

FEBRUARY (16-28, 2017)

COVER STORY

Issue of Unnecessary Stent Implants

Pests and Crop Wastage

Crop loss due to pest attack has been a major concern for farmers, scientists and governments.

State Funding of Elections

With the proposal of electoral bonds, the debate of state funding of elections has emerged.

Poor Infrastructure in schools

What are its implications on the outcomes?

Medical Tourism

Reflecting the pulse of the vibrant industry analyzing the concept of medical tourism.

What makes PSU work?

Analyzing why ISRO has been a stellar performer and brought laurel for India?

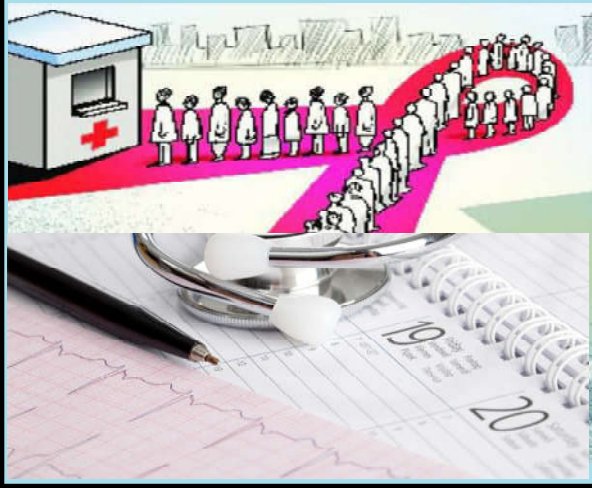
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AGEING IN INDIA

India has **2,00,000** centenarians (100+ population).

Over **9 crore** elderly population in India in 2011 —only 12 other countries have a total population higher than that.

Percentage of 60+ population expected to increase from:

7.6% (77 million) in 2000 to **20.6%** (324 million) in 2050.

In the same period, percentage of the 80+ population will increase from:

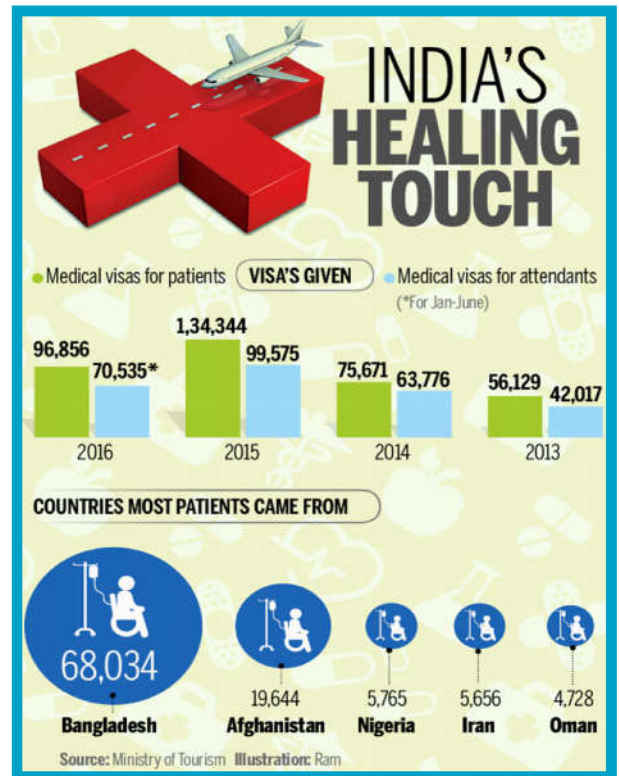
0.61% (6.1 million) in 2000 to **3.06%** (48.2 million) in 2050.

48.2% of elderly are women, **58%** of them being widowed, divorced. **75%** of India's elderly live in rural areas and one-third live below the poverty line.

- **5.5 crore** go to sleep on an empty stomach every night—just about the population of the UK.
- An estimated **50 lakh** live alone – more than all of Australia.
- In 2040, within **30 years**, the grey population in India will double again.

