

16-29 FEBRUARY, 2024

DownToEarth

FORTNIGHTLY ON POLITICS OF DEVELOPMENT, ENVIRONMENT AND HEALTH

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SLUMMING IT

The good, bad and ugly of
redeveloping a slum with
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gobar times

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Water

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Waste

Food

Energy

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**A website on
Environment and Development
for the Young and the Curious**

Reshaping democracy in new climate

IN MANY ways 2024 will determine the shape and future of democracy as we know it today. This year, about half the world's adult population will cast vote to elect their governments. The question is whether the current idea of democracy will survive the coming year or be reshaped. We are already seeing the growth of right-wing governments globally, propelled by electorates swayed by fear and polarised politics. Will democracy be reduced to the mere act of casting votes and the subsequent triumph of the majority? The idea and practice of democracy has been about free speech, dissent and strong institutions of balancing power. Will we lose it to the many wars that we see in our world today?

As much as the wars have taken a toll on people, they have also disfigured the grand idea of democracy as a moral force, which would provide space for dissent and justice. The war in Gaza has brought out sharply the double standards of the liberal world; it has made these countries lose their moral authority to hold up a higher standard of human rights. The war has also sharpened the divide between people, their culture and religion.

Then, we are seeing the fear of the "other" due to a surge in migrants. There is no simple reason why people choose to leave their home, family and community. But what is clear is that the number of migrants is on the increase. According to the US-based think tank Migration Policy Institute, the number of non-authorised migrants at the country's borders has doubled over the past year. It has become the hot potato issue for elections, with Republican governors sending hordes of migrants to states governed by Democratic Party. It is the same in Europe, where a spike in migrant population has given fodder to fear mongering. This means that voters in our democracies are electing masculine governments that promise to keep out the "other".

The "World Migration Report 2022", compiled by the Geneva-based International Organization for Migration, finds that the triggers for internal displacement are changing—it is not just conflict that is driving people out of their homes, but also the combination of slow onset of climate-related disasters such as droughts. We know from our experience in India that migration from villages to cities and beyond is multi-pronged; driven by the loss of ability to cope with economic marginalisation and exacerbated by factors, including weather disasters, losses in livelihoods and, of course, the allure of cities.

We also know that this migration can be reversed by investments in natural capital and wellbeing. Migration has been stemmed in places where village communities

have built local economies by rejuvenating water systems to bolster productivity, adopting low-input agriculture and engaging in similar activities. This is the reason India's national rural employment guarantee programme, which gives minimum wages for 100 days to adults for work on ecological improvement, despite all its flaws, remains the biggest "coping" mechanism for the country. This is where a huge opportunity exists to build resilience and economic opportunities for the future.

But today's headwinds are against this reversal. Wars are driving people out, poverty is increasing in an inequitable and divided world and climate change impacts are getting worse. We are not acting at the scale and speed needed to reduce greenhouse gas emissions that are tipping us over.

In fact, the actions that governments will take towards combatting climate change could become yet another ignition point for the reshaping of democracies. The already industrialised world, with its huge unpaid natural debt for years of economic growth built on spewing emissions into the common atmosphere, is finding it tough to reduce emissions. Till now, it has moved from coal to relatively less carbon-emitting natural gas to meet its electricity needs. It has also exported its manufacturing to countries like China and even India. But there has been no real change in their consumption pattern, which would require a re-engineering of the economies to become less carbon intensive.

But now these options are limited, as countries are facing opposition against measures to tighten emissions in sectors like agriculture or industry. This will fuel the reshaping of democracies, where people will "vote" with their fists and might. We saw this in The Netherlands most recently where farmers voted against measures to cut greenhouse gas emissions in their fields. In Germany, the Green Party has faced anger against its policy to introduce energy-efficient heat pumps in homes. Ironically this is coming at a time, when countries need to do much more to drastically reduce emissions so that all the other related crises do not explode. This is why the future of democracy is so critical in today's climate-risk world. The fact is that action against climate change is not possible without equity. This necessitates the commitment to democratic principles of pluralism, inclusion and a voice for the voiceless. [DTE](https://www.downtoearth.org.in) [@sunitanar](https://twitter.com/sunitanar)

Democracy is critical in a climate-risk world. Will we lose its essence of justice and equity to the many wars afflicting us today?

DownToEarth

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Vol 32, No 19; Total No of Pages: 60

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in any manner is prohibited. Printed and published by
Richard Mahapatra on behalf of Society for Environmental
Communications. Printed at International Print-o-Pac
Limited, B-204, 205, Okhla Industrial Area, Phase I,
New Delhi-110020, India, and published at
41, Tughlakabad Institutional Area, New Delhi 110 062.

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◀ Cover design: Ajit Bajaj

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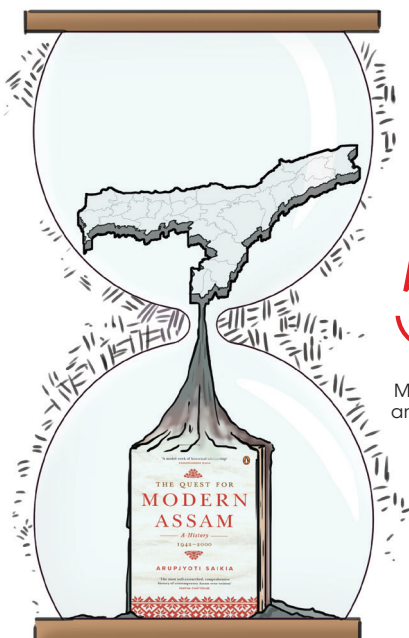


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A **DownToEarth** ANNUAL

STATE OF INDIA'S ENVIRONMENT **2024**

PRICE

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₹600

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is the country's most definitive and trusted publication on environment-related events and developments of the year. Published by the Centre for Science and Environment, and Down To Earth, this annual publication is a must-have for individuals and organisations interested in the environmental sector.

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Engage



The Earth's call

Feared I am, to see
everything getting adulterated,
from the eternal rivers
to mighty mountains.

Free-flying polythene covers
following the migration patterns
and racing against
flock of Siberian cranes.

Foam-filled perennial streams,
resembling a child's bathtub
spreads no joy but
a playfield for deadly viruses.

Fresh and blossom air
invaded by unwelcome guests,
created a nexus with human blood,
leading to no good.

Saturated soil in love with
Gravity, holding the grip of masses

made its rush toward the ground
Creating a dead mound.

Shivering grounds and
laughing volcanoes
altered the boundaries of
marine waters
To reach every end,
Which has become a common trend.

Human ideology inclining
towards technological advancement,
left no room to think for
environmental and ecological
enhancement.

The responsibility to rejuvenate
lies in your hands, dear Human...
hoping you are aware of the future
because you are not a layman.

VIVEKA VARDHAN NAIDU BHYRIPUDI
VIA EMAIL

Dry Himalayan winter raises several concerns

This is regarding the article "Where is the snow" (1-15 February, 2024). The diminishing snow cover in the Indian Himalayan region, as shown through photographs of the bone-dry landscape, is extremely concerning. Just a couple of decades ago, a snowless Gulmarg in January would have been the equivalent of a catastrophe. But it seems that most people have now quietly accepted the fact that such unprecedented events will continue to happen with ever-increasing frequency.

The implications of dry Himalayan winters, with around 80 per cent departures in precipitation, are alarming. If the Himalayan states face a water crisis in the warmer months, could one imagine the condition of the plains? Will northern India remain unaffected by water scarcity? Or, perhaps, the snowfall that occurred at the end of January may have been enough to mitigate the likely consequences—for now.

In terms of agriculture, the impact on horticultural crops should not be ignored. Food prices have seen a drastic hike in the last couple of years; such extreme changes in weather bring no respite to this inflation.

The article also mentions that the frequency of western disturbances has decreased—from 58 to just one or two for the entire winter season. It would be important to understand why such a drastic change has occurred, in order to find the root of a potential climate-related problem.

ANURADHA B
DELHI

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Digest

WHAT'S INSIDE

An engineer in Pune takes initiative to save trees **P10**

India's 199 agromet units to be shut by March **P11**

Revisions to coral health warnings to account for higher temperatures **P12**

1,000 WORDS VIKAS CHOUDHARY



Sewaram Devasi with his herd of indigenous Kankrej cattle in Sirohi, Rajasthan. The animal is employed as draught cattle and also used for milk production. Devasi is a member of the pastoral Rabari community, whose major source of income is livestock. But the survival and traditional way of life of pastoral communities are increasingly under pressure over the past years due to dwindling grasslands, poor availability of fodder and lack of adequate welfare programmes and policies

FOR MORE PHOTOS, SCAN



(Un)nailed it

FOR THE past five years, every time Madhav Patil sees an advertisement hoarding nailed on trees of Pune, he stops his car, gets down and takes it down. "I always carry my two friends: a hammer to remove the nails and a helmet for safety," says Madhav, an engineer in his mid-forties.

As the driving force behind the Nail Free Trees campaign, Madhav says he and other volunteers have till date removed over 100,000 nails from trees in Pune and other cities in Maharashtra such as Mumbai, Thane, Pimpri Chinchwad and Vasai Virar.

The idea, he says, came during a family vacation in Kolkata many years ago, where he had bought his daughter a plant sapling that died because of poor upkeep. "The sapling died due to my family's collective negligence. It got me thinking how we as a society are collectively hurting our trees by putting nails in them," says Madhav, adding that the removal of the first advertisement felt akin to extracting a bullet from the heart of a tree. It set the stage for a campaign that has gradually spread throughout the state.

The Nail Free Trees campaign now boasts more than 500 registered volunteers and garnering support from 100 non-profits in Pune and Pimpri Chinchwad. The initiative is low-capital and most of the tools, which include ladders, hammers and helmets, are pooled from the volunteers.

Madhav's advocacy efforts have successfully persuaded 10 municipal corporations to issue notifications under the Maharashtra (Urban Areas) Preservation of Trees Act 1975, with the aim to safeguard trees and enhance the aesthetic appeal of urban spaces.

"The campaign represents a crucial component of individual climate action, addressing the significant role trees play in urban life and underscoring the harm inflicted by nails," he says.

Guruswami Tumbhale of the Pune Municipal Corporation says that the 1975 state law clearly highlights that damaging trees is a criminal offence. "The Nail Free Trees campaign has helped create awareness among the

An engineer on a mission to remove advertisements nailed on trees

SHEKHAR PAIGUDE

people and has reduced such incidences in the city," says Tumbhale. The awareness campaigns have also instilled a general sense of tree conservation among the city residents, he adds.

Avinash Patil, the first volunteer to join the campaign, says that in 2023 the campaign organised an exhibition at the Balgandharva gallery in Pune to showcase the removed nails from trees. "Many people joined the campaign after the exhibition," says Avinash, who is now the campaign convenor.

"Last year, we also got our first corporate donation which we plan to use to spread the movement to other parts of the country. We will soon be promoting it in small- and medium-sized cities," says Madhav.



AGRICULTURE

India to wind up its agromet units

THE CENTRE has decided to wind up its 199 district agromet units that provide crucial district- and block-level agrometeorological advisory services to thousands of farmers across the country.

Established by the India Meteorological Department (IMD) and the Indian Institute of Agricultural Research, these units offer crucial advisories to farmers at the district and block levels every Tuesday and Friday. The advisories integrate IMD's weather



forecasts with local weather variations, catering specifically to the farming community.

The decision, which came on January 17, 2024 through an office memorandum, seems sudden as

the government had earlier approved increasing the number of agromet units to 530.

The services will be stopped from March onwards, as per directions from the Union

government, SC Bhan, IMD scientist and deputy general manager of Agromet Advisory Service Division, told *Down To Earth* (DTE). Sources told DTE the programme has been facing financial and administrative issues.

The district agromet unit at Cuttack has expressed concern over the decision and has written to the Union agriculture ministry. It says that the additional benefit over the next five years from continuing agromet units is ₹48,056 crore.

ENVIRONMENT

EU, New Zealand take on contaminants in cosmetics

THE EU on January 29 provisionally agreed on a proposal to revise its Urban Wastewater Treatment Directive, with a focus to enable removal of more nutrients and micropollutants from urban wastewater, particularly those coming from toxic cosmetics and pharmaceuticals. The new directive will protect human and environmental health and provide more access to clean water and sanitation services. For the first time, it will implement the "polluter pays" principle for water: the most polluting industries, cosmetics and pharmaceuticals, will be required to pay at least 80 per cent of the cost for micropollutant removal from urban wastewater. Further, quantities of "forever chemicals" or PFAS, such as perfluoroalkyl and polyfluoroalkyl, which are used in products such as lipsticks and shaving cream, in wastewater will be monitored. New Zealand on January 31 also announced that it will ban the use of PFAS in cosmetics, owing to their environmental and health impacts. These chemicals can accumulate in the body and have been associated with cancer. Their manufacturing also leads to large-scale emissions.

CLIMATE

US banks, funding groups dilute climate promises

AMID WORSENING climate crises, prominent US corporations and major banks are diluting their environmental commitments. In December, Bank of America backtracked on its two-year-old pledge to abstain from financing new coal mines, coal power plants and Arctic drilling projects due to their environmental impact. The bank's revised environment- and social-risk policy now allows funding for such projects, subject to "enhanced due diligence." This shift follows growing legislative opposition, particularly in US states like Texas and West Virginia, where financial regulations aim to prevent restrictions on fossil fuel firms' access to banking services. In New Hampshire, lawmakers have pursued the criminalisation of ESG principles (environmental, social and governance). A recent report by US financial services firm Morningstar reveals a \$13 billion withdrawal from ESG-focused funds in 2023. Additionally, JPMorgan Chase faced criticism for altering its oil and gas emissions-reduction target in November, adopting a new "energy mix" goal that environmental groups deemed obfuscatory.

QUERY

Coral warnings revised

1 What is happening to coral categories?

The US government's Coral Reef Watch programme, the world's main system for warning about heat stress on coral reefs, has added three new alert categories to represent ever-increasing temperature extremes. Excessive heat causes corals to separate from the tiny algae that give them their colour and much of their nutrients, leaving corals susceptible to disease and eventual death. Coral Reef Watch previously issued warnings for coral reefs in four stages, with the highest, alert level 2, suggesting that "severe bleaching and significant

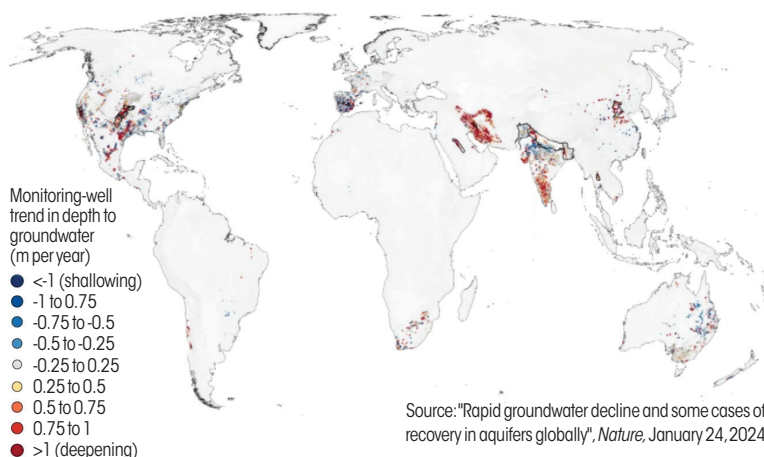
mortality likely". The three new categories are alert levels 3 (risk of multi-species mortality), 4 (risk of severe, multi-species mortality) and 5 (risk of near complete mortality of more than 80 per cent of corals).

2 How are the warnings calculated?

The warning system uses a unit called degree heating week (DHW) that measures the amount of accumulated heat stress corals face at any given time. For example, 1 DHW is accumulated if corals are subjected to temperature 1°C above the usual maximum for seven days. Coral Reef Watch's old system gave the highest rating at 8 DHWS or above, but during the 2023 summers, coral reefs in the northern hemisphere were exposed to heat stress as high as 20 DHWS.

TRACKER

The **first global aquifer study** has found that **groundwater levels in half of the 1,693 aquifers** across 40 countries **have fallen since 2000**. Only about **7 per cent of the aquifers** surveyed had **groundwater levels** that **rose** over that same time period. The **causes** of groundwater decline **differ from place to place**. Some big cities rely on groundwater for household use. Outside of cities, irrigation for agriculture tends to be the biggest user of groundwater



BITS GLOBAL

At least three adult penguin died in the islands of the Antarctic region this January due to avian influenza, according to the Scientific Committee on Antarctic Research. Over 20 penguin chicks have also died or were showing symptoms of the disease, says the committee with 46 member-countries. Avian influenza is highly contagious and its outbreaks have been reported across the world since 2021.



The Colombian government on January 25 declared a national disaster and asked for international assistance as the country was battered by more than 300 wildfires since the beginning of the year. The fires destroyed more than 17,000 hectares, and 600 soldiers and emergency services were sent in affected areas to bring the blazes under control. Chile too reeled under wildfires during the month, recording its worst natural disaster since a devastating earthquake in 2010.

