



CURRENT AFFAIRS
SEPTEMBER 2017

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1. NATIONAL AND INTERNATIONAL IMPORTANT ISSUES

1.1 ECONOMIC DEVELOPMENT

1.1.1 India- U.S. boosts trade ties:

The U.S.-India Business Council (USIBC) plans 'state engagement task force' to help align business interests

Objectives:

India and the U.S. are working on establishing a state-level engagement mechanism to widen and deepen bilateral trade and investment ties.

- To carry out a comprehensive review of bilateral trade ties

Priority sectors: Defense Sector, Energy Sector

Other Sectors: Infrastructure development, Job-creating activities

Engagement channels:

1. The comprehensive review of trade ties
2. Trade policy forum
3. The bilateral commercial dialogue
4. The Global Entrepreneurship Summit

1.1.2 India-EFTA pact

Free Trade Agreement (FTA) between India and European Free Trade Association (EFTA) as well as an investment protection framework would boost economic ties between the two sides

EFTA members: Switzerland, Iceland, Norway and Liechtenstein

Focus areas:

Intellectual property rights (IPR), Data security issues

Key facts:

- The proposed agreement covers trade in goods and services, investments, trade facilitation, Customs cooperation, protection of intellectual property and public procurement.
- Under an FTA, trading partners give market access to each other with a view to promoting bilateral trade in goods and services, besides investments.
- India is negotiating similar pacts with several other countries, including Australia, New Zealand, Israel and Canada.
- It has implemented FTAs with Singapore, South Korea, Japan and ASEAN, among others.

1.1.3 Subsuming of environment related cesses under GST

Background:

The Goods and Services Tax subsumed a variety of existing Central and State levies. Among them were three environment-related cesses: the high-profile Swachh Bharat Cess and Clean Energy Cess levied on all taxable services since 2015 and on coal since 2010, and the historical Water Cess chargeable since 1977 on water consumption by industry and local authorities.

What are the subsumed cesses?

GST subsumed several central & state cesses levies under it. Environment cesses subsumed- Water Cess, Clean Energy Cess and Swachh Bharat Cess.

- **Water Cess** was levied on water consumption by industry and local authorities. It was used to augment the resources of the Central and State pollution control boards to address water pollution.
- **Clean Energy Cess**, a kind of carbon tax was levied on coal produced in India or imported coal at the rate of Rs. 400/tonne in 2016, to finance clean environment initiatives.
- **Swachh Bharat Cess** was levied on all taxable services, to be used for financing Swachh Bharat initiative.

Issues in subsuming the cesses:

- The water cess is the second most important source of revenue for State pollution control boards after consent fees.
- The loss of this revenue will be a huge setback for boards which already suffer from poor technical capacity and autonomy.
- The channelling of money through State budgets will make the boards even more vulnerable to the discretion of State governments, which have a dismal track record of empowering the pollution watchdogs.

1.1.4 Services talks at RCEP (Regional Comprehensive Economic Partnership)

- India will raise concerns regarding the 'slow' pace of negotiations on services trade liberalization at RCEP ministerial-level meeting
- Opposed to 'higher priority' being accorded to commitments to open up goods trade in the region at the proposed Free Trade Agreement (FTA) involving 16 Asia-Pacific nations.

Members of RCEP:

- The 10-ASEAN countries (Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) and
- Six Free Trade Agreements (FTAs) partners, viz. Australia, New Zealand, Japan, China, Korea and India.

India's concerns:

- Other RCEP nations seem to be focused more on “extracting as much (binding commitments) as possible on eliminating tariffs to open up goods trade
- India wants sticking to the RCEP ‘Guiding Principles and Objectives’

1.1.5 Insolvency and Bankruptcy code

Supreme Court has reiterated support to new bankruptcy code. Instructed lower courts to take this into consideration.

Key points

- Central law overrides the confusing maze of state laws that companies could use in the future to avoid insolvency.
- Facilitate resolving exit problem - Chakravyuha in India.
- Helps in reallocation of resources to those can put them in better use.
- The threat of loss of management control should also be a signal to management groups—especially the politically influential ones—that they cannot take creditors for granted

1.1.6 Panel to suggest on new jobs

New task force led by NITI Aayog vice-chairman Rajiv Kumar to recommend measures to increase employment by promoting labour-intensive exports.

Key strategy

- Expansion of organised and large enterprises
- Labour intensive sectors - apparel and construction should be promoted.
- New skill sets must be given to labour force entering market to adopt to automation challenge.

1.1.7 The Financial Resolution and Deposit Insurance Bill, 2017**Objectives of the Bill:**

- The Bill seeks to provide for the resolution of certain categories of financial service providers in distress.

- The deposit insurance to consumers of certain categories of financial services.
- Designation of systemically important financial institutions.
- Establishment of a Resolution Corporation for protection of consumers of specified service providers
- Public funds for ensuring the stability and resilience of the financial system and for matters connected therewith or incidental thereto.

1.1.8 Guarantee Fund for Startups

- The government will use the fund to stand guarantee for loans given to startups.
- A credit guarantee fund for budding entrepreneurs managed by Department of Industrial Policy and Promotion.

Aim:

- The idea behind the fund was to leverage the institutional credit structure to reach out to underserved sectors, including SC/ST and women entrepreneurs

1.1.9 Double Farmer's Income by 2022

The Agriculture Ministry is working to achieve the target of Doubling Farmers Income by 2022.

Seven-point Strategy:

Increase in production, Effective use of input cost, Reduction of post-harvest losses, Value Addition, Reforms in Agriculture Marketing, Risk, Security and Assistance, Allied Activities

1.1.10 Stricter Rules for Credit Rating Agencies

The Securities and Exchange Board of India (Sebi) has proposed a slew of stricter measures for credit rating agencies.

What SEBI Wants?

- Minimum net worth should be `50 crore to be eligible for registration as a rating agency
- A credit rating agency cannot hold more than 10% stake, voting rights in another rating agency
- Financial results disclosure requirements for issuers of listed debt should be brought in line with that of listed equity
- Activities besides rating of financial instruments, economic/financial research should be hived off to a separate entity

1.1.11 Crop Insurance Scheme Set for Revamp

The government's farm insurance scheme is in for a revamp just about one year after launch by lowering the average premium and widening the scope of cover to include losses due to natural disasters.

1.1.12 NPAs: challenge is to avoid delays

- The central bank has asked banks to file bankruptcy cases with the National Companies Law Tribunal (NCLT) within June 30.
- The RBI had also advised banks to make higher provisions for these accounts to be referred to the Tribunal under the Insolvency and Bankruptcy Code (IBC).
- The move was intended to improve bank provision coverage ratios and
- To ensure that banks are fully protected against likely losses in the resolution process.

The NCLT was constituted on June 1, 2016 with 10 benches and one principal bench. A plea for insolvency is submitted to the adjudicating authority (NCLT in case of corporate debtors) by financial or operation creditors.

1.1.13 Model law on contract farming

Centre to come out with draft model law on contract farming. The final model Act will serve as a guide for states to bring required legislation on contract farming.

- Contract farming is a system in which agro-processing/exporting or trading units enter into a contract with farmers to purchase a specified quantity of any agricultural commodity at a pre-agreed price
- Integration of fruits and vegetable growers with agro-processing units will help farmers not only in getting better price for their produce but also in reducing post-harvest losses.

1.1.14 Breaking the network of shell companies

The Ministry of Corporate Affairs (MoCA) has identified 1.06 lakh directors of 'shell companies' for disqualification under the relevant provisions of the Companies Act, 2013

Benefits:

- Fights against black money and money laundering as many shell companies are used for tax avoidance and money laundering
- Helps to create a faith and confidence in system paving the way for ease of doing business.

1.1.15 Bilateral Investment Treaty dispute management strategy.

The government had mandated a high-level committee chaired by Justice B.N. Sri Krishna to focus on arbitrations involving the Union of India, and specifically bilateral investment treaties (BIT) arbitrations.

Recommendations:

- Creation of the post of an international law adviser (ILA) with the rank of additional solicitor general
- Creation of a five-member permanent inter-ministerial committee (IMC)
- The designation of the Department of Economic Affairs (DEA) as the nodal agency for receiving correspondences in existing BITs
- The government must establish a clear channel of communication for investors with grievances by notifying a nodal agency and a single point of contact

1.1.16 Workers to get unique numbers in Unorganised sector

- Every worker in the unorganised and organised sector will get a unique identification number
- It will make it easier for them to get benefits under different social schemes.

Challenge:

- It is difficult to allot ID to unorganized workers since there is no information about how many labours exist in unorganised sector exactly.

Measure taken:

- Labour ministry was working towards compressing 44 labour laws into four codes – one each for wages, industrial relations, social security, and one for occupational safety, health, and working conditions.

1.1.17 Cryptocurrencies

The Reserve Bank is uncomfortable with “non-fiat” cryptocurrencies like Bitcoin.

Fiat cryptocurrency:

- The fiat cryptocurrency was a digital currency which would be issued by the Reserve Bank of India (RBI) in place of the physical one at present.

Non Fiat cryptocurrency - Bitcoin :

A type of digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank.

Potential adverse effects of Bitcoins:

- Bitcoins provide terrorists an alternative way of buying arms and weapons
- Can be used for money laundering.
- Cases of botnets engaged in covert mining of bitcoins were detected.
- Not regulated by Central banks

1.1.18 Japan teams up with India for Northeast**Historic connection**

- Japan has a historic connection to the Northeast and cooperated with a variety of development projects
- Ranging from connectivity infrastructure such as roads and electricity, water supply and sewage, to forest resource management and biodiversity.

Enhance connectivity

- Japan will extend a loan to various infrastructure projects in Northeast region.
- This is part of Indo-Japan corridor conceived last year for the Indo-Pacific region
- It also extends to Eastern Africa under Asia Africa Growth Corridor, an initiative that would provide an alternative to OBOR.
- The two countries have decided to seek synergy between India's 'Act East' Policy and Japan's 'Expanded Partnership for Quality Infrastructure'

1.1.19 India likely to be 3rd largest economy by 2028: HSBC Report

- India is likely to overtake Japan and Germany to become the third largest economy in the next 10 years
- but needs to be consistent in reforms and focus more on the social sector,

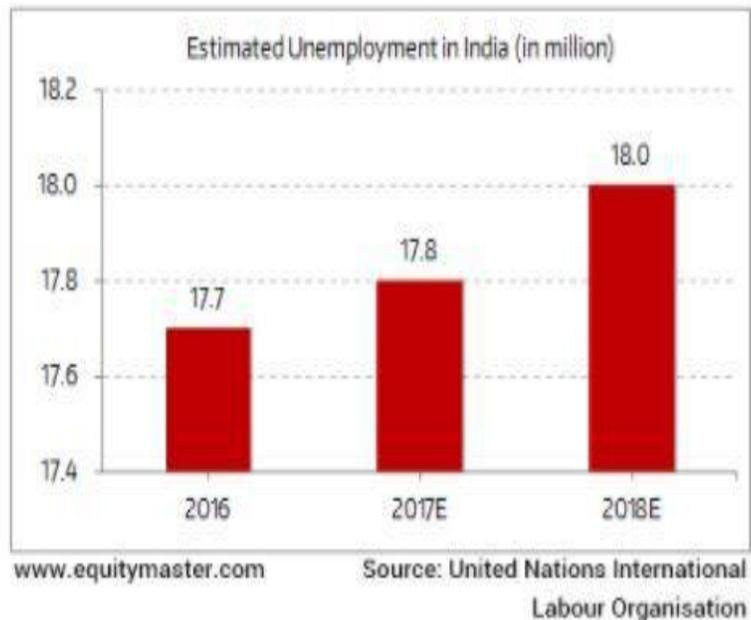
Focus areas:

- Social capital is "insufficient" in the country
- Spending on aspects like health and education "is not just desirable for its own sake, but is also central to economic growth and political stability".
- India also needs a lot of focus on ease of doing business and related aspects like contract enforcements.

