



## News Analysis (12 Apr, 2019)

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### Solar E-Waste

According to a recent study conducted by an energy consultancy firm Bridge To India (BTI) Ltd., **India's PV (photovoltaic) waste volume is estimated to grow to 2,00,000 tonnes by 2030 and around 1.8 million tonnes by 2050.**

### Highlights

#### PV module

- A PV module is essentially made up of glass, metal, silicon and polymer fractions.
- Glass and aluminium, together constituting around 80% of total weight, are non-hazardous.
- But a few other **materials used including polymers**, metals, metallic compounds and alloys are **classified as potentially hazardous**.
- For instance, Leaching of lead has **huge environmental impact** including loss in biodiversity, decreased growth and reproductive rates in plants and animals, and several other **health hazards** like adverse impact on kidney function, nervous, immune, reproductive and cardiovascular systems.

#### PV Waste Recycling

- PV waste recycling is still **at a nascent stage globally**, both in terms of technical standards and physical infrastructure. The waste is usually sent to laminated glass and metal recyclers that recover 70-80% of the material by weight.
- PV module recycling is still **not commercially viable** as total estimated cost including transportation can vary between USD 400-600/ tonne, far exceeding value of the recovered material.

#### Status in India

- India is among the leading markets for solar cells in the world, buoyed by the government's commitment to install 100 GW of solar power by 2022. So far, India has installed solar cells for about 28 GW and this has been done largely from imported solar PV cells.
- **India is poorly positioned to handle PV waste** as it doesn't yet have a policy guideline on the same.
- Most of the central bidding documents rest the responsibility of handling and disposing PV waste on the developers as per the E-waste (Management and Handling) Rules, 2011. However, the **E-waste rules make no mention of solar PV waste**.
- Unavailability of even basic recycling facilities for laminated glass and e-wastes.
- Despite the e-waste regulation being in place for over seven years, only less than 4% of estimated e-waste is recycled in the organised sector.

### Regulations for PV recycling in other countries

- **The European union (EU) has a Waste Electrical and Electronic Equipment (WEEE) directive**, based on the Extended Producer Responsibility (EPR) concept that mandates all member states to implement a regulation for setting up tracking, collection and waste treatment mechanisms. It also has an **eco-design directive** for reducing environmental impact of energy-related products throughout their lifecycle.
- There are **no federal regulations** for module waste management **in the US** but regulatory initiatives have been undertaken at the state-level to manage it.
- **Voluntary guidelines** to ensure proper recycling of solar PV modules have been issued **by the Japan Photovoltaic Energy Association (JPEA)**.
- **China's 13th five-year plan (2016-2020)** states that the principle of EPR will be imposed on waste treatment in general but a regulatory framework specific to module waste is yet to be adopted.

### Suggestions For India

- Mandating **module manufacturers to use environmentally sustainable design and materials** with end-of-life in mind (similar to the eco-design initiative of the EU).
- Specifying liability and responsibility of each stakeholder for waste management and treatment.
- Laying down **standards for PV waste collection, treatment and disposal**.
- Encouraging mutual recycling responsibility agreements between module suppliers, project developers and power purchasers.
- Undertaking regular surveys of recycling facilities to understand technology and capacity levels.
- **Identifying investment and technical requirements for dedicated PV recycling facilities with focus on high-value recovery**.

# Gig Economy

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**Delhi has emerged as the top destination** for migrant workers joining India's tech-enabled gig economy, pushing startup capital Bengaluru to a distant second spot.



- A gig economy is a **free market system** in which temporary positions are common and organizations contract with independent workers for **short-term engagements**.
- An **estimated 56% of new employment in India** is being generated by the gig economy companies across both the blue-collar and white-collar workforce. **Few reasons** for this exponential growth are:
  - In the digital age, the **worker need not sit at a fixed location**—the job can be done from anywhere, so employers can select the best talent available for a project without being bound by geography.
  - The millennial generation seems to have quite a different attitude to careers. They seek to do work that they want to do rather than have careers that may not satisfy their inner urges.
  - This suits businesses as well. In a gig economy, they save resources in terms of benefits like provident fund, paid leave and office space.
  - Heightened migration and readily available job training.

## Challenges

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- The gig economy thrives **largely unregulated**, therefore workers have **little job security and few benefits**.

- However, few argue that the gig economy in India with respect to workers not getting any social security, insurance, etc. is an **extension of India's informal labour**, which has been prevalent for a long time and has remained unregulated.
- With the tech companies coming in, there is data available, making it a **possibility to enable job security**.
- A worker need to **be skilled enough**. Unless a person is extremely talented, his bargaining power will necessarily be limited.
- While companies routinely invest in training employees, a gig-economy workers will have to **upgrade his skills** on his own at his own cost.
- There are already many more potential online independent workers than jobs, and this **demand-supply mismatch** will only get worse over time, depressing wages.

