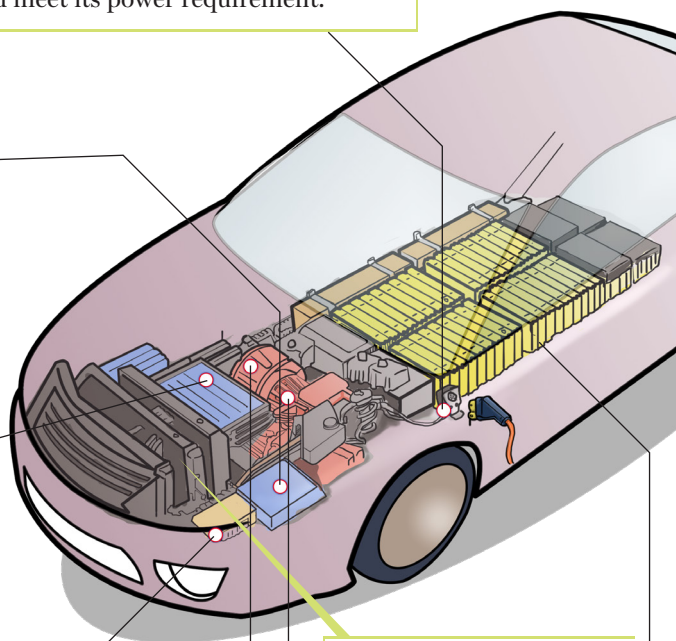
TRANSMISSION: It transfers power to the electric traction motor to actually run the wheels.

THERMAL SYSTEM:

The engine, electric traction motor, power electronics controller, and all other equipment inside the vehicle need to maintain a proper temperature. So, the thermal system maintains this temperature at the required level.

TRACTION BATTERY PACK:

This battery stores the energy for the vehicle.



The Return of the Caracal



A Freedom Pledge on land—a promise to keep our land, its flora and fauna, and its rocks and rains in a thriving and lively condition.

Souparno Banerjee

It looks so green, just after the rains. All clean and vibrant, teeming with life...,” muttered Pihu, as she looked at the vast rolling hills.

“True,” replied her grandpa. “But there was once a time when all this was dry as an old bone. There were no trees and only weeds... all the animals had vanished too.”

Pihu nodded, her eyes searching a big clump of bushes, where she had last seen ‘him’. Of course, she wasn’t sure if it was a ‘he’ or ‘she’—she just assumed that the tawny cat-like creature with funny ears was a male. Grandpa had listened to her wild-eyed description, and told her it was a caracal. It is an extremely rare, almost extinct wild cat in India. ‘Bilao,’ Pihu fondly named him.

“He is here. You will see him again,” assured grandpa. “He has

returned because the land has come alive again, because the land itself has returned.”

Even as he said it, his mind wandered back to when every full-grown tree on this land had been hacked off and the wood sold. When the rains had become uncertain and erratic, and the seasonal streams had dried up. When all the wildlife had disappeared and all that was left behind was rocks and stones, and a cracked and barren earth. Even the air they breathed had become stale and odourless.

It all changed when he and a few others villagers realised that they will not survive if their land did not. So, they started catching whatever rain fell, instead of allowing it to flow away. They dug channels to direct rainwater into storage wells. They built rainwater harvesting and groundwater recharge structures. They setup forest protection committees and stopped using too much of, what is called, non-timber forest produce—bamboo,

sal leaves, grasses, etc. And within a few years, the land was reborn, and smiling once again.

Pihu gasped, and grandpa’s mind snapped back to the present. She was pointing to the caracal, crouching low under the big banyan, staring at her directly. The early morning sun glinting off its shiny, light-brown coat.

Grandpa whispered: “Such a beautiful sight, *hai na*? Well, do you remember what day it is today?”

