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National Pension System (NPS)

The NPS is the umbrella old age social security mechanism for providing pension to the citizens. It was launched on 1st January, 2004 with the objective of providing retirement income to all the citizens.

A remarkable feature of the NPS is that it provides pension to the employees of the formal sector (central and state government and other organized sector employees) and also to unorganised sector workforce. For the organized sector, NPS scheme is designed with tax concessions to encourage participation. Central Government Employees, State Government Employees, as well as all citizens between the age of 18 to 60 can join the NPS. PFRDA is the autonomous body set up by the Government of India to develop and regulate the pension market in India including the administration of the NPS.

The government granted NPS exempt, exempt and exempt or EEE status. It means that like PPF (public provident fund) or EPF (employee provident fund) investment at the investment stage, accumulation and withdrawal stage will be tax free. Earlier, NPS only enjoyed exempt, exempt and taxable or EET status, meaning that on withdrawal NPS was partially taxable.

NPS withdrawal will be totally tax exempted: Currently, 40% of the total accumulated corpus utilized for purchase of annuity at retirement or reaching the age of 60 is already tax exempted. Out of 60% of the accumulated corpus withdrawn by the NPS subscriber at the time of retirement, 40% is tax exempt and balance 20% is taxable. Now, the whole 60% of the accumulated corpus will be tax free, bringing it on a par with other investment schemes like PPF and EPF. These changes in tax rules on NPS withdrawal will apply to all subscribers, including government employees.

Source: The Hindu.

DSRV

DSRV is used to rescue crew members stranded in submarines that get disabled. The Indian Navy joins a select group of naval forces in the world that boasts of this niche capability. The DSRV can be operated at a depth of 650 meters and can hold around 15 people.

The Indian Navy in March 2016 had commissioned two DSRVs, the second will deployed at the Eastern Naval Command in Visakhapatnam. The induction of the DSRV marks the culmination of years of effort of the Indian Navy in acquiring this niche submarine rescue capability.

The Indian Navy currently operates submarines of the Sindhughosh, Shishumar, Kalvari Classes as well as nuclear powered submarines. The operating medium and the nature of operations undertaken by submarines expose them to high degree of inherent risk.

In such an eventuality, traditional methods of search and rescue at sea are ineffective for a disabled submarine. To overcome this capability gap the Navy has acquired a third generation,

advanced Submarine Rescue System considering of a Non-tethered Deep Submergence Rescue Vehicle (DSRV) and its associated equipment.

The Indian Navy's DSRV System is considered to be the most advanced system currently in operation globally for its capability of undertaking rescue from a disabled Submarine upto 650 m depth. It is operated by a crew of three, can rescue 14 personnel from a disabled Submarine at one time and can operate in extreme sea conditions.

Source: The Hindu.

'NSG must have its own air wing'

A Parliamentary panel has recommended that the Centre urgently take steps to ensure that the National Security Guard (NSG) is equipped with its own dedicated air wing. Currently, the two Mi-17 helicopters procured by the NSG in 1988-99, were grounded and unavailable.

Ministry of Home Affairs should make urgent and sincere efforts to commission a dedicated Air Wing of NSG and provide requisite types and number of air assets to strengthen the aviation capability of the force.

National Security Guard (NSG) — is the country's premier counter-terrorist and contingency force. The NSG was raised in 1986 following the assassination of former Prime Minister Indira Gandhi and Operation Blue Star. The force, which is trained to operate as an elite urban anti-terrorist and anti-hijack force, doesn't have a cadre of its own or direct recruitment and is instead dependent on personnel, sent on deputation from the army and the central armed police forces.

Source: The Hindu.

NASA probe finds signs of water on nearby Asteroid Bennu

NASA's OSIRIS-REx spacecraft has discovered traces of hydrogen and oxygen molecules near asteroid Bennu. Data obtained from the spacecraft's revealed the presence of molecules that contain oxygen and hydrogen atoms bonded together**,** *known as 'hydroxyls.*

The probe, on a mission to return samples from the asteroid to Earth, was launched in 2016. Bennu, roughly a third of a mile wide (500 meters), orbits the sun at roughly the same distance as Earth. OSIRIS-REx was launched to determine Bennu's physical and chemical properties, which will be critical to know in the event of an impact mitigation mission.

