

NEWSPAPER HIGHLIGHT

Union Finance Minister Nirmala Sitharaman announced plans to issue sovereign 'green bonds', a concept catching up globally, to move towards carbon neutrality. "As part of the government's overall market borrowings in 2022-23, sovereign 'green bonds' will be issued for mobilising resources for green infrastructure," she said. "The proceeds will be deployed in public sector projects which help in reducing the carbon intensity of the economy."

The Union Budget 2022-23 has proposed to establish the Centre for Processing Accelerated Corporate Exit (CPACE) for speedy winding up of companies. "Several information technology based systems have been established for accelerated registration of new companies. Now the Centre for Processing Accelerated Corporate Exit (CPACE), with process reengineering, will be established to facilitate and speed up the voluntary winding up of these companies from the currently required 2 years to less than 6 months."

The Finance Ministry has proposed to extend the period of incorporation of eligible startups by one more year, that is, up to March 31, 2023, with a view to offering tax incentives to more entrepreneurs in the country. Eligible startups established before March 31, 2022, had been provided a tax incentive for three consecutive years out of 10 years from incorporation. With Tuesday's Budget announcement entrepreneurs starting ventures until the end of March next year will be eligible for tax incentives.

Budget on Tuesday announced rationalisation of customs duties for certain components to facilitate domestic manufacturing of high-growth electronic goods, wearables and electronic smart meters. "Electronic manufacturing has been growing rapidly. Customs duty rates are being calibrated to provide a graded rate structure to facilitate domestic manufacturing of wearable devices, hearable devices and electronic smart meters".

The Union Budget 2022-23 has kept income tax slabs unchanged while allowing tax payers an additional two years to update their returns. Union Finance Minister Nirmala

QUIET DIPLOMACY

1. Speaking at the UN Security Council meeting on Ukraine, India called for quiet diplomacy and the peaceful resolution of the Russia-Ukraine tensions.

2. **Quiet diplomacy is also known as the "softly softly" approach. It is the attempt to influence the behaviour of another state through secret negotiations or by refraining from taking a specific action.**

3. This method is often employed by states that lack alternative means to influence the target government, or that seek to avoid certain outcomes.

MAHATMA GANDHI-OUT OF THE BOX THINKER

1. Mahatma Gandhi was an open-minded soft reader of concepts and categories. So, he saw his place among the weakest and the poorest. His notion of a just and truthful politics was that in such an environment, the weakest should have the same opportunities as the strongest. He was a chief doubter of oppressive systems and a rebel against all forms of hidden and open authority.

2. Gandhi is an example of simplicity and transparency. **His simplicity was reflected in his deeds and acts, but mostly in his mode of life. Gandhi is a perpetual truth seeker.** In fact, he is victorious through his effortful trials. Gandhi was an ambiguous personality, but he never wore a mask. He neither masked himself nor put a mask on the face of Indian history. Rather, he challenged Indian history.

3. Practically, there was moral or spiritual interrogation in all of Gandhi's historical actions. Therefore, he led Indians to a historical and civilisational awareness that went as far as a spiritual conversion to non-violence. The Gandhian maieutic completely reversed the relationship between a leader and his people.

4. **Like Socrates, Gandhi was a midwife of minds (Gandhi was very much influenced by Socrates and his method of thinking). His philosophy was that of a spiritual exercise, accompanied by an active reflection on truth** and a lively awareness of all walks of life. Gandhi believed that the true test of life for the individual can be summarised in two principles: self-discipline and self-restraint.

5. He believed in the interrelated nature of human existence. In the same manner, the self-transformative nature of the citizens interested him into democracy. This process of self-transformation should influence not only the inner life of the individual but also public life. In conclusion, as a global thinker with a transhistorical and transgeographical influence, Gandhi was a moral and political leader who stayed out of the box.

X-PARTICLES IN QUARK-GLUON PLASMA

1. Researchers have found evidence of elusive short-lived "X" particles in the CERN's particle accelerator. In the first millionths of a second after the Big Bang, the universe was a roiling, trillion-degree plasma of quarks and gluons. The quarks and gluons are the elementary particles that briefly glommed together in countless combinations before cooling and settling into more stable configurations to make the neutrons & protons of ordinary matter.

2. Before cooling, a fraction of these quarks and gluons collided randomly to form short-lived 'X' particles, so named for their unknown structures. Today, X particles are extremely rare. But they may be created in particle accelerators through quark coalescence. In quark coalescence, the high-energy collisions can generate similar flashes of quark-gluon plasma.

3. **Tetraquarks - Uncommon Generally, the basic building blocks of matter (neutron and the proton) are made from three tightly bound quarks.** For years, we had thought that for some reason, nature had chosen to produce particles made only from two or three quarks. Only recently have physicists begun to see signs of exotic "tetraquarks" -- particles made from a rare combination of four quarks.

X-PARTICLES

Sitharaman on Tuesday while presenting budget proposals said the government's objective was to further simplify the tax system, promote voluntary compliance by taxpayers, and reduce litigation. She introduced the 'Updated return' option to provide taxpayers an opportunity to 'correct errors' while filing returns or not having reported certain transactions. "I am proposing a new provision permitting taxpayers to file an Updated Return on payment of additional tax. This updated return can be filed within two years from the end of the relevant assessment year," she said.

Finance Minister Nirmala Sitharaman proposed a 30% tax on income from virtual digital assets, such as cryptocurrencies and non-fungible tokens (NFTs).

The government would auction telecom spectrum in 2022, which will facilitate private players to roll out 5G services before March 2023. "Telecommunication in general, and 5G technology in particular, can enable growth and offer job opportunities," the Minister said in her Budget speech.

