

Today's Prelims Topics

In-House Removal Procedure for HC Judge

Context

Chief Justice of India (CJI) Sanjiv Khanna has initiated an unprecedented **three-member in-house inquiry** against **Justice Yashwant Varma** of the Delhi High Court.

About Seven-Step In-House Process

- **Initiation of Complaint:** Complaints can be received by;
 - **President,**
 - **Chief Justice of India (CJI),**
 - **Chief Justice of a HC,**
 - The CJI decides whether to proceed or dismiss it.
- **Preliminary Examination:** If needed, the CJI seeks a preliminary report from the concerned HC Chief Justice.
- **Formation of Inquiry Committee:** If the preliminary report recommends further action, the CJI forms a **three-member inquiry panel**, consisting of **two HC Chief Justices and one HC Judge**.
- **Committee's Powers & Procedure:** The inquiry panel can devise its own process, ensuring **natural justice** (e.g., giving the accused judge a chance to defend himself).
- **Submission of Report to CJI:** The report must answer two key questions:
 - **Are the allegations substantive?**
 - **If yes, do they warrant removal proceedings?**
- **Possible Outcomes:**
 - If allegations are **not serious enough for removal**, the CJI can **"advise"** the judge or **place the report on record**.
 - If allegations are **serious enough for removal**, the CJI will **advise the judge to resign or retire voluntarily**.
- **Final Steps If Judge Refuses to Resign:**
 - The CJI will **instruct the concerned HC Chief Justice not to assign any judicial work** to the judge.
 - The **President & Prime Minister will be informed for impeachment proceedings**.
 - In **Justice Yashwant Varma's case**, CJI has already directed the Delhi HC Chief Justice **not to assign** him any work.

For more information about Impeachment Procedure Visit - [StudyIQ](#)

Source:

- [Indian Express - In house inquiry](#)

what is lacking in India's Heat Action Plans

Context

A new study has found that most Indian cities' **Heat Action Plans (HAPs)** lack **long-term strategies** to tackle extreme heat, and even when strategies exist, they are **not effectively implemented**.

About Heat Waves

- Heatwave is a period when the maximum temperature in a particular area reaches or exceeds **40 degrees Celsius for the Plains region, and at least 30 degrees Celsius for Hilly regions.**

Heat wave Scenario		40° C	30° C
Maximum Temperature		Plains	Hills
Heat wave conditions prevail when		Severe heat wave conditions prevail when	
Normal maximum temperature	Deviation from normal	Normal maximum temperature	Deviation from normal
△ Above	□ □ □ □ □ □ □ □	△ Above	□ □ □ □ □ □ □ □
40° C	4-5° C or more	40° C	6° C or more
▽ At or below	■ ■ ■ ■ ■ ■ ■ ■	▽ At or below	■ ■ ■ ■ ■ ■ ■ ■
40° C	4-5° C or more	40° C	7° C or more

What is a Heat Action Plan (HAP)?

- A **Heat Action Plan** is an **early warning system and preparedness plan** for extreme heat events. HAPs include:
 - Immediate** as well as **long-term actions** to **increase preparedness.**
 - Information-sharing and response coordination.**
 - Reducing health impacts of extreme heat**, especially on vulnerable populations.
- Ahmedabad** is the **first city** in the country to have its own heat action plan. It implemented a comprehensive HAP in **2013.**

- Heat Dome:** It is a weather phenomenon that occurs when a high-pressure area in the atmosphere traps hot air beneath it, creating a dome-shaped mass of extreme heat.
- Omega block:** It's created when two low-pressure systems become cut off from the main flow of the jet stream, and a high-pressure system is sandwiched in between them.

Source:

- [Indian Express - Heat Action Plans](#)

DNA Polymorphisms and DNA Fingerprinting

Context

According to recent findings, DNA polymorphism has various modern applications in forensics and medicine.

What is DNA?

- DNA, or deoxyribonucleic acid, is a molecule that carries the genetic instructions used in the development, functioning and reproduction of all known living organisms and many viruses
- Each human cell (from **skin, blood, teeth, bones etc.**) contains **46 DNA molecules (chromosomes)**.
- One set of **23 chromosomes** is inherited from the **father (via sperm)** and another **23 from the mother (via egg)**.
- **Sperm and egg cells** are exceptions as they contain **only one copy of the genome instead of two**.