Bennu is a B-type asteroid with a 500-meter diameter. It completes an orbit around the Sun every 436.604 days (1.2 years) and every 6 years comes very close to Earth, within 0.002 AU. It is expected to have organic compounds and water-bearing minerals like clays. Beenu is carbonaceous asteroid whose regolith may record the earliest history of our solar system. It is also considered one of the most potentially hazardous asteroids, as it has a relatively high probability of impacting the Earth late in the 22nd century.

Source: The Hindu.

NASA Voyager 2 probe approaches interstellar space

The probe is only the second human-built object to leave the bubble of solar particles that emanates from our sun.

Voyager 1 departed Earth on 5 September 1977, a few days after its sister spacecraft, Voyager 2 The Voyagers were sent initially to study the outer planets, but then just kept on going.

The pair's primary objective was to survey the planets Jupiter, Saturn, Uranus and Neptune which completed in 1989. Voyager 2 will provide "first-of-its-kind observations of the nature of this gateway into interstellar space. Voyager 2 remains the only craft ever to visit Uranus and Neptune and Voyager second craft to cross the heliopause.

Heliopause is the boundary of the heliosphere which is the spherical region around the Sun. It is filled with solar magnetic fields and solar wind that consists of protons and electrons. The Heliosheath lies closer to the Sun than the heliosphere and it is a region of transition where the wind is at subsonic speed.

Source: The Hindu.

India to hold talks on upgrading bilateral trade pact with South Korea this week

India and South Korea are negotiating to upgrade the Comprehensive Economic Partnership Agreement (CEPA)

India plans to seek inclusion in the list of countries allowed to participate in the English Program in Korea (EPIK). Earlier the request was not accepted in Early harvest programme signed between India and South Korea in 2018. India also plans to advocate for domestic certificate recognition in areas such as accountancy, healthcare, nursing and architecture to facilitate movement of professionals

To promote economic cooperation between India and South Korea, a Comprehensive Economic Partnership Agreement (CEPA) has been in place since 2010. It envisages tariff elimination/reduction in about 80% of goods such as textiles, leather goods and, pharmaceuticals, opening up of sectors such as tourism and healthcare and freer movement of persons.

In the EHP, South Korea decided to eliminate tariffs on 17 Indian products. India also brought down duties on 11 items. Further, EHP increased the visa duration for ICT employees to three years from one year.

Source: The Hindu.

Editorial

To Read

Energy efficiency and climate change

Up to half of current global annual emissions could be reduced through more efficient use of energy in kitchens, residential buildings and transport

The impact of climate change is being felt by everybody and everywhere. Extreme weather conditions, air pollution, crop failure, biodiversity losses, and much more are affecting both human health and natural wealth. More than 70% of India's population is exposed to outdoor air pollution, which has contributed to one in eight deaths and has reduced the average life expectancy of Indians by nearly two years. The cost of not addressing global warming today would far exceed the expense of addressing it in the future.

Energy production and consumption remains the largest contributor of global carbon emissions and greenhouse gas. Our understanding of how best to manage the climate change agenda is still

evolving. Is the global warming agenda best addressed through carbon-pricing reforms or other policy interventions aimed at improving energy efficiency, and promoting social and community green initiatives? Carbon pricing has attracted more attention in recent years, as it goes to the source of the problem and puts a price on carbon pollution as a means of bringing down emissions. It shifts energy investments towards cleaner options by making fossil fuels more expensive relative to low-carbon fuels, and renewable energy. Although global investments in renewable energy has increased rapidly in recent years, its share in the global stock of energy is still very small.