1.1.20 The missing jobs

Current scenario in India

- Not even a tenth of the 30.67 lakh youth who had received or were undergoing training under the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) as on early-July have obtained job placement offers
- Today's crisis is not one of employability, but of investment and economic activity leading to shrinking job opportunities.



Focus on descent education

- The government's focus should be on providing decent education.
- Ensuring minimum standards in schools, colleges, polytechnics and industrial training institutes (ITI).
- This is not to say that formal skilling — currently restricted to hardly three per cent of India's workforce — isn't important.
- The government would do a great job by just concentrating on basic education, labor reforms and improving the ease of doing business.

1.1.21 Globalization is not ending, it's changing

Globalization isn't ending, it's changing. What we are witnessing is the emergence of a new global economy, an economy without borders propelled by digital rocket boosters.

Protectionism and nationalism on rise

- Economic nationalism (and protectionism) is growing.
- WTO data indicates that India and the US rank among the countries with the most number of trade restrictive measures in recent years.

Set in motion by various digital technologies

- Companies that have learnt to thrive in this increasingly connected world have built large global businesses at astonishing speeds.

- Netflix launched its streaming service in 2010, and has expanded to more than 190 countries in less than seven years.
- Pokémon Go was being played in over 125 countries and generated nearly \$1 billion in revenue just six months after its launch.
- Dominant role of the multilateral financial institutions that traditionally have provided global capital appears to be receding.

While this is taking place, the global market has been expanding in ways never before imagined.

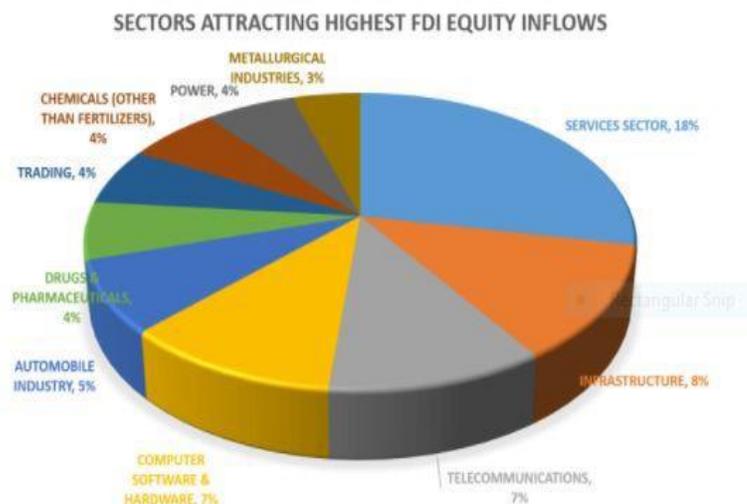
1.1.22 Is FDI the new engine of growth?

India is now ranked amongst top 3 FDI destinations (World Investment Report 2016, Unctad) and ninth in the FDI Confidence Index in 2016

What did the FDI inflow do for the economy?

- In principle, FDI—as against foreign portfolio investment which flows into the secondary capital market—brings in long-term fixed investments, technology and managerial expertise, together with foreign firms' managerial control.
- In practice, however, this may be different. Currently, FDI does not come from leading global producers of goods and services, but from shadow banking entities such as private equity (PE) funds.
- PE firms do not commit to fresh capital formation or invest in technology, as expected of FDI.
- This is why despite rising FDI inflows, domestic capital formation rate, or industrial capacity utilization, have declined secularly.
- There is a need to re-examine recent FDI's true contribution.

If the proposed industrial policy is serious about realizing the vision of Make In India, it needs to look elsewhere, not at FDI.



1.1.23 Intellectual Property Rights in India

Background

- When the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) embodied an international regulatory regime many nations, which have since then promoted excessive protection of private investor interests through bilateral trade agreements, often at the expense of wider public interests.
- To pursue bilateral agreements with individual countries one by one to ensure stronger IP protection across markets, by sidestepping the multilateral regime.

Gaming the system

- A large IP portfolio, engages in extensive litigation on patent issues, and thrives on licensing revenues.
- A large number of countries have already foregone many degrees of policy freedom by signing up to 'TRIPS-Plus' standards of protection.
- Profits neatly split up between large corporations and new kinds of non-innovator firms that simply amass patents speculatively in upcoming, promising technologies for spurious returns.

Challenge for India

- Supporting IP standards that simply follow a 'winner takes all' ideology without emphasis on technological advancement and competitive markets will be a regrettable mistake.

1.1.24 Questions about the GST cess

As part of the Goods and Services Tax (GST) reforms, a new levy called the GST Compensation Cess has been introduced to make good apprehended losses to States in the first five years of GST implementation.

Cess purpose:

- A cess is a levy for a specific purpose.
- Under Article 270 of the Constitution, a cess tax has special privilege as the proceeds can be retained exclusively by the Union and need not be shared with States.

Dilution of characteristics:

- Once the money is transferred to State governments, it can be used to fund just about any scheme and may even be used merely to adjust the respective State government's fiscal deficit.

- There is no relation between the persons contributing to the cess and the recipients, the State governments.
- There is no provision in the Amendment Act for an additional tax to compensate the States for apprehended losses from GST implementation.

1.1.25 Centre unveils sops to boost goods exports

The commerce ministry extended support to certain new products and enhanced the rate of incentives for some other under the reward programme called Merchandise Exports from India Scheme (MEIS).

Highlights of the scheme:

- The support includes addition of 2901 products in the scheme.
- The products that will get incentives also include engineering goods, fabrics, garments, chemicals etc.

1.1.26 Masala Bonds Move Out of Corp Bond Investment Cap

The Reserve Bank of India has removed masala bonds, or rupee-denominated debt securities sold abroad, from the corporate bond investment limit that remains almost full amid strong overseas investor interest.

- The move will release additional space for yield-hungry foreign portfolio investors (FPI), who can now invest up to another 44,000 crore in domestic debt securities of companies like Housing Development Finance Corporation and NTPC.
- Bringing masala bonds under the ECB framework will ensure better monitoring framework, especially on sources and the purpose of investment.
- The revised limit is expected to result in higher FPI flows and a likely compression in corporate bond spreads

1.1.27 Private players may run rail lines

The Union government is open to the idea of giving operations of railway lines to private players for enhancing competition.

1.1.28 Graded Surveillance Measure by SEBI

The BSE (Bombay Stock Exchange) website mentions a list of more than 900 companies that are monitored under the Graded Surveillance Measure, designed by market regulator Securities and Exchange Board of India (SEBI).

Graded Surveillance Measure

- SEBI introduced the measure to keep a tab on securities that witness an abnormal price rise that is not commensurate with financial health and fundamentals of the company.
- To alert and protect investors trading in a security (tradable financial asset), which is seeing abnormal price movements.
- SEBI may put shares of companies under the measure for suspected price rigging or under the ambit of “shell companies”

1.1.29 Agricultural export promotion policy

This would provide a much needed boost to Indian farmers’ incomes. Farm exports will also earn valuable foreign exchange.

Challenges

- Trade surplus in agriculture has declined significantly in the last three years
- A report by the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization on the agricultural outlook, released in July this year, expects a flat to declining trend for primary commodity prices. The situation is particularly dismal

AVERAGE ANNUAL REAL PRICE CHANGE FOR AGRICULTURAL COMMODITIES, 2017-26 (in %)



Source: OECD/FAO (2017), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>, StateLink <http://dx.doi.org/10.1787/888933521522>

Graphic by Subrata Jana/Mint

for cotton, sugar and rice, which are major components of India's agricultural export basket.

- Putting export restrictions on important food items to prevent inflationary pressures in the domestic economy.
- Cold storage capacity in India is disproportionately spread across states with respect to horticulture production
- The government needs to put in money to push infrastructure if exports have to be increased
- Pulses alone made up for close to 17% of the value of India's total imports of agriculture and allied products in 2016-17.

1.2 SOCIAL DEVELOPMENT

1.2.1 Greater Social Justice

Centre having decided to set up a panel to examine the sub-categorization of Other Backward Castes (OBC)

Aims:

- Improving the representation of OBCs in educational institutions and jobs
- Ensuring that the more under-privileged among them are not denied chances of social mobility.

Measures taken:

- The Union Cabinet has also approved an increase in the income criterion of `6 lakh per annum to `8 lakh for excluding the 'creamy layer' from the purview of OBC reservations
- The government has introduced a bill in Parliament to provide Constitutional status to the National Commission for Backward Classes.

1.2.2 India at 103 rank on Global Human Capital Index

The Global Human Capital Index for the year 2017 has been released by WEF.

Performance of India:

- India has been placed at a low 103 rank, the lowest among BRICS economies.

- India is held back by a number of factors, including low educational attainment and low deployment of its human capital, meaning the skills available are not getting put to good use.

1.2.3 Liberalization impact on gender discrimination

Conventional wisdom would suggest that gender discrimination should have declined in India; However evidence suggests that India's economic liberalization has not reduced gender discrimination.

Work status of women:

- The concentration of female entrepreneurs in low-wage industries has grown over time.
- Female ownership shares are 2% or less in industries related to computers, motor vehicles, fabricated metal products, and machinery and equipment.
- Female ownership shares exceed 30% in industries related to sanitation and education.

Steps to be taken:

- Elimination of gender discrimination in access to bank loans, and increased voice and political representation.
- Simply put, empowering half of the potential workforce has significant economic benefits beyond promoting gender equality.

1.2.4 Poverty status in India

India extricated 120 million people from extreme poverty between 1990 and 2013. However, this process was relatively slow.

Reasons:

- State-sponsored anti-poverty and social protection schemes
- Conditional Cash Transfers (CCTs) etc.

Way forward

- Need good social infrastructure to provide quality education, health and nutrition, across the board.
- The objective is to alleviate current poverty while simultaneously seeking to break the intergenerational transmission of poverty by encouraging investment in the human capital of poor children.

1.2.5 Call to wipe out modern slavery

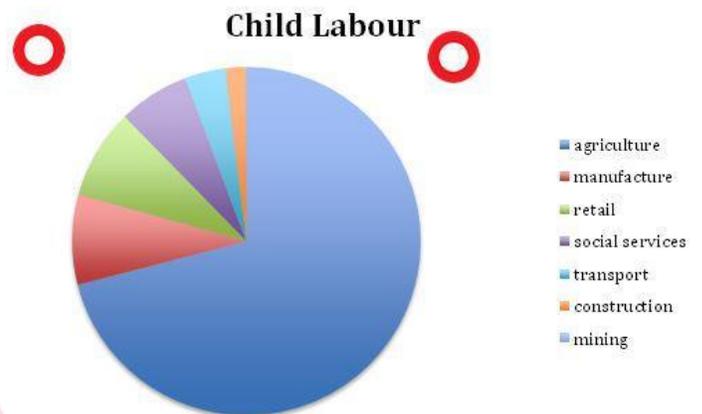
Who come under Modern slavery?