Chromosomes and Polymorphisms

- DNA is packed into **chromosomes** (e.g., **Chromosome 3** contains **6.5% of total DNA** in a cell).
- The **paternal and maternal versions** of a chromosome are largely similar but have **some variations (polymorphisms)**.
- **Polymorphisms help trace ancestry** and distinguish individuals.

What Are DNA Polymorphisms?

- DNA polymorphisms are **sections of DNA where variations occur between individuals**.
- They allow scientists to determine **whether a specific chromosome was inherited from the maternal or paternal side**.
- DNA profiles are generated using polymorphisms in specific regions called **Short Tandem Repeats (STRs)**.
 - STRs are **short sequences of DNA base-pairs that repeat multiple times**.
 - **STRs are often polymorphic**, meaning different individuals have **different numbers of repeats**.
- These variations make STRs useful in DNA fingerprinting.

How Does DNA Replicate?

- DNA is made up of **four chemical bases: Adenine (A), Cytosine (C), Guanine (G), and Thymine (T)**.
- The two strands of DNA are **anti-parallel and complementary** (A pairs with T, C pairs with G).
- When cells divide, DNA strands **separate and create complementary copies**.
- **Mutations** (errors in base-pairing) occur **less than once per billion base-pairs per generation**.

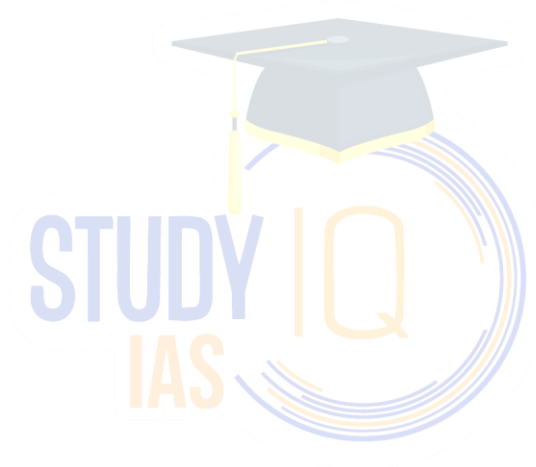
What is a DNA Fingerprint?

- A **DNA fingerprint** is a unique profile created by analyzing **STR patterns** in an individual's DNA.
- **DNA Can Be Extracted From:**
 - Teeth, bones, blood, saliva, semen, skin cells, etc.
 - Crime scenes (blood stains, sweat, spit on clothes or soil, etc.)
 - Mortal remains from disaster sites.
- **Uses of DNA Fingerprinting:**
 - **Establishing Relationships:** Determining parent-child relationships, Tracing ancestry through polymorphisms.
 - **Forensic Investigations:** Identifying suspects from crime scene samples etc.

- **Identifying Human Remains:** Disaster victim identification.
- **Ancient DNA studies:** Scientists have extracted **65,000-year-old human DNA** from remains preserved in **deserts and cold environments**.
- Organ Donation Matching: Ensuring **donor-recipient compatibility** to prevent **organ rejection**.

Source:

- [The Hindu - DNA Polymorphisms](#)



Glaciers losing ice at record levels around the globe

Context

According to the UNESCO report State of the Cryosphere 2024, glaciers are melting at an unprecedented rate, contributing to rising sea levels.

Record-Breaking Glacier Melt

- Glaciers worldwide are disappearing faster than ever.
- Last three years have seen the **largest glacial mass loss on record**.
- **Total ice loss since 1975: 9 trillion tonnes**. Equivalent to an **ice block the size of Germany with a thickness of 25 metres**.
- **2024 glacier loss: 450 billion tonnes**.

Major Consequences of Glacier Melt

- **Contribution to Sea Level Rise:**
 - Mountain glaciers are now **one of the largest contributors to rising sea levels**.
 - **Between 2000-2023:** Melting glaciers contributed **18 mm** to global sea level rise (**~1 mm per year**).
 - Each millimeter of sea level rise exposes up to 300,000 people to annual flooding.
- **Threats to Water Security:**
 - **Presently 275,000 glaciers remain worldwide**.
 - Glaciers, along with **Antarctic and Greenland ice sheets**, store about **70% of the world's freshwater**.
 - **1.1 billion people live in mountain communities that depend on glaciers for water**.
 - **Increased glacier loss leads to unreliable water sources**, affecting: Drinking water supplies & Agriculture and hydroelectric power production.
- **Increased Natural Disasters:**
 - Rising temperatures are causing **more frequent and severe natural hazards**, including:
 - **Droughts** in regions that depend on snowmelt for freshwater.
 - **Avalanches and landslides**.
 - **Flash floods and Glacial Lake Outburst Floods (GLOFs)**.