Mexico in early January announced the creation of 20 new protected areas in the country, covering around 2.3 million hectares. The newly protected areas will help safeguard species such as whale sharks, Mexican prairie dogs and jaguars as well as coral reefs and indigenous sites. This announcement, however, follows a series of budget cuts for the country's environmental agencies.

The Global Reporting Initiative (GRI) on January 25 released a revised transparency standard to report a global response to the biodiversity crisis. GRI helps businesses and governments report their impacts on issues of climate change, human rights and corruption. It says the new standard, to be implemented in 2026, aims to meet demands for information on biodiversity impacts and to offer transparency in supply chains.

BITS INDIA

The country has 718 snow leopards across states, suggests the first-ever "Snow Leopard Population Assessment" by the Wildlife Institute of India, Dehradun. The assessment report, released on January 30, covered over 70 per cent of the potential snow leopard range and estimated that Ladakh has the highest population of the wild cat at 477, followed by Uttarakhand (124), Himachal Pradesh (51), Arunachal Pradesh (36), Sikkim (21) and Jammu and Kashmir (9).

Rising temperatures could lower labour productivity of agricultural workers by 43 per cent by the end of the century, says a new study published in the journal *Global Change Biology* in mid January. Indian farmers are already working 23 per cent less than their capacity during the growing season, says the study, with productivity falling by nearly half its level during the 90 hottest days of the year.



Five more wetlands have been added to the global list of wetlands of international importance under the Ramsar Convention, taking the number of the sites in India to 80, Union Minister of Environment, Forest and Climate Change Bhupender Yadav announced on January 31. The latest additions to the Ramsar list are the Magadi Kere Conservation Reserve, Ankasamudra Bird Conservation Reserve and Aghanashini Estuary in Karnataka, as well as the Karaivetti Bird Sanctuary and the Longwood Shola Reserve Forest in Tamil Nadu.

Hamirpur in Himachal Pradesh reported an outbreak of mumps in January, with at least 35 cases among children aged between five and 10 years. The viral disease impacts parotid glands on each side of the face and the salivary glands, causing fatigue, fever, muscle pain and swelling of the cheek and jaw. Health officials in Hamirpur note that the disease seems to spread across schools in the town.

POLICY FRAMEWORKS

■ The Union Ministry of Consumer Affairs, Food and Public Distribution has introduced the **Targeted Public Distribution System (Control) Amendment Order**, to include a provision that mandates states to regularly report cancellation of ration cards or issuance of new ones, to help the Union government to update the Central repository.

■ The Union Ministry of Environment, Forest and Climate Change has issued the **Wild Life (Protection) Licensing (Additional Matters for Consideration) Rules, 2024** with fresh guidelines for granting licences to stakeholders involved in snake venom, captive animals, trophy animals and stuffed animals.

■ The Union Ministry of Mines has introduced the **Mineral Conservation and Development (Amendment) Rules, 2024**, to enhance regulatory measures governing reconnaissance, prospecting, exploration, reporting obligations and penalties in the mining sector.

IN COURT

NATIONAL GREEN TRIBUNAL

■ In a case alleging encroachment of 100 hectares of forestland in Guna district, Madhya Pradesh, the National Green Tribunal (NGT) has ordered formation of a high-level committee to take remedial action. A joint committee report in the matter said that earlier orders have not yielded any action on ground.

■ NGT took cognisance of a news report on unauthorised construction of roads over the buffer zone near Pattandur Agrahara lake in Mahadevpura, Karnataka and issued notices to state authorities.

■ In a case on concretisation of open spaces with trees in SAS Nagar, Punjab, sans any development of green belts, NGT has ordered that all such construction be reversed and new developments ensure that parks and trees are not harmed.

SUPREME COURT

■ The apex court approved a September notification by the Union government which made the Central Empowered Committee that assists the court on environmental matters, a permanent body with members chosen by the government. The court also issued a slew of directions like regular audit of environmental bodies and authorities, saying they should be transparent and accountable.

HIGH COURT

■ Taking *suo motu* cognisance of a newspaper article highlighting a rodent menace at the Swaroop Rani Nehru hospital in Prayagraj, the Allahabad High Court told the hospital authorities to provide records of measures taken to control the problem. The newspaper article that the court considered had highlighted that the rodents were harming medicines and hospital equipment, creating a public health hazard.

So far...

Number of cases on environment and development tracked from January 1 to January 31, 2024

NATIONAL
GREEN
TRIBUNAL

51

SUPREME
COURT

10

HIGH
COURTS

8

FOR DETAILED VERDICTS, SCAN





BIG NUMBER

\$500 billion

in annual investment could lead to a transformation of the world's food systems to be inclusive, health-enhancing and environmentally sustainable. This is just **0.2-0.4 per cent** of global GDP (gross domestic product).

Source: "The Economics of the Food System Transformation", Food Systems Economic Commission

VERBATIM



"HIDING BEHIND LOOPHOLES IN DECISION TEXTS, OR DODGING THE HARD-WORK AHEAD THROUGH SELECTIVE INTERPRETATION, WOULD BE ENTIRELY SELF-DEFEATING FOR ANY GOVERNMENT"

SIMON STIELL

Executive secretary, UN Framework Convention on Climate Change (UNFCCC), in Baku, Azerbaijan, host of the 29th Conference of the Parties to UNFCCC to be held later this year. He warned countries against avoiding their climate obligations in order to use fossil fuels.

By Snigdha Das, Rajit Sengupta, Shagun, Himanshu N, KM Sheeja, Susan Chacko and Dakshiani Palicha



• Lane Keeping Assist
won't save us from climate change.

Landslide – Jan. 10, 2008 – Photo by Locares Büro.

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Infrastructure development, targeted and non-targeted killing and modification of natural systems hamper migratory species' movements

Forced to vanish

The world has its first clear evidence on migratory species facing heightened levels of extinction risk due to human-led pressures

HIMANSHU N DELHI

FOR THE first time, the world has compelling evidence that its migratory species, from butterflies and seabirds to wild cats, sea turtles and large whales that all travel long distances for food and habitat, are under threat. More than one in five such species listed under the Convention on the Conservation of Migratory Species of Wild Animals (CMS) is at risk of extinction, while nearly half of them show a declining population trend, says a new report released on February 12, 2024.

The "State of the World's Migratory Species" is the first-ever assessment of 1,189 migratory species listed under CMS, a treaty to conserve migratory species under the UN Environment Programme (UNEP). The findings are grim—260 of the species face extinction risks, while 520 see declining population trends. The report analyses migratory species as categorised in the CMS Appendices. Appendix I has 180 species that the

133 parties to CMS are prohibited from “taking” (intentionally removing from the wild through hunting or fishing), with a few exceptions. The parties must work to conserve or restore their habitats. Some 82 per cent of Appendix I species face extinction risk and 76 per cent have declining population trends.

Appendix II species are those that CMS perceives as having an “unfavourable” conservation status, which may benefit from agreements on management. This category has 1,127 species; however, 118 species are in both the appendices. Some 18 per cent of Appendix II species face extinction and nearly 42 per cent see declining population trends.

The assessment draws extinction risks and abundance trends from data with the International Union for Conservation of Nature (IUCN)’s Red List and the Living Planet Index (managed by the Zoological Society of London and the World Wide Fund for Nature or WWF). “Analysis of the IUCN Red List assessments by taxonomic group... reveals a mixed picture,” says the report. “Over two thirds (70%) of the CMS-listed reptiles and nearly all (97%) of the CMS-listed fish are threatened with extinction,” it says. “In contrast, the outlook for birds and mammals appears more favourable overall, with more than three quarters (78%) of the birds and almost half of the CMS-listed mammals (44%)—terrestrial (43%) and aquatic (45%)—categorized as Least Concern,” adds the report.

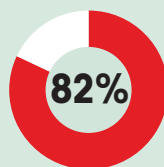
The overall numbers, however, spark concern and call for urgent action, say the authors of the report. “The urgency for action to protect and conserve these species becomes even greater when we consider the integral but undervalued role they play in maintaining

Grim picture

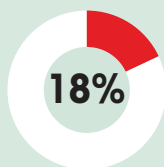
Migratory species see a deterioration in conservation status over past five decades



One in five species under Convention on Migratory Species of Wild Animals (CMS) **risk extinction**, while **44%** see **declining population trends**



82%
of CMS
Appendix I



18%
of CMS
Appendix II

species are globally threatened



97%
of CMS-listed fish species risk
extinction, **the most in all groups**



3 in 4

CMS-listed species
affected by **habitat
loss, degradation
and fragmentation**

7 in 10

CMS-listed species
affected by
overexploitation



58%

of monitored sites for CMS-
listed species are under
unsustainable pressure

Note: Appendix I has 180 species protected under CMS. Appendix II has 1,127 species with an “unfavourable” conservation status. 118 species are under both Appendices
Source: “State of the World’s Migratory Species”, Convention on the Conservation of Migratory Species of Wild Animals (CMS)

the complex ecosystems that support a healthy planet—by, for example, transferring nutrients between environments, performing migratory grazing that supports the maintenance of carbon-storing habitats, and pollination and seed dispersal services,” writes Inger Andersen, executive director, UNEP.

DRIVING FORCES

Overexploitation emerges as the most common threat to migratory species, affecting 89 per cent of Appendix I and 68 per cent of Appendix II species. Habitat loss, degradation and fragmentation impacts 86 per cent and 74 per cent of species under the appendices, respectively.

Overexploitation includes “taking” as well as incidental capture of non-target species, writes Amy Fraenkel, executive secretary, CMS. Some 70 per cent of the CMS-listed terrestrial mammals are targeted for hunting, says the report. “Bycatch of non-target species in fisheries is a leading cause of mortality of many CMS-listed marine species,” adds Fraenkel. Bycatch, a term used to describe species caught accidentally by fishers and discarded, is a threat to seabirds like albatrosses and petrels, which are killed after getting caught in longline and gillnet fisheries.

Overfishing is also a significant threat to slow-growing sharks, rays and chimeras. As migratory shark zones are exploited by industrial fishers, global populations of oceanic shark and ray species have declined by 71 per cent from 1970.

Agriculture, aquaculture, use of pesticides, natural system modification, non-timber crop production and spread of invasive species are some other threats. The report highlights the Serengeti-Mara eco-

system in the United Republic of Tanzania and Kenya. Here, pressure from the expansion of agriculture, settlements, roads and fences affects the quality and availability of habitat for some of the world's largest free-ranging populations of migratory ungulates. This includes the blue wildebeest (*Connochaetes taurinus*) and plains zebra (*Equus quagga*), which support populations of CMS-listed apex predators like cheetahs (*Acinonyx jubatus*), lions (*Panthera leo*) and African wild dogs (*Lycaon pictus*).

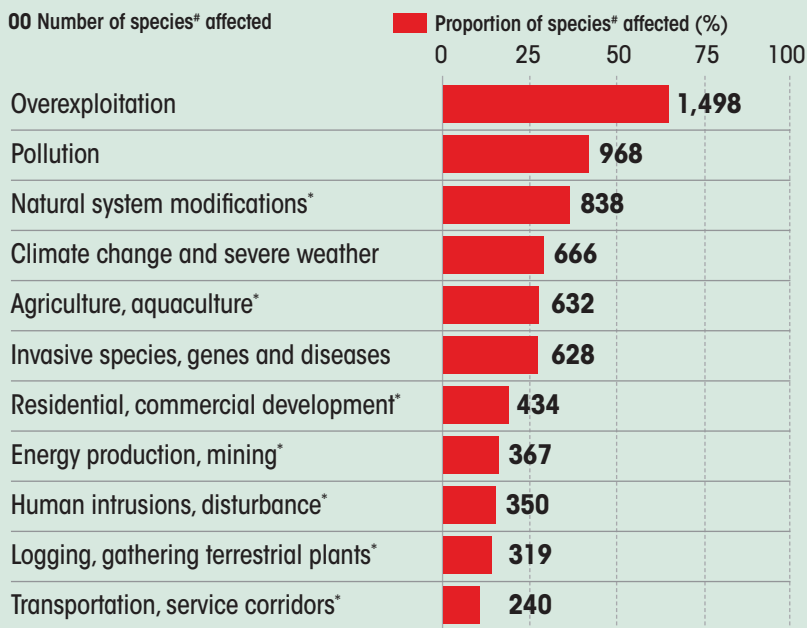
Infrastructure development on land and sea and shipping traffic severely impede the movement of migratory species. Barriers like dams and river infrastructure prevent migratory fish from reaching their spawning grounds, alter water flow regimes and prevent juvenile fish from dispersing. This has been seen in the Americas, East Asia, Europe and the Indian subcontinent.

In terms of climate change, increasing sea surface temperatures and sea ice shrinking is likely to reduce the habitat range of the narwhal (*Monodon monoceros*), a species in Greenland that tends to avoid sea water temperatures above 2°C and depends on sea ice for foraging. The region has recorded sharp rise in mean summer sea temperatures up to 6.3°C.

The report also states that 58 per cent—or 9,469 sites—of the 16,335 monitored sites recognised as crucial for CMS-listed species experience unsustainable levels of human-caused pressure (hunting, recreating, livestock farming and non-timber crop production). These sites are listed according to the breeding, non-breeding, feeding or stopover sites used by the species across landscapes and seascapes.

Multiple threats

Human-caused disruptions impact all migratory species



Note: *All migratory species, including those not in the Convention on the Conservation of Migratory Species of Wild Animals list. *Contributors to habitat loss, degradation and fragmentation
Source: "State of the World's Migratory Species", Convention on the Conservation of Migratory Species of Wild Animals

MOVE TO CONSERVE

The authors urge reduction in overexploitation and addressing "taking" of animals, incidental catch of non-target species and trading of migratory birds through coordination between countries and use of tracking technologies. For instance, "net illumination has emerged as a promising mitigation tool in gillnet fisheries to reduce the incidental catch of small cetaceans, birds and turtles without affecting target catch or value," it says. Sharing some examples, the authors note how 14 CMS-listed species have improved in conservation status over the past five decades. Restoration of fragmented habitat in the Okavango Delta, Botswana, enabled movement of Burchell's zebra (*Equus burchelli*). The species'

traditional migration was restored after 30 years.

In another case, the Altyn Dala Conservation Initiative in Kazakhstan of Central Asia played a crucial role for the saiga antelope (*Saiga tatarica*). Revival of steppes and wetland habitats helped in recovery of the species, from 50,000 individuals in 2006 to over 1.3 million individuals in 2022.

Further, CMS appendices currently do not have 3,339 of the 4,508 migratory species in the IUCN Red List. The report identifies 399 such species that may be included. "Given the precarious situation of many of these animals, and their critical role for healthy and well-functioning ecosystems, we must not miss this chance to act," writes Andersen. [@down2earthindia](https://twitter.com/down2earthindia)

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At the cost of welfare

The Interim Budget 2024-25 took a cautious approach to reduce fiscal deficit. This prioritisation led to inadequate allocations for key sectors

RAJIT SENGUPTA

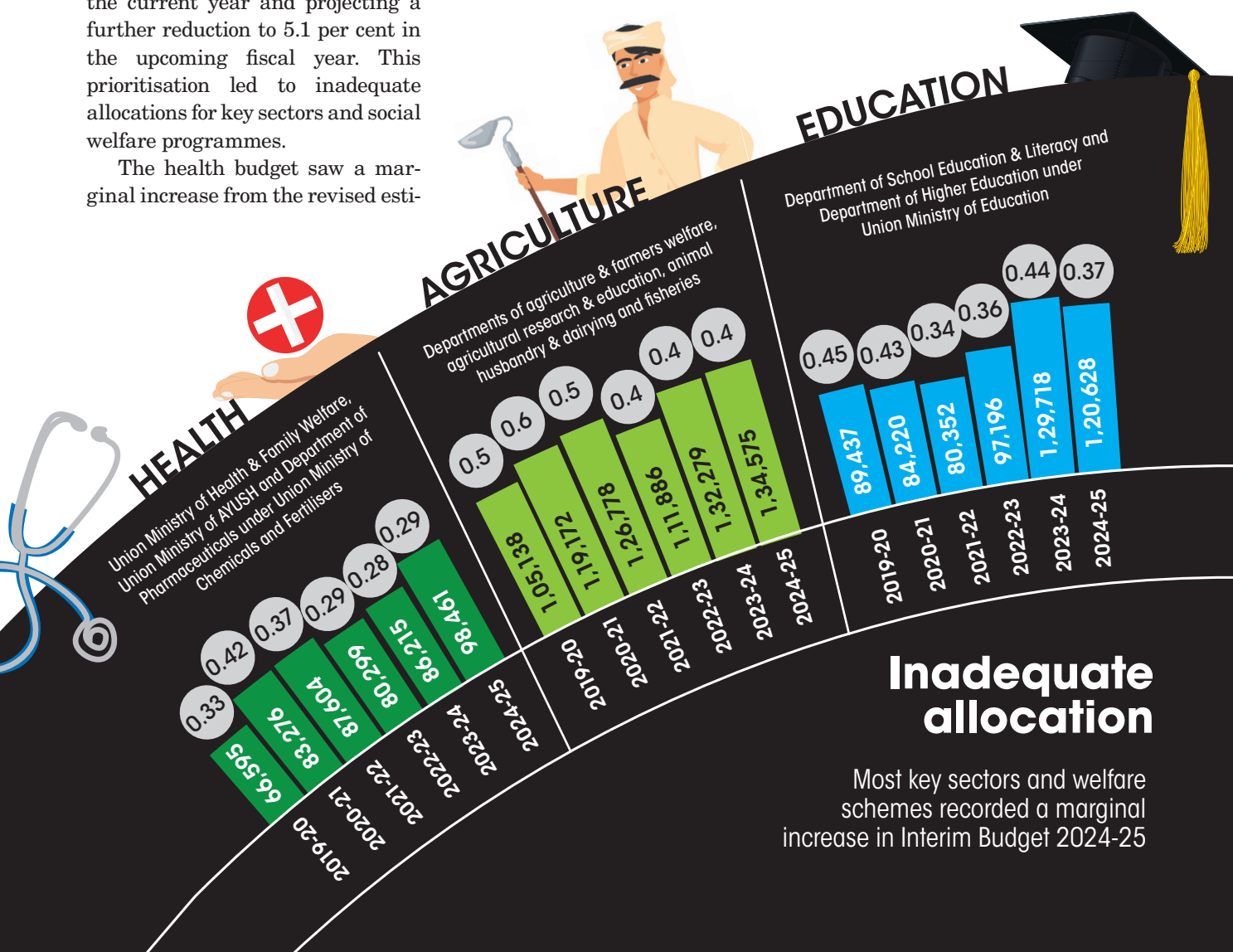
BEING THE final Union Budget before the 2024 Lok Sabha elections, there was a lot of expectation surrounding the 2024-25 Interim Budget. However, its cautious approach has left a sense of uncertainty about what lies ahead. There was a clear emphasis on fiscal consolidation, aiming to contain the deficit at 5.8 per cent for the current year and projecting a further reduction to 5.1 per cent in the upcoming fiscal year. This prioritisation led to inadequate allocations for key sectors and social welfare programmes.

