

## ● POLITY

## ● ECONOMICS

## ● TECHNOLOGY

## ● ECOLOGY

## ECOLOGY AND ENVIRONMENT

COP-28 CALLS FOR  
'TRANSITION AWAY' FROM  
FOSSIL FUELS

**CONTEXT:** Nations took a small but decisive step towards ridding the world of fossil fuels, after negotiators in Dubai on Wednesday adopted a resolution, called the Dubai Consensus.

## Eye on emissions

Global Stocktake was the first COP where countries were expected to account for actions undertaken to fulfil obligations under the Paris Agreement — of keeping emissions on track to below 2°C and endeavour to 1.5°C



2019 levels) when it should have been 43%

■ Greenhouse gas emissions have to be reduced sharply and this will require tackling the main culprit — fossil fuels

■ The stocktake found that steps taken by Parties were inadequate and even in the most optimistic case, would see a 5% reduction in emissions by 2030 (over

■ Countries must implement systems to adapt to present and future effects of climate change by 2030

The standout clause in the 21-page text is the one that “calls on Parties [to be] ...Transitioning away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade, to achieve net zero by 2050 in keeping with the science”. However, this language of “transitioning” has been diluted from earlier drafts that had called for an actual “phase-out” of all fossil fuels.

Creating a path to net zero greenhouse gas emissions by 2050 is humanity's best shot at keeping global temperatures from rising beyond 1.5 degrees Celsius by the end of the century, according to scientific assessments by the Intergovernmental Panel on Climate Change (IPCC). This implies cutting emissions to 43% of 2019 levels by 2030 and 60% by 2035, an onerous ask given that just seven years remain for the first target, while emissions keep rising, year on year.

The consensus text reflects a compromise between developed and developing countries on what the world should

do to stem greenhouse gas emissions while also ensuring that countries contribute proportionally, on the basis of their historic responsibility for the climate crisis. These climate talks are annual affairs but move forward incrementally because the UN rules say an agreement can result only if all 198 signatories agree on every line in the text.

On the one hand, delegates from vulnerable nations such as Samoa and the Marshall Islands expressed their unhappiness that the agreement does not go far enough to end fossil fuels, putting the future of their countries at risk. On the other end, several countries — including Saudi Arabia, Egypt, Colombia, and Senegal — said that while the agreement was a step forward for a fossil-free future, there was very little movement to ensure that the funds promised by developed countries in previous Conference of Parties (COPs) actually made their way to developing countries.

While mitigating or cutting down greenhouse gas emissions is the main focus of climate talks, there are two other major strands of negotiations: adaptation, which involves making countries more resilient to cope with present and future impacts from climate change; and the means of implementation and support, whereby developed countries are expected to provide financial support and technology to developing nations to transition away from fossil fuel-led development.

A major criticism at the heart of the division between developed and developing countries is that many of the promises made by the former have been broken. A 2009 commitment to mobilise \$100 billion a year between 2020 and 2025 has only been partially realised, with the Dubai Consensus agreement noting that this was a matter of “deep regret”. A global net zero by 2050 does not and should not imply a net zero for all countries at that time. In fact, developed countries need to reach net zero much earlier to provide even a modicum of carbon space for developing countries.

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## INTERNATIONAL RELATIONS

## INDIA VOTES IN FAVOUR OF IMMEDIATE CEASEFIRE IN GAZA BY ISRAEL

**CONTEXT:** India on Tuesday voted in favour of a United Nations General Assembly (UNGA) resolution that called on Israel for an immediate ceasefire, the protection of civilians in accordance with international law and the release of all hostages.

India was among 153 countries that made up a massive 4/5th majority in the Assembly who voted in favour of the resolution, where only 10 countries, including the U.S. and Israel, voted against the resolution, and 23 abstained. Despite being “unsatisfied” with the resolution, Israel said it appreciated India’s support and votes in favour of two proposed amendments. The resolution did not include any specific reference to the October 7 terror attacks in Israel by Hamas, the reason India had refused to vote in favour of a similar UNGA resolution on October 27.

While the UNGA does not have the power to enforce its resolutions as the UNSC does, it carries the sentiment of the global community against the Israeli bombardment of Gaza that has rendered more than a million people homeless. At the UNGA, the U.S. also proposed an amendment that would insert a specific mention of “heinous terrorist attacks by Hamas that took place in Israel starting 7 October 2023 and the taking of hostages”, while Austria proposed an amendment to name Hamas and other groups that are holding Israeli hostages. India voted in favour of them, but both amendments were dropped as they did not receive the votes required.