Source:

- [The Hindu - Glaciers losing ice](#)

News in Shorts

IOS SAGAR & AIKEYME

- The Indian Navy has recently launched two key maritime initiatives: **Indian Ocean Ship (IOS) Sagar & Africa India Key Maritime Engagement (AIKEYME)**.

About Indian Ocean Ship (IOS) SAGAR

- It is an initiative towards continued cooperation with Indian Ocean Region (**IOR**) nations.
- **INS Sunayna** is being deployed to the Southwest IOR with a combined crew of India and **nine Friendly Foreign Countries (FFC)**
 - Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Sri Lanka & South Africa.
 - **INS Sunayna** will undertake port calls at **Dar-es-Salaam, Nacala, Port Louis, Port Victoria and Male**.
- **Objective:** Strengthen maritime cooperation with IOR nations through a joint deployment of naval forces.

About Africa-India Key Maritime Engagement (AIKEYME)

- It is **India's first-ever multilateral naval exercise with 10 African nations**.
- **Objective:** Strengthen India-Africa maritime cooperation, enhance interoperability, and counter maritime security threats.
- AIKEYME' means 'Unity' in Sanskrit.
- **Co-Hosts:** Indian Navy & Tanzania Peoples' Defence Force (TPDF).
- **Other participating countries:** Comoros, Djibouti, Eritrea, Kenya, Madagascar, Mauritius, Mozambique, Seychelles and South Africa.
- **Location:** Dar-es-Salaam, Tanzania, from April 13 to 18, 2025.

Source:

- [PIB - IOS SAGAR](#)

VARUNA 2025

- It is an **annual Bilateral Naval Exercise** between **India and France**.
- Varuna started in **2001**, this one is the **23rd** edition.
- The exercise will witness the participation of **major naval assets** from both countries, including: **INS Vikrant** (India), **Charles de Gaulle** (France), **Rafale-M & MiG-29K**.
- **Other Bilateral exercises between India & France:** Garuda (Air Force), Shakti (Army).

Source:

- [PIB - VARUNA](#)

Revival of Vikramshila University

- The **Archaeological Survey of India (ASI)** is working to develop Vikramshila University as a tourist attraction.

About Vikramshila University

- It was one of the most renowned centers of Buddhist learning in **ancient India**, alongside **Nalanda University**.
- **Location:** Antichak village, Bhagalpur district, Bihar
- It was founded by **Pala King Dharmapala** in the **late 8th or early 9th century AD**.
- It specialized in **Tantrayana Buddhism**, focusing on **tantric practices and rituals**.
- It flourished during the **Pala period (8th–12th century AD)**.
- **Notable Scholars:**
 - **Atisa Dipankara Shrijnana** – A great Buddhist scholar from Vikramshila who was instrumental in **reviving Buddhism in Tibet**.



Source:

- [Indian Express - Vikramshila](#)

Asia's Largest Tulip Garden

- **Indira Gandhi Memorial Tulip Garden** in **Srinagar** is **Asia's largest tulip garden**.
- It is located at the **foothills of the Zabarwan mountain range**.
- Tulips here bloom in **March-April** for **15-20 days**, attracting thousands of tourists.
- It spans over an area of **74 hectares**, featuring around **17 lakh tulip bulbs**.



About Tulips

- Tulips are perennial flowering plants belonging to the **Liliaceae (Lily) family**.
- Known for their **vibrant colors and elegant shape**, tulips are among the most popular ornamental flowers in the world.
- Originally native to **Central Asia**, tulips became widely cultivated in the **Ottoman Empire** before gaining global popularity.
- **Tulip Cultivation Around the World:**
 - **Netherlands:** Leading producer and exporter of tulips.
 - Famous for **Keukenhof Garden**, the world's largest flower park.
 - **Turkey:** Hosts **Istanbul Tulip Festival** every spring.