The health budget saw a marginal increase from the revised esti-

mates of 2023-24. However, the Interim Budget's overall health expenditure as a share of the gross domestic product (GDP) stood at a dismal 0.29 per cent, much lower than the targets set by the National Health Policy 2017, which aims for a health expenditure of 2.5 per cent of GDP by 2025. While the Union finance minister announced in her

speech vaccination against cervical cancer, immunisation, and a committee to set up new medical colleges in existing medical facilities, the announcements are yet to find reflections in the budgets, says an analysis by Delhi-based think tank Centre for Budget and Governance Accountability (CBGA).

The allocation for agriculture



Inadequate allocation

Most key sectors and welfare schemes recorded a marginal increase in Interim Budget 2024-25

and allied sectors, one of the crucial sectors of the economy, providing food and nutritional security, remained ₹1.34,575 crore in 2024-25, which is almost 2 per cent higher than last year's revised estimates. Since 2019-20, the component of direct cash support to farmers has gained importance as a share of the total agriculture and allied sector budget. In this year's Interim Budget as well, it constitutes around 72 per cent of the total allocated budget for the sector. While such direct support is vital given the challenges faced by the farmers, including rising input costs and the risks of climate vulnerability, it raises concerns if it comes at the expense of broader sectoral enhancement,

says the CBGA analysis.

Funding for crucial nutrition programmes also remained insufficient, especially given the challenges of a post-pandemic environment. While allocations for Saksham Anganwadi and POSHAN 2.0 saw a 3.14 per cent increase, Samarthya, which includes the Pradhan Mantri Matru Vandana Yojana cash transfer scheme for pregnant women, received a 2.5 per cent cut. The Mid-Day Meal programme saw a 17.48 per cent increase and the Jal Jeevan Mission witnessed a negligible 0.23 per cent rise. Even food subsidy saw a cut of 3 per cent, compared to the 2023-24 revised estimates.

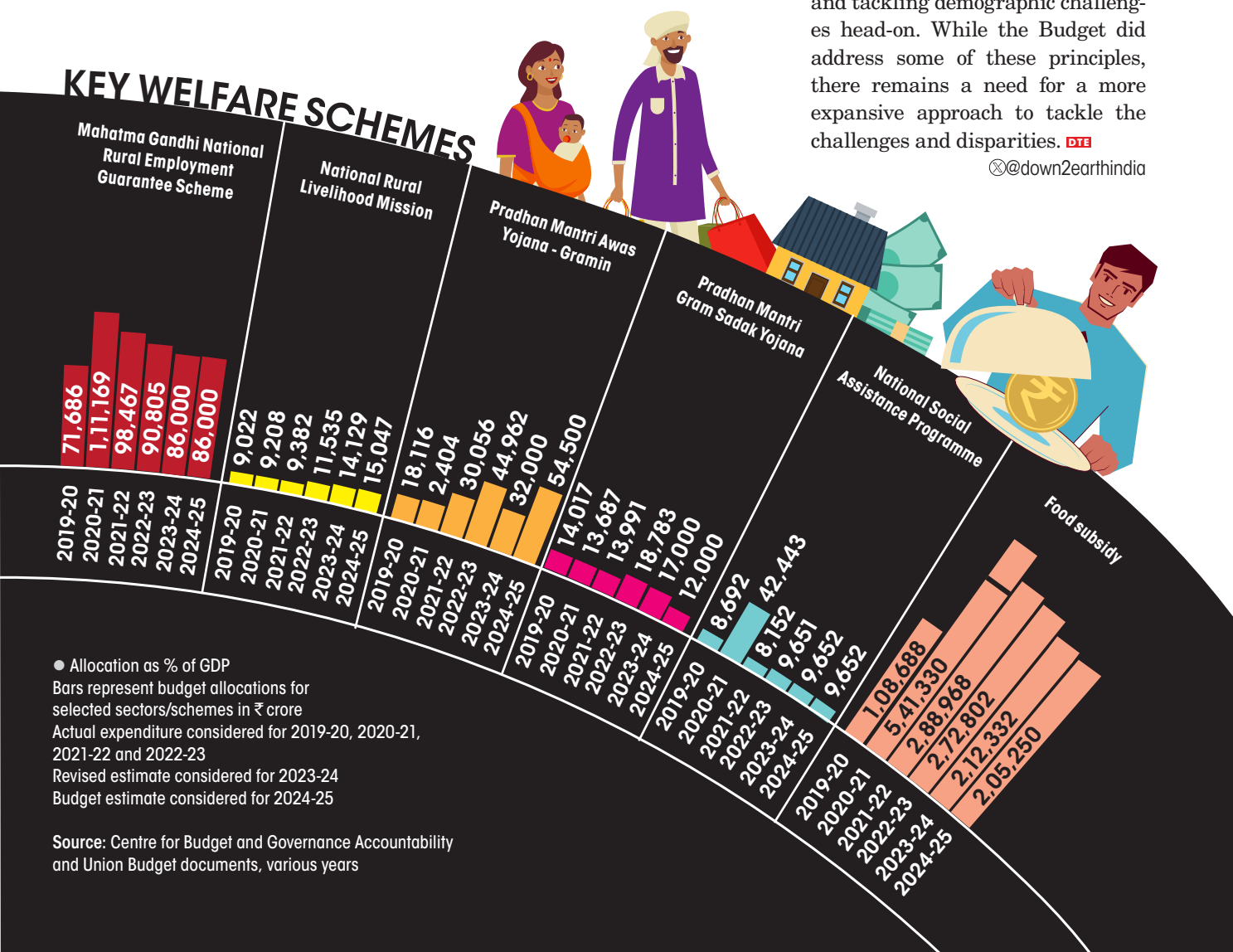
Furthermore, the allocation for the Mahatma Gandhi National Ru-

ral Employment Guarantee Scheme remained stagnant from 2022-23 revised estimates at ₹86,000 crore, despite its utilisation levels at over 100 per cent in the past few years.

The education sector received ₹1,20,628 crore in the Budget, though the overall education budget as a percentage of GDP has dipped to 0.37. Several institutions like NCERT and UGC received budget cuts.

The Union Budget outlined five key principles crucial for India's growth trajectory: adopting social justice as a governance model, emphasising outcomes over mere outlays, prioritising the needs of marginalised groups including the poor and farmers, harnessing the potential of digital infrastructure, and tackling demographic challenges head-on. While the Budget did address some of these principles, there remains a need for a more expansive approach to tackle the challenges and disparities. **DTI**

✉@down2earthindia



Source: Centre for Budget and Governance Accountability and Union Budget documents, various years



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RACE TO REHABILITATE

Every sixth urban Indian lives in slums. With housing-for-all being a key national target, states across the country have taken steps to redevelop slums. *Down To Earth* travels to three cities to find the initiatives at different stages of implementation and success—in Mumbai's Dharavi, the process is just starting; at Kathputli Colony of Delhi, the rehabilitation is midway; and in Bhubaneswar, Odisha, a new land rights-based approach to redevelop slums has been used with considerable success.

A report by Zumbish from Mumbai and Delhi, and Shagun from Bhubaneswar, with Rajneesh Sareen and Mitashi Singh in Delhi



Dharavi residents' biggest concern is eligibility to get houses after the slum is redeveloped, especially because the area has grown vertically in the last 15 years and the population is estimated to have doubled to a million in the period

There is an air of unease in Dharavi. Even as people go about their business, murmurs of an impending survey are never too distant. The reason is the residents' wait for a process that will decide their fate. "Newspapers say the developer will conduct a survey in February. We are in the second week of the month, but there is no sign of the survey. We are unsure what will happen to us," says Anil, a social activist and resident of Dharavi since the 1990s.

The survey in question is part of the Dharavi Redevelopment Project (DRP)—a government initiative sanctioned in 2004 to redevelop the slum that sprawls over 259 hectares (ha) and houses an estimated 1 million people in the prime location of south Mumbai. After multiple attempts by different Maharashtra governments over the years, the project is now being undertaken by Dharavi Redevelopment Project Private Limited (DRPPL)—a joint venture of

Dharavi has evolved into a centre of commercial activity, with an estimated 12,000 unorganised businesses operating in sectors such as leather, footwear, clothing and food

v

Adani Properties Private Limited and the state government, with the two sharing 80 per cent and 20 per cent equity respectively. Details of the developmental blueprint of DRPPL, incorporated last year in August, are yet not public, but the company has been releasing statements about its plans. As per its statement issued on January 15, 2024, all eligible residents of Dharavi will get new flats, measuring 350 sq ft (1 sq ft equals 0.09 sq m). These are bigger than the norm of 315-322 sq ft houses provided under the Centrally-sponsored Pradhan Mantri Awas Yojana-Urban for the poor. Talking to *Down To Earth* (DTE), S V R Srinivas, CEO of DRP and Metropolitan Commissioner of Mumbai Metropolitan Region Development Authority, says that ₹20,000 crore will be spent under the project over seven years and all eligible residents will be rehabilitated in situ.

In-situ rehabilitation requires shifting Dharavi residents to nearby areas, develop-



ing the land into a residential property with high-rise buildings, and then rehousing the residents. The empty spaces can then be utilised by the developer for commercial purposes to recover costs and make profits. For eligibility to get a house, Dharavi residents will have to prove that they have been living in tenements that existed before January 1, 2000, says Srinivas, adding that even those who are not eligible will be given houses in rental and affordable projects within 10 km of the area, for which land is being arranged.

However, most Dharavi residents DTE spoke with seemed apprehensive. “I have lived here for 30 years but not seen any redevelopment plan take off,” says Chandrakala Vasunde, who lives with her family of four in one room. “There was a survey some 15 years ago but nothing happened after that,” she adds.

Vasunde is referring to the “GIS-based Bio-Metric and Socio-Economic Baseline Survey” conducted by Pune-based non-profit Maharashtra Social Housing and Action League in 2008-10. The survey, which was conducted by the non-profit for the state government, reported the presence of 56,000 structures—46,000 residential and 10,000 commercial. It also put the number of legal residents at just 47,000. “The slum’s population then was an estimated 750,000. The problem with the survey was that it only counted structures and residents occupying the ground floor. I hope the new survey will be better framed,” says Raju Korde, who has lived in the slum all his life, and is member of Dharavi Bachav Andolan, a platform formed in the 1990s. This is especially true because the slum has grown vertically in the past 15 years. “Many new structures have been constructed. Estimates suggest that their total number could be 100,000. The reason is the population, which has also nearly doubled in the

past two decades. It is likely that a significant population would be found ineligible if the cut-off deadline is the year 2000,” says Korde. “Three years ago, the government said that those who have been living here since 2011 will get a one-time rehabilitation allowance of ₹2.5 lakh. But the amount is minuscule for buying a house,” he says.

RELOCATION EFFORTS

The process to identify sites for temporary stay of Dharavi residents and for construction of rental and affordable accommodation for those who are found ineligible has started. In January, media reported that the state’s housing department has asked the Brihanmumbai Municipal Corporation

(BMC) and the urban development department to provide land in Mulund, a suburb in the northeast part of Mumbai, for the purpose. On February 4, thousands of residents of Mulund held protests against the move, saying the population density of the locality is already too high. Talking to DTE, Kirit Somaia, a former Member of Parliament from Mumbai, vehemently opposes the move and says that “shifting three-four lakh people to one place” is not feasible and

will be a big strain on the infrastructure of the locality that is already too congested. A January 18 report on the website of *Free Press Journal* quotes the state’s housing minister, Atul Save, as saying that no “final decision” has been taken by the government “vis-à-vis the 64 acres [about 25 ha] of land in Mulund for the rehabilitation/construction of rental housing for ineligible Dharavikars”. In February, the Maharashtra Cabinet also cleared a proposal asking the Centre to give nearly 115 ha of its salt pan lands in Bhandup and Kanjurmarg localities of Mumbai on lease for 99 years for the purpose.

Dharavi residents, however, say that any relocation will be detrimental to their businesses. The slum has evolved into a thriving centre of commercial activity. It

IN-SITU REHABILITATION REQUIRES SHIFTING DHARAVI RESIDENTS TO ANOTHER AREA, DEVELOPING THE LAND INTO A RESIDENTIAL PROPERTY WITH HIGH-RISES, AND THEN REHOUSING THE RESIDENTS

A LONG WAIT

Redevelopment of the Dharavi slum has been in talks for five decades, but has only seen delays

1971-76

The Maharashtra government passes the Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act to improve living conditions of the Dharavi slum.

LATE 1990s

Dharavi Redevelopment Project conceptualised, but kept hanging for decades.

2004-05

The state government drafts a development plan for Dharavi.

2007-08

Maharashtra Social Housing and Action League, a non-profit, conducts a survey highlighting that the slum has 47,000 legal residents and 13,000 commercial structures. However, the survey fails to include people who occupied the upper floors and informal structures.

PERIOD UNTIL 2016

The state government makes repeated efforts to attract developers for the Dharavi project, but without success.

2018

The state government issues a tender to redevelop Dharavi through an 80% private and 20% public partnership. Dubai-based SecLink Technologies Corporation and Adani Group bid for the tender.

2019

SecLink gets the tender with its bid of US \$871 million. Adani Group bid \$548 million.

2020

The state government cancels the 2018 tender. It claims that the acquisition of certain land had altered project costs and warranted reinitiation of the process. SecLink files a lawsuit against the government, alleging faulty practices in cancelling the tender. The government denies any wrongdoing.

2022

The state issues a new tender. Adani Group bids ₹50.7 billion. DLF and Naman Developers also bid.

2023

Adani Group is awarded the tender. SecLink includes it in its lawsuit. Adani Group and the government contest allegations of wrongdoings in court filings.

THE LUCRATIVE-sounding in-situ Dharavi Redevelopment Project has not moved forward in decades, with the state government floating global tenders for redevelopment six times in the past 15 years. In 1999, the state government led by the Bharatiya Janata Party (BJP)-Shiv Sena alliance first proposed to redevelop Dharavi. After five years, in 2004, the Congress-led government formed a dedicated Dharavi Redevelopment Authority under the state's Slum Redevelopment Authority, with the stated objective of making Mumbai slum-free. Not much happened for more than a decade after that. In 2018, the BJP government led by chief minister Devendra Fadnavis again floated a tender. A Dubai-based consortium SecLink Technologies Corporation won the bid in January 2019. However, the bid was not awarded because the Union Ministry of Railways did not give permission for use of about 20 ha of its land in Dadar that was incorporated into the redevelopment plan.

In October 2020, the newly formed Maharashtra Vikas Aghadi government led by chief minister Uddhav Thackeray rescinded the tender, citing the delay in Railways ministry's permission. In December 2022, the government under current Chief Minister Eknath Shinde issues another tender.