Bonded laborers, contract workers, domestic workers, intra- and inter-state as well as international migrant workers, and sex workers.

- International Labor Organization (ILO) released new global estimates of modern slavery.

SDG(sustainable development goals) 8.7

- The SDG 8.7 calls for “immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking,
- Secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers by 2025.
- This can be achieved by increased inspections and better resources for the labor inspectorate



1.2.6 Drug-resistant infections are a 'global health emergency': WHO

Resistance to antibiotic drugs is a "global health emergency" that threatens the progress made by modern medicine.

Report details

- Lack of new treatments being developed to combat antibiotic-resistant infections, such as tuberculosis which kills around 250,000 people each year.
- The report also identified 12 classes of deadly bacteria, such as those that cause pneumonia or urinary tract infections, which are increasingly resistant to existing antibiotics and urgently in need of new treatments.
- Pharmaceutical companies and researchers must urgently focus on new antibiotics against certain types of extremely serious infections that can kill patients in a matter of days.

1.2.7 Ujjwala -plus

The package, to be called ‘Ujjwala Plus’, will allow good samaritans corporates included to donate cooking gas connections for poor households.

- Donors will get relief under Section 80G of tax norms.

Ujjwala to Ujjwala plus

- Under Ujjwala, state-run fuel retailers provide free connections to poor households with support from the government.
- The 'plus' scheme thus takes Ujjwala to the next level by giving a government welfare scheme the visage of a people's movement.

LPG Panchayat

LPG Panchayat will rope in women working at local self-government bodies or in mass-based schemes such as Anganwadi and Choupals to create mass awareness about safety, affordability and health benefits of using LPG as a cooking fuel.

1.2.8 Economics of Social Business

Low-income people in the world's richest nations were suffering from the same problems the poor faced in poorer nations:

- Lack of institutional services, health care, inadequate education, substandard housing, and so forth.

Economics of social business

- Elimination of poverty, unemployment, and environmental degradation etc comes under this
- Social business offers advantages that are available neither to profit-maximising companies nor to traditional charities
- The economics of social business can be simple and sustainable
- Health care, education, marketing, financial services, and many other economic arenas can be revolutionised through the combined power of social business and technology.

1.2.9 'Saubhagya'

The Prime Minister Shri Narendra Modi has launched a new scheme Pradhan Mantri Sahaj Bijli Har Ghar Yojana –“Saubhagya”.

Highlights of the scheme:

- To ensure electrification of all willing households in the country in rural as well as urban areas
- The States and Union Territories are required to complete the works of household electrification by the 31st of December 2018

Beneficiaries:

- The beneficiaries for free electricity connections would be identified using Socio Economic and Caste Census (SECC) 2011 data

- Un-electrified households not covered under the SECC data would also be provided electricity connections under the scheme on payment of Rs. 500 which shall be recovered by DISCOMs in 10 installments through electricity bill.

1.2.10 Bharat ke Kaushalzaade

Rural Skills Division, Ministry of Rural Development has organized 'Bharat ke Kaushalzaade', an event honouring beneficiaries of its key skilling programmes, on the eve of Antyodaya Diwas 2017.

'Kaushal Panjee':

The event also witnessed the mobilization platform launch, branded 'Kaushal Panjee' (Skill Register).

- It aims to be citizen centric end-to-end solution to aid mobilization of candidates for RSETIs (Rural Self Employment Training Institutes) and DDU-GKY (Deen Dayal Upadhyaya Grameen Kaushalya Yojana)
- It facilitates mobilization of candidates through Self Help Group members, Gram Panchayat Functionaries, Block Officials, CSCs and directly by the candidate.
- Kaushal Panjee is connected to the Socio Economic Caste Census (SECC 2011).

1.2.11 Jan Sampark programme

The Central Adoption Resource Authority (CARA) of the Ministry of Women & Child Development has started a monthly "Jan Sampark" program.

- It is to enable the public to have interaction with its officials and staff for seeking information related to Adoption as well as flagging their concerns.
- The event will now be a regular feature every month apart from the quarterly Facebook live chat by CEO CARA.

1.2.12 Clean India Mission prioritises behavioural change

Universal sanitation is at the core of India's development agenda. As the Swachh Bharat Mission (SBM) completes three years, five states, nearly 200 districts and nearly 2.4 lakh villages across the country have declared themselves open defecation free (ODF).

Importance of Sanitation

- Every rupee invested in improving sanitation leads to a saving of Rs 4.30, shows a recent independent study by UNICEF.
- Insanitation affects children leading to many deaths due to diarrhoeal diseases.

Challenges

- A major challenge facing the government is to bring about behavioural change in people's mindsets, especially among rural masses.
- To strengthen and take the mission forward, the Centre, has launched a campaign "Swachhta hi Seva" (cleanliness is service), executing a series of activities - such as cleaning toilets, bus stands, movie halls, railways stations, public halls and more.

1.2.13 'PENCIL' Portal On Child Labour Elimination

The government has launched a web portal called 'PENCIL' for effective implementation of the National Child Labour Project, (NCLP).

About PENCIL portal:

- PENCIL (Platform for Effective Enforcement for No Child Labour) — an electronic platform for no child labour in the country is being developed by the Labour Ministry.
- PENCIL portal has five components — Child Tracking System, Complaint Corner, State Government, National Child Labour Project and Convergence.

1.3 INDUSTRIAL DEVELOPMENT

1.3.1 Effect of GST on Business

GST reform is

- to catalyze conformity in every part of the business chain
- To expand the tax base in a transparent and efficient manner.

GST tax reforms will have the most far-reaching ramifications in logistics sector

Supply chain efficiency:

- Measured using the ratio - 'logistics costs as a percentage of national GDP.'
- This percentage for India is as high as 14% compared with 8% in developed nations.

Impact of GST on Supply Chain:

- Interstate movement of goods has become easier with reduced procedures and restrictions at state borders

- Dismantling of check posts at state borders have reduced transit times
- Presently the forms run on legacy supply chain models designed for optimising tax payouts, now they can opt for other models

1.3.2 Banks Consolidation

At the bankers' retreat, known as Gyan Sangam, the idea of consolidation was first floated.

Need for consolidation:

- Large-sized banks to fund the huge infrastructure requirements of the country
- To Compete with global lenders

Opportunities for Consolidation:

- The present asset quality crisis.
- Many banks are not in a position to raise equity from the market. Shares of most of them trade at a discount to their book value.
- Investor appetite for PSU bank shares has been typically low
- Banks would also need capital for complying with Basel-III norms
- Supporting business growth

How does it work?

- A framework had been conceived in which a bank's board would first clear the decision to merge and then send the proposal to the 'Alternative Mechanism' for its in-principle approval
- After the in-principle approval comes through, the bank will take steps in accordance with law and SEBI's requirements
- The final scheme will be notified by the government in consultation with the Reserve Bank of India (RBI).

1.3.3 A troubling snapshot of Indian manufacturing

A NITI Aayog and IDFC Institute's 'Ease of Doing Business' report sharply delineates the manufacturing sector's problems.

Major findings of the report:

1. Economic Performance and Reforms

- A higher level of economic activity in state sees a better performance on a range of doing business indicators
- Firms located in high-growth states also report 25% less power shortages, compared to firms in low-growth states

2. Improvements over time

- Newer and younger firms report a more favorable business environment
- Newer firms include startups established after 2014

3. Informational gaps:

- The survey data show low awareness among enterprises of the steps being undertaken by states to improve ease of doing business

4. Labor regulations are a bigger constraint for labor intensive firms

- Many complain that finding a skilled and a contract worker is still a problem.
- Lose a greater number of days due to strikes and lockouts.

5. Barriers to firm growth

- The experience of firms with fewer employees is different from that of larger firms
- Firms with more than 100 employees took significantly longer to get necessary approvals than smaller firms with less than 10 employees.

1.3.4 Railway tracks over utilization

Key findings

- The recent accident near Khatauli station U.P, is a reminder of the dangers of the excessive over-utilization of the lines.
- According to the latest data, utilization exceeds the capacity of 65 per cent of busy routes
- Indian Railways kept deferring the last mile works that are needed to unlock the full potential of an upgraded network.

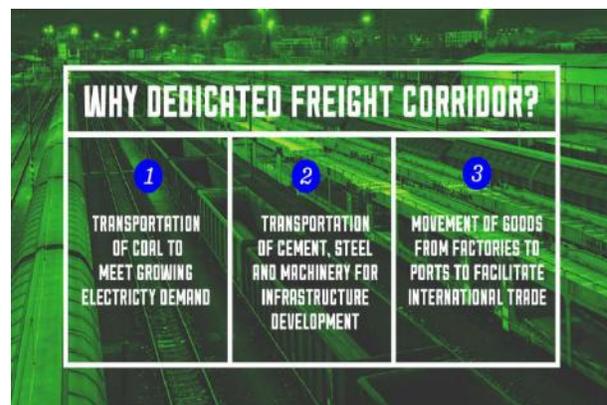
Recent Developments

Indian Railways will undertake its largest track renewal exercise in the next three months to reduce train derailments

- Old tracks and those heavy traffic to be changed within deadline
- Target to renew nearly 2000 KM of tracks by December

Dedicated Freight Corridors (DFCs)

- DFCs are 'freight-only' corridors which will make it cheaper, faster, and more reliable to move goods between industrial heartlands in the North and ports on the Eastern and Western coasts.
- Two are already built, three more to come in the future.



1.3.5 Car makers seek to electrify e-vehicle plan

The aim:

- Make India the world leader in at least some segments of the market
- The country strives to shift entirely to battery-powered transportation by 2030

Highlights:

- EESL has invited global bids for 10,000 e-sedans and 4,000 charging points
- LED-LIKE revolution in e-vehicles market

1.3.6 Ultra-luxury Anubhuti coaches for Shatabdi trains

- Anubhuti', an ambitious initiative by the railways to target the fast-growing affluent class by offering comforts and amenities
- The railways plan to attach an Anubhuti coach on select routes of the Shatabdi and the Rajdhani

1.3.7 Making Tracks towards China:

- India's rail counter to China's border game is likely to be ready in a few years' time
- The Railways is undertaking final location surveys for four strategic railway lines near the India-China border.

Proposed routes:

1. Bilaspur (HP)-Manali (HP)-Leh (J&K)
2. Missamari (Assam)-Tenga (Arunachal Pradesh)-Tawang (Arunachal)
3. Pasighat (Arunachal)-Tezu (Arunachal)-Rupai (Assam)
4. North Lakhimpur (Assam)-Bame (in Along, Arunachal)-Silapathar (Assam)

The Challenges:

- The proposed railway line is expected to cross some high passes
- There can be no work on the ground during the five winter months
- The proposed line falls in Seismic Zones 4 and 5
- Some of the passes are avalanche-prone
- Hot springs in Manikaran in Himachal Pradesh provide a natural challenge to the proposed alignment

1.3.8 Bullet train Project:

Prime Ministers Narendra Modi and Shinzo Abe laid the foundation stone of the Mumbai-Ahmedabad High Speed Rail (MAHSR) project.

