



C.A Dated on 20-02-2019

GS-1

Structure of Earth:

Scientists have discovered massive mountains in the Earth's mantle, an advance that may change our understanding of how the planet was formed.

Details of Study:

- In a study published in the journal *Science*, scientists used data from an enormous earthquake in Bolivia to find mountains and other topography on a layer located 660 km straight down, which separates the upper and lower mantle.
- Lacking a formal name for this layer, the researchers simply call it "the 660-km boundary."
- To peer deep into the Earth, scientists from the Princeton University in the U.S. and the Institute of Geodesy and Geophysics in China, used the most powerful waves on the planet, which are generated by massive earthquakes.

How was it Done?

- Data from earthquakes that are magnitude 7.0 or higher send out shockwaves in all directions that can travel through the core to the other side of the planet — and back again.
- For this study, the key data came from waves picked up after a magnitude 8.2 earthquake — the second-largest deep earthquake ever recorded — that shook Bolivia in 1994.
- Scientists used powerful computers to simulate the complicated behaviour of scattering waves in the deep Earth.
- The technology depends on a fundamental property of waves: their ability to bend and bounce.
- Just as light waves can bounce (reflect) off a mirror or bend (refract) when passing through a prism, earthquake waves travel straight through homogenous rocks but reflect or refract when they encounter any boundary or roughness..



C.A Dated on 20-02-2019

The presence of roughness on the 660-km boundary has significant implications for understanding how our planet formed and evolved.

GS-3

Start-Ups in India:

Union Minister of Commerce & Industry and Civil Aviation, Suresh Prabhu has cleared a proposal aiming at simplifying the process of exemptions for Start-ups under Section 56 (2) (viib) of Income Tax Act.

The Department for Promotion of Industry and Internal Trade (DPIIT) will be issuing a gazette notification today to this effect.

Salient features:

- With this notification, the definition of Start-ups will be expanded.
- Now an entity will be considered as a Start-ups upto a period of ten years from the date of incorporation and registration in place of the earlier duration of 7 years.
- Similarly, an entity will continue to be recognised as a Start-ups, if its turnover for any of the financial years since incorporation and registration has not exceeded Rs. 100 crore in place of Rs. 25 crore earlier.
- A Start-ups will be eligible for exemption under Section 56 (2) (viib) of Income Tax Act, if it is a private limited company recognized by DPIIT and is not investing in any of the following assets:
 - i. building or land appurtenant thereto, being a residential house, other than that used by the Start-ups for the purposes of renting or held by it as stock-in-trade, in the ordinary course of business;
 - ii. land or building, or both, not being a residential house, other than that occupied by the Start-ups for its business or used by it for purposes of renting or held by it as stock-in trade, in the ordinary course of business;
 - iii. loans and advances, other than loans or advances extended in the ordinary course of business by the Start-ups where the lending of money is substantial part of its business;



C.A Dated on 20-02-2019

- The aggregate limit of Rs. 25 crore will exclude consideration received by eligible Start-ups for the following classes of persons:
 - i. Non-Residents
 - ii. Alternative Investment Funds- Category-I registered with SEBI
 - iii. Listed company having a net worth of Rs.100 Crores or turnover of at least Rs. 250 crore provided that its shares are frequently traded as per SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 2011

Start-ups will file a duly signed declaration with DPIIT for availing exemption. The declaration will be transmitted by DPIIT to CBDT.

National Electronics Policy 2019:

Why in News?

The Union Cabinet on Tuesday approved the National Electronics Policy 2019 aimed at achieving a turnover of \$400 billion (about ₹26 lakh crore) for the electronics system design and manufacturing (ESDM) sector by 2025, while generating employment opportunities for one crore people.

Benefits of Policy:

- "The policy will enable flow of investment and technology, leading to higher value addition in the domestically manufactured electronic products and increased manufacturing of electronics hardware for local use as well as exports.
- The policy has introduced "easier to implement" incentive schemes, including an interest subvention scheme and credit default guarantee, to replace some of the existing ones under the National Electronics Policy 2012.
- It proposes to provide interest subsidy of 4% on loans up to ₹1,000 crore on plant and machinery, and in case of larger loans, the subsidy would be limited to ₹1,000 crore.

Other Provisions:



C.A Dated on 20-02-2019

- The government proposes to create a fund to provide default guarantee of up to 75% to banks for plant and machine loans of up to ₹100 crore.
- This will eliminate the need for small and new investors to provide third-party collateral... the scheme will be on the pattern of credit guarantee being provided by SIDBI for the SME sector.
- However, for both these schemes, consultations are on with the Department of Expenditure, the official added.
- They will be launched once the policy is notified.
- To help create an ecosystem, the policy has pitched for 2.0 version of the Electronics Manufacturing Cluster Scheme, under which infrastructure support will be provided for a group of industries that are part of the product supply chain rather than individual industries.
- It has also proposed a sovereign patent fund to acquire intellectual property for chips and chip components.

Rooftop Solar Power Project:

Why in News?

The Cabinet Committee on Economic Affairs on Wednesday approved Phase-II of the Grid Connected Rooftop Solar Programme that aims to achieve a cumulative capacity of 40,000 MW from rooftop solar projects by 2022.

About the Project:

- The programme will be implemented with a total central financial support of ₹11,814 crore.
- The Phase II programme provides for central financial assistance (for residential rooftop solar installations) up to 40% for rooftop systems up to 3kW and 20% for those with a capacity of 3-10kW.
- The second phase will also focus on increasing the involvement of the distribution companies (DISCOM).
- Performance-based incentives will be provided to DISCOMs based on RTS capacity achieved in a financial year [i.e. April 1 to March 31 every year till



C.A Dated on 20-02-2019

the duration of the scheme] over and above the base capacity, i.e., cumulative capacity achieved at the end of previous financial year.

About National Solar Mission:

- The **National Solar Mission**, is an initiative of the [Government of India](#) and State Governments to promote solar power.
- The mission is one of the several initiatives that are part of the National Action Plan on Climate Change.
- The program was inaugurated by former [Prime Minister Manmohan Singh](#) on 11 January 2010 with a target of 20GW by 2022 which was later increased to 100 GW by the [Narendra Modi government](#) in the [2015 Union budget of India](#).
- India increased its solar power generation capacity by nearly 5 times from 2,650 MW on 26 May 2014 to 12,288.83 MW on 31 March 2017. The country added 5,525.98 MW in 2016-17, the highest of any year

Objective

- The objective of the National Solar Mission is to establish [India](#) as a global leader in [solar energy](#), by creating the policy conditions for its diffusion across the country as quickly as possible.
- Under the original plan, the Government aimed to achieve a total installed solar capacity of 20 GW by 2022.
- This was proposed to be achieved in three phase.
- The first phase comprised the period from 2010 to 2013, the first year of the 12th five-year plan.



C.A Dated on 20-02-2019

- The second phase extended up to 2017, while the third phase would have been the 13th five-year plan (2017–22). Targets were set as 1.4 GW in the first phase, 11-15 GW by the end of the second phase and 22 GW by the end of the third phase in 2022.
- The Government revised the target from 20 GW to 100 GW on 1 July 2015.
- To reach 100 GW by 2022, the yearly targets from 2015-16 onwards were also revised upwards.

Current Status:

- India had an installed solar capacity of 161 MW on 31 March 2010, about 2 and half months after the mission was launched on 11 January.
- By 31 March 2015, three months before the targets were revised, India had achieved an installed solar capacity of 3,744 MW