Adani Group wins the tender, with its bid of ₹50.7 billion. DLF and Naman Developers also bid. On October 18, 2023, the Union Minister of Railways Ashwini Vaishnaw and Maharashtra Deputy Chief Minister Devendra Fadnavis sign an agreement handing over the land in Dadar to the project.



has over 12,000 small, unorganised businesses operating in sectors such as leather, footwear, clothing and food, with an estimated 70 per cent residents earning a living within this area, Korde says. It is also located next to the Bandra-Kurla Complex, a business centre that quotes one of the highest prices for land in the country.

“People who have built integrated huts for residence and business purposes will suffer heavily. Also, residents who have expanded their residence and commercial spaces over years fear drastic reduction in space under the new plan,” says Paul Raphael of Dharavi Nagrik Seva Sangh, a non-profit working for the welfare of the slum’s residents. A rough estimate shows that residents with two-storey spaces (one each for residential and business purposes) own some 400 sq ft, but under the new plan, they will be compensated with only a house of 350 sq ft, which will also include a kitchen and a bathroom. “Our first demand is that the new plan must ensure the new house is at the same location. Our location is related to our employment,” says Shyamlal Jaiswal, a cloth trader and a resident of Prem Nagar in Dharavi.

The potters of Kumbharwada, a 5 ha *chawl* within Dharavi, where people are solely engaged in the business of pottery, see the collapse of their livelihood both during the project and after it. They need space to dry their pots, which they are not likely to get at the place of their temporary relocation. It is even more unlikely to be available in a small house in a high-rise. Dhansukh Kamaliya, a 52-year-old resident, says, “Only if the developers make sure they rebuild our houses and provide us space for drying and putting our pots in *bhattis* will we benefit from the project.” Ranchod Savdas Tanks, another potter, says, “All I know is that our concerns are not important to the developers.” But Srinivas says that the government has thought about the problem.

**RESIDENTS ARE ALSO
WORRIED ABOUT THE
SCENARIO WHERE THEY
ARE TEMPORARILY
SHIFTED AND THE
PROJECT GETS DELAYED
BEYOND THE DESIGNATED
SEVEN YEARS**

“We are targeting the project in such a way that people are able to retain businesses. GST (goods and services tax) on businesses operating at Dharavi will be waived off for five years,” he says.

Residents are also worried about the scenario where they are temporarily shifted and project is delayed. “The contract between Adani and the government says that if the project is not completed within seven years after the receipt of the commencement certificate of the first phase, the developer will pay the government ₹2 crore each year in penalty. This amount is insignificant for developers who own billions of rupees,” says Korde.

TEST CASE

Dharavi’s redevelopment is a test for Maharashtra’s slum development policy. The state has over 25 years of experience in the area and is considered a pioneer of in-situ redevelopment. In 1995, the government amended its Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971 to create Slum Rehabilitation Authority (SRA) headed by the chief minister. The new authority came with a change in the approach towards slums—from “illegal” structures deserving demolition

to sites for “in situ habitation” development through public-private participation. Under the SRA plan, usually apartments of up to 23 storeys are constructed and slum residents are given a two-room house with a bathroom and toilet free of cost. Those who have business in the slum before redevelopment are allocated stores on the ground floor.

SRA works on the principle of using land as a resource and to incentivise tenements for sale in the open market. On its website, SRA reports around 1,700 slum development projects of which some 200 are complete. But Mumbai residents say that SRA has started a “slum real estate sector”, with niche real estate developers and slum



residents working to develop residential properties valued in billions of rupees. “The Dharavi project is more about monetisation of prime land than rehabilitating the slum,” says Smruti Koppikar of *Question of Cities*, an online journal dedicated to urbanisation, environment and equity.

SANGHARSH NAGAR MODEL

Mumbai has an example in slum resettlement and development which is widely cited as a model of resident involvement—the Sangharsh Nagar complex built under the Chandivali redevelopment plan. It was the largest project under SRA before the authority began work on Dharavi.

In the early 1990s, slums mushroomed in peripheral areas of the Sanjay Gandhi National Park due to what is considered the last big wave of migrants to the megacity. This was also a period when many slums in the city were cleared, and the displaced people also landed around the park. After many court interventions and protests by residents, the slums were rehabilitated in 2007 to a newly built complex called Sangharsh Nagar—a layout spreading on about 35 ha,

^
Sangharsh Nagar Complex in Chandivali, Mumbai, is considered a model case of slum residents, developer and the government joining forces to redevelop a slum area

with over 300 buildings to house 33,000 slum dwellers—in Chandivali. In the project, the slum residents were involved in the design and outlay of the complex. The developer, Sumer Corporation, provided the land on which the society is built. After the finalisation of the project, the land was handed over to SRA.

The rehabilitation was helmed by a non-profit called Nivara Hakk, an association of 30 organisations working on housing rights. “We planned the rehabilitation and also supervised it. By the time we resettled here, all the promised amenities like houses, education and electricity supply were ensured,” says Sunanda Yadav who lives in Navjeevan Society, Sangharsh Nagar. The complex has an assigned society association head for each wing who is selected by the residents every five years. “Our participation in the rehabilitation plan is the reason our condition is much better here,” says Sukhdev Hippalkar, a resident. “Sangharsh Nagar’s people fought for quality of life and their long battle for it is their strength,” says Ishwar Devram Tayade, the area’s corporator.



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Big picture

Beneficiary identification, delays in redevelopment, and poor quality of housing ail India's efforts to redevelop slums

The successful execution of Dharavi's redevelopment could carry significant implications for India's ambition of ensuring housing for all, including slum dwellers and low-income households. According to the "State of India's Environment 2019 In Figures," published by *Down To Earth* (DTE), at least one in every six urban Indians resides in slums. Further, six in 10 slum dwellers live in close proximity to unsanitary drains and every sixth slum dweller lacks access to treated water, as per the DTE assessment based on Census 2011 data. Thus, slums are not just a challenge to ensuring decent housing but also a difficult development task.

India's rapid urbanisation has worsened the crisis. While the urban population

Residents from 17 slum clusters in Delhi were forcibly evicted and resettled in two phases in 2006-07 and 2009-10 at the Savda Ghevra JJ Resettlement Colony in the run-up to the Commonwealth Games in 2010. The colony is situated 40 km northwest of Delhi and most residents even today complain of loss of livelihood due to the relocation

increased by 32 per cent, slums grew by 131 per cent during the 2001-2011 decade (see "Rapid increase" p32). Notably, 11 of the 47 cities with a population of above a million have 30 per cent or more residents living in slums (see "Surviving in slums" p33). It is projected that by 2031, around 600 million people will inhabit Indian cities, nearly double the urban population in 2011.

Apart from slums, informal settlements have also proliferated in cities due to migration, skewed development and a lack of planned intervention to improve infrastructure. These settlements, although not officially classified as slums, face similar living conditions and challenges. For instance, Delhi has a slum population of 1.6 million—or close to 15 per cent of its urban

population—yet about 5.5 million residents—or 60 per cent of its urban population—live in substandard areas, as per a 2019 book, “Policies for Tenure Security in Delhi, Holding Their Ground: Secure Land Tenure for the Urban Poor in Developing Countries”.

India has grappled with the management of slums since its first five-year plan in 1952, with approaches evolving over time. In the 1950s, slums were seen as a problem to be solved by the government. Therefore, public housing schemes and subsidies were rolled out. Policies in the 1960s prioritised the creation of master plans and public housing schemes, while the 1970s witnessed a shift towards schemes involving in-situ development to ensure poor people are not pushed out of the city, along with improving the quality of houses in terms of connectivity and availability of amenities such as schools and hospitals.

In 1987, India adopted its first National Housing Policy that recognised shelter as a basic human need and introduced the concept of community participation in slum improvement. The urban poor were also recognised as a distinct category and schemes for basic services and housing programmes linked with poverty alleviation were launched. Additionally, housing finance institutions such as the Housing and Urban Development Corporation (HUDCO) and Housing Development Finance Corporation (HDFC) were established.

The 74th Constitutional Amendment Act of 1992 devolved the responsibilities related to housing and urban poverty alleviation to urban local bodies, and today most cities have slum redevelopment agencies for the same. In 1996, the government started the National Slum Development Programme with an ambitious target of upgrading 47,124 slums nationwide. It selected one slum in each city to be redeveloped as a model slum. While the government focused on

improving community amenities, slum dwellers were offered attractive home loans. In 2005, the programme was scrapped, with the majority of its funds remaining unspent.

Next, large-scale schemes for the urban poor like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and the Rajiv Awas Yojana for slum-free cities were launched. These schemes attempted to engage the private sector for slum improvement. In 2015, the government launched the Pradhan Mantri Awas Yojana-Urban (PMAY-U) with the idea of ensuring housing for all, which includes slum redevelopment and the setting up of affordable housing societies for the poor. The programme has five verticals: in-situ slum redevelopment, along with beneficiary-led construction subsidies, credit-linked subsidies, creation of affordable housing in partnership with private players and an Affordable Rental Housing Complexes scheme rolled out post pandemic.

**IN 2015, WHEN THE
JAWAHARLAL NEHRU
NATIONAL URBAN
RENEWAL MISSION WAS
DISCONTINUED, AT LEAST
25 PER CENT OF THE
LOW-INCOME HOUSES
BUILT UNDER THE SCHEME
WERE VACANT**

PROBLEMS APLENTY

Despite the shifting stance over the decades, India's slum redevelopment and low-income housing projects have broadly suffered on three critical parameters: failure to identify beneficiaries, delays in redevelopment and poor quality and connectivity of housing projects. These shortcomings have derailed most large-scale slum redevelopment projects in the past. The other challenge is that most of these housing projects have been carried out on the outskirts of the city, which lack basic civic amenities and connectivity to the city. This has triggered peripheralisation of the poor in urban spaces.

The country's first public-private in-situ slum redevelopment initiative at Kathputli Colony in Delhi's Shadipur area has been delayed by over 10 years. This 50-year-old slum spans 5.22 hectares of land owned by the Delhi Development Authority (DDA). In 2009, DDA and Raheja Developers were given the task of executing the in-situ project. Sixty per cent of Kathputli Colony's land

was allocated for rehabilitating the slum dwellers, envisioning a 14-storey building with 2,800 two-room flats of 30 square metres (sq m) each, while the remainder was handed over to Raheja Developers for constructing luxury flats.

The agreement for this redevelopment came after a decade-long resistance from the colony's residents. Finally, it was decided that the 2,800 households that furnished residence proof before 2011 will receive two-room flats in the in-situ housing complex along with accommodation in a transit camp for the interim period. Another 492 households that had proof of residence between 2011 and 2014 are eligible for direct allotment of flats in DDA housing schemes in Narela, on the northern outskirts of the city. The remaining 771 households—or 20 per cent of the total Kathputli Colony households—have been left out of the scheme and rendered homeless.

Between 2014 and 2019, the 2,800 households, mostly puppeteers, acrobats, storytellers and folk dancers, were shifted in batches to the Baba Faridpuri transit camp in Anand Parbat. The initial plan was to start handing over flats by March 2019. However, the project encountered delays, missing at least two deadlines. While close to 700 flats are now ready, another 700 will be completed by March this year. A DDA official, requesting anonymity, said the project will be complete by March 2024, and the allotment process will start soon after.

Meanwhile, the people struggle to survive in the transit camp, which, they allege, has conditions worse than the slum they lived in. The camp has rows of prefabricated one-room tenements of 12 sq m for every household, with neither a kitchen nor individual water taps. Each row has shared bathing facilities, and several toilet blocks are installed along the boundary walls of the camp. "When I was asked to move to the camp in 2016, I was promised new homes in Kathputli Colony within three years," says Vikram Bhatt, a puppeteer who gave up the room he got at the camp due to poor conditions and now lives in another city slum on

rent. "They promised *jhuggi ke badle mein makaan* (houses in place of slums) and evicted us from our home. They have failed to deliver on their promise," says Iqbal Singh, a resident of the transit camp.

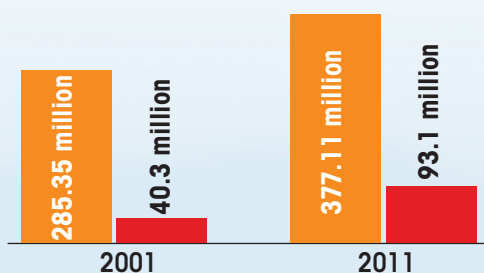
Jyoti Vig, site in-charge of the Baba Faridpuri transit camp from Raheja Developers, told DTE that the developer has not received any complaints from the residents of the transit camp over living conditions and that the project delays were due to the pandemic.

Delhi's Savda Ghevra JJ Resettlement Colony, which was set up 17 years ago, is an example of how resettlement of slums causes peripherisation of the urban poor. Residents from 17 slum clusters—some of which were located in prime locations in South Delhi—were forcibly evicted and resettled in two phases in 2006-07 and 2009-10 in the colony just before the 2010 Commonwealth Games. The colony is situated 40 km northwest of Delhi, where the evicted households were given plots ranging from 12.5 to 18 sq m. The families were made to

Rapid increase

While the urban population increased by 32 per cent, slums grew by 131 per cent between 2001 and 2011

India's urban and slum population



Source: Census 2001 and Census 2011



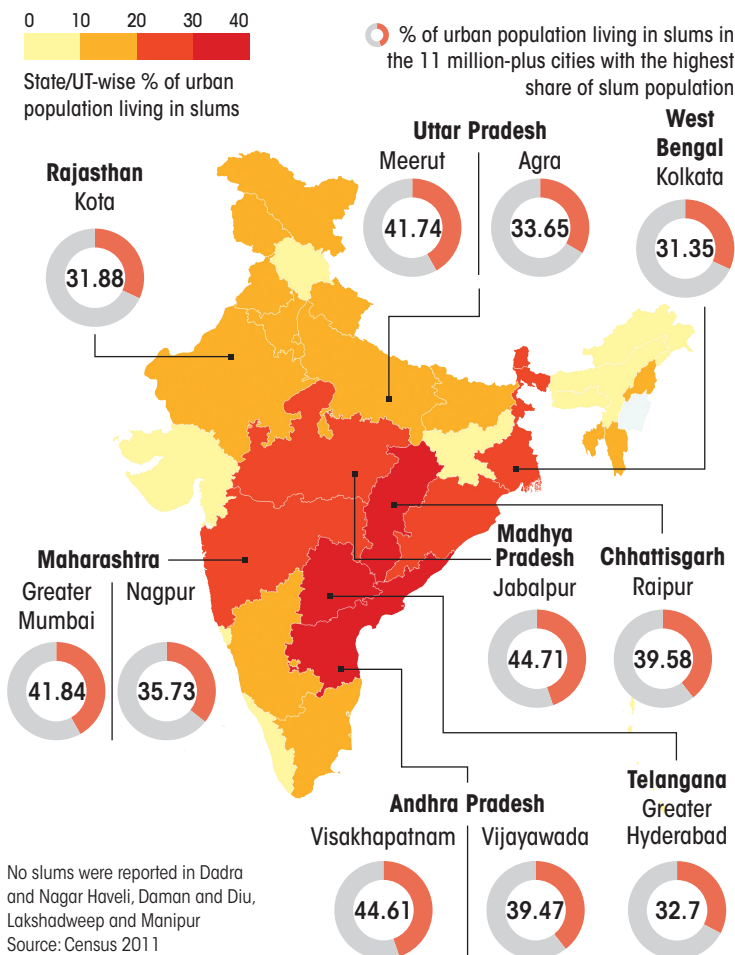
move in even before basic services such as electricity, roads and water supply were provisioned on the site. The residents had to arrange for these services themselves, in addition to constructing their house using private finances and loans. The relocation resulted in severe job losses, school drop-outs and compromised health and safety.

“Initially, we were promised houses in Vasant Kunj, where there are ample livelihood opportunities. But we were dumped here in unlivable conditions,” says Braj Mohan, who shifted to Savda Ghevra in 2006. “Employment opportunities were so scarce in the initial days that we had to work at ₹80 a day. With this kind of earning, we could not even afford candles and spent most nights in the dark,” says Vimla Devi, pradhan of the colony. It took the government 16 years to provide piped water connections to the colony, she adds. Even today, residents buy their drinking water.

A similar story of apathy can be seen in the Shabari Nagar rehabilitation project in Bhopal that was completed in 2011 under JNNURM’s Basic Services for Urban Poor scheme, which mandated the splitting of the construction cost between the state government (88 per cent) and the beneficiary (12 per cent). The project has 512 houses that have been occupied by residents of two adjacent slums, Bapu Nagar and Shabari Nagar. In October 2013, Ahmedabad-based Centre for Environment Planning & Technology (CEPT) University carried out a social audit of the housing society and received complaints from 385 residents. “64 per cent of these complaints were about quality of construction and water and sanitation, which are also two major pillars to make any housing programme successful. 12.7 per cent complaints were regarding allotment issues,” says the CEPT report. It also found that due to delays in the project, the construction cost had gone up and this was “passed on to the beneficiaries without any prior consultation”. The beneficiary share for the project was initially decided to be ₹35,000 per household, but was eventually increased by over 60 per cent to ₹57,000.