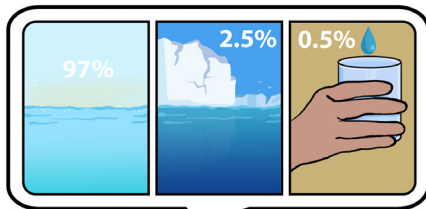
Pihu smiled: “Our Independence day. You told once that we are not completely free unless our land, air and water is free of wasteful practices, pollution, and decay.”

As they watched the caracal melt away into the bushes, grandpa wondered, “Shall we make a promise today to ourselves and to that ‘Bilao’ of yours? That we will take care of our land, and keep it healthy and thriving, so that others like him can also return? Shall we?” Pihu softly pressed his hand in assent.

From a Water Maniac's Diary

A Freedom Pledge on water—a promise to conserve every drop for our present, before we even reach the future.

Souparno Banerjee



Yogendra Anand/GT

15th August 2021, Sunday

My friends call me 'Water Maniac'. They say I suffer from a 'reverse' hydrophobia—perennially worried about water. Basically, dreading the prospect when we won't have any of it...

In fact, I think there is quite a possibility of that happening. And this frenetic hand-washing spree in these COVID times has made matters worse. No doubt that it's important but do we even have enough water to keep washing hands across the world?

When I tell my buddies that our freshwater stock is under threat, they stare at me. You see, 97% of the Earth's water is in the oceans—too salty for any use, except industrial. Merely 3% is fresh of which 2.5% is unavailable—locked up inside glaciers and icecaps. So, all that we have is just 0.5%!

And what are we doing with it? Our industries spew out filth and turn the rivers into nallahs. Our cities do the same. I mean look at what we've done to the Yamuna! We talk a lot about rainwater harvesting, but

how many homes and schools actually do it? We don't even have enough capacity to treat the wastewater we generate. I guess, we just mismanage everything!

I've tried to talk about this to my friends, but they don't care. So, I talk to my Mom and you—Diary of mine. You don't talk back, of course, unlike my Mom who listens patiently and tells me to focus on my studies. Can't blame her, I guess, but isn't what I am talking about equally critical?

It's already 15th August. But what's the point of being independent when we remain perpetual prisoners to pollution and overuse of a life-saving resource? Correct me if I am wrong, but a true patriot would pledge to protect these life-bloods of our nation and even of the whole Earth. So, let's pledge together—my Diary, you, and me:

I, the 'Water Maniac', can and will do these three things in the coming year. (So, am not going to make any tall promises and fall flat on my face when it comes to fulfilling them.)

- I'll stop wasting water personally, and persuade my family to do the same, in the true spirit of charity beginning at home.**
- I'll try harvesting rainwater at home, and get my elders enthused about the idea** (not a very easy task, I tell you!).
- I'll live up to the name my friends have given me: learn more about this vital resource and spread awareness as much as I can.**

Next year, when I salute the Flag, I'll take a moment to look back at the path I've travelled. Until then, happy Independence!

—Water Maniac aka my Mumma's Neelu

Cover story

We Can Do it!



Pledges on our Independence Day



We will not pollute our land and throw waste only in dustbins.

We will not waste our water and use it only when required.



We will not chop our trees because plants also have a right to live.

We will not pollute our air by preferring to cycle short distances.



We will not treat anyone unfairly because everyone has a right to be free.

From Earth to Mars via a Mobile App!

A Freedom Pledge on greenery—a promise to protect the forests and biodiversity of our planet.

Sorit Gupto

It was raining heavily outside. Yet, Budul was stuck to her computer as her online classes were going on. Back-to-back classes were giving her a headache and rendering her eyes sore. Finally, she got an hour's break. She felt like resting for a while. She lay on her bed and shut her eyes. Just then, her phone vibrated zainnn... zainnn....

She checked her mobile wondering, "Is there an update from school again?" Instead, there was a photo that her friend, Devanshi, had shared, showing their Maths teacher way too aged. This was done though some mobile app which could advance anyone's age by 20-30-40 years from now. So, at first, Budul burst into a laughter but later an idea struck her mind. "How

will the entire world look like say, some hundred years from now?"