Source:

- [The Guardian - TULIP](#)

Dalle Chilly - Sikkim

- The Agricultural and Processed Food Products Export Development Authority (APEDA), under the **Ministry of Commerce & Industry, Government of India**, has successfully exported 15,000 kg of GI-Tagged Dalle Chilly from Sikkim to the **Solomon Islands**.



About Dalle Chilly

- Dalle Chilly, also known as **Fire Ball Chilly** or **Dalle Khursani**, is a **highly pungent, bright red chili variety grown in Sikkim and the Eastern Himalayas**.
- It is famous for its **intense spiciness, rich nutritional value, and unique flavor**.
- It has **Rich nutritional value** (Vitamins A, C, and E, along with potassium)
- Its **Scoville Heat Units (SHU)** is **100,000 to 350,000**, making it one of the spiciest chillies.
 - SHU is a measurement of the pungency or "heat" of chili peppers and other spicy foods.
- **GI Tag:** Granted in **2020** by the **Department for Promotion of Industry and Internal Trade (DPIIT)** under the Ministry of Commerce & Industry.
- **Major Producing Regions:** **Sikkim**, Also grown in parts of **Darjeeling, Kalimpong, and Arunachal Pradesh**.

Source:

- [PIB - Dalle Chilly](#)

Triboelectric Nanogenerator

- Researchers at the **Institute of Nano Science and Technology (INST), Mohali**, under the **Department of Science and Technology (DST), Government of India**, have developed a **triboelectric nanogenerator (TENG)** using **flexible single crystals of an organic compound**.

About Triboelectric Nanogenerator (TENG)

- **TENG** is a small device that **generates electricity from movement or friction**. It works on the **triboelectric effect**, which happens when two materials rub against each other and create an electric charge.
- **E.g.** When you rub a balloon on your hair, your hair sticks to it because of the electric charge. A TENG **uses a similar principle** but converts this charge into **usable electricity**.
- **Uses of TENG:**
 - **Energy Harvesting:**
 - Converts **body movements** (walking, stretching) into electricity.
 - Generates power from **wind, water waves or vibrations**.
 - **Medical & Health Applications:**
 - **Wearable health sensors** (e.g., tracking finger movement in rehabilitation).
 - **Pacemakers or medical implants** without needing batteries.
 - **Smart Devices & Robotics:**
 - **Self-powered touchscreens** (phones, tablets, ATMs).

Source:

- [PIB - TENG](#)

Private Capex Share in India's Gross Fixed Capital Formation (GFCF)

- Private capital expenditure's (**capex**) share in **Gross Fixed Capital Formation (GFCF)** dropped to **33% in FY24**, marking a significant decline.

What is GFCF?

- **GFCF** refers to the **net investment** in fixed assets like buildings, machinery, equipment, and infrastructure within an economy over a period.
- It indicates how much is being invested in productive assets **to boost future economic growth**.
- **Components of GFCF:**
 - **Public Sector Investment:** Government spending on infrastructure, roads, railways, defense, energy and public services.
 - **Private Sector Investment:** Business investments in factories, offices, technology and manufacturing capacity. Includes **both listed and unlisted companies**.
- **Why is GFCF Important?**
 - **Higher GFCF** → Economic expansion and capacity building.
 - **Lower GFCF** → Low business confidence, weaker demand or financial constraints.

Source:

- [The Hindu -GFCF](#)

Project PARI (Public Art of India)

- It is a collaborative initiative by: **Ministry of Culture, Lalit Kala Akademi & National Gallery of Modern Art (NGMA)**.
- **Objective:**
 - Revitalize **India's public art landscape**.
 - Promote **traditional and modern art forms** in public spaces.
 - **Encourage dialogue and artistic inspiration**.

Source:

- [PIB - Project PARI](#)

Editorial Summary

Food Wastage

Context

The UNEP Food Waste Index Report 2024 highlights that 1.05 billion tonnes of food were wasted globally in 2022 (nearly **20% of all food available to consumers**).

Recent Trends in Food Wastage

- India ranks among the top contributors to food waste, with **78 million tonnes** of food discarded annually — second only to China.
- While India's per capita food waste is **55 kg annually**, lower than some developed nations like the US (73 kg), the sheer population size makes the total wastage volume significant.
- Approximately **61% of global food waste** occurs at the household level due to over-purchasing, poor storage, and improper meal planning.