## Way Forward

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- There is a need for the government to step in and implement radical changes in labour laws or implement tax rebates and concessions that can be passed on directly to drivers or delivery partners as health or insurance benefits.  
However, some experts say that this would directly affect prices of service delivered to the end customer.
- With a population of over 1.2 billion, and a majority of them below the age of 35, relying on the "gig economy" is perhaps the only way to create employment for a large semi-skilled and unskilled workforce. Therefore, It is important to hand-hold this sector and help it grow. We need policies and processes that give clarity to the way the sector should function.

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## Sudan's President Ousted by Army

**President Omar al-Bashir**, who ruled **Sudan for 30 years**, was overthrown in a coup by the armed forces.

The president was forcefully removed after months of protest over rising costs of food and other necessities but the demands quickly widened for the removal of President Omar al-Bashir and his government.

## Reasons for Ouster



- **Economic Hardships and Civil War**

- Mr. Bashir presided over a **21-year war in southern Sudan**.
- In 2011, following a referendum, **South Sudan gained independence from Sudan**. The referendum had been part of a peace deal agreed between Mr. Bashir and rebels from South Sudan.
- However, **the split had significant financial repercussions, because South Sudan gained 75% of Sudan's oil resources**.
- Sudan's economy - which had already been strained by more than a decade of US sanctions - was hit hard.

**US Sanctions:** Sudan has suffered prolonged periods of isolation since 1993 when the United States added Bashir's government to its **list of terrorism sponsors for harboring Islamist militants**.

- **In December 2018, the government of Sudan tried to prevent economic collapse, brought on by years of US sanctions and loss of oil revenue, with emergency austerity measures and a sharp currency devaluation.**

- **Algeria's Influence**

- Recently, Abdelaziz Bouteflika, president of Algeria has resigned after remaining in power for more than two decades.
- This increased the wave of protests throughout Sudan.

- **ICC Charges**

Mr. Bashir has been indicted by the International Criminal Court in The Hague and is **facing an arrest warrant over allegations of genocide in Sudan's**

**Darfur region** during an insurgency that began in 2003 and led to the death of an estimated 300,000 people.

## What Now?

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- Defence Minister of Sudan Awad **Ibn Ouf has announced that the army would oversee a two-year transitional period followed by elections** and that a three-month state of emergency was being put in place.
  - However, Protests are still continuing **demanding for a civilian government in place of military rule.**
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## Special Leave Petition

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Vedanta Ltd. has moved the Supreme Court (SC) with a Special Leave Petition (SLP) seeking interim access to undertake maintenance activities at its Sterlite Copper plant in Tuticorin, Tamil Nadu.

The plant was ordered shut after protests in May 2018.

### Article 136 in the Constitution Of India

- Special leave to appeal by the Supreme Court:
  - (1) Notwithstanding anything in this Chapter, the Supreme Court may, in its discretion, grant special leave to appeal from any judgment, decree, determination, sentence or order in any cause or matter passed or made by any court or tribunal in the territory of India.
  - (2) Nothing in clause ( 1 ) shall apply to any judgment, determination, sentence or order passed or made by any court or tribunal constituted by or under any law relating to the Armed Forces.
- In the case of any SLP , the SC has first to decide in its discretion whether it should grant or deny the requested Special Leave.
- When discussing the SLP, it is important to understand its position with respect to the judgements of Inter-State Water Dispute (ISWD) Tribunal as well.
- The Inter-State Water Disputes Act of 1956, coupled with Article 262 (2) of the Constitution, excludes the SC from hearing or deciding any appeals against the Inter-State Water Dispute (ISWD) Tribunal's decision.

However, the reference to "any Court or tribunal in the territory of India," in Article 136 seems to bring the ISWD Tribunals within the purview of the Article.
- The SC had also argued that the remedy under Article 136 (Special Leave Petition) is a constitutional right. Thus, the bar can be overcome through the possible routes under Articles 32, 131, and 136 of the Constitution.
  - Article 32 provides for constitutional remedies to get the rights protected

through writs namely Habeas Corpus, Mandamus, Prohibition, Certiorari and Quo warranto.