The final resolution passed said that the UNGA expressed “grave concern over the catastrophic humanitarian situation in the Gaza Strip,” while demanding an immediate ceasefire.

## POLITY AND GOVERNANCE

## HOUSE PASSES BILL TO SET UP CENTRAL TRIBAL UNIVERSITY IN TELANGANA

**CONTEXT:** The Rajya Sabha on Wednesday passed the Central Universities (Amendment) Bill, and the Repealing and Amending Bill. While the first Bill is to establish a tribal university in Telangana, as promised in the Andhra Pradesh Reorganisation Act, the latter is to repeal 76 “redundant and obsolete” laws.

The Central Universities Bill was discussed amid the Opposition walkout over the security breach in the Lok Sabha. The Bill, introduced in the Lok Sabha on December 4 and passed on December 7, paved the way for establishing Sammakka Sarakka Central Tribal University in Telangana.

The Repealing and Amending Bill, cleared by the Lok Sabha on July 27, proposes to repeal outdated laws like the Land Acquisition (Mines) Act, 1885 and the Telegraph Wires (Unlawful Possession) Act, 1950.

## INTERNATIONAL RELATIONS

## GAZA, A NEW POINTER TO INDIA’S CHANGED WORLD VIEW

**CONTEXT:** India’s tortuous stand on the ongoing Israel-Gaza conflict reveals a fascinating portrait of the recent evolution of its foreign policy. For decades after Independence, India’s approach to the world was guided by its historical experience of western colonialism.

After 200 years of a foreign country speaking for it on the world stage, newly-independent Indians, led by the fiercely anti-colonial Jawaharlal Nehru, were not willing to surrender their freedom to make their own decisions by joining either alliance in the Cold War. “Strategic autonomy” thus became an obsession, leading to the birth of “non-alignment”, or equidistance between the superpowers.

It was a complicated stance. As a leading voice for decolonisation, Indian moralism against imperialism and apartheid often manifested itself as anti-westernism, and indeed on such matters it often found itself ranged alongside the USSR and against the West, even while the country’s steadfast adherence to democracy and diversity at home endeared it to liberals in the West.

When the United Nations voted in 1947 to partition the former British Mandate Territory of Palestine into two states, Israel and Palestine, India voted against. As the victim of a British-driven partition of its own territory to favour a religious minority (when Pakistan was carved out of India’s stooped shoulders by the departing imperial power), it had no desire to acquiesce in another partition to create a Jewish state. India argued for a single secular state for both Jews and Arabs in Palestine, much like the state it had established for itself. It was, however, outvoted on the matter.

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When Israel was indeed established, India duly extended recognition, but kept relations at consular level for more than four decades. In the meantime, it became the first non-Arab country to recognise the Palestine Liberation Organisation (PLO) in 1974, and to formally extend recognition to the Palestinian state in 1988. It was only in 1992 that relations with Israel were also upgraded to Ambassadorial level.

### The turning point

The onset of Pakistan-enabled Islamic militancy against India, however, prompted New Delhi to see greater merit in warmer relations with Tel Aviv. With both countries sharing similar enemies in Islamist extremists, and both enduring terrorist attacks from self-declared holy warriors, security and intelligence co-operation between the two countries began to grow. Gradually, political and diplomatic relations blossomed.

At the same time, successive Indian governments, conscious of the sympathies of India's own substantial Muslim population, continued to extend support to the PLO. When Yasser Arafat abandoned the gun for a peaceful solution to the long-simmering conflict, India too became a votary of the two-state solution, calling for Palestinians and Israelis to live in security and dignity behind recognised borders in their own lands. Today, India is one of a handful of countries to maintain Ambassadors in both Tel Aviv and Ramallah.

The India-Israel relationship has appreciably strengthened in recent years, with Israel becoming a vital source of defence equipment, intelligence co-operation and, reports allege, of surveillance software for use by Prime Minister Narendra Modi's increasingly autocratic government against its own domestic opponents and critics. The personal warmth exhibited by Prime Ministers Benjamin Netanyahu and Narendra Modi in their meetings symbolises the extent of their closeness. Mr. Modi became the first Indian Prime Minister to visit Israel and Mr. Netanyahu has twice travelled the other way.