Budul quickly uploaded a picture of the planet Earth from the Internet onto that app. The moment she did that, all the rain stopped outside and a violent dust storm took over. A view of the whole, wide earth appeared before her as she remained standing in her balcony.



Budul observed that the green cover was rapidly wiping away from the face of the earth. The lakes and rivers were running dry. Very soon, the earth began appearing like the Mars.

"Oh! What's this happening?!" Budul yelled in awe and horror.

The Mars-turned-Earth smiled and replied to her, "Isn't this justified? You, humans, are not concerned about me. In the name of constructing

highways, dams, and cities you have chopped away jungles after jungles. You have dumped garbage into waterbodies. Soon, the entire greenery will eliminate from me and then your Earth will become a Mars. You people anyway wish to settle on Mars, don't you?"

Budul screamed frantically, "No! No! I want my green earth back. I don't want to go to any random Mars. Isn't there a rewind button in this app? Please help!"

The Mars-turned-Earth replied point-blank: "There's no such option. But there's one way by which you can get your loving Earth back. You'll have to make a promise for that... Are you ready to take a small pledge?"

"What pledge?" Budul inquired feeling intense fear.

"You will take care of the greenery and will also ask your friends to do that. Tell me, are you ready?"

"Yea, yea, definitely! I promise that I will protect the greenery now onwards, wholly and solely," swore Budul sincerely.

Before Budul could speak further, her mobile vibrated once again and an alarm rang aloud. She had set it for her next class.

"So, I was dreaming all this while!" realized Budul as she returned to her senses. She immediately ran towards her balcony. It was still raining cats and dogs outside exactly as before. "Thank God!" prayed Budul in great relief.



Your Right ≠ My Right?

A Freedom Pledge against child labour—
a promise to provide and protect everyone's rights equally.

Anubhuti Sharma

"*Hu thaayu Neeruben* (How are you, Neeru aunty)?" Chukli teasingly greeted in her typical sing-song, half-baked Gujarati. So, Neeruben replied, "*Kasu nathi Chukliben* (Nothing much, Chukli baby)!" as she dashed to clean the utensils. This jingle was their daily ritual that both performed religiously.

Sometimes, Mita also followed Neeruben. Mita was just about Chukli's age, which, for Chukli, was the best part! Often, while Mita mopped the floor, Chukli would sprinkle some dirty bucket water onto her and run away. Then, Mita would respond with equal vigour. With the slurpy dirt dripping down her face, Chukli would giggle each day. Many times, Chukli drew chalk cubes on the floor and coaxed Mita to play *kit-kit*. But as Mita rushed from one house to the other, she would only hop

within the cubes on her way brisking to another house.

One day, as Chukli was behaving naughtily, her Dad scolded her tight. "Do you know why Mita does *jharoo-pocha-bartan* and not attend school?" Chukli was dumb-faced. "Because she is sacrificing her education for her brother. That is why while she and her mother do menial chores twice every day in so many houses, her brother studies to progress ahead."

Though, Chukli did not understand what all that really meant, she just lied low that day. So, when Mita came, Chukli did not pull her ponytail or stick her tongue out when Mita rolled her eyes in fast circles. But, the next day, everything was back to the funny normal. Mita combed and tied Chukli's ponies. She also cleaned the house as a cat had burst open a milk packet, which Chukli had carelessly forgotten to put inside the fridge.

Many years later, when Chukli worked in reputed offices, she revisited her childhood home. She was overwhelmed to see

Neeruben, her old gardener, carpenter,

shopkeeper, and even her school buses' conductor. But Chukli most longed to meet Mita. However, as life drifted them apart, Mita could not go beyond a primary school and never ever to a college. By now, she was already married 'timely' in a village nearby and was also parenting a baby. She could not learn any new skills to earn more nor enjoy any opportunity that Chukli ever did, even though she was equally hardworking and sincere.