About the Project:

- Total length of corridor – 508 kms

- Maximum design speed of 350 kmph and operating speed of 320 kmph
- Total Project cost is estimated to be ₹ 97,636 crore
- 81% of the project cost funded by Government of Japan loan for 50 years at 0.1% per annual interest with 15 years moratorium periods.
- State Governments of Maharashtra and Gujarat have been requested to participate in the equity of the SPV



1.3.9 Water Highways:

As acquisition of land for national and State highways becomes scarce and the cost of construction of roads, flyovers and bridges goes up, the government is now exploring using water as a means of public transportation.

Waterways development:

- With the enactment of the National Waterways Act, 2016, the total number of national waterways is now 111.
- Providing infrastructure such as jetties, terminals, and navigational channels continues to pose a challenge.
- Sustainable source to fund waterways is essential.

1.3.10 Rules for Gyroplanes

Government coming out with a draft policy to regulate the operations of gyroplanes.

What is gyroplane?

- Aircraft that combine the features of an aeroplane and a helicopter and are popular among the rich and famous in Europe and the United States.
- In India, gyroplanes are set to debut as a mode of personal transport rather than an air taxi.
- It can travel up to 600 km on a single tankful of petrol.

Restrictions

- Not be allowed to fly at night
- Carry a passenger or property for compensation or hire,
- Fly higher than 2,000 feet above ground level or enter controlled airspace without a valid radiotelephony operator's license.
- Pilots will need a license and a certificate of airworthiness.

- However, gyroplanes will not be allowed to operate when flight or surface visibility falls below 5,000 meters.

1.3.11 Maersk Line India aims to expand supply chain

The India unit of Maersk Line, the world's largest container shipping company, is expanding its cargo-shipping role in the country to establish itself as a provider of end-to-end supply chain solutions that would include doorstep delivery.

Comprehensive approach

- Instead of just doing a port to port business, Maersk is going the extra mile in delivering to inland container depots or even the customer's premises.
- Next step would be more regions in more corridors in India. In June, it introduced a direct, time-guaranteed rail route between India's Visakhapatnam port and the Birgunj Inland Container Depot in Nepal.

1.3.12 New Electronic policy

In order to strengthen the ongoing momentum in domestic production of electronic goods, the government is looking at drafting a new electronics manufacturing policy

Background:

- The government had first unveiled an Electronics Manufacturing Policy in the year 2012
- Included schemes such as M-SIPS, electronic clusters, electronic development fund.

New policy focus:

- The new policy will also relook at the incentives which are offered by the government under the existing policy which expires next year.
- Upcoming area is manufacturing of medical electronics.
- The new electronics policy will also help in realising the Modi government's goal of 'Net Zero imports' in electronics by 2020.

1.3.13 Internshala launches 'India Employed'

Goals

- Internship and online training platform Internshala has rolled out an initiative 'India Employed' to help graduates build their career.
- Aiming to tackle the problems of unemployability and skill gap.
- While the government of India has identified skill building as a top national priority, pledge to help graduates through the platform can play a pivotal role in solving this and make a real impact

1.3.14 Maharashtra plans to set up 9 textile parks

With an aim to supplement farmers' income through value-added products, the Maharashtra government is planning to set up nine textile parks in the northern cotton-growing regions of the state.

Value addition:

- The example of the textile park at Amravati, which has over 30 units operational, helping many small and medium industries to flourish.
- Value addition -- from produce to fibre to fabric to fashion -- will help farmers get a good price for cotton.

1.3.15 Panel to review industrial policy hurdles

The Centre will soon set up a 'regulatory review committee' to address policy-related roadblocks and other factors inhibiting the country's industrial growth as well as impacting the 'ease of doing business' and private investments.

Fast tracking the process

- The idea is to fast-track decisions on such proposals, in coordination with State governments and the Centre's investment facilitation and promotion arm, 'Invest India'.
- New mechanism to monitor domestic and foreign investment proposals.

1.3.16 Sustainable Tourism

2017 is International year of sustainable tourism. The motto of the 2017 World Tourism Day is the respect nature, culture and respects the host.

Status

- The arrival of foreign tourists into India has increased from the last year
- The major factor for increase in arrival of foreign tourist is the policy of introduction of online visa facility that has been extended to more than 180 countries
- The launching of e-ticketing of historical monuments like Taj Mahal, introduction of dedicated tourist trains across India and 24x7 tourist help line has had positive impact on the arrivals of tourists from foreign countries.
- Tourism sector has enormous potential to grow and contribute towards the higher GDP.

Schemes

- Adarsh Smaarak is an innovative scheme launched by Archaeological Survey of India to promote basic tourist facilities in well-known historical sites.

- Swadesh Darshan is an important scheme of the Ministry of Tourism to develop theme-based tourist circuits. Under the scheme, 13 thematic circuits have been identified across the country for development.
- Under PRASAD Scheme, 25 sites of religious significance have been identified for development in India.
- The Ministry of Tourism has adopted code of conduct for safe tourism, containing safe guidelines for both tourists and local residents that assure basic human rights, freedom from exploitation of women and children.

Challenges

- Lack of basic infrastructure like roads and providing clean, comfortable accommodation to tourists.

1.3.17 Zebu Cattle Genomics and Assisted Reproductive Technologies

Memorandum of Understanding (MoU) signed between India and Brazil for cooperation in the fields of Zebu Cattle Genomics and Assisted Reproductive Technologies. The MoU was signed in October, 2016.

Highlights of the MoU:

- Joint projects in the fields of Productivity Improvement of cattle and buffaloes, for the purpose of broadening the existing knowledge base on sustainable dairy development and institutional strengthening.

Application of MoU through:

- Application of genomic in Zebu Cattle and their crosses and buffaloes.
- Application of assisted reproductive technologies (ARTs) in cattle and buffaloes.
- Capacity building in genomic and assisted reproductive technology.

Related research and development in Genomics and ART in accordance with the respective laws and regulations of the two countries and is covered

1.3.18 SAIL's Gaon ki Ore campaign

Steel Authority of India Ltd. (SAIL), is running a nation-wide campaign SAIL steel Gaon ki ore which is aimed at boosting steel consumption in country.

About Gaon ki ore campaign:

The Gaon ki ore campaign is designed to familiarize end users at the Grass-root level, especially of rural areas, with innovative usage of SAIL steel and its applications and advantages in construction, household equipment, agriculture etc.

2. ENERGY AND ENVIRONMENT

2.1 ENERGY

2.1.1 Energy needs

Coal is a “dirty fuel”, so to tackle the problem of climate change; the government must exponentially increase the generation of renewables.

Benefits of Coal:

- Coal offers the cheapest source of energy
- Electricity infrastructure is built around this fuel
- Alternatives are not competitive

Need for renewables:

- The per capita energy consumption would have doubled to approximately 1,100 kCal (the Niti Aayog’s projection) in 2040.
- Nearly a billion demand of internal combustion engines for mobility
- Global warming and Climate Change
- 13 of our cities rank amongst the most polluted in the world
- The US-based research group, Health Effects Institute, has reported that India will soon overtake China with the most number of deaths caused by respiratory illness
- The bulk of our population lives in villages where 40 per cent still use firewood and dung for cooking and lighting which affects health and environment

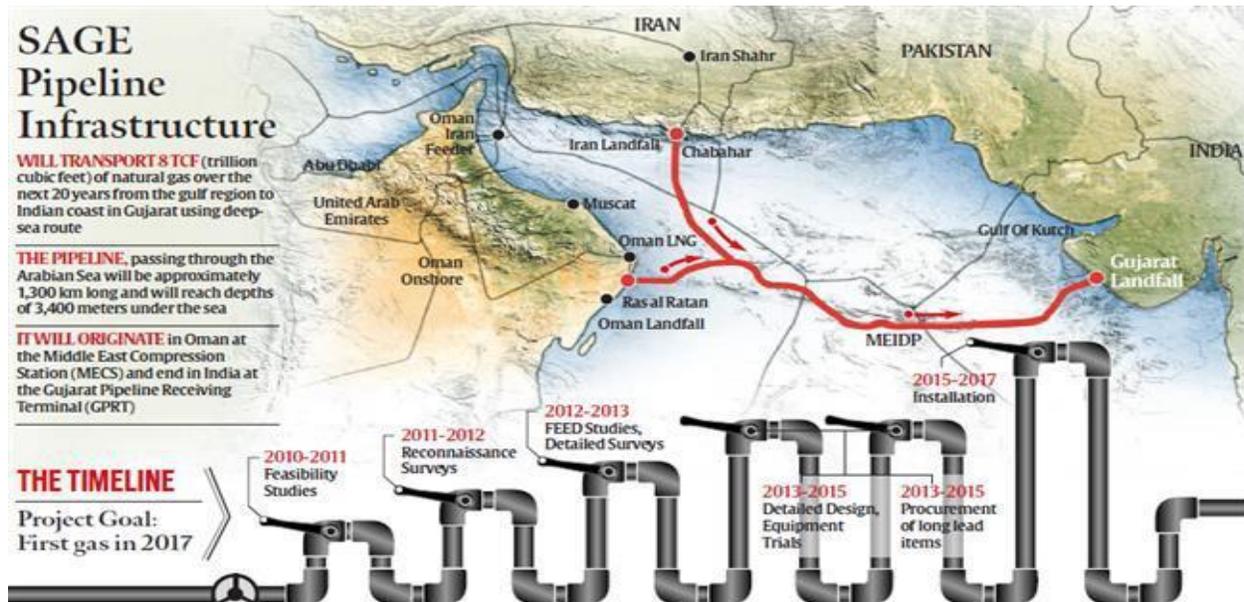
Challenges for renewables:

- Renewables are relatively less energy-dense than coal
- The investments required to upgrade and stabilize the grid
- The “hidden” subsidies
- Little prospect of renewables achieving cost parity with coal in the foreseeable future

The government should augment coal production but also support renewables. It should conserve demand, improve efficiency of usage but also develop green coal technologies like coal gasification.

2.1.2 India-Iran Gas Pipeline

A 1,300-km undersea pipeline from Iran, avoiding Pakistani waters, can bring natural gas from the Persian Gulf to India.



Study on gas pipeline:

- Natural gas imported through the pipeline is cheaper than the rate at which some of the domestic fields supply gas.

2.1.3 Fuel from oxygen in air

Researchers from Cardiff University in the U.K. have discovered

- Produce methanol from methane through simple catalysis that allows methanol production at low temperatures
- Using oxygen and hydrogen peroxide.

Current methanol synthesis

- Breaking down natural gas at high temperatures into hydrogen gas and carbon monoxide
- Reassembling them expensive and energy-intensive processes known as 'steam reforming' and 'methanol synthesis.'

Approach of use:

- Natural gas could use this method for "waste" gas saving
- Saving carbon dioxide emissions

2.1.4 A powerful move

Opening up coal mines to commercial auctions is welcome. It will improve supply of the fuel, and its quality.