So when terror struck Israel on October 7 with the killings of 1,400 and the abductions of 200 more of its citizens, Mr. Modi was swift to respond, tweeting that India stood in "solidarity with Israel in this difficult hour". A second tweet soon followed, in similar vein, as did a telephone call of support to Mr. Netanyahu. The Israeli retribution was loudly cheered on by supporters of Mr. Modi's ruling Bharatiya Janata Party, whose antipathy to India's Muslims is no secret.

### The erosion of India's one-sidedness

The mounting death toll in Gaza from Israeli bombardment and the relentless media coverage of the destruction of neighbourhoods, hospitals and places of worship, however, began to erode the one-sidedness of India's stand. After some days, the country's External Affairs Ministry put out a statement voicing support for the "resumption of direct negotiations towards establishing a sovereign, independent and viable state of Palestine, living within secure and recognised borders, side by side at peace with Israel".

But the Prime Minister's Twitter-finger was not so

quickly deployed. A call to Palestinian President Mahmoud Abbas, to convey his condolences for the loss of innocent lives as a result of the bombing of the al-Ahli Arab Hospital, was all he managed to do to express sympathy for the victims of Israeli retribution in Gaza. Though Mr. Abbas is in Ramallah and has no control over Gaza, since he heads the Fatah faction of the PLO to which Hamas is unalterably opposed, Mr. Modi no doubt believed this would redress the balance that had been disturbed by his uncritical support for Israel.

India then announced that Mr. Modi had "reiterated India's long-standing principled position on the Israel-Palestine issue". And yet, when the United Nations General Assembly voted by an overwhelming majority to call for an "immediate, durable and sustainable humanitarian truce", India chose to abstain, on the grounds that the resolution had failed to condemn the terror attacks of October 7. But several other countries, including France — historically an ally of Israel — had voted for the resolution while, in a speech explaining their vote, deploring its failure to condemn terrorism. India's stand was, in other words, more pro-Israeli than France's — and France, unlike India, was historically an ally of Israel.

It struck many as odd, to put it mildly, that the land of Mahatma Gandhi did not vote for peace, and that a country which calls itself the voice of the Global South took a stand that isolated it from the rest of the Global South. Though a corrective occurred at the United Nations General Assembly this week, when India finally joined the overwhelming majority (153 to 10, with 23 abstentions) to vote, for the first time, in favour of a resolution in the UN General Assembly that demanded an immediate humanitarian ceasefire in the conflict, the echoes of the previous vote have not died down.

### China's rise, an American affinity

Despite many areas of continuity, India's foreign policy has begun to change in important areas under Mr. Modi, arguably beyond recognition on the Israel issue, and more subtly in other areas. The rise of China has already prompted a greater affinity to the United States and its strategic concerns about Beijing's intentions, concerns which New Delhi has good reason to share after the killing of 20 soldiers in Galwan in June 2020.

It was not surprising, therefore, that, in keeping with its new receptivity to U.S. strategic thinking, India associated itself with the reorientation of the geopolitics of the Middle East following the Abraham Accords, joining a quadrilateral dialogue dubbed the "I2U2" (India, Israel, the United Arab Emirates and the United States). The G-20 summit in New Delhi announced IMEC (India-Middle East-Europe-Economic Corridor), an India-Middle Eastern Economic Co-operation initiative whose trade route would go from India through Saudi Arabia to the Israeli port of Haifa.

Though that scheme now lies in ruins along with most of Gaza, the intentions are clear. With Russia a decreasingly useful partner in global geopolitics, and China nibbling away at India's disputed frontier with it, the makings of a fundamental reorientation have become apparent. Gaza is the latest manifestation of a perceptible change in India's view of the world.

## POLITY AND GOVERNANCE

## END THE UNCERTAINTY

**CONTEXT:** The Madras High Court has demonstrated how the judiciary can provide succour to a person waiting for over 40 years to get Indian citizenship.

In *T. Ganesan vs The Government of India & Others*, the Madurai Bench of the High Court, in its judgment on November 30, directed the authorities to treat the petitioner and his family as Indian citizens, thus extending to them relief measures that the Tamil Nadu government provides to repatriates from Sri Lanka. The 69-year-old petitioner, now a resident of a refugee camp in Karur, reached India in 1990 after having been issued an Indian passport in Kandy in August 1982 on repatriation under two bilateral treaties that concerned hill country Tamils or Indian Origin Tamils (IOT). He had approached the court as the authorities treated him only as a Sri Lankan refugee even though he is an Indian citizen. The government accepted the genuineness of his passport but doubted his identity because the photograph was the image of a “far younger” person. But the court rejected this position. Ganesan is not the only such person. The court has recorded that around 5,130 applicants (IOT category) have sought citizenship. In official data of March 2023, Tamil Nadu had about 91,000 refugees, with around 58,000 in camps.