As Neeruben left, the grown-up Chukli gradually understood what her Dad meant that day. After witnessing the loss of childhood of a dear friend, Chukli realized that the world is not equal for all of us.

Back home, one day, as she was setting her new mopping machine, a doorbell rang and she found Usha aunty. Aunty had come to collect her final wages for the *jharoo-pocha-bartan* she did prior to the lockdown. That was when Chukli paid her a lot extra to be able to afford a smartphone. "*Ye Madhu ki online classes ke liye* (This is for Madhu's online classes)," she explained, pledging to ensure that no poor child ever loses his/her rights which she was blessed with.



Coder story



Ka-Kaw!

A first-hand experience narrating the extraordinary about the ordinary—crow.

Gargi Mishra



Do you remember your Mum pointing out a *kauua* to you as a kid? A crow is certainly among the first non-humans we notice as babies. In fact, children very quickly pick up their 'ka/kaw' in spite of its harshness, and repeat it like a sweet lullaby. This is how, crows become our best, flying companions—they fly wherever humans go! Moreover, they also display many of our traits, like intelligence, cooperation, cleverness, and being social.

I'm sure, you'd remember reading the Aesop's fable on the crow and the pitcher. That's where this glossy jet-black displays its intelligence using some stones to quench its thirst. In fact, after parrots, crows have the largest brain among birds! Further, this brain has an excellent memory too.

Do you know, crows can recognize your face? Hence, they don't forget you, particularly, when you trouble them! Plus, they also complain about you

to their friends.

Common cultural prejudices prevail about crows. They are believed to be harbingers of death, disease, and sorrow. Their group is known as a 'murder of crows', which I don't like. This flock is often considered a bad omen. A ghostly 'scarecrow' in a farm also seems to be named after them! As a child, I wished if we call it 'scarebird' instead of maligning our innocent, shimmering birdy.

Thankfully, in Indian beliefs, its *ka-kaw* predicts the arrival of a much-awaited guest. Interestingly, over a hundred crows can assemble where a fellow crow is lying dead. They do this to find out the reasons for its death. After that, they usually discard that area. This behaviour shows how smart they are, or it may be their survival strategy.

Out of the many visitors to my balcony, a crow stands apart. It loves curd. It scoops into the curd topped over its rice plate, collects little water,

and flies away. A few days back, I observed a breeding crow-pair building a nest with twigs, barks, rags, and discarded plastic wires! Though, I couldn't see their eggs but I certainly noticed their chicks. Initially, one parent guarded the nest while the other gathered food. But recently, they both took to feeding the chicks.

I learnt that the house crow often becomes a victim of brood parasitism by Asian Koel. Meaning, that the Koel relies on other birds, like crows, into raising its young ones instead of doing this by itself. Some years back, I even witnessed how two crows dutifully fed a Koel chick, whose food demands grew more frequent. No wonder, there are so many Koel chicks in my trees nearby and why both my crow-parents have eventually taken to feeding all their nest-dwellers.

Once again, this year, a crow couple is building their nest. I hope this time, they won't become victims of brood parasitism.

Didi Contractor

Greening buildings and building dreams—an obituary dedicated to Didi Contractor.

Arjun Lahkar and Anubhuti Sharma

“One of the many things that’s wrong today is that people are not ready to accommodate their lives to the rhythm of the universe. We don’t see the wisdom of Nature. Technology should also be consistent with a humanistic agenda of making people comfortable with themselves, with one another, and Nature,” summarized Didi Contractor, still active till her nineties.

interest in Indian design and buildings.

In the 1960s, she interior-designed and overhauled the Lake Palace, Udaipur into the marvel it is today. Thereafter, she became known for following typical Indian traditional styles and tastes.