Surviving in slums

11 of the 47 million-plus cities have 30 per cent or more residents living in slums



“After a people’s protest, a financial institution was pulled in to give loans to people,” the report says, pushing many beneficiaries into debt.

NOT MANY TAKERS

Owing to poor construction quality, negligent civic amenities and their remote location, houses built under flagship schemes have low occupancy rates. According to the Union housing ministry in December 2015, at least 25 per cent—or 0.21 million—houses developed under JNNURM were vacant. The scheme was discontinued on March 31, 2014, and extensions were awarded only to ongoing



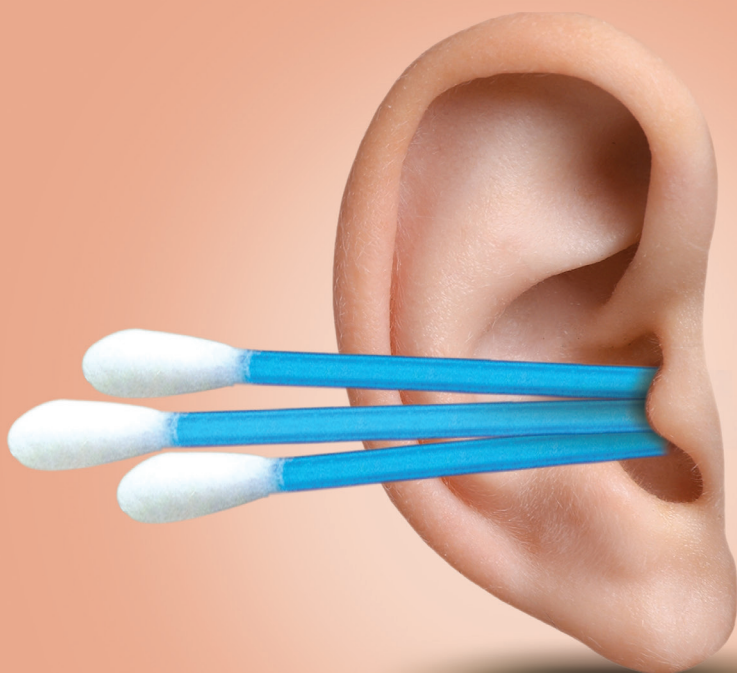
projects. In Delhi, 98 per cent of JNNURM houses were vacant, followed by Madhya Pradesh (79 per cent), Punjab (78 per cent), Himachal Pradesh (63 per cent), Chhattisgarh (48 per cent), Maharashtra (43 per cent), Sikkim (43 per cent), Andhra Pradesh (38 per cent) and Telangana (29 per cent). The Centre in 2021 retrofitted 88,236 such unoccupied houses and gave them out on low-rent under the Affordable Rental Housing Complexes scheme to ensure poor people do not need to stay in slums.

PMAY-U has also tried to plug the problem of peripherisation by mandating that land identified for slum rehabilitation should be a part of the master plan of cities. But implementing this is difficult as over 76.2 per cent of the 7,953 census towns in India in 2010 did not have a master plan, as per the Town and Country Planning Organisation, the country's apex planning body. Most cities and towns are preparing or amending their master plans in an ad-hoc manner to

^
In 2018, at least 2,800 households, predominantly puppeteers, acrobats and folk dancers were relocated to the Baba Faridpuri transit camp in Anand Parbat, Delhi. Residents say the living conditions in the transit camp is worse than slums

implement the scheme. And some are innovating in new ways. Telangana, for instance, is using satellite data to identify slums in 23 cities and has created a dashboard to monitor the same. The collected data is being used to carry out in-situ slum rehabilitation in the state.

Gujarat, meanwhile, has opted for the resettlement of slums in the periphery of the city, but has improvised a way to ensure good connectivity to low-income societies. In Ahmedabad, the state government has notified a kilometre-wide buffer space along the outer ring road as residential affordable housing zone (RAH). Ahmedabad Bus Rapid Transit corridors are planned to intersect the RAH zone. Though a positive step, an assessment by Ahmedabad University in 2020 suggests that connectivity will take time as the RAH zone is outside the main city. Till then, the people who are relocated from city slums will continue to live without social and economic safety nets.



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Learnings from Odisha

The state's bid to provide slum dwellers land rights, amenities shows promise

For more than two decades, all the 141 households in Phuleswari B slum of Bhubaneswar had no legal rights over the land they lived in. Like most people in informal settlements, they were at the risk of eviction without notice or compensation. “I shuddered at the sight of a bulldozer or Bhubaneswar Municipal Corporation vehicle near my house,” recalls Subhadra Chato, one such resident. But since March 2023, Chato sleeps peacefully; along with 78 other families in the slum, she got land rights for the area her house occupies, nearly 45 sq m, under the Odisha Land Rights To Slum Dwellers Act, 2017.

“We always doubted if this would be possible. How could we get rights over land that belongs to the government? But this law made it happen,” says Manorma Raudra, another resident. Such was the joy when the first set of land titles were distributed, that all the households, including those who are still waiting for their land titles, burst firecrackers and shared a feast.

Odisha's 2017 Act is a first-of-its-kind legislation in India, through which Odisha transforms the perception of slum dwellers from encroachers to legal land owners and recognises their participation in the city's functioning and its economy. Land rights certificates (LRCS) are provided to every person occupying land in an urban slum as of September 10, 2022 (the initial cutoff date was August 5, 2017). Slum dwellers in medium and small cities (municipalities and notified area councils or NACs) are entitled



to LRCS for up to 30 sq m—the same as a house to be built under the Centre's PM Awas Yojana (PMAY)—for residential use. Based on the extent of land occupied, LRCS can be extended for 45 sq m in municipalities and 60 sq m in NACs on payment of a certain percentage of benchmark value.

Recognising that land rights alone do not lead to redevelopment, the government in May 2018 launched the Odisha Liveable Habitat Mission (JAGA Mission) to desilt and transform slums into “Biju Adarsh” colonies with infrastructure under nine verticals—roads, drainage, street lights, 24-hour piped in-house water supply, individual household toilets, electricity, *parichaya* (multipurpose community centres), open spaces and children's play equipment.



Phuleswari B has benefitted under the Mission. When *Down To Earth* (DTE) visited the slum this February, one side of the road was dug up to lay storm water drains. On the other side, some women were seated in a large, newly built open space. Another plot was under construction. “This will be a children’s play area and a small park. Until now, it was a waste-dumping ground, full of tall bushes,” says resident Kunimani Behera. The slum recently got *pucca* roads and 24-hour water supply, say the women.

DIFFERENTIATING FACTOR

As much as 22 per cent of Odisha’s urban population lives in slums, without security of tenure, as per Census 2011. Bhubaneswar and Cuttack have the highest slum

At the Maa Mangala slum in Bhubaneswar, a vacant plot has been transformed into a children’s play area under the Odisha’s Liveable Habitat Mission (JAGA Mission), which aims to provide essential civic infrastructure in the state’s slums

population of 0.16 million each, followed by Rourkela with 0.11 million. In 2022, Odisha Chief Minister Naveen Patnaik declared the state would be made slum-free, with all slums converted into model colonies.

The state’s project for land titling and redevelopment has made great strides. As on February 7, 2024, the Act has a coverage of around 1.7 million people and 1,725 of the 2,919 slums in the state, as per the JAGA Mission website. Some 80,555 LRCs have been distributed so far.

Under the JAGA Mission, which the government implements with partners such as Tata Steel Foundation and Bengaluru-based non-profit Janaagraha, 1,350 slums have been upgraded to Biju Adarsh colonies, with infrastructure under all nine verticals. Odisha has been conferred the World Habitat Award, 2019 and the Asia-Pacific Housing Award, 2021, for this Mission.

“It has been successfully able to leverage funds and converge with existing programmes like PMAY, Swachh Bharat and AMRUT (Atal Mission for Rejuvenation and Urban Transformation),” says Preeti Prada Panigrahi, an urban policy professional who was associated with the Mission till 2023. Panigrahi says Odisha has shown a model for true in-situ slum redevelopment. “Land tenure is the differentiating factor. Most of the slum infrastructure development projects do not give entitlements or LRCs for the same area where dwellers reside,” she says.

“It is a big deal for people like us to get land registered in our name,” says Khushi from Pragati Vihar slum in Bhubaneswar, where members of the transgender community reside. A few residents in the slums DTE visited also pointed out another likely outcome: a fall in divorce rates and an improved social security for women. As LRCs for married couples are issued in the name of both spouses, it is believed this may lead to land security for women and fewer divorces.

After pilots in secondary cities and municipalities, in 2023, the government launched the project in five municipal

HOLISTIC APPROACH

Odisha's measures for real in-situ slum rehabilitation and redevelopment

ODISHA LAND RIGHTS TO SLUM DWELLERS ACT, 2017

- Provision of a land rights certificate (LRC) to every landless person occupying land in a slum in any urban area as of September 10, 2022
- Slum dwellers in municipalities, notified area councils (NACs) entitled to heritable, mortgageable land rights up to 30 sq m for residential use
- LRCs can be extended to 45 sq m in municipalities and 60 sq m in NACs with a premium payment, depending on area occupied
- If LRCs cannot be provided, another area must be developed to relocate residents

ODISHA LIVEABLE HABITAT MISSION (JAGA MISSION), 2018

- Focus on desilting and transforming slums into liveable habitats or Biju Adarsh colonies
- Provision of essential civic urban infrastructure: roads, drainage, street lights, 24-hour piped in-house water supply, individual household toilets, electricity, multipurpose community centre, open space development, and children's play equipment

ESTABLISHMENT OF SLUM DWELLER ASSOCIATIONS, 2019

- Governing body of 11 members (at least 50% of these must be women) elected by the community, registered with local government
- Implementing partners of land rights and redevelopment processes, involved from planning to decision making and supervision

corporations: Bhubaneswar, Cuttack, Berhampur, Sambalpur and Rourkela. "In larger cities, the challenges are multiple. Many people reside on land rented out by corporates; land mafias and political interests also play a role," says Panigrahi.

Some colonies are listed as "untenable slums" because they stand on land recorded as burial grounds, waterbodies or grazing

lands. "Say an area is recorded as a waterbody in revenue records. Even if no waterbody exists, the concerned department cannot let it be converted," says Shishir Dash, team lead at Tata Steel Foundation. "So, we developed a standard operating procedure which allowed a land that has lost its original characteristic to be converted," he adds.

In many cases, the land belonged to different government departments. "Initially there was hesitation from departments in giving up these lands. Some said that even though it has been unused for 50 years, they might use it in the future. It took several meetings to convince them," says Dash.

ALLOCATION TROUBLES

The first step in granting LRCs is high-resolution mapping of slums using drones, followed by a door-to-door survey for physical and document verification. As on February 7, some 106 urban local bodies have been surveyed. But some beneficiaries say that the drone survey mapped land incorrectly and, in certain cases, they were asked to pay a premium even if they occupied less than 30 sq m. In Maa Mangala slum, Bhubaneswar, for example, the four-member family of Manabhanjan Bhatta resides in a 12 sq m room. The drone survey in March 2023 incorrectly identified a nearby vacant area as their land and the corporation asked them to pay ₹18,702 as premium. The family assumed they would get more land and so paid the money. But their LRC was issued for 12 sq m, based on the physical survey. "I have made a complaint to the corporation officials who said that the money will be refunded," he says.

Further, under the law, slums located on forest, railway or private land cannot be distributed. Here, authorities must identify and develop another liveable habitat so that the residents can be relocated. "We went to urban local bodies in all cities to help with this, but the areas suggested by them were at the extreme end of the cities. Residents in these cases refuse to relocate because their livelihoods depend on the areas," says Dash. So, the project team collected maps

of all 115 cities from Odisha Space Applications Centre (ORSAC) and identified vacant places near slums that had to be moved. Work has begun to redevelop 25 new areas identified within 1 km radius of existing slums, with houses to be built under PMAY.

NOVEL CONCEPT

Dash says that quite early during project implementation, the need to involve slum dwellers became clear. As the drone and physical surveys began, authorities were met with suspicion and doubts by slum residents who feared sudden relocation. Hence in 2019 the government and its project partners set up slum dweller associations (SDAs), on the lines of resident welfare associations in developed societies. Each slum would have an SDA comprising 11 members (half of them must be women) with a president, secretary and treasurer elected by residents.

In the first phase, SDAs' role was limited to validating drone surveys, finalising boundaries and building consensus among the community. Now, they are involved in various stages of the process. "All the work to be done in the slum area is routed through the SDA. People bring complaints and concerns regarding LRCs so they know that there is a committee they can trust," says Namita Sahoo, secretary of the SDA at Tapovanbasti in Bhubaneswar. In the case of works with an estimated cost of up to ₹1 lakh, SDAs are paid 7.5 per cent of total estimated cost as "supervision charges", under the state's MUKTA (Mukhya Mantri Karma Tatpara Abhiyan) scheme, initiated during the COVID-19 pandemic to create livelihood opportunities for urban poor. For works costing over ₹1 lakh, SDAs are paid 7.5 per cent of the wage component.

"You cannot give land rights to everyone at once. So naturally people have apprehensions. But SDAs have helped win the trust of the community," says Bijendra Das, project coordinator, JAGA Mission.

NO OTHER IN-SITU SLUM REDEVELOPMENT PROJECT PROVIDES LAND RIGHTS TO SLUM DWELLERS, WHICH IS A KEY COMPONENT OF ODISHA'S APPROACH


"However, in a number of slums, the capacity of SDAs needs to be built continuously to ensure their active participation. Also, a lot of handholding is required to maintain the infrastructure being built," says Dash.

MODEL TO IMPROVE UPON

While Odisha's redevelopment project helps, the living conditions—small, congested rooms occupied by five people on average—remain the same. "I want a *pucca* house with more space," Kalyani Sahoo of Maa Mangala slum tells DTE, pointing to the tin roof of her house. "We have LRC, but when will we get a proper house?" she asks. "The area allotted should have been greater to accommodate expanding families," adds Buddhiman Sahoo, a *pani puri* vendor from the slum.

Dash says, "The poorest of the poor have the smallest piece of land, and when you give it away, it further marginalises them. So, the law is not equitably distributing land rights. The government has had discussions on this, but with little result, as there is not much availability of land. We have to look for a way forward."

Some residents are trying to find their own way. Deepak Kumar Mishra of Maa Mangala slum says the LRC for his 21 sq m opens up the possibility of building his own house under PMAY. "I have been living here for 25 years but I could never think of investing in a permanent structure because I did not have legal rights to the land. But now the LRC gives me proof of land ownership, a requirement for PMAY," he says.

The project has gained recognition among other states. Odisha's authorities have had discussions with governments in Delhi, Punjab and Tamil Nadu. The government is also in talks with organisations like Indian Institute for Human Settlements for mapping development indicators and assessing short- and long-term impacts of the project on livelihood, health, education and on the investment of resources by the community.  @down2earthindia

Ethiopia's debt default is intricately linked to its efforts in building climate-resilient infrastructure, such as the Grand Ethiopian Renaissance dam

Whose debt is it

Many African nations are defaulting on payment of loans they have utilised for funding climate-resilient infrastructure

TONY MALESI
NAIROBI, KENYA



IN DECEMBER 2023, Ethiopia became the third African country in as many years to default on its global debt payment. It was supposed to pay \$33 million to holders of the country's only international government bond on December 11 but failed to do so even after the 14-day grace period ended on December 25. Zambia and Ghana are the other two countries to have defaulted on their debt since 2020.

Several African nations are faced with a debt crisis. Many of them have faced downgrades from prominent credit rating agencies in the past five years. These nations include Kenya, Morocco, Nigeria, Ghana and Egypt. Speaking at the World Economic Forum in Davos on January 17, Nonkululeko Nyembe-

zi, chairperson of Standard Bank Group, the continent's biggest bank by assets, said that sovereign-debt crisis is the biggest issue facing Africa. Sample these cases. Nigeria is in talks to secure as much as \$1.5 billion in budget support from the World Bank. Zambia's bilateral creditors have rejected a plan to restructure its \$3 billion in Eurobonds—a debt instrument issued in a currency other than that of the home country or market. Kenya has secured \$685 million from the International Monetary Fund and raised a \$210 million loan from the Trade and Development Bank before its \$2 billion Eurobond repayment is due in five months.

Ethiopia's default is largely attributed to climate change, apart from the COVID-19 pandemic and

the Tigray region civil war. East Africa's worst drought in 40 years resulted in runaway inflation and rising food and fuel costs, exposing the country to multiple climate-linked crises. Experts are concerned that Ethiopia's default will have an economic ripple effect on neighbouring countries. Considering most countries in the region are in debt distress or on the verge of default, it is feared that the majority might have a difficult time accessing credit on international markets due to a loss of confidence in their capital markets.