This is not the first time that the Bench, especially Justice G.R. Swaminathan, has gone to the rescue of those in the camps. In the last 15 months, the judge had established that the petitioners concerned were Indian citizens, interpreting provisions of the Citizenship Act, and should be issued passports. Otherwise, the general legal position of the Union government is that every refugee is an illegal migrant though entitled to benefits. A DMK State government study found that nearly 8,000 refugees are eligible for Indian citizenship as they do not come under exclusions of the law. The Union government’s stand has been that despite not being a signatory to the 1951 UN Refugee Convention or the 1967 Protocol, it adheres to the principle of non-refoulement. The government also favours the voluntary repatriation of refugees to Sri Lanka. This was a reason why the Citizenship (Amendment) Act, 2019 did not include Sri Lankan refugees. The Centre should ensure follow-up action on the DMK government’s study. It should first identify those eligible for citizenship under the legal framework and ascertain their consent. For those who wish to pursue higher studies or go abroad for a livelihood, permission can be granted if the applicant has no criminal record. The Union government should initiate talks with Sri Lanka on voluntary repatriation and a structured assistance programme worked out. A proactive approach should be followed to ensure that those tagged as refugees are able to lead a life of dignity.

## INTERNATIONAL RELATIONS

## HOW WILL ELECTION BOYCOTT BY THE BNP AFFECT BANGLADESH?

**CONTEXT:** On October 28, during a rally organised by the Bangladesh Nationalist Party (BNP), the chief Opposition party of Bangladesh, a fight broke out between the BNP cadre and law enforcement officials which led to the death of a policeman and incidents of arson.

The government of Prime Minister Sheikh Hasina responded by jailing most of the top Opposition leaders of BNP including Secretary General Mirza Fakhrul Islam Alamgir. This confrontation came in the backdrop of the long pending demand of the BNP to hold elections under a ‘caretaker’ government. It has refused to participate in any other election even as the Election Commission of Bangladesh announced the poll date for January 7.

## Why is BNP boycotting the election?

BNP leaders have maintained that they will not participate in the election of January 7 as they do not feel the elections will be free and fair under the Awami League government. However, the party did not clarify how they hope this strategy of boycott would help them in attaining their goal of capturing political power in Bangladesh. The party has been out of power since it was defeated in the 2009 election, and considers its boycott of elections as a form of protest which may delegitimise the election of January 7.

While the BNP has a major street presence in Bangladesh, with active units in all the districts and subdivisions of the country, it is just one of the 14 parties that are boycotting the election while 26 others are participating. Prime Minister Sheikh Hasina has been claiming that the poll will be legitimate as a lot of other political parties, including the Jatiyo Party (Monju), are expected to participate in the election. Critics have pointed out that apart from the Awami League, most of the parties in the fray are “small” indicating that they would not be in a position to throw a challenge to the ruling Awami League. Much will depend on PM Hasina’s personal commitment to ensuring democratic participation even if the election is held without the BNP.

## Will the elections be free and fair?

The Sheikh Hasina government has welcomed international observers to come and observe the election process for themselves. Foreign Secretary Masud bin Momen visited Delhi to interact with foreign diplomats and invited them to be present on ground in Bangladesh to witness the election assuring that the Government of Sheikh Hasina remains committed to conducting a free and fair election. However, an election without BNP can not be described as a real contest as this would be a repeat of the 2014 elections when BNP did not participate. BNP has been demanding polls under a caretaker government but the Awami League has stated that the law does not permit that kind of arrangement.

The U.S. and the European Union among others have been increasing pressure on Bangladesh to hold a free and



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transparent election. This was opposed by Russia and China who have said that the U.S. is trying to meddle in the democratic process of another country. While India has maintained silence, it has indirectly conveyed it prefers the affairs of Bangladesh to be left to its own people.

#### INTERNATIONAL RELATIONS

## INDIA WELCOMES DUBAI CONSENSUS EVEN AS NEW FLANKS OPEN

**CONTEXT:** Amid the global consensus at Dubai to transition away from fossil fuels, India welcomed the agreement though new avenues of opposition may have opened that it will have to address in future climate negotiations.

