



How War Can Affect Semiconductor Supply

Context

Semiconductor Manufacturing Industry took a hit with the pandemic and were on the road to recovery, but the Russia-Ukraine conflict has again caused ripples across the industry.

Relevance

GS-III: Science and Technology- Developments and their Applications and Effects in Everyday Life.

Dimensions of the Article

- Why the Industry has been constrained?
- How the Conflict can aggravate the crisis?
- By when can the Industry be on track?
- Neon and Palladium
- Way Forward

Why the Industry has been constrained?

- Pandemic caused lockdowns and disruptions of industry as well as supply chains.
- These shortages have cascading effects on the entire industry.
- Shortage of one material leads to increased demand of the other which forms a chain reaction of sorts causing multiple shortages.
- Neon and Palladium supplies are likely to be affected the most.

How the Conflict can aggravate the crisis?



- Russia is supplier of over 40% of the world's Neon.
- Ukraine is supplier of over 70% of the world's Palladium.
- A crisis is likely to hit the industry sooner or later.
- Stockpiles can't meet the demands for very long.
- Persisting crisis would make the industry take a plunge again.

By when can the Industry be on track?

- Industry can be on track based on the time till which the stockpiles last and the Russia-Ukraine Crisis is resolved.
- While the conflict has entered the 19th Day, it does not seem to be ending anytime soon.
- Stockpiles may last for a few months but post that it would create a crisis.
- Also the sanctions imposed on Russia and damage inflicted on Ukraine, its tough to determine by when normalcy of supply can be restored.

Neon and Palladium

- Neon is used in Photolithography, which a method used to fabricate the Integrated Circuits.
- Neon needs to have 99.9% purity for its use which is a rarity and is supplied by two Ukrainian companies Incas and Cryoin.
- Palladium is used for coating electrodes to assist flow of electricity and plating of microprocessors and circuit boards.
- More than half is produced by Russia where trade sanctions are expected to constrain their availability.

Way Forward

In the modern day and age where electronics form an integral part of our lives a large scale disruption of manufacturing chains can't bode well for the world and its economy. Spillover effects can cause another economic crisis which is already under stress due to the pandemic. Conflict must be resolved with diplomatic engagements as soon as possible to bring the industry back on track.



Source- Indian Express

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