The Centre, in the Union Budget 2022-23, has slashed the alternate minimum tax rate and surcharge for cooperative societies to provide them a level playing field with companies. Currently, cooperative societies are required to pay Alternate Minimum Tax at the rate of 18.5%. However, companies pay the same at the rate of 15%.

Continuing the push for Make in India in defence, the Government on Tuesday announced additional measures to boost domestic manufacturing and reduce imports, while the total allocation for defence in the Budget has gone up marginally to ₹5.25 lakh crore. This is 4.43% higher than the revised estimates of last year and 9.8% higher over the Budget estimates of last year.

Allocation for the textile sector will see an 8.1% increase in FY23 compared with the revised Budget allocation for FY22. According to the Union Budget presented on Tuesday, of the total allocation of ₹12,382 crore for the textile sector for next financial year.

The Centre is planning to come out with a battery swapping policy with interoperability standards for Electric Vehicles (EVs). Finance Minister Nirmala Sitharaman said that considering space constraints in urban areas for charging stations at scale, a battery swapping policy

1.X particles that were produced in the quark-gluon plasma in the CERN's Large Hadron Collider (LHC), Switzerland are of a type known as X (3872), named for the particle's estimated mass. As the background was overwhelming after the quark-gluon plasma forms and cools down, a machine-learning algorithm was used to pick out decay patterns characteristic of X particles.

2.X (3872) is either a compact tetraquark or an entirely new kind of molecule made from not atoms but two loosely bound mesons. [Mesons are the subatomic particles that are made from two quarks.] Discovery - X (3872) was first discovered in 2003 by the Belle experiment, a particle collider in Japan that smashes together high-energy electrons and positrons.

3.Within this environment, however, the rare particles decayed too quickly for scientists to examine their structure in detail. It has been hypothesized that X (3872) and other exotic particles might be better illuminated in quark-gluon plasma.

4.Significance - **In the next few years they want to use the quark-gluon plasma to probe the X particle's internal structure**, which could change our view of what kind of material the universe should produce.

ADVANCED LIGHT HELICOPTER MK III

1.Tri-Service Andaman & Nicobar Command inducts the indigenous Advanced Light Helicopter MK III. The indigenously designed and developed Advanced Light Helicopter (ALH-DHRUV) is a twin engine, multi-role, multi-mission new generation helicopter in the 5.5 ton weight class. The basic Helicopter produced in skid version and wheeled version of the aircraft is manufactured by Hindustan Aeronautics Limited.

2.The major variants of Dhruv are classified as Dhruv Mk-I, Mk-II, Mk-III & Mk-IV. Amongst its variants, the MK III variant is a maritime role variant encompassing state-of-the-art sensors and weapons that add punch to India's prowess at sea. The ALH MK III aircraft with its glass cockpit, Shakti engines, advanced Maritime Patrol Radar, Electro-optical payload and Night Vision Device will act as a force multiplier in keeping India's territories safe.

3.The state-of-the-art aircraft has multirole capabilities including maritime surveillance, support for Special Forces, medical evacuations besides search and rescue roles.

DNA REPLICATION LICENSING

1.A new study has revealed for the first time the dynamics of an important process called the 'DNA Replication Licensing'. These findings may help explain why certain portions of the genome are relatively susceptible to DNA damage during replication in some cancer cells. Cells use the 'DNA Replication Licensing' or 'origin licensing' process to regulate, or license the replication of their genomes during cell division.

2.**The DNA replication licensing system ensures that chromosomal DNA is replicated precisely once before cell division occurs.** Location - Origin licensing occurs in the initial, preparatory phase of cell replication, known as the G1 phase. Licensing takes place several hours before origins are activated to undergo replication in S-phase. Process - Licensing involves sets of special enzymes that attach to the DNA in chromosomes at various locations where DNA-copying is to originate.

3.The enzymes essentially license the copying of DNA so that cells don't copy their genomes more than once. The new study has shown in particular how the dynamics of the process differ in the two basic states of genomic DNA, Euchromatin state - Relatively loose and open DNA for gene activity, and Heterochromatin state - DNA wound more tightly to silence gene activity.

4.Findings - **Heterochromatin DNA loads the above mentioned licensing enzymes relatively late compared to what we observe in the euchromatin.** This finding hinted that in dividing cells with an abnormally shortened G1 phase, heterochromatin might never be fully licensed for replication. This could potentially result in large mutations during replication and even cell death.

5.Cells can have a shortened G1 phase for different reasons, including due to cancer. So the study suggests that the "genomic instability" or tendency to develop more mutations of some cancer types, and the genomic locations of that instability, might be explained in part by faulty origin licensing.

WHAT IS A BOMB CYCLONE

1."Bombogenesis is the technical term. 'Bomb cyclone' is a

will be brought out and interoperability standards will be formulated. The private sector will be encouraged to develop sustainable and innovative business models for 'Battery or Energy as a Service'. This will improve efficiency in the EV ecosystem, she said.

The Union Budget for 2022-23 has announced several measures for the micro, small and medium enterprises (MSMEs) sector that included extension of the Emergency Credit Line Guarantee Scheme (ECLGS) till March 2023.

The Budget has allocated funds for projects related to Afghanistan. The Ministry of External Affairs will have ₹200 crore to spend on Afghanistan.

shortened version of it, better for social media." It is a mid-latitude cyclone that intensifies rapidly. It has low pressure at its center, weather fronts and an array of associated weather, from blizzards to severe thunderstorms to heavy precipitation.

2. Generally, a bomb cyclone happens when atmospheric pressure in the middle of the storm drops at least 24 millibars over 24 hours, quickly increasing in intensity. The lower the pressure, the stronger the storm.