Coal production in India:

- India is the third largest coal producer in the world. But it is also its third largest importer.
- Indian coal, on average, has about 45 per cent ash, much higher than the 25-30 per cent ideally required for the efficient burning of the fuel in thermal power stations.
- CIL's overwhelming dominance of commercial mining has made the outfit stingy in investing in technology

10 coal mines for auction:

- Competition Commission of India (CCI) described the near monopoly exercised by CIL as "patently unfair".
- Four mines each in Odisha and Chhattisgarh and one mine each in Madhya Pradesh and Jharkhand will be opened up for auction.
- In the long-run, competitive fuel supply arrangements and improvement in coal quality will benefit power suppliers, enhancing the country's energy security.

2.1.5 Revive coal bed methane**Background**

- India has the third largest reserves in the world. So there is scope for CBM
- The problem so far has been a lack of investor interest, which should now recover due to the new Open Acreage Licensing Policy (OALP) and HELP (Hydrocarbon Exploration and Licensing Policy) introduced by the government.

HELP

- uniform license for exploration and production of all forms of hydrocarbon
- an open acreage policy
- easy to administer revenue sharing model and
- Marketing and pricing freedom for the crude oil and natural gas produced.

2.1.6 A case for continued support for green energy

The draft National Energy Policy 2017 proposes gradual withdrawal of the provision of "must run" status and other support such as non-levy of interstate transmission charges regarding renewable energy.



Counterproductive to renewable energy sector:

- Union government is contemplating withdrawing all kind of incentives that are being provided to renewables-based electricity by 2022.
- Low prices in solar and wind energy are the result of several facilitating measures. Need to be sustained little longer.
- Taking success for granted or assuming that things will continue to move in a certain way but ignoring the key parameters that helped chart out that direction in the first place.

A good policy framework has to have sunset clauses for incentives but withdrawals must also be nuanced and gradual.

2.1.7 Hydrocarbon cooperation with Kazakhstan

- India is considering expanding hydrocarbon cooperation with resource-rich Kazakhstan including exploration and production of hydrocarbons
- Participation of Indian companies in the oil and gas sector of Central Asia's biggest country.
- Kazakhstan is one of the suppliers of uranium to India.



Indo-Kazakh Intergovernmental Commission agreements

- India and Kazakhstan also decided to explore the possibility of cooperation in the field of delivery of nuclear fuel and its components.
- The two sides further agreed to identify joint projects on the application of nuclear science in the fields of medicine, industry and agriculture.
- India invited Kazakhstan to join the International Solar Alliance.
- It was decided to deepen cooperation in the coal, mining and mineral sectors of the economy.
- India has also proposed to organize training and capacity building programs with the help of the Geological Survey of India
- The Indian Bureau in the field of exploration and mining regulation for the staff from Kazakhstan.
- Implementing joint projects to build / lease or purchase of terminal facilities in the western ports of India (Mundra and Mumbai)

2.1.8 Wind energy

Tamil Nadu has reaped the benefits of better planning and forecasting in integrating wind energy into its energy mix

- Tamil Nadu is also expected to fully realise its renewable energy potential once the Raigarh-Pugalur green power transmission corridor, with a capacity of 6,000 MW, is completed by May 2019
- It is also investing in its fourth wind power sub-station at Thennampatti, in addition to the ones in Ramanathapuram, Thoothukudi and Tirunelveli.
- And it has the largest wind capacities in the country and significant developer and manufacturer interest.
- And most importantly, it must continue to build on its planning process for the sector to truly integrate clean energy into its grids.

2.1.9 International Solar Alliance

Fiji, Niger and Tuvalu have deposited instrument of ratification of the Framework Agreement of the International Solar Alliance (ISA) in the recently held 5th meeting of International Steering Committee (ISC) of the ISA.

- Till date 40 countries have signed and 11 countries have ratified the Framework Agreement of the ISA.
- With ratifications by 15 countries, the ISA will become a treaty based intergovernmental international organization.

About International Solar Alliance (ISA):

The ISA is an Indian initiative jointly launched by the Prime Minister of India and the President of France on 30 November 2015 at Paris, on the sidelines of COP-21.

Aim

- It aims at addressing obstacles to deployment at scale of solar energy through better harmonization and aggregation of demand from solar rich countries lying fully or partially between the Tropic of Cancer and Tropic of Capricorn.
- India has offered a contribution of Rs 175 crore for creating ISA corpus fund and for meeting the cost of ISA secretariat for initial five years.
- International Steering Committee was establishment under the mandate of the Paris Declaration of ISA to provide the guidance and direction to establish the ISA.

2.2 ENVIRONMENT**2.2.1 BUSINESS & CLIMATE SUMMIT 2017(BCS)**

Venue: New Delhi (first summit in India)

About Summit:

- It is a leading annual forum for businesses, investors and policymakers on climate action.
- It is where business and governments come together to agree on a roadmap for reaching net zero emissions over the next half century.
- It demonstrates how low carbon strategies are good for business and good for growth.

Background:

Before UN Climate Change Conference in Paris 2015, Business & Climate Summit held in Paris provided a unique forum for business and government leaders to demonstrate bold action adopt forward-looking strategies and call for ambitious policies, allowing us to scale up solutions.

Previous summits: 2015 - Paris, 2016 - London

Theme of BCS:

- The businesses hold the key to meeting global carbon reduction targets
- Collaboration between business and government is critical to success.

Objectives

- Making the Summit truly global and representative
- Focusing on sustainable business and technology models

- Mobilizing SMEs for engaging in the low carbon opportunity
- Successful public private partnerships in low carbon development.

2.2.2 National Mineral Policy

The Centre has started reviewing the National Mineral Policy following directions of the Supreme Court

- To revise the National Mineral Policy of 2008, considering it as outdated to deal with present day challenges
- The 29-member Committee is chaired by K Rajeswara Rao has been set up review the policy.

Expected revision:

- Measures required for transparency, balanced socio-economic growth and sustainability in the mining industry.
- Recommendations for development of strategic minerals.
- Improving mining governance by reducing red tape and building institutional capacity.

2.2.3 GM crops

Spread of GM crops

Today, GM crops are cultivated over 185 million hectares of land, by more than 18 million farmers across 26 countries.

GM crops benefits:

- Meta-study by Wilhelm Klumper and Martin Qaim of the University of Gottingen, Germany, analysing 147 other studies of GM crops from around the world, found that :
 - A) GM technology helped increase crop yields by 22%
 - B) Reduced the use of chemical pesticides by 37% and Increased farmer profits by 68%.
- But its effect on environment and health in the long run is still debatable.

2.2.4 New forest policy

The Union Ministry of Environment, Forest and Climate Change as well as all State Forest Departments are guided by the National Forest Policy, 1988.

Defining a forest:

Forest is a self-sown and self-regenerating community of plants that supports a community of creatures dependent on those plants, and on each other, for food and shelter.

Objectives of Forest Policy:

- Maintenance of a healthy natural environment through preservation and, restoration
- Conserving the natural heritage of the country by preserving the remaining natural forests.
- Checking soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs
- water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs

Discarded Concepts:

- The balance of nature concept was completely rejected by the beginning of the last century and does not find mention in textbooks of ecology
- Environmental stability concept is questionable and will be changed.

2.2.5 Hurricane - Jose**Highlights:**

- Hurricane Jose, now meandering around the western Atlantic Ocean roughly 300 miles northeast of the Turks and Caicos Islands.

Moving Mechanism:

- Jose should make a small clockwise loop over the open waters of the Atlantic for the next three days.
- An area of high pressure that will move around the hurricane over the next several days.
- the strengthening high-pressure area will then force the hurricane to move west-northwest toward the East Coast

2.2.6 Mustard diversity pool is narrow

- Contrary to GM basher's propaganda – that very high diversity is available in Indian mustard.
- Scientific analysis has shown that the Indian gene pool of mustard is very narrow.

GM - Mustard:

- A transgenic food crop that had been cleared by the Genetic Engineering Appraisal Committee (GEAC) for commercial release
- National Academy of Agricultural Sciences (NAAS) had passed a resolution unanimously supporting the commercial release of Dhara Mustard Hybrid 11 (DMH-11).

- DMH-11 uses a combination of genes from a soil bacterium that makes mustard amenable to **hybridization**.
- Mustard is self-pollinating plant unlike wheat so we need hybrid technology to overcome narrow pool of diversity.

2.2.7 Earthquake alert system in Uttarakhand

- The Indian Institute of Technology Roorkee is setting up a network of 100 earthquake sensors between Chamoli and Dharchula in the Kumaon region of Uttarakhand
- It is a part of an exercise to provide an alert in case of any high magnitude earthquake occurs in the Himalayas.

Central seismic gap:

- Data compiled over the last two centuries has shown that large magnitude earthquakes have occurred in different regions of the Himalayas except one segment in its central part.
- The new 100 sensors along with the existing 84 spread over a distance of 200 km would cover the Gap area
- It help to monitor the seismic activity
- The sensors will stream data in real-time basis processed by computers and issue an alert immediately.

2.2.8 Make Cities Climate-proof

Urban planning is key to making cities resilient to weather changes Climate scientists have long warned about changing rainfall patterns. The UN's climate science body, the Intergovernmental Panel on Climate Change, stressed the increased risk of flooding and alterations in rainfall patterns due to global warming.

Planning for climate change

- Climate change concerns need to be mainstreamed into the urban planning and governance processes
- Central and state governments should identify the problem
- States must amend their laws to suit the requirement
- People's participation is vital

2.2.9 SAUNI Project

SAUNI Yojana is multipurpose project that aims to solve the water problems of a parched Saurashtra region of Gujarat. Saurashtra region of Gujarat comprises 11 districts. These districts faces drought like situation often and has been reeling under severe water scarcity

Key Facts:

- Technically, SAUNI is a 'linking' project where the water will be filled in irrigation dams that are already equipped with canal network.
- Under this project, 115 dams in the Saurashtra region will be filled with excess water from the Sardar Sarovar dam.
- SAUNI project involves making pipe canals instead of the conventional open canals which has led to no acquisition of land for the project.

2.2.10 Mountains of garbage

Waste management rules continue to be ignored even a year after they were notified

Issues:

- Cities and towns are in no position to comply with its stipulations,
- Segregation of different kinds of waste at source and their scientific processing is not performing
- Neither are urban local governments treating the 62 million tons of waste generated annually in the country as a potential resource
- Local governments have left the task of value extraction mostly to the informal system of garbage collectors and recyclers.

2.2.11 Hurricane Irma

Category 5 storm which caused widespread devastation in the Caribbean.

- Irma's eye is located about 80 km (50 miles) north of San Juan, Puerto Rico
- It's expected to head towards northern Cuba and will arrive in Florida later in the week.

2.2.12 River Interlinking

A river interlinking project, which is likely to end excessive floods and drought in the country, will take off by the end of this year.

Key Projects:

- Ken-Betwa
- Damanganga-Pinjal
- Par-Tapi Narmada projects

- two more – the North Koel reservoir project in Jharkhand and Bihar
- Pancheshwar project in Uttarakhand

About The national river linking project:

- The national river linking project will ease the water shortages in western and southern India while mitigating the impacts of recurrent floods in eastern India.