Over the years, India's position has been that it is a large, developing country that accounted for 3% greenhouse gases emitted historically (1850-2019) compared to the United States (25%) and European Union (17%). However, India is the third-largest greenhouse-gas emitter. This had led to calls that for keeping global temperatures from rising beyond 1.5 degrees Celsius over pre-industrial era, major polluters — India and China despite their developing country status — too had to reign in their emissions. Since then, India while steadfast in its position that it needed to exploit its most abundant energy resource, coal, has also embarked upon expanding its solar and wind energy capacity to produce electricity and commit to a net zero state by 2070.

However at the Glasgow COP in 2021, it agreed — under immense pressure and along with other countries — to a 'phase-down' of coal use. India has protested against the singling out of coal, when several countries, including developed ones, have been silent about their expanded use and production of oil and gas. On Wednesday, when the gavel came down on COP-28, both oil and gas were officially accorded the same degree of villainy as coal. However, language from the Glasgow COP of "accelerating the phase-down of unabated coal power" remains.

The Dubai Consensus, however, for the first time brings in mention of methane, a non-carbon dioxide greenhouse gas that is more potent, in its heat trapping effect, than carbon dioxide. While the global conversation around reducing methane deals with emissions from industrial processes, nearly 75% of India's methane emissions are from the agricultural sector. "There is no differentiation in this text on industrial and agricultural methane and those could be bones of contention for the future," said Vaibhav Agrawal, Fellow, Council on Energy Environment and Water.

#### SCIENCE AND TECHNOLOGY

## 'NEW DELHI DECLARATION' ON ARTIFICIAL INTELLIGENCE ADOPTED

**CONTEXT:** Following several hours of deliberations, representatives from 28 countries and the European Union adopted the "New Delhi Declaration" of the Global Partnership on Artificial Intelligence (GPAI, pronounced g-pay).

India is hosting the summit, and will chair the GPAI grouping in 2024. The ministerial declaration affirms the countries' commitment to "principles for responsible stewardship of trustworthy AI ... rooted in democratic values and human rights ... and promoting trustworthy, responsible, sustainable and human-centred use of AI".

GPAI is a grouping of countries in North and South America, Europe, and East Asia, which strive to work towards "trustworthy development, deployment, and use of AI". Prime Minister Narendra Modi had inaugurated the first day of the summit.

The previous summit was held in Japan, which is the outgoing chair of GPAI. "We have also agreed that GPAI, in keeping with values of partner-countries, will be an inclusive movement, including countries in the Global South and make benefits of AI available to all the people of the world," Minister of State for Electronics and Information Technology Rajeev Chandrasekhar told reporters as the government announced the release of the declaration.

The previous summit had taken place before the popularity of ChatGPT and the buzz around AI grew exponentially, Mr. Chandrasekhar said. The Delhi Declaration commits countries to work on mitigating "concerns around misinformation and disinformation, unemployment, lack of transparency and fairness, protection of intellectual property and personal data, and threats to human rights and democratic values".

#### 'Best possible solutions'

"We will discuss how to pool OECD resources to harness the ability to come up with the best possible solutions for the deployment and governance of AI for the good of our people," Jean-Noël Barrot, France's Minister for Digital Transition and Telecommunications, told reporters.

"We especially think GPAI should be more inclusive so that we encourage more developing countries to join," Hiroshi Yoshida, Japan's Vice-Minister for Policy Coordination (International Affairs) in the Ministry of Internal Affairs and Communications, said.



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## SCIENCE AND TECHNOLOGY

## CENTRE REVIVES PLAN TO SIMPLIFY GST RATES

**CONTEXT:** In a clear signal that the GST rate rationalisation exercise is back on the Centre's agenda after being in deep freeze, the government has reconstituted the ministerial group of the GST Council that was tasked with recommending the simplification of the complex tax structure and a rejig of its multiple rates.

### Back in play

The agenda of rationalising GST rates re-enters policymakers' radar with the Centre reconstituting a ministerial group

■ Centre includes Karnataka's revenue minister Krishna Byre Gowda in the reconstituted ministerial group

■ Officials in 2023 indicated GST rates' simplification, long-awaited by the industry, was off the table for a while



■ Tax experts, industry leaders argue that too many rates lead to tremendous compliance-related problems

The group of ministers (GoM) on GST rate rationalisation, which was headed by former Karnataka CM Basavaraj Bommai since its formation in 2021, had been in suspended animation since the BJP's loss in the State's assembly elections this May.

