



Power Generating from Defunct Gold Mines

Why in News?

Recently, an Australian renewable-energy company Green Gravity has proposed a scheme to generate electricity from the defunct **Kolar Gold Fields (KGF), in Karnataka, using Low-Tech Gravity Technology.**

What is the Mechanism of the Technology?

- The plan is to find defunct mines, which often go hundreds or thousands of meters deep, and haul a **Weighted Block**, that may be around 40 tonnes, up to the top of the mine shaft **using renewable power during the day.**
- When backup power is required, the heavy block will fall, under gravity, and the **ensuing momentum will power a generator** via a connected shaft (or rotor).
- The depth to which the block can slip can be determined via a braking system, thus giving control on the amount of power that can be produced.
 - This is similar to the **pumped hydropower storage method**, where water is pumped uphill electrically into a reservoir, and then released downhill to move a turbine and generate electricity as needed, as in a hydroelectric power plant.

What is the Significance of this Technology?

- A hiccup that makes renewable energy unreliable is that there is no power during nights or windless days. Charging a battery to use as a backup **during this downtime hikes power prices.**
- Low-tech Gravity Technology can help address this challenge. This technology may use **more energy than produced** but when accounting for being able to make renewable energy available at off-peak hours, can **mean less reliance on coal-produced power and access to reliable power.**
- Using weighted blocks instead of water means that decommissioned mines can be put to use and the environmental costs and **challenges of moving water up can be avoided.**

What are the Key Facts of Kolar Gold Fields?

- Kolar Gold Fields (KGF) is a mining region located in the Kolar district of Karnataka. It is known for its **historic gold mines, which were among the deepest in the world.**
- Mining in KGF was started by Jhon Taylor & Sons in 1880.
- The mines remained active for 121 years before it experienced an unsystematic closure on February 28, 2001. The mines were closed owing to high operational costs and low revenues.
- Apart from mining Gold, the mines have also been used in particle physics experiments where research teams have discovered elusive, cosmic particles called atmospheric neutrinos.
 - Currently, India has three working gold mines in the country -- Hutti and Uti mines in Karnataka and the Hirabuddini mines in Jharkhand.
 - India's gold production is around 1.6 tonnes a year, compared to the 774 tonnes a year of gold that it consumes.

[Source: TH](#)

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