Effects of River linking

- The river interlinking project will adversely affect land, forests, biodiversity, rivers and the livelihood of millions of people.

2.2.13 Alternative crop to fight against elephant raid**Risks / Problems:**

- In a bid to protect crops from regular raids, some farmers have given up traditional paddy and vegetable cultivation.

Measures:

- Some farmers have given up traditional paddy and vegetable cultivation.
- Alternative is to plant varieties that mature quickly

2.2.14 RED list**The International Union of Conservation of Nature's Red list**

- Provides the most comprehensive and authoritative information on the conservation status of animal and plant species,
- States that 665 animal and 387 plant species in India face higher risk of extinction.

IUCN has three categories of risk:

- Critically endangered,
- Endangered and
- Vulnerable

Indian Animal species under higher risk of extinction.

- Jordan's Courser
- Gharial (*Gavialis gangeticus*)
- Pygmy Hog (*Porcula salvania*)
- Malabar Civet (*Viverra civettina*)



Jordan's Courser

- Forest Owlet (*Heteroglaux blewitti*)

2.2.15 Delhi's air pollution puzzle

Delhi has the worst air quality, according to the WHO report among the mega cities of India.

- The city was engulfed in a toxic smog when the PM_{2.5} level rose to 999 micrograms (mg)/meter cube (m³).
- Higher than the Indian ambient air quality standard of 60 mg/m³

Highlights:

- PM_{2.5} fine particulate matter with a diameter less than 2.5 micrometer which affects the millions of lives of people.
- PM_{2.5} is more harmful to human health than PM₁₀ as PM₁₀ which only goes down to the lungs.
- PM_{2.5} can enter the blood supply from the lungs and turn into invisible killers.

2.2.16 Gold nanoparticles can detect lead in wastewater

The new technique makes use of specially-produced miniscule particles of the yellow metal, and the property of gold nanoparticles to change colour when they 'bunch-up' in the presence of metal particles such as lead because of their optical properties.

Lead in small amounts in wastewater even in the presence of other major toxic heavy metal particles is easily picked up by this simple test.

Lead caused health problems

- Exposure to lead is known to cause severe and irreversible damage to the brain and nervous system in children, and to the kidneys in adults.
- It can also result in complications during pregnancy and lead to birth defects.

Lead contamination

Industrial activities such as smelting, use of pesticides, battery production, landfill leaching are major sources of lead contamination in the environment.

2.2.17 Chambal land leveling experiment

Background:

- The Chambal region's major lifeline is the Chambal River, where nearly 4,800 sq km land has been affected by severely dissected ravines

- A new trend has emerged over the past decades, large parts of the Chambal ravines are being leveled

Disturbing ecosystem

- Bihads (ravines) are part of an integrated ecosystem. Flattening not only destroys the ecology, but also loosens the top soil, making it prone to erosion and susceptible to further gullyng
- Land leveling has implications for the overall socio-economic situation in the region.
- Given the high costs of land-leveling, it is not surprising that only people with resources or access to cash can afford to level the land and keep it in a cultivable state
- Disappearance of common lands, which include grazing lands.

2.2.18 Snow leopard no longer 'endangered'

The conservation status of snow leopard has been improved from “endangered” to “vulnerable”. The decision was announced by the International Union for Conservation of Nature (IUCN) – the global standard for assessing extinction risk. The status change followed a three-year assessment process by five international experts.



- However, experts have warned that the species still faces serious threats from poaching and habitat destruction.
- The elegant yet elusive creatures, which live in the mountains of central Asia, were first listed as endangered by the IUCN in 1972.

2.2.19 From ocean to ozone

Transformative changes must be considered to keep Earth safe for the future

- The Holocene epoch has offered a stable climate, a period of grace for humanity to grow and to flourish, with settlements
- The Anthropocene has led to over-reliance on fossil fuels, industrial agriculture, pollution in water, soils and air, loss of species and so on

Biophysical considerations:

- Ecosystems that are stressed by their exposure to pollutants may not recover once the pollutants are removed.
- When ecological thresholds or tipping points are crossed, significant large-scale changes may occur, like depletion of species biodiversity and freshwater resources and increase warming from climate change.

2.2.20 Biggest and Smallest animals at high extinction risk

Animals in the Goldilocks zone - neither too big, nor too small, but just the right size face a lower risk of extinction than those on both ends of the scale, according to an extensive global analysis.

Threats to big animals

- Killed and consumed by humans, and about 90 per cent of all threatened species larger than one kilogram in size are being threatened by harvesting.

Threats to small animals

- These diminutive species are mostly threatened by loss or modification of habitat.

2.2.21 Battling e-waste

Highlights:

- The growing consumption of digital products is generating mountains of e-waste
- Disposal is posing serious health and environmental risks.
- But recycling of e-garbage is also providing jobs to hundreds of thousands in many parts of the developing world.
- China is at the heart of reconciling this contradiction between guaranteeing much needed incomes and preserving clean air, water and soil, necessary for public health

China's role:

- Guiyu, a coastal township of world's e-waste capital
- where local businessmen flourished in e-waste processing
- But problems began to arise when people fell sick, and the drop in air, water and soil quality caught global attention

Effects on health and environment:

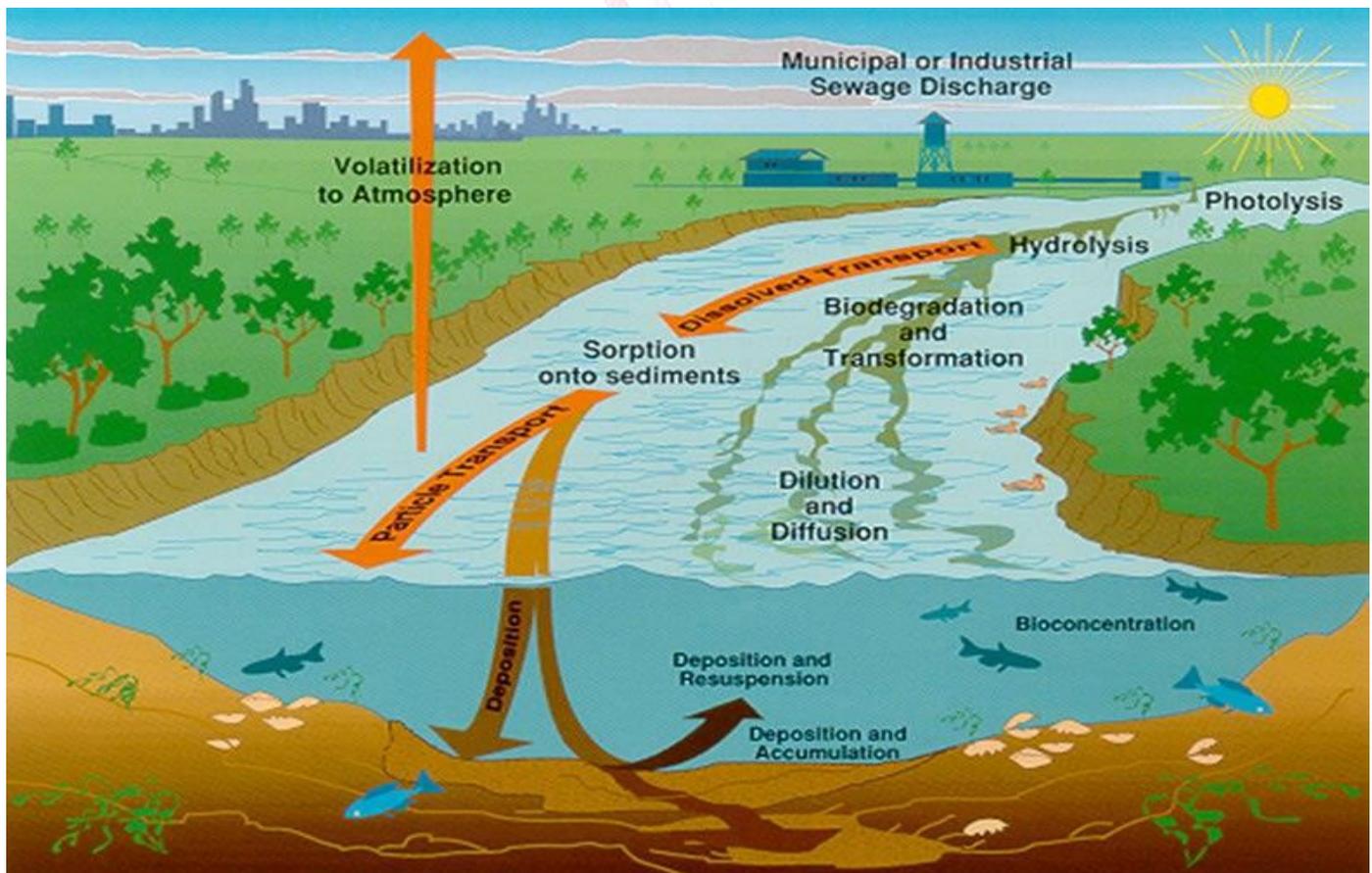
- Mercury, fluorine, barium, chromium, and cobalt, which either leach from the waste or are used in processing, are blamed for skin rashes and respiratory problems.

- The foul air and water can also damage kidneys and the nervous system, and weaken the immune system, heightening the risk of cancer.
- Heavy metal contamination had turned the air and water toxic and that children in the town had high levels of lead in their blood.

2.2.22 Removing toxic metals from tannery waste

Removing chromium

- Removing hexavalent chromium from industrial effluents, particularly untreated tannery waste, will become easier and more efficient using fungal biomass.
- Cr (VI) is found in very high concentration in tannery waste. It is neurotoxic, genotoxic and carcinogenic.
- The heat-dried fungal biomass converts Cr(VI) to a non-toxic trivalent form of chromium, thus eliminating the problems of disposing Cr(VI)-containing waste



2.2.23 Electric vehicle push

The climate change disruption holds both opportunities and challenges.

India's move:

- Rather than being a late follower in technology development, the government would like to position India's industry at the forefront of the global quest for clean mobility.
- India has developed the capability to engineer and build globally competitive vehicles based on internal combustion engines (ICEs).

Challenges:

- Ensure indigenization of technology by technology transfers.
- Involving Industry in a leading role in electric vehicles
- Localization is crucial to avoid replacement of an oil import bill with a battery import bill

2.2.24 Maa Narmada Mahotsav

The 'Maa Narmada Mahotsav' happened in Gujarat.

Three major schemes of Gujarat Government, relating to Narmada River are Sauni Yojana, Sujlam Suflam Yojana and Sardar Sarovar Yojana.

Sauni Yojana

- Is a project with an objective of filling 115 major dams by diverting flood waters overflowing from the Sardar Sarovar Dam across the Narmada River, to divert them to the drought prone areas of Saurashtra region

Sujlam Suflam Yojana

- One million acre feet of flood waters of Narmada are to be provided to North Gujarat region by spreading canals and 14 pipelines.

Sardar Sarovar Yojana

- Sardar Sarovar Dam is a part of the Yojana
- Narmada's main canal is world's biggest canal with 458 km length and its water carrying capacity is 40,000 cubic feet per second.
- It has world's first canal top solar power plant

2.2.25 from waste to health

Compost from biodegradable municipal solid waste will simultaneously clean up our cities and improve agricultural productivity and soil quality of our farms.