Top revenue officials had indicated in early 2023 that the GST rates' rejig and simplification, long-awaited by the industry, was off the table for a while. Karnataka's revenue minister Krishna Byre Gowda has been included in the reconstituted ministerial group, but the convenor's role for the seven-member GoM has now been assigned to Uttar Pradesh

Finance Minister Suresh Kumar Khanna.

While there are four main GST rate slabs of 5%, 12%, 18% and 28%, there are about a dozen different rates in practice, while some goods attract a zero rate. This is further complicated as some items whose tax rates depend on their packaging, like specified food products, or selling prices, for instance, in the case of footwear and hotel rooms.

### Long pending demand

Tax experts and industry captains have been urging the government to restart the stalled rate rationalisation plan, especially as GST revenues have stabilised at a healthy ₹1.6 lakh crore-plus level in recent months.

"I think the ministerial group's reconstitution indicates that the GST rate restructuring and simplification agenda are back on policy makers' radar," said Sacchidananda Mukherjee, professor at the National Institute of Public Finance and Policy. "Too many tax rates lead to tremendous compliance-related problems," he further added.

"The government also understands the need to simplify the rate structure so that price-based tax setting goes away and the multiple rates are reduced for ease of tax compliance for industry as well as the Revenue Department, while giving investors more certainty," he averred. The GoM, whose terms of reference remain unchanged, may also make recommendations on the future of the GST Compensation Cess.

At its last meeting in October, the GST Council initiated parleys on a "perspective plan" to impose a cess or surcharge on top of GST levies after March 2026, when the GST Compensation Cess is due to expire.

Last week, Confederation of Indian Industry president R. Dinesh told The Hindu that it was time to simplify the GST rates to a three-slab structure to make it easier to do business and reduce litigations arising from classification disputes. He also called for a review of the GST Compensation Cess.

*"Doing nothing is very hard to do. You never know when you're finished."—Leslie Nielsen*

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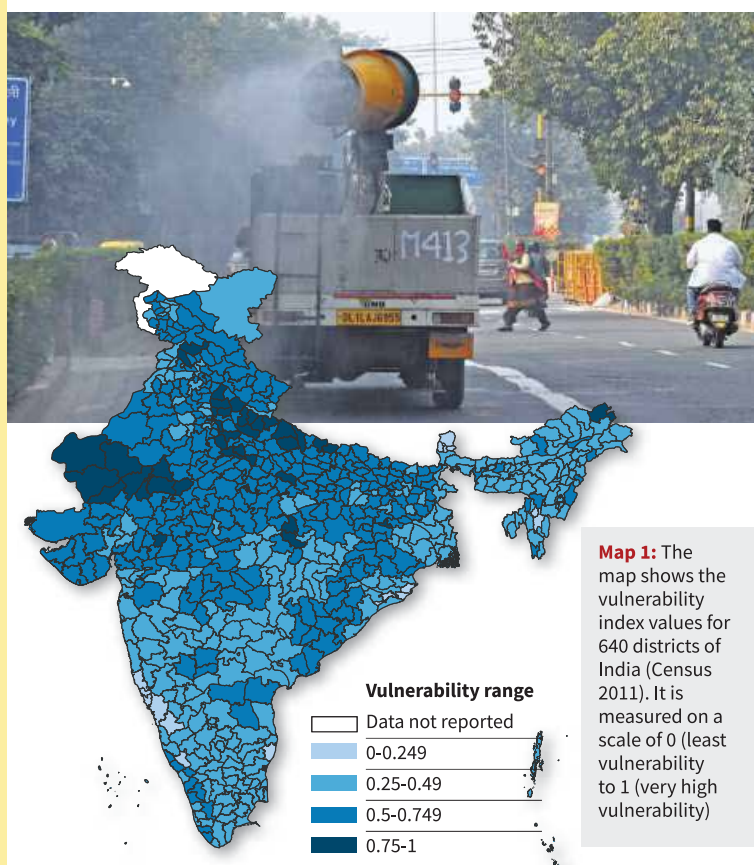
## ECOLOGY AND ENVIRONMENT

# INDIANS VULNERABLE TO CLIMATE CHANGE-INDUCED HEALTH ISSUES

**CONTEXT:** More than half of India's population, living in 344 districts, face high or very high health vulnerability induced by climate change. People are increasingly being exposed to the effects of climate change, such as prolonged summers, heavy and unpredictable rains, floods and droughts, and rising sea levels and melting glaciers.