Following the default, three globally-recognised credit rating agencies—Fitch Ratings, Moody's, and Standard & Poor's Global Ratings—have downgraded the country to a risky borrower that cannot



STAKEHOLDERS HIGHLIGHT THE NEED TO EXPEDITE CLIMATE-RELATED INITIATIVES TO PROVIDE AN UMBRELLA FOR ACTION ON DEBT, ESPECIALLY WHEN THE CLIMATE CRISIS IS FORCING DEVELOPING NATIONS TO INCREASE THEIR BORROWING

meet debt obligations. Ethiopia's sad state of affairs gives credence to assertions that besides factors like an increase in the annual adaptation financing gap (due to the failure of rich nations to fulfil their promises), the debt crisis across Africa is partly to blame for stalling climate action.

LOAN-FUNDED INITIATIVES

Ethiopia's default and subsequent downgrade will, among other crises, raise the cost of borrowing, says Kenyan economist David Ndii.

Besides increasing the cost of debt—one of the key sources of climate action finance in Africa—the crisis will impact green investments and general climate action in the country, possibly the continent, Ndii says.

Ethiopia's debt default is intricately linked to its efforts in building climate-resilient infrastructure and a host of other ambitious green initiatives, especially in the energy sector, under the country's Climate Resilience Green Economy vision. "Ethiopia's external imbalance and attendant foreign exchange crises emanate from over-investment in infrastructure. With some green power projects of close to 7,000 MW still under construction, it has since doubled electricity generation from 1,800 MW to 4,500 MW, against peak power requirement of 2,000 MW," says Ndii. The Grand Ethiopian Renaissance dam alone has a capacity of 6,450 MW and when completed, together with the

others under construction, Ethiopia's generation capacity will be more than four times the domestic demand.

But despite the mega investments using debt, the projected returns have not been forthcoming. "Unfortunately, close to a decade on, the anticipated private investment that would enable Ethiopia to pay for it has not materialised. Ethiopia was banking on export processing zones investment and has built several industrial parks around the country," Ndii says. Cli-

mate and economic experts also opine that defaulting countries can no longer access foreign debt markets to plug budget deficits as their economies become closed off to foreign lenders.

GLOBAL RESPONSIBILITY

As the debt crisis brews across Africa, some countries are seeking debt relief or loan restructuring. Others are considering swapping debt and climate finance or green investments. Cape Verde, for instance, has struck a debt-for-climate deal with Portugal last year, with the latter agreeing to write off an initial \$13 million the African nation owed them. Ghana has also won a moratorium on debt payments with official creditors till May 2026, and wants to finalise a deal with Eurobond investors to revamp \$13 billion debt by the end of March, say media reports. There have been other positive developments. Ivory Coast, one of Africa's fastest-growing economies, has announced it will become the first country in sub-Saharan Africa to sell a foreign bond in almost two years. This signals a renewed market appetite for regional investment.

But overall, stakeholders continue to highlight the need to accelerate full operationalisation of climate-related initiatives to provide an umbrella for action on debt, especially when the climate crises are forcing developing countries to increase their borrowing. So far, very little progress has been made, with the majority of the stakeholders unable to strike a balance between economic recovery, debt relief or restructuring and advancing green initiatives that ensure sustainable development for these nations. [DNTB](https://dntb.org) [@down2earthindia](https://twitter.com/down2earthindia)

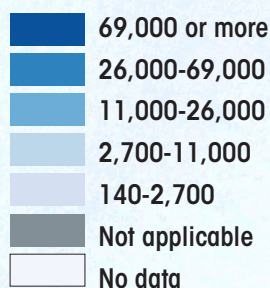
UNHEALTHY NUMBERS

India saw the world's third highest number of new cancer cases and the second highest mortality rate attributed to the disease in 2022. The country's cancer burden is projected to almost double by 2050

SEEMA PRASAD

Infographics: Tarun Sehgal

Number of new cancer cases in 2022

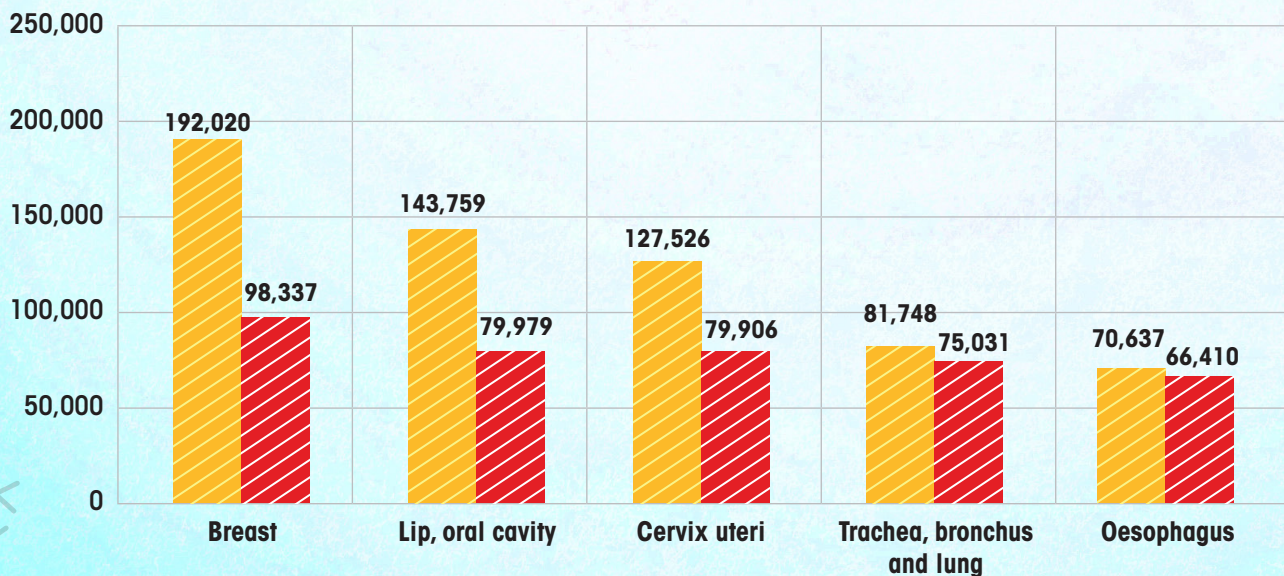


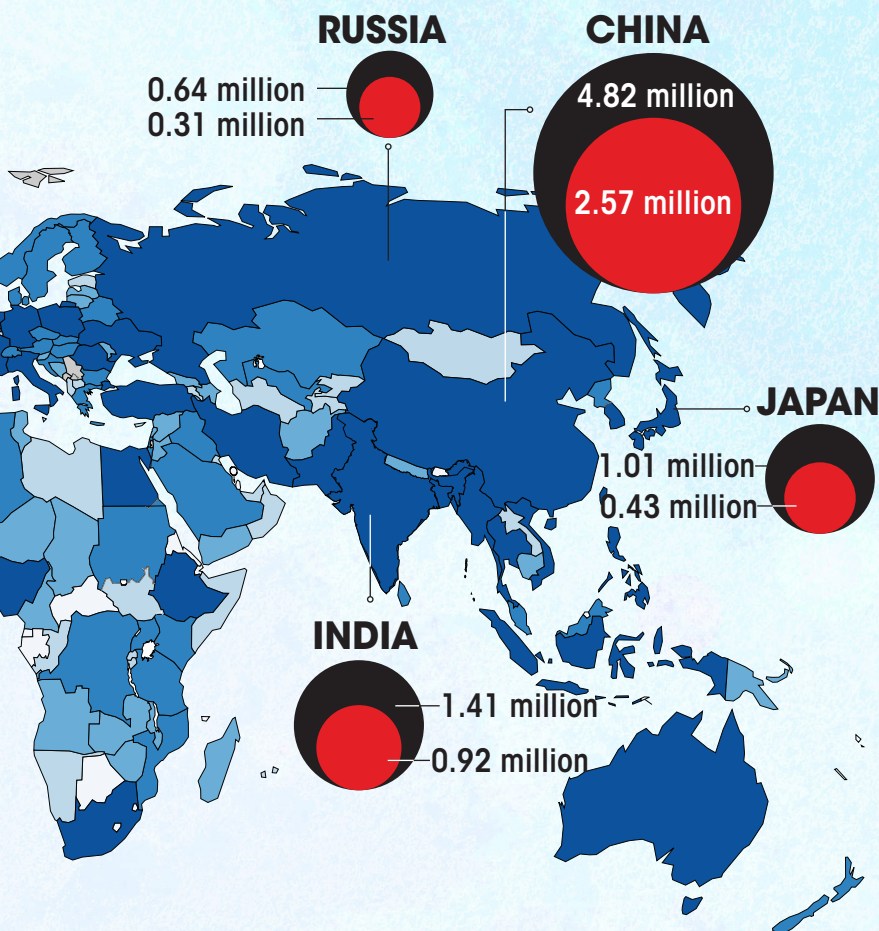
● New cancer cases and ● deaths of five worst-hit countries in 2022

Dangerous five

Only five types of cancer contribute to 45% of all new cases and 44% of total deaths in India

The top 5 types of cancer in India with their number of new cases and deaths in 2022

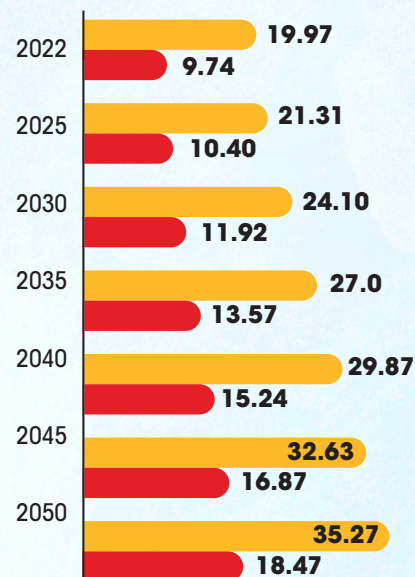




SET TO RISE

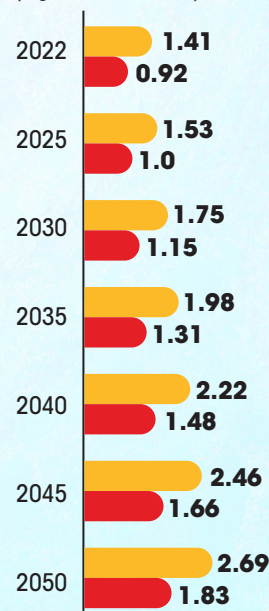
By 2050, it is projected that global cancer cases will surge by 77%, accompanied by a 90% increase in cancer-related deaths

Projected cases Projected deaths
(Figures in millions)



India is poised to witness a dramatic rise in cancer cases, with a projected surge of 90%, coupled with a staggering 100% increase in cancer-related deaths. This rate of increase surpasses the global projections

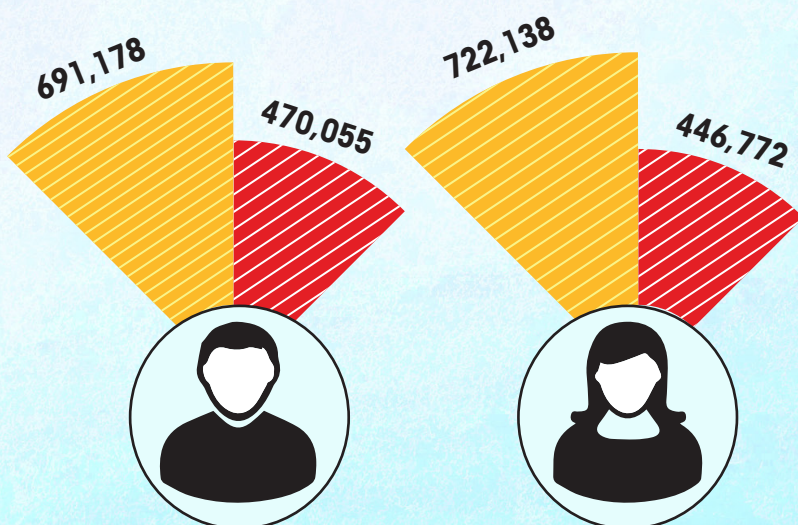
Projected cases Projected deaths
(Figures in millions)



Close call

In 2022, although women experienced a mildly higher incidence of new cancer cases (51%), the disease claimed more lives among men, accounting for 52% of cancer-related deaths in India

Number of new cases and deaths in 2022



Source: Analysis based on data released by the International Agency for Research on Cancer, WHO, in February 2024

Making *jugaad* a global success

Frugal innovation is the new concept that companies are adopting to take technology to developing countries

JUGAAD IS a quintessential Indian approach to life. When resources are limited, we learn to tackle problems by improvising solutions that are inexpensive and use whatever local materials are available. *Jugaad* is a term that is commonly used in north India, where everyone knows what the colloquial Hindi word means—a way to fix a difficulty not through conventional measures, but through the cheapest possible means. The concept, however, is ubiquitous throughout the country where adversity and the daunting cost of high technology have forced people to find ingenious solutions.

The origin of *jugaad* starts with the early years of an independent India, when it was short of everything possible but a keen desire to get ahead. In those years of struggle, farmers in remote areas of Punjab were desperately in need of mechanised transport. Since there was nothing cheap they could buy, they devised an improvised tractor by assembling a strange contraption. They mounted a diesel pump on the chassis of a trolley, attached wheels and a steering rod to it, and presto, a motor vehicle was born! It was called a *jugaad*. There was no patent on it—no one thought of such things then—so anyone who had the means copied this contraption, made their own "improvements" to it and made the *jugaad* a life-saver for many.

That example of grassroots innovation was repeated in many ways and in other systems, too, although it was most prevalent in the transport sector. And if you thought it was just the rural folk who opted for *jugaad*, you would be wrong. Over the years, even the well-off segment of society found—and still finds—*jugaad* a convenient way to cut costs. If one's foreign-made refrigerators or cars needed to be repaired, there was always a way to cut costs by cannibalising parts from somewhere else and retooling these. In

short, it was a frugal way of innovation. "If necessity is the mother of invention then, dire necessity is the mother of *jugaad*," says Virender Kapoor, author of *Jugaad Attitude*, a book that extols this concept. A solution that was initially created for a seemingly impossible situation, gradually "became an inspiration to find a common sense solution or the out of the box solution to every, problem, person, thing or a situation. It took on a meaning which was larger than life," he writes. While such high praise may be warranted given the circumstances, India's ubiquitous backyard *jugaad* only provided an imaginative quickfix based on cutting corners in an effort to be street smart. There was no thought of ensuring a permanent solution.



ILLUSTRATION: RITIKA BOHRA / CSE

In the long run, such *jugaad* becomes uneconomic. For one, the efficiency of a *jugaad* product based on another product quite often turns out to be lower than the original use it was intended for. Besides, there could also be patent violations if there was mass production based on a patent protected item. In any case, scaling up is not feasible since many *jugaad* products meet only localised niche requirements. The National Innovation Foundation of India has done a lot to showcase innovation in the rural areas but has been unable to help with scaling up production of such products precisely because of these reasons. A stellar example is the MittiCool Clay Refrigerator which runs without electricity. It's a much-needed product in rural areas, but its high cost has proved to be a deterrent and offtake has been extremely poor.

Yet, over the years, *jugaad* has caught the imagination of academics and management experts, who have spun their theories on the importance of *jugaad* for meeting the needs of the poorest segments of society. The earliest book in this genre was CK Prahalad's *The Fortune at the Bottom of the Pyramid* some 20 years ago. Since then more management studies have come out, such as *Jugaad Innovation: A Frugal and Flexible Approach to Innovation for the 21st Century*. But the focus was entirely on India.

Now, *jugaad* innovation has become a marketing principle that is gaining worldwide attention as companies realise that frugal innovation is crucial for tapping the markets of developing countries. The World Intellectual Property Organisation (WIPO) has in its "Direction of Innovation" report devoted much space to *jugaad* as an important way to help low-income developing countries. But there is a crucial difference. While India's ubiquitous backyard *jugaad* was not durable, WIPO cites the examples of companies that use high levels of technology to provide more lasting solutions to the needs of the poorer developing countries which are constrained in their ability to absorb the technology produced by advanced nations. This is important because such countries do not also have the capacity to generate technological solutions of their own to meet their specific socio-economic needs.

Unlike India's backyard *jugaad*, companies are using high levels of technology to provide more lasting solutions for developing nations

Since price is one of the main constraints, most innovation efforts are geared toward reducing costs, or stripping out features of the technology to leave just what is needed. The example WIPO highlights as an exemplary item of *jugaad* or frugal innovation is that of Transsion, a little known Chinese mobile phone maker and service provider which produces phones specifically for the African market. The company has captured over 40 per cent of the mobile phone market in Africa, outperforming giants like China's own Huawei and Xiaomi and, of course, Apple, Samsung and Nokia.

It did this by understanding what many African consumers wanted while designing a technology that addressed issues such as weak network signals, limited coverage and unreliable access to electricity, among other constraints.

WIPO emphasises that frugal innovation or *jugaad* does not mean just cutting down on costs and inputs. "Adapting frontier technologies to make them affordable requires high levels of technical knowledge," it says. Some experts have cited Tata's Nano car as an example of a corporate attempt at a more durable solution to provide more compact and affordable vehicles to families in India who use two-wheelers to ferry as many as four people. But that experiment failed, apparently, because the company failed to take into account the socio-economic profile of the market segment it was addressing.