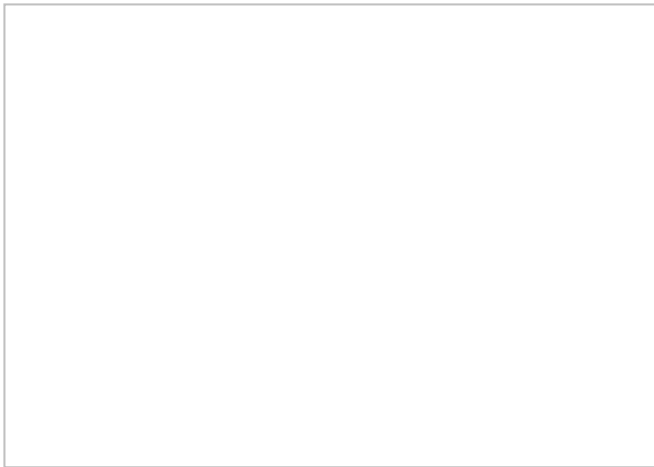
- Article 131 ( Original jurisdiction of the Supreme Court ) is about Centre-State or inter-State disputes in general.

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## New Human Ancestor Species Found

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Scientists have identified a new human ancestor species previously unknown. It has been named as **Homo luzonensis**.



- Homo luzonensis is classified as **a separate species** on the basis of 13 bones and teeth from two adults and one child found in a cave on the island of **Luzon in the Philippines**.
- Unlike Homo sapiens, whose premolar teeth generally have a single root, Homo luzonensis' premolars had two or three roots, similar to more primitive species such as Homo erectus, which lived in Africa and Asia between about 1.89 million and 143,000 years ago.
- The Homo luzonensis **were around 3-4ft tall** and lived on the island of Luzon at least **50,000 to 67,000 years ago**.
- It is **not a direct ancestor of modern day humans**, but rather a distant ancient relative.

## Significance

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- The fossils have an **unexpected mix of both ancient and more advanced traits of hominin** (the group consisting of modern humans, extinct human species and all our immediate ancestors).
- The **teeth's small sizes and relatively simple shapes point to a more modern species. Foot bone resembles those of the ancient australopithecines**.
- The discovery also adds to a growing body of evidence that **human evolution is not**

**as linear** as was once thought.

- There are some questions which are unanswered such as **how the species arrived on the island and who its ancestors were.**



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## Important Facts For Prelims (12th April 2019)

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### New Genetic Method To Empower Conservation

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- A team of scientists at **Stanford University and the National Centre for Biological Sciences at India's Tata Institute of Fundamental Research** have developed a method for extracting genetic information.
- The new method is **faster and cheap and collects information from degraded and left-behind materials**, such as **feces, skin or saliva, and from food products** suspected of containing endangered animals.
- This is significant as it will **help wildlife conservationists aiming to protect endangered species**, but they were unable to collect the DNA samples from rare and elusive animals.
- The new method relies on **identifying multiple, short portions of DNA segments in a single experiment (a multiplex PCR), followed by 'next-generation sequencing', in which multiple fragments of DNA can be decoded simultaneously, and several times, in an automated process.**
- The team tested their method on Caribbean queen conches and tigers.

### Multiplex polymerase chain reaction (Multiplex PCR)

Multiplex polymerase chain reaction refers to the use of polymerase chain reaction to amplify several different DNA sequences simultaneously.

### Three-Person Baby

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- A team of Greek and Spanish doctors has produced a baby (in Greece) using **genetic material from two women and a man.**
- The technique used is called as **'Maternal Spindle transfer'** in which maternal DNA is put into the egg of a donor woman, which is then fertilized using the father's sperm.
- The procedure was developed to **help existing IVF treatments in which mothers have mitochondrial diseases.**



- The technique is considered controversial by some doctors.
- **Mitochondrial diseases are long-term, genetic, often inherited disorders** that occur when mitochondria fail to produce enough energy for the body to function properly.
- **In Vitro Fertilization (IVF)** is a medical procedure in which **mature egg cells are removed from a woman, fertilized with male sperm outside the body, and inserted into the uterus** of the same or another woman for normal gestation.

## Bold Kurukshetra

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- The **12th edition** of joint military exercise between **India and Singapore**, BOLD KURUKSHETRA 2019 came to an end on 11th April 2019.
  - A closing ceremony for the same was held at the **Babina Military Station, Jhansi, Uttar Pradesh**.
  - The four-day long joint training focused on developing interoperability and conduct of joint tactical operations in mechanized warfare.
  - India and Singapore had signed a cooperation agreement in November 2017 to strengthen the defense ties between the Indian Military and Singapore Armed Forces. As per the agreement, the Singapore military would undergo training and participate in firing exercise with Indian counterpart.
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