## Mapping vulnerability

The map and tables were sourced from article 'Climate change and human health: estimating district-level health vulnerabilities in the Indian context' published in *Climatic Change*



**Table 2:** The table shows the top 5 and bottom 5 districts in terms of vulnerability

### Districts with highest vulnerability

S.no.	State	District	Vulnerability index
1	Arunachal	Dibang Valley	1
2	U.P.	Pilibhit	0.9763486
3	M.P.	Dindori	0.9720531
4	U.P.	Baghpat	0.9382899
5	U.P.	Firozabad	0.932923

### Districts with lowest vulnerability

S.no.	State	District	Vulnerability index
1	Sikkim	South District (SK)	0.1343192
2	Sikkim	East District (SK)	0.1010449
3	Goa	South Goa	0.0548047
4	Maharashtra	Sindhudurg	0.0133277
5	Goa	North Goa	0

**Map 1:** The map shows the vulnerability index values for 640 districts of India (Census 2011). It is measured on a scale of 0 (least vulnerability) to 1 (very high vulnerability)

■ 344 districts with very high and high-vulnerability house 56% of India's population

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As a result, they fall ill more often, face a greater risk of future ailments, lose livelihoods, get pushed into poverty, and are forced to migrate. People fight and try to adapt to these changes and prepare themselves better for future events. Vulnerability is a vector produced out of the dynamics between exposure and sensitivity on the one hand and people's ability to adapt or fight on the other.

However, the same exposure may not have the same health consequences for everyone. People who are exposed to higher green cover, have better living conditions, education, secured work, better social safety nets and resilient health systems would be able to adapt to the changes and mitigate the consequences better. People who live on the margins, whose livelihoods are not secured, and who have to pay when someone in the family falls ill will be more vulnerable to these changes.

Though there are certain universal aspects of climate change, the nature of exposure is diverse and localised — within a State, different regions or districts have different levels of exposure. As consequences also vary, vulnerabilities differ. While there must be certain universal strategies, adaptation and mitigation efforts and strategies must be localised.

In a recent paper published in *Climate Change*, we draw on the vulnerability assessment framework introduced by the Fourth Assessment Report of the Intergovernmental Panel on Climate Change to measure district-level exposures, sensitivities, adaptive capacities (ACs) and health vulnerabilities. We carried out our analysis for all 640 districts of India (Census 2011) and used 50 indicators — 14 for exposure, 20 for sensitivity, and 16 for ACs — from 8 national data sources to construct separate indices for each of the three vulnerability components.

Our findings suggest that 298 districts have high or very high levels of exposure. These districts house around 52% of India's population. Almost 30% of India's population living in 184 districts are faced with very high and high sensitivity. Around 153 districts, where a fifth of India's population lives, have moderate and low AC.

The study also helps us identify the underlying causes of vulnerability which is essential in formulating appropriate multi-sectoral policy responses. For example, increasing public expenditure on health could have a significant impact on reducing out-of-pocket expenditure. Results suggest that poorly developed primary healthcare remains a major factor for high vulnerability in some districts which report high infant mortality rates and poor child health indicators. Robust primary healthcare has shown promise in effectively addressing preventable causes of mortality and morbidity in many States such as Kerala and Tamil Nadu. Primary healthcare systems also have the potential to address the impending burden of non-communicable and communicable diseases, which is likely to aggravate as a result of climate change. By facilitating early disease diagnosis, primary healthcare can reduce the burden of high-cost tertiary care.

Addressing inequalities in the distribution of various social determinants of health could reduce health

vulnerability. Providing sustainable livelihood opportunities, improving working conditions, providing people with social safety nets, and improving the education status of the population and its employability could contribute to reducing sensitivity and enhancing ACs.

Tractable policy action needs a robust, dynamic data system. Our current health system data architecture is weak and incomplete. Institutions with access to data do not often collaborate or share data in public. People within the system hardly trust the data they themselves generate and rarely put

the data to use. Further, there is limited compliance from the private sector and a lack of appreciation within policy institutions for evidence-based policymaking.

The climate crisis calls for a radical rethinking of the developmental paradigm. However, none of this can be achieved if institutions of local self-governance are not engaged with the climate and health agenda. The health system, too, should be made more accountable to the people.



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