In 1978, she constructed some amazing eco-friendly homes in Himachal. She recycled about everything—cork, broccoli,

Compassionate Living, and the Sambhavnaa institute of public policy. For inculcating ecological values and reviving local skill, a self-taught architect herself, Didi taught traditional architecture to many young artisans.

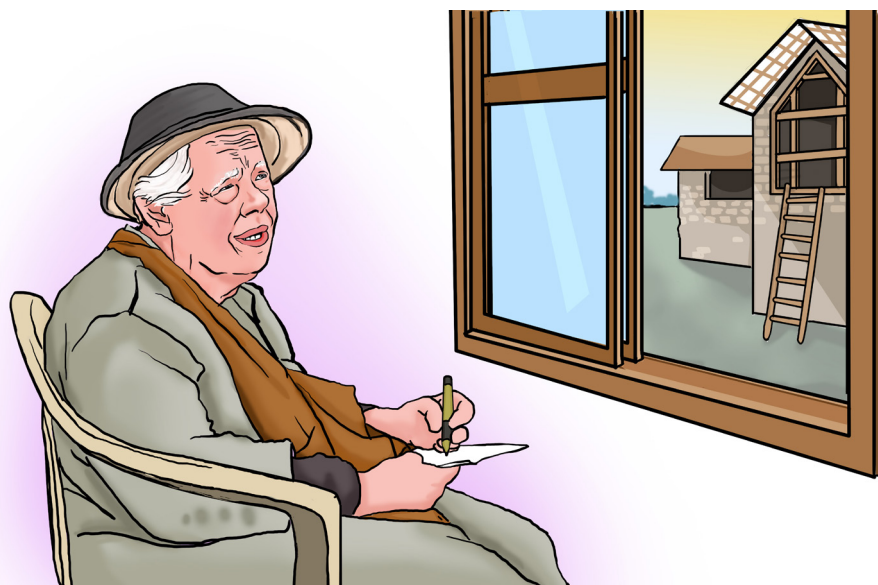
Nishta Clinic, her first public project, was built from mud bricks and straw. Its structure was very spacious and exhaled a friendly aura compared to most other boxy and congested hospitals. Its openness provided a very extravagant view of the majestic Himalayas. This carried a lot of sentimental value for its doctors and nurses and had a blaming-effect on its patients.

“Eco-sensitive structures need to be built as per the season, whereas cement structures can be built quickly and at any time of the year. One of the problems with contemporary life is losing our contact with the cycles of Nature.” Thus, Didi Contractor specialized in mud, clay, bamboo, slate, and river stone, and literally advocated a ‘down-to-earth’ living.

“In my work, I am more concerned with the ecological cost than with the financial cost. The financial cost concerns the individual rather than a collective. But... an ecological expense we all bear the brunt of... your grandchildren and great grandchildren, will continue to bear the expense of what we are doing now,” concludes an excerpt from an upcoming book by Didi who dreamed new designs and designed those dreams.

A daughter of two renowned painters and raised in the US and Europe, Didi devoted many significant years of her life to India. In 1951, she met Narayan Contractor, a civil engineering student, and fell in love. Soon, they were happily married and raised a family in the Kangra Valley. Deli, now lovingly called ‘Didi,’ immersed herself in her new home and its culture with a particular

paper, rice husk, and pine—into mud plaster. Determined to inspect her sites even by riding on horsebacks, she mentored her workers into better ways of living—both in principle and practice. And being a follower of what she preached, her belief in sustainable architecture were best exhibited through several masterpieces. These include a craft market, a resort, the Dharmalaya Institute for



Yogendra Anand/GT

Obituary

HeatJet's

**MEGA
MONSOON
FAIL**



Many countries witnessed an exceptionally hot month in June this year. July too saw people reeling under a record nine-year high temperature in the capital city of New Delhi. Millions in India suffered as the monsoon ran behind schedule and a severe heatwave shot the mercury unforgivingly.

Ritika Bohra/GT