What is meant by Food Wastage?

- Food wastage is a **broader term** that includes both **food loss** and **food waste** — covering the entire food supply chain from production to consumer disposal.
- **Example:** Spoiled grains due to poor storage (food loss) and uneaten cooked meals (food waste).

Food Loss

- Food loss refers to the **decrease in edible food mass** that occurs **before it reaches the consumer** during production, post-harvest handling, storage, processing, and distribution.
- **Example:** Crops spoiled due to poor storage or transportation.

Food Waste

- Food waste refers to the **discarding of food** that is still fit for consumption at the **retail and consumer levels** due to spoilage, over-purchasing, or improper storage.
- **Example:** Throwing away edible fruits or leftovers at home or in restaurants.

Issues and Challenges

- **Supply Chain Inefficiencies:** Poor storage facilities, lack of cold chains, and inadequate transport infrastructure lead to high food loss at the production and distribution stages.
- **Consumer Behaviour:** Over-purchasing, lack of meal planning, and excessive food preparation at household levels result in avoidable wastage.
- **Policy and Infrastructure Gaps:** Limited investment in cold storage, poor market linkages, and lack of effective redistribution networks exacerbate the problem.

Implications of Food Wastage

- **Environmental Impact:** Food wastage increases **greenhouse gas emissions** (8%–10% of annual global emissions), primarily from methane released in landfills.
 - Wasted food also leads to **overuse of resources** like water, land, and energy during production and distribution.
- **Economic Loss:** Globally, food wastage costs around **\$1 trillion annually** in terms of lost production, transportation, and storage costs.
 - Businesses and households face **higher expenses** due to inefficient food management.
- **Food Insecurity:** Despite surplus production, millions face hunger due to inefficient food distribution and wastage.

- In India, over **20 crore people** face hunger, while **78 million tonnes** of food are discarded annually.
- **Social Injustice:** Wastage reflects unequal access to food — surplus food in some areas contrasts with hunger and malnutrition in others.
 - It widens the gap between food availability and accessibility.
- **Pressure on Natural Resources:** Food production requires significant amounts of **water, land, and energy**; wastage puts additional strain on these limited resources.
 - Increased demand for food production leads to **deforestation** and **biodiversity loss**.
- **Challenge to Sustainable Development:** Food wastage hinders progress toward **SDG 2 (Zero Hunger)** and **SDG 12.3 (Reducing food waste at retail and consumer levels)**.
 - Higher food wastage increases the environmental footprint, slowing down global sustainability efforts.

India's Initiatives to Tackle Food Wastage

- **Save Food, Share Food:** Launched by the **Food Safety and Standards Authority of India (FSSAI)** to encourage donation of surplus food to the needy through food banks and NGOs.
- **Indian Food Sharing Alliance (IFSA):** A network of food recovery agencies under FSSAI that facilitates food redistribution from businesses and households to reduce waste.
- **Operation Greens:** Launched in **2018** to stabilize the supply of perishable crops (like tomatoes, onions, and potatoes) by improving storage, transportation, and market linkages.
- **Mega Food Parks Scheme:** Establishes food processing infrastructure with cold storage, packaging, and logistics to reduce food loss during production and distribution.
- **Food Processing Incentives:** The **Production-Linked Incentive (PLI) Scheme** for the food sector encourages investment in food processing and better storage infrastructure.
- **Mid-Day Meal Scheme:** Reduces food wastage in schools by ensuring planned meal preparation and effective distribution to students, minimizing excess food disposal.

International Models Addressing Food Waste

- **US Incentive Model:** The **Protecting Americans from Tax Hikes (PATH) Act, 2015** provides enhanced tax deductions for food donations, encouraging businesses to donate surplus food.
- **Italy's Incentive Model:** Italy allocates around **USD 10 million annually** to reduce **one million tonnes** of food waste by offering incentives to businesses for donating food to charities.
- **UN Global Food Loss and Waste Protocol:** This global standard helps measure food loss and waste (FLW) at **processing, retail, and consumer levels**. It supports both countries and companies in tracking FLW within their borders and supply chains, aligning with **SDG target 12.3**.