Multinationals are helping India take the concept of *jugaad* to a higher level and to a global market. When US firm GE adapted its ECG and ultrasound medical devices for rural consumers in India and China, it used its subsidiaries in these countries to re-engineer the devices to make them smaller and cheaper—but without compromising on their quality. "The result was so successful that eventually GE started selling these adapted units to consumers in high-income economies as well," according to WIPO.

Local adaptation of foreign technologies can lead to innovation that is valuable to industrialised countries, too. But is this *jugaad* as we understand it, or a kind of revision innovation? **DTE**

⊗ @ljishnu



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Palette

WHAT'S INSIDE

Climate lessons from the dry Himalayan winter **P50**

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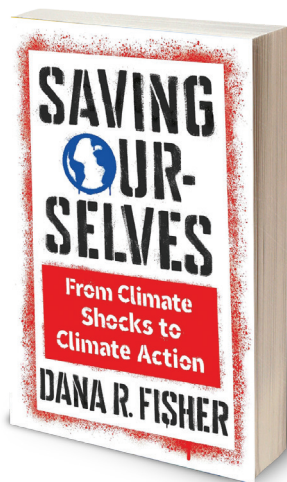
RECOMMENDATIONS

DOCUMENTARY

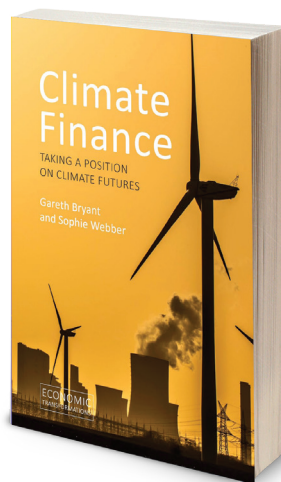


Scientists often tout benefits of experiencing the “awe” of nature—appreciating the wonders of the natural environment can help address symptoms associated with trauma and depression. To explore just how this concept works, American war reporter Bob Woodruff treks with military veterans along some of the most pristine landscapes in the Arctic region. Throughout the journey, researchers monitor changes to the physical, mental and emotional wellbeing of the veterans. The findings are documented in *Operation Arctic Cure*, set to premiere on *National Geographic*, US on February 19. It will also become available internationally on streaming platforms *Disney+* and *Hulu* later this year.

BOOKS



Policy makers and organisations have struggled to handle the impacts of climate change so far. This has led to more people turning to climate activism to bring change, says Dana R Fisher, director of the Center for Environment, Community, and Equity at the American University. In *Saving Ourselves: From Climate Shocks to Climate Action*, she assesses exactly how climate activism has arisen, the positive and negative impacts it has brought, and the opportunities it provides for true climate action.



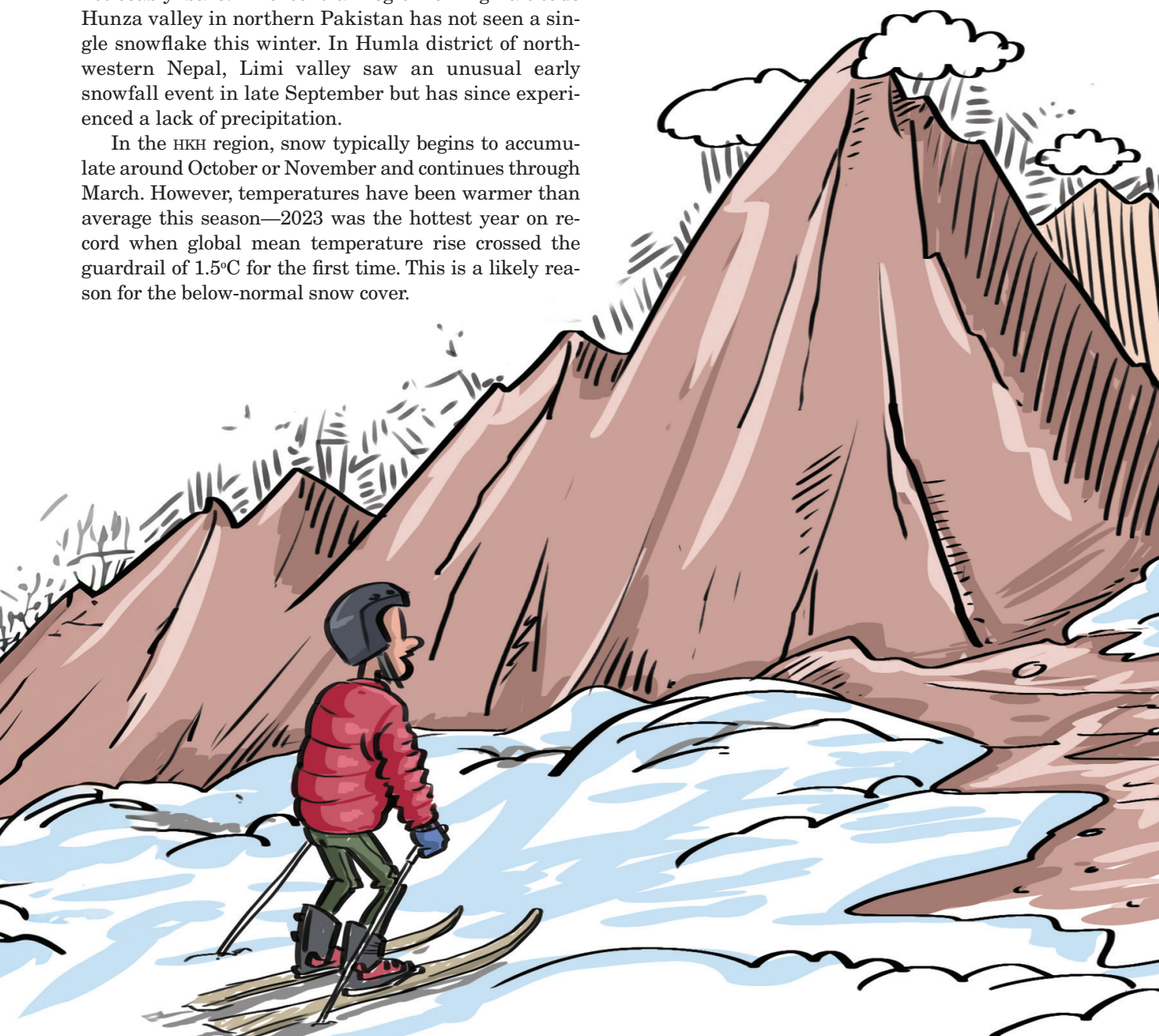
The subject of finance is increasingly taking over the global discussions on climate change. Stakeholders often adopt varying positions on financial gaps, instruments, technologies and funds. To help people understand some of these debates that are fast shaping the world's climate action, Gareth Bryant and Sophie Webber of the University of Sydney provide a comprehensive guide on various aspects of the subject in *Climate Finance: Taking a Position on Climate Futures*.

WINTER WITHOUT SNOW

Record-low snowfall in the Himalayas is evidence that climate change is speeding up
ARSHINI SAIKIA AND CHIMI SELDON

MOUNTAIN PEAKS in the Hindu Kush Himalayan (HKH) region are usually blanketed by snow during the winter. But this winter has been unusual. With little to no snowfall, the peaks are noticeably bare. The central region of high-altitude Hunza valley in northern Pakistan has not seen a single snowflake this winter. In Humla district of northwestern Nepal, Limi valley saw an unusual early snowfall event in late September but has since experienced a lack of precipitation.

In the HKH region, snow typically begins to accumulate around October or November and continues through March. However, temperatures have been warmer than average this season—2023 was the hottest year on record when global mean temperature rise crossed the guardrail of 1.5°C for the first time. This is a likely reason for the below-normal snow cover.



For snow, the region depends on the western disturbance—a meteorological phenomenon that forms over the Mediterranean Sea, Caspian Sea and Black Sea, moves eastwards and crosses Iraq, Iran, Afghanistan and Pakistan before reaching northern and northwestern India and western Nepal. This brings sudden winter rain, sleet and snow to the HKH region. But this phenomenon is getting disrupted in a fast heating-up world. Although the precise mechanisms are not fully understood, global warming is believed to contribute to prolonged and intense La Niña–El Niño conditions—the warm and cool phases of a recurring climate pattern across the tropical Pacific Ocean that can influence weather patterns across the world, including the western disturbance. In April 2023, when the weather pattern switched to El Niño, after three years of La Niña, it caused marine heatwaves in the Mediterranean, Gulf of Mexico, Indian Ocean, North Pacific and North Atlantic that were experiencing persistently high sea surface temperatures in 2023. This temperature anomaly in 2023 appear to have weakened and delayed the western disturbance, affecting winter precipitation and snowfall in the HKH region.

What we are experiencing is the reality of what 1.5°C means for the HKH region. “Even if there is significant snowfall in February and March as temperatures start to rise, it will probably be too little and too late to make up for the existing deficit,” says Sher Muhammad, cryosphere expert at the International Centre for Integrated Mountain Development (ICIMOD), an intergovernmental organisation.

CASCADING IMPACT

The western disturbance serves as the main source of snowfall that nourishes the HKH glaciers, particularly those in the western part of the region. For eastern Himalayan glaciers, summer precipitation is the main source. On average, annual snowmelt contributes 23 per cent of the flow of the 12 major river basins that originate in the HKH region and flow downstream to farmlands and cities, with snowmelt runoff from individual basins varying from 5 to 77 per cent. The combination of seasonal snowmelt and glacial melt thus plays a key role in river hydrology and in daily life downstream.

The extremely dry winter, which

ANNUAL SNOWMELT CONTRIBUTES 23% OF THE FLOW OF THE 12 MAJOR RIVER BASINS THAT ORIGINATE FROM THE HINDU KUSH HIMALAYA. THE EXTREMELY DRY WINTER, WHICH FOLLOWS YEARS OF BELOW-AVERAGE SNOWPACK ACCUMULATION, IS EXPECTED TO FURTHER STRAIN WATER RESOURCES THIS SPRING AND SUMMER

follows years of below-average snowpack accumulation, is expected to further strain water resources this spring and summer. “We are worried about the implications for agriculture and our mountain ecosystems,” says Paljor, ward chairperson in Halji village in Humla district of Nepal. Majority of people in this Himalayan district are farmers. “Winters are being pushed later into spring. This means that we may see snowfall in April or May, or no snowfall in some years. These changes could lead to drought, severely affecting agriculture and drinking water supplies in the region,” Zarina Baig, a climate researcher and resident of Pakistan’s Hunza valley.

“While an exceptionally dry winter is a big challenge, heavy snowfall

in spring could be an even bigger challenge as it could bring catastrophes like avalanches and flash floods. Urgent action is required to build the resilience of Himalayan communities in the face of snow drought and its cascading impacts,” says Arun Shrestha, senior climate change specialist at ICIMOD.

Snow cover also helps regulate temperature of the earth’s surface. Variations in snow cover can affect regional weather patterns. Cooling associated with moist spring soils and a heavy snowpack in Eurasia is believed to shift arrival of the summer monsoon season and influence its strength and duration. This is another reason why heavy spring snow does not augur well for the region.

While data gap is a major concern for the HKH region, it has become paramount to make the most of existing data and expedite uptake of adaptive measures to mitigate the future risks. Understanding what drives the western disturbance and

how it is changing are key to predicting the snowfall. The information can be used to forecast potential impact on water availability and associated risks in the highlands and downstream areas. There is also an urgent need for advancing the science of monitoring the influence of the western disturbance on snowfall in the region, as the topic is not well understood particularly among decision makers. In a changing climate, it is crucial that the science and decision-making processes move parallel. 🇮🇳 @down2earthindia

(Arshini Saikia is atmospheric scientist at the International Centre for Integrated Mountain Development or ICIMOD. Chimi Seldon is communications officer at ICIMOD)

Historical hindsight

An encyclopaedic work capturing the breathless changes in Assam's recent history as well as its struggle for identity and modernity

SANJOY HAZARIKA

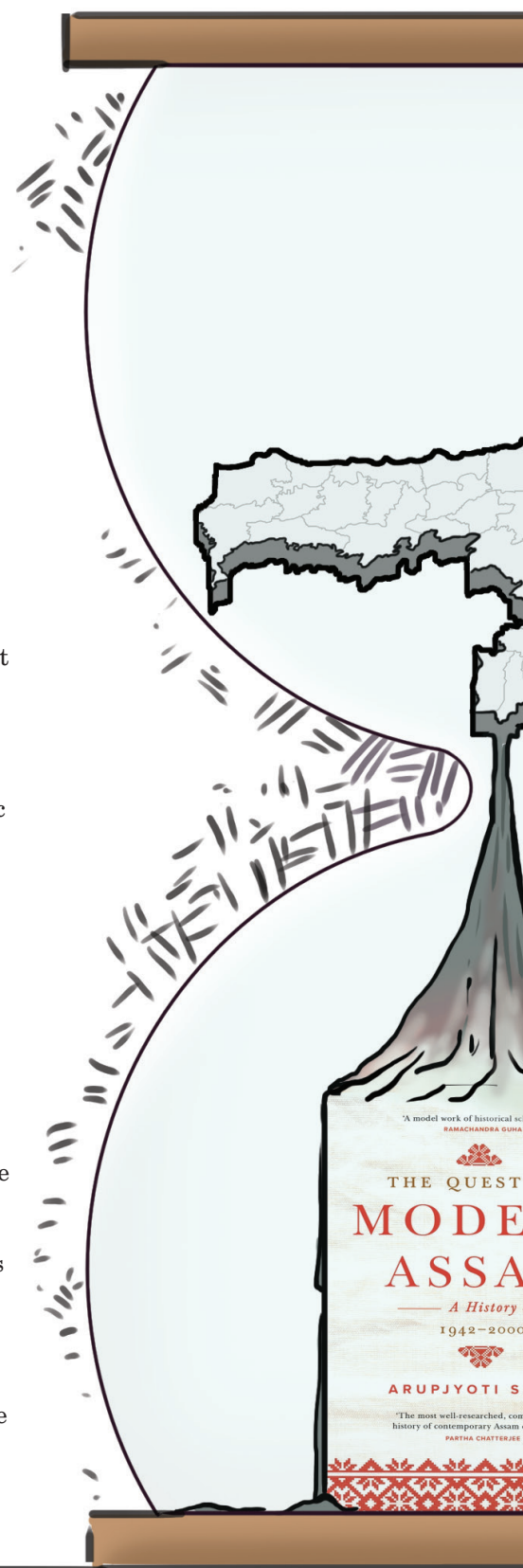
ARUPJYOTI SAIKIA is undoubtedly contemporary Assam's finest historian and, by that measure, one of India's most accomplished. He does not believe in half measures or over-reliance on the writings of others, no matter how reliable. He dives deep into archives and libraries, in Assam as well as in Delhi, London and Yale, scouring for evidence.

In *The Quest for Modern Assam*, Saikia does not disappoint. The book's size and scope are daunting: it covers 58 years in more than 800 pages, of which 298 pages comprise bibliography, timeline and references, giving readers an understanding of the attention that he pays to detail. His major works have been focused on his home state of Assam where he is a professor of history at the Indian Institute of Technology, Guwahati.

Saikia brings a consistent scholarship to his telling of tales. He avoids jargon and the trademark haste of some of the new self-styled historians of the state and the region. His formidable tome acknowledges the

challenges in writing "complex biographies of Indian states in the post-colonial period" and points out the need for the passage of time to reflect not just on events but also on the development of historical processes, trends and circumstances—political, economic and environmental.

The pace is set with the opening, and this is where the historian shows nuance, clarity and wit. With a panoramic sweep that connects all the loose ends—ethnicity, agrarian distress, conflicts and the lives of peoples and communities—Saikia weaves a rich and detailed tapestry. Thus, we start with the end years of the Second World War, where Japanese military inroads showed Assam's vulnerability and the fallacy of believing in the seeming fortresses of the eastern hills. Saikia skillfully merges the many events that developed in parallel during those critical years before India's independence, underlining what he describes as "An Empire in Disarray", where a range of issues tested the mettle of the colonial

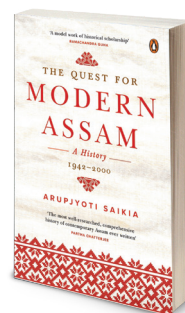




rulers as well as of the local political leaders. These included the extensive migration of hundreds of thousands of distressed rural Bengali peasants into parts of western Assam, drawn by the new land policies of Assam's Muslim League government, and pushed to desperation by the horror of the Bengal famine of 1943-44 which killed no less than three million people. Parallel to this ran the wartime Allied effort to build a major supply and forward base to deal with the Burma and China fronts through air, truck and train routes, with oil pipeline being placed over hundreds of kilometers to ensure reliable and sustained fuel supply. This was in addition to the blazing battles of Kohima and Imphal, which spanned a huge area, causing displacement and devastating forests and wildlife.