Waste Dispersion

- Begin by not mixing the biodegradable component of solid waste (close to 60 per cent of the total) in our cities with the dry waste.
- Use this stream of waste for composting and biomethanation, and can be recycled.
- Processing including by incineration of non-recyclables with appropriate filters to check emissions; scientific landfills will be needed for the little that remains.

City waste Composting

- City compost from biodegradable waste provides an alternative to farmyard manure (like cow dung)
- The water holding capacity of the soil which uses compost helps with drought-proofing
- The requirement of less water per crop is a welcome feature for a water-stressed future.
- City compost can also be blended with rock phosphate to produce phosphate-rich organic manure.

Management of compost

- The Solid Waste Management Rules 2016 make the co-marketing of compost mandatory.
- To provide incentive for co-marketing to the fertiliser companies, in February 2016.
- The Government of India's Department of Fertilisers notified a policy to promote the use of city compost by offering Market Development Assistance (MDA)

2.2.26 CO₂ capture technology

India will explore the possibility of introducing technologies for capturing carbon dioxide emitted while burning coal and other fossil fuels

- To either reuse or store it so it will not enter the atmosphere
- CO₂ has commercial and industrial uses
- Enhanced Oil Recovery (EOR) in depleting oil fields
- The ability to change the properties of oil and make it easier to extract..

2.2.27 A 'Boat Lab' to study Brahmaputra

The Department of Biotechnology will commission a two-tiered barge that will roughly be the size of two large conference rooms and host scientists and a full-

fledged lab that will allow those on board to collect samples from various stretches of the river, perform tests on water quality and biodiversity of the wider eco system.

B4

- The proposed vessel, now only known as the Brahmaputra Biodiversity Biology Boat (B4), would also be linked to smaller boats and research labs.

Boat of this nature would be one of its kind in the world though there were a few precedents in China and mobile laboratories that studied the Amazon river.

3. ICT

3.1 Xafecopy steals money through mobile phones

A new malware Xafecopy Trojan has been detected in India which steals money through victims' mobile phones.

Highlights:

- Xafecopy Trojan is disguised as useful apps like Battery Master, and operates normally. The Trojan secretly loads malicious code onto the device.
- The Xafecopy malware clicks on web pages with Wireless Application Protocol (WAP) billing - a form of mobile payment that charges costs directly to the user's mobile phone bill.
- The malware silently subscribes the phone to a number of services.
- The malware uses technology to bypass 'captcha' systems designed to protect users by confirming the action is being performed by a human

3.2 Volte service:

Airtel has started to support voice over LTE.

What is VoLTE:

4G LTE-enabled technology that significantly improves the clarity of voice calls using Internet data.

Advantage over Reliance jio :

Unlike Reliance Jio's VoLTE offering, which only works with 4G network, Airtel said VoLTE calls made on its network will automatically fall back on 3G/2G network to ensure that customers continue to stay connected at all times

3.3 Online platform for food inspection

Food regulator FSSAI put in place a nationwide online platform. It would help eliminate discrepancy and make food safety officer accountable.

- The new system will bring together all key stakeholders — food businesses, food safety officers (FSOs), designated officers, state food safety commissioners — on a nation-wide IT platform.
- Data related to inspection, sampling and test result data will be shared seamlessly by all the officials.
- Directing the states to adopt the new system, the FSSAI said this requires a hand-held device with internet connectivity with FSOs.

3.4 eMudra

eMudra which manages digital identity and transaction for customers has launched Aadhaar eSign based authentication for NACH (National Automated Clearing House) mandate with National Payments Corporation of India for large and small enterprises to collect recurring payments from their customers.

Advantages:

- Paperless.
- Save transaction cost to corporates.
- Increase accountability in payment process.
- Paperless authentication helps to overcome geographical barriers.

3.5 Artificial Intelligence

Automation, a product of recent advances in Artificial Intelligence (AI), is a signal of a different era of socio-economic relations.

Disruptive technology effect:

- Studies by Deloitte in UK and McKinsey in the US are estimating that currently demonstrated technologies will kill from a third to a half of all jobs within a decade.
- As AI proliferates, the contractual/gig economy will expand, amplifying precarity and triggering a downward spiral in wages.
- 3-D technology, agricultural robotics industry, automated farming, robots replacing vehicle assembly are all a grave threat to labour intensive sector leading to huge unemployment.

How government should approach:

- Public investment into large infrastructure projects and development work.

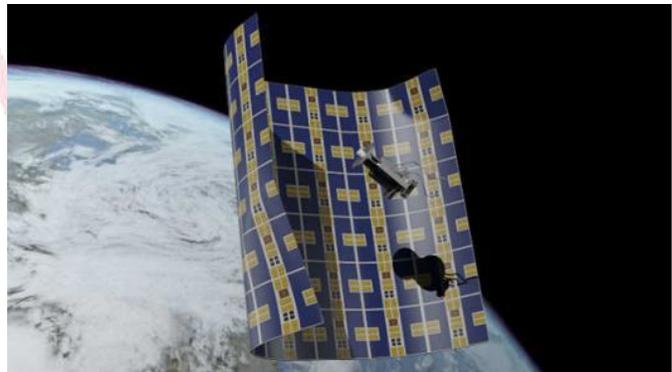
- Freeing of agricultural labour should be done only after launching a national industrial and infrastructure-centric public works programme,
- Augmented with automated machinery and processes, for the benefit of rural communities, etc.

3.6 Data science behind decision making

- Decision sciences are the cornerstone of success in the data-driven world.
- Decision sciences is helping corporations in BFSI (banking, financial services and insurance), ecommerce, telecom, transportation and many such industries process massive amount of data to leverage their true business potential and these are next sunrise sectors.
- There is a lack of skilled manpower to harness the benefit of this analytic field in India

3.7 Space junk destroyer - Brane Craft

- Scientists are developing an ultra-thin spacecraft that can remove space debris, which potentially threaten satellites or astronauts – by enveloping junk in the Earth's orbit and dragging it through the atmosphere, causing it to burn up.



- The Brane Craft, being developed by US-based Aerospace Corporation, is a flexible and less than half the thickness of a human hair.
- After each Brane envelops a piece of space junk, it will navigate back to towards Earth, causing the junk to burn up in the atmosphere.

3.8 Payment app - Tez by Google

- Google launched a Unified Payments Interface (UPI)-based digital payment service called "Tez" as early as next week.
- Facilitates the instant fund transfer between two bank accounts on the mobile platform

UPI

- UPI is a payment system launched by the National Payments Corporation of India (NPCI)
- Regulated by the Reserve Bank of India

3.9 Digital dispensaries to remote locations

Glocal's diagnostic support system to rely on semantics and deductive logic to suggest tests and arrive at the disease or condition a patient may be suffering from.

How it works:

- It's linked to an automatic dispenser — the kind you see at airports shelling out beverages and snacks — calibrated to dispense medicines.
- The system converts 38 different complaints into parent symptoms and, as more information is recorded, it starts matching with sibling symptoms.
- When the doctor selects a prescription, the machine talks to the dispenser which shells out the required dosages of the medicines.
- Theoretically, the algorithm can be fine-tuned to arrive at a final diagnosis and prescription on its own.

3.10 Lunar water with data from Chandrayaan-1

Scientists, using data from an instrument which flew aboard India's Chandrayaan-1 spacecraft, have created the first map of water trapped in the uppermost layer of the moon's soil.

Initial discovery:

In 2009 of water and a related molecule hydroxyl, which consists of one atom each of hydrogen and oxygen in the lunar soil.

Key takeaways:

- The signature of water is present nearly everywhere on the lunar surface, not limited to the polar regions as previously reported
- The amount of water increases toward the poles and does not show significant difference among distinct compositional terrains
- The researchers said that the way water is distributed across the moon gives clues about its source.

3.11 Hortinet

Hortinet is an integrated traceability system developed by APEDA for providing Internet based electronic services to the stakeholders for facilitating farm registration, testing and certification of Grape, Pomegranate and Vegetables for export from India to the European Union in compliance with standards.

The key features:

- Online Farm registration application and status tracking

- Processing and approval on on-line farmer applications by State Horticulture /Agriculture department.
- Registration of farmers, farms and products by State Horticulture/Agriculture department
- Capture geo location of the farms registered through the app
- Sample collection by APEDA authorized Laboratories along with geo location of the sample.

3.12 Sagar Vani Application

ESSO-Indian National Centre for Ocean Information Services (INCOIS) under Ministry of Earth Sciences launches 'Sagar Vani'. ESSO-INCOIS has adopted the state-of-the-art technologies and tools available in the country for the timely dissemination of Ocean Information and Advisory Services that includes Potential Fishing Zone (PFZ) advisories, Ocean State Forecast (OSF), High Wave Alerts and Tsunami early warnings.

What is Sagar Vani?

The 'Sagar Vani' is a software platform where various dissemination modes will be integrated on a single central server.

- The 'Sagar Vani' includes Multilingual SMS, Voice Call / Audio Advisory, Mobile Apps (User / Admin modules), Social Media (Facebook, Twitter, etc.), Email, GTS, Fax, Digital Display Boards, Radio / Television broadcast units, IVRS, Cloud Channels, etc

Focused community: The coastal community, the fishermen community

3.13 Digital Revolution in India

Digital revolution in India is significant as it promises to bring a multi-dimensional metamorphosis in almost all sectors of the society.

Sectorial Revolution:

1. Education Sector:

- SWAYAM' scheme provides an opportunity to students to access courses taught in classrooms from ninth standard to post graduation
- ePATHSHALA' which disseminates all educational content through website and mobile app
- Mid-Day Meal Monitoring App', 'Shaala Sidhi' and 'Shaala Darpan' that focus on quality of school administration and evaluate the schools and kendriya vidyalayas to improve the quality of education

- OLABS-online labs for school lab experiments provide students with ease of conducting experiments over internet
- National Scholarship Portal', 'eGranthalya', 'National Knowledge Network' for higher education

2. Health Sector:

- Digital AIIMS' a project that aims to create an effective linkage between UIDAI and AIIMS
- 'e-hospitals' scheme that is an open source health management system;
- mRaktkosh' – a web based mechanism that interconnects all blood banks of the state into a single network
- UMANG' aims to bring one stop solution to all government services

3. Agriculture sector:

- Digital India initiative is also proving a number of schemes for the benefit of the farmer
- mkisan', 'farmer portal', 'Kisan Suvidha app', 'Pusa Krishi', 'Soil Health Card app' , 'eNAM', 'Crop Insurance Mobile APP' , 'Agri Market app' and 'Fertilizer Monitoring App.

4. Women safety:

- Nirbhaya app' and 'Himmat app' have been launched that facilitate sending of distress calls
- There are also apps for law enforcement agencies, courts and judiciary

5. Governance:

- e-panchayat', 'eDistricts', eOffice; are also some of the services to digitize governance and administration in the country.
- 'National Voters Service Portal' and 'ECI-EVM Tracking Services are also bringing about transparency in governance

6. Economy:

The AADHAR scheme and BHIM app are also significant in speeding up the process of digitizing the economy.