What Needs to Be Done

- **Enhance Storage and Distribution:** Improve cold chain infrastructure and modernise transportation to reduce food loss at the production stage.
- **Consumer Education:** Promote awareness about meal planning, proper food storage, and creative reuse of leftovers to reduce household waste.
- **Redistribution Networks:** Scale up initiatives like **"Save Food Share Food"** to connect surplus food with those in need.
- **Policy Reforms:** Introduce incentives and subsidies for businesses and farmers to adopt sustainable practices and improve food storage.
- **Promote Composting and Recycling:** Encourage household and community-level composting to reduce landfill waste and generate organic manure.
- **Support Sustainable Consumption:** Encourage plant-based diets, reduce overproduction, and optimise food supply chains to minimise resource use and emissions.

Source: [The Hindu: Colossal wastage that is food for thought](#)

The need for a localised urban agenda

Context

India is poised to have the **largest urban population** globally in the coming decades.

Background

- India's urban evolution began with the **post-1990s liberalisation policy**.
- Although urban development is a **State subject**, the Centre has heavily influenced urbanisation through **centrally sponsored schemes**:
 - Jawaharlal Nehru National Urban Renewal Mission (JNNURM)
 - Five Urban Flagship Missions
 - **Indira Awas Yojana** – Housing scheme
 - **Rajiv Awas Yojana** – Housing for urban poor
 - **Pradhan Mantri Awas Yojana (PMAY)** – Affordable housing for all
 - **Basic Services for the Urban Poor (BSUP)** – Essential utilities for urban poor
 - **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)** – Infrastructure and services improvement
 - **Swachh Bharat Mission (SBM)** – Sanitation and cleanliness

Challenges in Current Approach

- **Top-Down Model of Urban Development:** Centrally driven missions impose **uniform guidelines** without considering local contexts.
 - Cities have limited flexibility to customise plans based on unique demographic, economic, and infrastructural needs.
- **Conditional Fund Transfers:** Successive **Finance Commissions** have imposed conditions on fund transfers:
 - **Example: 15th Finance Commission** mandated raising property tax in line with State GDP growth.
 - City governments have limited autonomy in allocating resources according to local priorities.
- **Lack of Local Involvement:** Planning and implementation are **detached from local communities** and governance structures.
 - Urban projects often fail to reflect the real needs of citizens.
- **Misallocation of Resources:** Universal schemes like PMAY and SBM may not be relevant in some cities with better infrastructure or housing availability.
 - Overinvestment in metro rail projects (consuming **30% of the urban budget**) sidelines other priorities like sanitation and housing.
- **Failure of Smart Cities Mission:** Funds often remained unutilised due to rigid guidelines and unrealistic deadlines.
 - Infrastructure created without public demand led to **wastage** of resources.
- **Uniformity Despite Regional Variations:** Different patterns of urbanisation across States:
 - **Kerala and Karnataka** – Rural-urban continuum
 - **Gujarat** – Core-periphery divide
 - One-size-fits-all policies overlook these variations, leading to inefficient outcomes.

Proposed Alternative Approach

- **Decentralised Financial Devolution:** Allocate around 70% of the Union Budget as direct transfers to States and city governments via State finance commissions.
 - Retain 30% for national priorities like climate-resilient infrastructure.
- **Demand-Based Planning:** Cities should identify their most pressing needs (e.g., mobility, sanitation) with State support and knowledge agencies.

- Avoid universal mission guidelines that may not align with local requirements.
- **Improved Utilisation:** Prevent issues seen in the Smart Cities Mission, where funds were either unutilised or spent on irrelevant infrastructure.
- **Outcome-Based Funding:** Link funding to clearly defined and measurable urban development outcomes.
 - Avoid rigid guidelines that force infrastructure creation without public demand.

Why This Shift is Important

- National governments should focus on **national, regional, and international issues** – not local governance.
- Central government's distance from local governance creates **disconnect** from community-level issues.
- Effective urban governance requires a shift in financial devolution:
 - **City governments** are better positioned to manage community service delivery, infrastructure, and conflict resolution.
 - Encouraging a **bottom-up approach** would improve urban planning, infrastructure, and livability.
- Without systemic change, urbanisation will cause:
 - Infrastructure collapse
 - Quality of life deterioration
 - Weakened connection between citizens and government

Source: [The Hindu: The need for a localised urban agenda](#)