The Quit India movement stressed a colonial government already under huge pressures of security and logistics in the midst of a war. All this was made complicated by the emergence of not less than four plans by British officials to carve a Crown Colony out of the hills of the region of the Northeast and join them to the Burmese highlands, even as India marched to freedom, with hiccups such as the negotiations with the Nagas (who sought to remain independent) and the Partition.

While the Bordoloi Sub-Committee's recommendations for special Constitutional protection to tribal communities in the region through the Sixth Schedule have been covered extensively in other books and studies by anthropologists, sociologists and historians, Saikia also reviews the impact of



The Quest for Modern Assam: A History 1942-2000

by **Arupjyoti Saikia**

Publisher: Penguin
Random House India

MRP: ₹1,299 | **Pages:** 896

demands at that time by Assamese nationalist politicians who favoured strong and autonomous states that could stand up to an overwhelmingly powerful Centre.

This tussle over the idea of a federate polity—or Union of states—and the need to balance the powers of the Centre and even rein them in has resonated through post-Independence India. It remains unresolved with strong voices from the increasingly affluent states of southern India demanding a greater role in financial power sharing. They cite their contribution to the national exchequer and criticise the fact that the Centre apportions more funds to poorer states like Uttar Pradesh.

Saikia quotes Kuladhar Chaliha, a freedom fighter and a prominent Congressman from Assam, "You seem to think that all the best qualities are possessed by people here at the Centre. But the provinces charge you with taking too much power and reducing them to a municipal

body.” This debate continues, irrespective of which political party is in power at the Centre.

Indeed, the book points out how Assam, despite all the pressures that it faced, remained among the top states as far as Net Domestic Product was concerned, as a result of pre-Independence capital investments, but began sliding after mid-1960s, with a significant population facing poor health, nutrition and income levels. The slide became a precipitous fall after the growth of strident regionalist tendencies, continuing poverty, poor human development indices, fragmented infrastructure as well as lack of resource mobilisation. It was till about the first decade of this century that Assam could be said to have begun to turn the corner.

Saikia deftly traverses the complex road of language politics, which has been at the heart of identity mobilisation in Assam, and the struggle by its founders, scholars and cultural icons to tackle some of the bitter prejudices that have remained. While dwelling on the continuing challenges of unemployment, he also looks at efforts to shape the state as a modern entity, with a focus on institutions and the sinews of government. Given his previous work, it is but natural that landlessness, agrarian penury, the challenges faced by the state’s floodplains and the constant battle between “development”/ infrastructure growth and the loss of forests/habitat find major space in his book.

Saikia’s books and chapters are ambitiously voluminous but very readable. In sweeping strokes, he paints the rise of the Naga movement for independence,

boundary disputes, resistance to the imposition of Assamese in what is today’s Meghalaya, and the resentment in other tribal communities leading to demands for separate homelands. The rise of All Assam Students Union and regionalism, the growing communalisation of politics and the influx of refugees from Bangladesh in 1970-71 is another part of the book, so are the questions of irregular migration and the “anti-foreigner” movement which resulted in horrendous killings including the Nellie massacre. Saikia also gives space to the role of the United Liberation

THE BOOK POINTS OUT THE NEED FOR THE PASSAGE OF TIME TO REFLECT NOT JUST ON EVENTS BUT ALSO ON THE DEVELOPMENT OF HISTORICAL PROCESSES, TRENDS AND CIRCUMSTANCES—POLITICAL, ECONOMIC AND ENVIRONMENTAL

Front of Asom. While none of this may break new ground, Saikia approaches the range of issues providing a deluge of information, while relying on facts and records.

Ultimately, a historical survey of this scale cannot cover everything. The author has the right to choose the aspects that have greater relevance and priority in his/her view. It is a choice driven by both professional and personal approaches.

Thus, while Saikia looks at the role of women in different fields, he also says that the formal recognition of the Sattriya dance as a classical dance form of India by the Centre brought “some of the social recognition sought by the Assamese middle classes and also significantly contributed to

the consolidation of Assamese nationalism, which is increasingly projected and interlinked through Vaishnavism.”

In this aspect, he pays tribute to abbots of the Vaishnav monasteries and the great scholar Maheswar Neog who battled for decades to get formal recognition for Sattriya. Bhupen Hazarika, himself a great cultural icon and the then head of the Sangeet Natak Akademi, enabled the decision nearly half a century later.

Arupyoti Saikia has provided an encyclopedic book, rich in grounded knowledge and content, with an unerring perspective and a sharply-focused lens on a land, its people and their challenges. It covers the breathless changes that have raced through Assam in a span of just over half a century, and asks key questions at the end.

One of these is quite poignant: whether Assam can “escape from the burden of economic deprivation without causing distress to her environment?” The ongoing destruction of wetlands, forests, and the magnificent trees that provide shelter to species (not just to humans) along the highways, is a reminder that Saikia is not just asking a question, but with his formidable understanding of ecological spaces, he is also stating a fact, if not providing an answer.

A magisterial work as this deserves another one of its kind. It is strongly recommended that a major study be taken up some years down the line to review Assam’s critical years of 2000-2025, a time of many transformations, for good and otherwise. [DTE](https://www.dte.org.in) [@down2earthindia](https://www.dte.org.in)



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Countries are actively discussing setting up targets for doubling energy efficiency by 2030. As an emerging economy, India also continues to scale climate mitigation efforts. The country's manufacturing industries and power sector together contribute more than 85 per cent of our total GHG emissions, along with contributing to the poor air quality in Indian cities. Concurrently, Indian companies are also coming up with net-zero targets.

This necessitates the need for energy management and optimization in industries/ organizations to reduce fuel consumption and subsequent costs incurred from energy consumption and carbon emissions. An energy audit is a tool that helps industry/ organization/commercial buildings like hotels optimize energy use, identify energy losses and take opportunities for emission mitigation.

In this regard, the Centre for Science and Environment (CSE) is organizing a 12-days online course designed to offer a thorough understanding of energy management and auditing and its various elements. The training aims to enable professionals to not just reduce energy costs but also improve the overall environmental performance of the entity. With the skill set provided in this training, an energy professional can assist the entity in preparing a roadmap that will help them to be one step ahead in energy efficiency, emission reduction and the country's overall climate ambition.

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UNDERRATED GREEN

Kohlrabi is a healthy but little used member of the cabbage family

VIBHA VARSHNEY

GROWING UP in Delhi had a few unexpected perks, such as greater exposure to cuisines brought in by communities from across the country who have settled here and created an ecosystem that reminds them of home. These communities give us a glimpse of the food they enjoy. For instance, people who migrated from Kashmir in the 1940s settled in Pamposh Enclave, named after the lotus flower that grows in Dal

Lake. Now an upscale locality, it still has small shops with foods of this community, for example, dried vegetables such as bottle gourd and aubergines, discs of Kashmiri *masalas*, large chillies that lend a beautiful hue to any dish and even local walnuts and honey.

I had my first taste of Kashmiri cuisine in a restaurant in this area, where we ordered a *saag* with rice. The *saag* had large leaves floating in oily water, quite

different from the dish of mustard leaves that was available just across the road, made by people who trace their roots to Pakistan. It also did not have tomatoes, onions or garlic.

The Kashmiri *saag* or *haakh* was made from the leaves and stems of kohlrabi (*Brassica oleracea* gongylodes), and it was extremely flavourful and soothing. With kohlrabi being a part of the cruciferae family, the leaves have a distinct mustard-like taste.

Haakh is usually a part of a platter with non-vegetarian dishes, paneer, beans and rich and oily vegetable preparations. Easy to prepare, it is now a winter favourite at my house too, consumed with rice (see recipes). We use the young bulbous stems and leaves of kohlrabi, because they tend to get more fibrous as they grow, and add baking soda for easier cooking and digestion.

The mustard-like leaves of kohlrabi or *ganth gobhi* are, in fact, only consumed in Kashmir. Other cuisines use the stem. In southern parts of India, where kohlrabi is known as *noolkol*, the stem is used to prepare *poriyal*, a stir-fry dish with coconut, and even *sambar*. At home, we also prepare the stem in a way similar to stir-fried round gourd (*tinda*) or potatoes. In other countries, such as those in Europe, the stem is consumed as a salad, in soups and in roasted form with sauce. It is also boiled and seasoned to be eaten as a side dish.

BENEFICIAL CHOICE

The name kohlrabi comes from the German words *kohl* (cabbage) and *rabi* (turnip). The vegetable shares its genus, *Brassica*, with mustard and species, *oleracea*, with cabbage, cauliflower, broccoli, Brussel sprouts and many other vegetables. Only its variety,

gongylodes, is different. Its centre of cultivation was recently determined as the eastern Mediterranean region by researchers from the US, UK, China and Germany. They used RNA sequences from 224 samples of 14 *Brassic oleracea* varieties, including kohlrabi, and their nine potential ancestors to come to this conclusion, published in the journal *Molecular Biology and Evolution* in October 2021.

Kohlrabi needs a cool climate to grow; in India, it is cultivated in Kashmir, West Bengal, Maharashtra, Assam, Uttar Pradesh and Punjab. But the area under cultivation is not known. Unlike cabbage and cauliflower, which are harvested in 80 days, kohlrabi crops need just 60 days. Some of its varieties, like White Vienna, grow in about 45 days.

The vegetable has been found to be rich in biochemicals that have health benefits. Just like other cruciferous vegetables, kohlrabi prevents oxidative stress, induces production of detoxification enzymes, strengthens the immune system, decreases the risk of cancers, inhibits malignant transformation and carcinogenic mutations and reduces proliferation of cancer cells, as per a 2012 study in *Annals of the National Institute of Hygiene*. It can provide vitamin A and C, folic acid and dietary fibre and is a rich source of vitamin B-complex such as niacin, pyridoxine, thiamin and pantothenic acid. It can also provide minerals such as calcium, phosphorus, iron, magnesium and potassium, highlights online database *Plants For A Future*.

Despite such benefits, kohlrabi remains an underutilised vegetable. Perhaps its use will be augmented if one finds the right kohlrabi recipe that suits their taste buds, just like *haakh* suited mine. **DTE** ☒ @vibhavarshney

RECIPES **HAAKH**

INGREDIENTS

Kohlrabi with leaves: 2
Red chillies: 4 to 5
Asafoetida: 1/4 tsp
Baking soda: 1/4 tsp
Mustard oil: 2 tbsp
Salt to taste

METHOD

Wash the stems and leaves well. Peel the stem, carefully removing hard parts. Roughly chop them into slices. Tear the leaves lengthwise along the midrib. Chop the midrib into pieces but discard the hard ones. Take oil and asafoetida in a pressure cooker. Mix in the chopped stem pieces. Add the leaves, baking soda, salt and broken red chillies and mix again. Stir in a cup of water and cook till the leaves are soft.

KOHLRABI STIR FRY

INGREDIENTS

Kohlrabi: 2
Potato: 1
Cumin: 1/2 tsp
Turmeric, chilli and coriander powders: 1/2 tsp each
Asafoetida: 1/4 tsp
Ginger: 3 cm piece
Green chilli: 1 to 2
Amchoor powder: 1/2 tsp
Garam masala: 1/2 tsp
Oil: 2 tbsp
Salt to taste

METHOD

Peel and dice the vegetables into cubes. In a pan, heat oil, add asafoetida and cumin seeds and let them crackle. Mix in the turmeric, chilli and coriander powders, salt and add the cut vegetables, grated ginger and green chilli. Add half a cup of water, cover and cook until soft. Take off the flame, add amchoor powder and garam masala and cover. Wait for a few minutes and enjoy with *rotis* and *dal*.

Change in dimension

FOR THE first time, the word “multidimensional poverty” appeared in the budget speech of an Indian finance minister. Nirmala Sitharaman in her budget speech on February 1, 2024, claimed that the National Democratic Alliance government had “assisted” 250 million people escape multidimensional poverty in the last decade.

Appearance, rather acceptance, of multidimensional poverty as a measure of poverty is a great stride in how we approach poverty and deprivation. Income poverty—the usual measure to quantify poverty level—is solely based on economic factors. But poverty is multidimensional. The apex government public policy think tank NITI Aayog has developed the country’s National Multidimensional Poverty Index to capture deprivation in the three dimensions of health, education and standard of living.

For each dimension, the NITI Aayog has indicators aligned with the Sustainable Development Goals (SDGs). The indicators for health are: nutrition, child and adolescent mortality and maternal health; for education are: years of schooling and school attendance; and for the standard of living dimension, the indicators are: cooking fuel, sanitation, drinking water, electricity, housing, assets and bank accounts. Based on this, the NITI Aayog has measured that 250 million people have escaped multidimensional poverty in the last one decade, which the minister quoted to claim reduction in “poverty”. Going by this measure, multidimensional poverty was 55.3 per cent in 2005-06 and dipped to 29.2 per cent in 2013-2014. In the next 10 years (in 2013-23), it dipped to 11.3 per cent.

But this index does not include income poverty—the dimension used in India to measure poverty. All our development projects are directed at “the poor” based on the poverty line which is drawn upon the poverty survey (India uses the proxy of expenditure to conclude income level). India has not carried out a

poverty survey since 2011. There has not been a consumption expenditure survey since 2014. So, there is no data on income poverty, which is the basis of measuring poverty levels.

India was supposed to eradicate poverty by 2022, eight years before the SDG target year of 2030. Prime Minister Narendra Modi made this promise on September 25, 2017, at a national executive meeting of the Bharatiya Janata Party. This was at the centre of his promised “New India”. The current government, which claims an unprecedented decline in multidimensional poverty, has more to conceal by using “multidimensional poverty” figure interchangeably with “poverty”, mostly in government documents that deal with poverty reduction figures.

It seems that henceforth, poverty eradication will be measured in terms of NITI Aayog’s

It seems poverty eradication will henceforth be measured by an index that does not include income poverty

multidimensional poverty index that does not include income poverty. There are already claims over how government welfare programmes have resulted in “income”

growth of people. For instance, the free foodgrains under the Public Distribution Scheme have been monetised to give an impression of income growth for households.

On January 30, 2024, the NITI Aayog published a working paper on its website. Titled “Bharatiya Model of Inclusive Growth: Sabka Saath Sabka Vikas”, the paper articulates the new measure of growth, prosperity and poverty measurement and terms it “Bharatiya”. It reads: “The Bharatiya approach to social welfare is multi-faceted, including direct transfers to recipients & indirect subsidies through service providers, cash transfers (e.g. to farmers) & in kind transfers such as free or below market price provision of goods and services (such as scholarships) and a broad range of ‘basic needs.’” It has also stamped multidimensional poverty index as the “Bharatiya” way of poverty measurement. [DTE](#) [X](#) @richiemaha

RESIDENTIAL TRAINING

COMPRESSED BIOGAS (CBG) POTENTIAL, TECHNOLOGY, POLICY, OPERATIONS AND ECONOMICS

Date
**MARCH 20-22,
2024**

Last date to apply
**FEBRUARY 29,
2024**

Venue
**ANIL AGARWAL ENVIRONMENT
TRAINING INSTITUTE (AAETI),
NIMLI, RAJASTHAN**

The Indian government has set a target to raise the share of gas in the energy mix: 15 per cent by 2030 from the current 6.5 per cent. This move aims to transform India into a gas-oriented economy. Presently, India produces 34,000 million standard cubic meter of gas (MMSCM) but consumes 64,000 MMSCM, resulting in a substantial shortfall of 30,000 MMSCM. This deficit accounts for 47 per cent of the total consumption, which is fulfilled through imports. Compressed Biogas (CBG) as a domestic energy source can play a key role in addressing this gap and helping the nation achieve its clean energy goals.

The CBG production potential in India is estimated at around 62 million metric tonne, as per the Union Ministry of New and Renewable Energy (MNRE). The Sustainable Alternative Towards Affordable Transportation (SATAT) scheme aims to tap 15 million metric tonne of this. In the 2023-24 Union Budget, finance minister Nirmala Sitharaman has earmarked Rs 10,000 crore for the establishment of 200 CBG plants and 300 community and cluster-based plants. In addition to this budgetary allocation, the government has introduced several policies and initiatives to accelerate the implementation of CBG projects in India. These measures include MNRE's Waste to Energy programme, the Swachh Bharat Mission (SBM), and the Galvanizing Organic Bio-Agro Resources (GOBAR)-DHAN scheme. However, despite these policy efforts, the number of CBG plants currently installed on the ground is only 46. This slow progress can be attributed to the limited dissemination of CBG-related information among potential investors.

Centre for Science and Environment (CSE) is offering a tailor-made three-day residential training programme on 'CBG: Potential, Technology, Policy, Operation and Economics'. The high-impact training has been conceived to provide an end-to-end solution to design and install a CBG plant that aligns with the principles of circular economy, energy transition, and sustainable development.

FOR FURTHER DETAILS, PLEASE CONTACT THE COURSE COORDINATOR

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HIGHLIGHTS

THE PROGRAMME IS OPEN TO

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