3.14 Boost to M2M technology

TRAI has sought industry feedback on delicensing a portion of 700 MHz band for short-range M2M communications, especially since M2M devices have lower power and spectrum needs.

What is M2M TECHNOLOGY?

- Allow wired and wireless devices to talk to each other using sensors

- Applications can be deployed in new age infrastructure projects such as smart cities, smart grids, smart health and smart transportation.

3.15 IT ministry's data security call

Idea is to understand the data handling practices of firms from all geographies including India

- Based on the response of the companies, it would initiate verification and audit of devices.
- IT ministry had cited international and domestic reports about data leaks from mobile phones.
- Devices and preloaded software and apps would be under scrutiny.

3.16 Social revolution in a JAM

About JAM

- JAM, deriving from Jan Dhan, Aadhaar and Mobile, combines bank accounts
- Direct transfer of benefits into these accounts and the facility of making financial payments through mobile phones
- Aadhaar is allowing the government to ensure that benefits reach the poor and enabling them to make payments through ordinary mobile phones.

3.17 Technology integration into health sector

Health Ministry is at the forefront of incorporating the benefits of digital technology towards achieving the goals elucidated in National Health Policy (2017) which are synchronous with the Sustainable Development Goals (SDGs).

Tenets:

- Registration of vital health statistics like births and deaths
- Monitoring of Mobile Medical Units (MMUs) through Geographical Positioning Systems(GPS)
- Preventing female foeticide through implementation of The Pre-Conception and Prenatal Diagnostic Techniques (Prohibition Of Sex Selection) Act 2003 Act, etc.

3.18 Data captured by Aadhaar

Types of information in Aadhaar Act:

- Biometric information essentially refers to photograph, fingerprints and iris scan

- Identity information includes biometric information and demographic characteristics such as name, address, date of birth, phone number, and so on.
- Personal information includes not only identity information but also other information about a person

Concerns:

- Aadhaar, in its current form, is a major threat to the fundamental right to privacy
- The main privacy concern with Aadhaar is the confidentiality of the Central Identities Data Repository (CIDR)

3.19 Predict Alzheimers 10 years in advance

Scientists have developed an artificial intelligence system that can accurately identify signs of Alzheimer's disease almost 10 years before clinical symptoms appear.

Background:

- Developed a machine-learning algorithm to discern structural changes in the brain caused by Alzheimer's disease.
- The idea was to teach the algorithm to correctly classify and discriminate between diseased and healthy brains, researchers said.
- Crucially, it could also tell the difference between healthy brains and those with MCI with an accuracy of 84 per cent.

3.20 NIIT Technologies looks to find its voice in tech space

- NIIT Technologies is betting on natural language processing (NLP) and voice interaction as the next big shift in digital tech
- voice-based interaction was the next interface that most of the customers are expected to adopt

Opportunities:

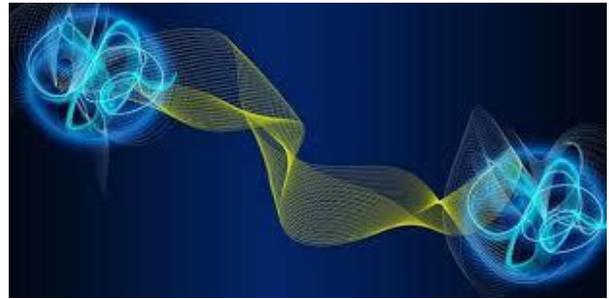
- Using predictive analytic platforms for the banking and financial services sector, etc.

3.21 India joins quantum computing race

Quantum computer

- Employs the principles of quantum mechanics to store information in 'qubits' instead of the typical 'bits' of 1 and 0.

- Qubits work faster because of the way such circuits are designed, and their promise is that they can do intensive number-crunching tasks much more efficiently than the fastest comparable computers.
- Internationally, Canada's D-Wave Systems, is a pioneer in developing quantum computers and has sold machines to Lockheed Martin and Google.



3.22 Tech boost for soil quality scheme

The government's massive scheme to analyze the soil quality of farms across the country may get a technology boost.

Analysis without collecting sample

- The Department of Science and Technology (DST) is looking to link the programme with a research project at the Indian Institute of Technology Bombay that uses sophisticated imaging techniques and can picture the nutrient balance of a patch of land without necessarily collecting soil sample.
- Using custom-developed algorithms, satellite-images, or those taken from low flying planes or drones, can be used to calculate the proportion of nitrogen, potassium and phosphorous
- The researchers have figured out ways to measuring organic carbon and phosphorous in a soil sample via images.

3.23 Internet of things blueprint for a clean Ganga

Institution of Engineering and Technology (IET), a non-profit engineering organization, has created a blueprint through their IoT India panel to implement internet of things devices and related technology for curbing pollution and improving water flow for the 2,525-km long river Ganga

IOT

- IoT is just not for collecting data but about analyzing the data and give aforesaid results.
- Devices can monitor the situation across the length of the river and then share the data with local authorities and universities to work on it.

3.24 5G rollout by 2020

The government has formed a high-level panel to evaluate and approve road maps and action plan to achieve the target of rolling out 5G technology in India by 2020

- Local manufacturers should be able to capture 50% of the Indian market and 10% of the global market over the next five to seven years.

3.25 Russia's 'surveillance-proof' phone

Taiha phone

- Taiga Phone created by Info Watch Group, software Development Company.
- Info Watch says the device can guarantee the confidentiality of all Taiga Phone users, track the location of each device and prevent information leakage.
- The Taiga Phone is entirely green to represent the Russian northern forest after which it is named

3.26 Procurement Made Smart (GeM)

- Public procurement forms a very important part of Government activity and reform in Public Procurement is one of the top priorities of the present Government.
- Government e-Marketplace (GeM) aims to transform the way in which procurement of goods and services is done by the Government Ministries/Departments, PSUs, autonomous bodies etc.
- GeM is a completely paperless, cashless and system driven e-marketplace that enables procurement of common use goods and services with minimal human interface.

Benefits of GeM

- Transparency,
- Secure and safe: All the documents on GeM are e-Signed
- Efficiency, etc.

3.27 Geospatial Technology Support for National Mission for Clean Ganga

- Geo-spatial and crowd sourcing technologies like Bhuvan Ganga app can be effectively used to evoke a mass movement to popularize Namami Gange Programme

- National Remote Sensing Centre (NRSC), which is a part of Indian Space Research Organization (ISRO) has been supporting NMCG to use geospatial technology for water quality monitoring, hydrological monitoring and evaluation, geomorphological monitoring and evaluation, bioresources monitoring and evaluation, comprehensive geospatial database, develop mobile application for enabling community participation and to co-ordinate necessary linkages with other agencies.
- NMCG also strives to achieve GIS mapping of the entire Ganga river basin for effective execution and decision-making.
- Water quality assessment using satellite data of main Ganga from Kannauj to Varanasi, real time water quality data visualization etc. are planned by NRSC

4. MATERIAL SCIENCE

4.1 Novel compounds destroy biofilm-forming bacteria

Two new molecules capable of destroying bio-film forming bacteria have been developed by scientists at the Bengaluru-based Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR).

What are biofilms?

- Biofilms are communities of microorganisms that attach to each other and to surfaces and are able to act as barriers to antibiotics.
- When used in combination with existing antibiotics, the molecules reduced the microbial burden in the case of burns and surgical wounds.
- The effect of these macromolecules on chronic biofilm causing pathogens like E. coli, Acinetobacter, Klebsiella.

How does it work?

A combination of the molecule with erythromycin in equal concentration caused complete eradication of the tough-to-kill E. coli and Acinetobacter biofilm.

4.2 Flexible bio-glue for wound heal

Scientists have developed a super strong, flexible adhesive material inspired by the glue secreted by slugs that sticks to biological tissues – even when wet – without causing toxicity.

- Slugs secrete a special kind of mucus when threatened that glue it in place, making it difficult for a predator to pry it off its surface.

About the new bio-glue?

The new material is a double-layered hydrogel consisting of an alginate-polyacrylamide matrix supporting an adhesive layer that has positively-charged polymers protruding from its surface.



- The polymers bond to biological tissues via three mechanisms – electrostatic attraction to negatively charged cell surfaces, covalent bonds between neighboring atoms, and physical interpenetration – making the adhesive extremely strong.
- It has the combination of a very strong adhesive force the “tough adhesive” is biocompatible without causes tissue damage.

5. GENERAL KNOWLEDGE

5.1 Astra Missile

The final Development Flight Trials of Astra – Beyond Visual Range Air to Air Missile (BVRAAM) was conducted recently over the Bay of Bengal, Off the Coast of Chandipur, Odisha. The trials were successful.

- It is one of the smallest weapon system developed by DRDO
- It possesses high Single Shot Kill Probability (SSKP) making it highly reliable.
- It has advanced on-board electronic counter-measures that jam radar signals from enemy radar, making tracking of the missile difficult....

5.2 Artillery gun sets new record in range

- An indigenous artillery gun, Advanced Towed Artillery Gun System (ATAGS), being jointly developed by the Defence Research and Development Organisation (DRDO)
- The private sector has set a new world record in range by hitting targets at a distance of 48 km

Features

- The record was achieved with special ammunition, “high explosive – base bleed” (HE – BB) by the ATAGS variant developed by Kalyani Group.
- The development is being done through a consortium based model, similar to that adopted for the Pinaka multi-barrel rocket launch system.



5.3 Sharpest laser can help test Einstein's theory

- Scientists have developed the world's sharpest laser with record-breaking precision that can help make optical atomic clocks more precise as well as test Einstein's theory of relativity.
- Researchers have now developed a laser with a linewidth of only 10 milliHertz (mHz) — closer to the ideal laser than ever before

Significance of this discovery:

This precision is useful for various applications such as optical atomic clocks, precision spectroscopy, and radio astronomy and for testing the theory of relativity.

5.4 Yudh Abhyas 2017

Joint Indo US exercise, Exercise Yudh Abhyas 2017 concluded in September 2017 at Joint Base Lewis McChord (JBLM), Washington, USA.

The training was focused on specialised drills and procedures involved in counter insurgency, counter terrorist operations in an urban environment.

5.5 Night side of Venus

The night side exhibits unexpected and previously-unseen cloud types, morphologies, and dynamics — some of which appear to be connected to features on the planet's surface.

Findings:

- Venus' atmosphere is dominated by strong winds that whirl around the planet far faster than Venus itself rotates.
- This phenomenon, known as 'super-rotation', sees Venusian winds rotating up to 60 times faster than the planet below, pushing and dragging along clouds within the atmosphere as they go.

- The team used European Space Agency's (ESA) Venus Express spacecraft to observe the clouds in the infrared.

6. ETHICS

6.1 Combating Corruption

Government Initiatives

- Government has adopted “zero tolerance to corruption” approach
- “minimum government and maximum governance” aims simplification of the governance model
- Special investigation team was constituted to fight black money
- International cooperation in G-20 meetings on ending tax havens
- “Making government smarter” is at the forefront of the Nation's Fight against Corruption.
- The Aadhar Act was promulgated to ensure targeted delivery of financial and other subsidies, benefits and services.
- Government E-Market (GEM) has helped improve the accountability and integrity in public procurement.
- The RTI Act has led to improvements in governance.

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