It is estimated that nearly 70% of the global carbon emissions could be reduced by increasing energy efficiency. Most countries are more advanced on renewable energy compared to energy efficiency. Many quick wins on energy efficiency that have been overlooked in the past can be given a bigger seat at the table, including energy efficiency in the kitchen, residential buildings, industries, transport, utilities, and energy labelling. Besides carbon-pricing reforms, a package of additional interventions is needed to internalize externalities that are much more significant in developing countries compared to advanced countries and play an import role in increasing energy efficiency (see Frances Stewart and Ejaz Ghani, 1991, *How Significant Are Externalities For Development?*, World Development). Increasing energy efficiency is also a prerequisite for most developing countries for preparing them to move towards more expensive energy system needed to deal with carbon capture and storage, and other technology solutions.
Has India improved energy efficiency? Yes. Its energy intensity has declined during the last decade. China's energy intensity is roughly 1.5 times that of India. While we may instinctively rank energy efficiency across countries, the trends within countries are hard to add up. The aggregate energy efficiency trends comprise spatial and industrial developments in energy usage. Cities and urban settings increase energy efficiency and reduce the cost of electricity use per output level because of denser customer bases and more efficient plant sizes for local energy producers. However, large industrial enterprises in India are moving away from cities and opening plants in rural areas to remain competitive. Empirical analysis of manufacturing enterprises in India shows that average electricity consumption is much higher in rural regions compared to urban regions. Small and medium-sized enterprises have the most difficult time as their modest plant scale does not justify extensive investments in self-provision power generation capacity, and their higher levels of operation make them more vulnerable to uncertainty than larger enterprises.

Rising spatial disparities in energy efficiency within India is a worrying trend (see Ejaz Ghani, A.G. Grover and W.R. Kerr, *Spatial Dynamics Of Electricity Usage In India*, World Bank Policy Research Working Paper No. 7055). Developed states in India have improved energy efficiency. But electricity usage per unit of output is twice the level in lagging states compared to leading states. Whether India's structural and spatial transformation will exacerbate or alleviate energy efficiency is important for issues ranging from reducing power blackouts to stemming rising pollution levels. How developing countries manage industrialization, urbanization and infrastructure investments will have vital environmental implications.
Is energy, labour, or capital a bigger constraint to growth in India? A comparison of energy distortion with distortions in labour, capital and land markets shows that land and building access is a bigger constraint for enterprises than energy access. Land and building costs per unit of output are rising for all sectors of Indian manufacturing. This trend is in sharp contrast to the broad-based declines in energy usage per unit of output. Land and building usage per output unit for the organized sector is two to three times larger than electricity usage per output level, and for the informal sector, land and building usage tends to be 5-10 times larger than electricity usage. This is not to say that India cannot make substantial improvements upon its current energy position.

There remains a huge potential for energy efficiency gains in most industries, ranging from 46-88% in textile industry, to 43-94% in paper and pulp industry, to 51-92% in iron and steel industry. Energy efficiency gain policy will need to go beyond industries and enter our kitchen, buildings and transport. Energy policy will also need to focus much more on rural regions that

are the future drivers of growth. Energy outages are common in rural areas, where unreliable energy supply forces firms to invest in self-generation capacity.

Thanks to a rapidly rising middle class, developing countries have raised their ambitions for a faster and greener growth. The younger population in the developing world compared to an ageing population in the developed world has increased the demand for less polluted kitchens, electric vehicles and energy-efficient technologies. Up to half of global annual emissions could be reduced through more efficient use of energy in kitchens, residential buildings and transport. Improved energy efficiency is a win-win for everybody. Energy-efficiency planning is prevalent globally, but the quality of targets and specifications could be improved. There is a big market potential for scaling up energy efficiency through green mortgage, green bonds, tax incentives, credit lines with banks for energy efficiency activities, and public private partnerships in energy sector investments.

Mains Question

Q: Genetic engineering technology is supplementary and must be need-based. Only in very rare circumstance (less than 1%) may there arise a need for the use of this technology. Do you agree? Critically analyze the benefits and risks associated with GM foods.