Source: HelpAge India

- Sharp Reality of Displacement in India
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COVER STORY

Unnecessary Stent Implants: EFFECT ON INDIAN HEALTH SYSTEM

Context

In India, there are instances where angioplasty is done for patients having chest pain due to Vitamin D deficiency which is wrong. The bypass is done by the surgeon and the stenting is done by the cardiologists. It is the integrity, honesty and the righteousness of the cardiologists to decide whether the patient really needs stenting or not.

In this process the highest profit margins were made by the hospitals at up to 654 per cent.

Thus, hereby analyzing the case of unnecessary stent implants in India and its ethical dimension.

A stent is a tiny wire mesh tube. It props open an artery and is left there permanently. When a coronary artery (an artery feeding the heart muscle) is narrowed by a buildup of fatty deposits called plaque, it can reduce blood flow. If blood flow is reduced to the heart muscle, chest pain can result. If a clot forms and completely blocks the blood flow to part of the heart muscle, a heart attack results. Stents help keep coronary arteries open and reduce the chance of a heart attack.

How Stenting is Actually Works?

- Most commonly, it is used to increase the passage of blood by its placement in a blood vessel that has undergone narrowing or occlusion due to atherosclerosis (a disease in which there is deposition of plaques inside the blood vessels causing their occlusion or narrowing). It thus provides relief by improving the blood supply to the respective organ or tissue in the body.

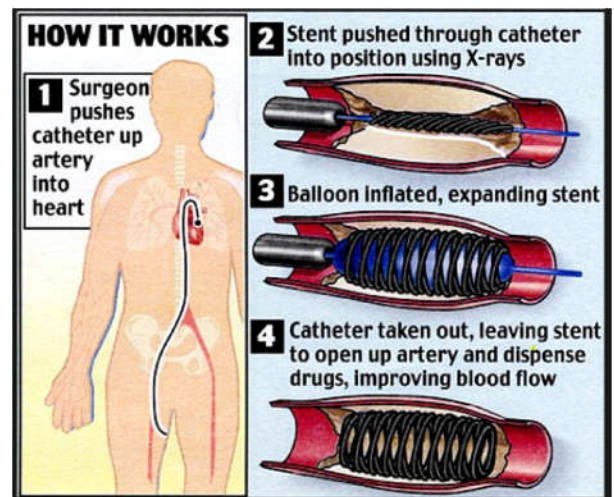


Fig. 1

- During an angioplasty, a stent is permanently inserted into the coronary artery. The balloon is placed inside the stent and inflated, which opens the stent and pushes it into place against the artery wall to keep the narrowed artery open. Because the stent is like woven mesh, the cells

lining the blood vessel grow through and around the stent to help secure it. **“Stent is basically a scaffolding device”**.

- ▶ When the balloon inflates, the stent pops open and reinforces the artery walls. The balloon and catheter are then withdrawn and the stent remains permanently. In a few weeks, tissues from the artery lining grow over the stent.

Risk Involved in Stenting?

- ▶ The greatest risk with stent implantation is the formation of clots within the stent. Aspirin and oral anti-clotting medications are usually given after stent placement to minimize this risk, which has been reported to occur in about 1-1.5% of patients undergoing endovascular stent surgeries. There has been no evidence of long-term complications from stent implantation, according to the American Heart Association.
- ▶ A variety of complications can occur with stent grafting for emergency aneurysm repair. Movement of the stent within the vessel can occur in up to 10% of cases, requiring repeat surgery.
- ▶ Clots can occur in the vessel and migrate to other areas of the body, causing heart attack or stroke. About 2% of patients will require an additional open surgical procedure to correct the aneurysm or complications that occur after emergency endovascular repair.

Stenting in India

Recently several senior cardiologists in India have raised concern over the rise in the cases of unnecessary implant of stents in India. If an audit of stent implant cases was done, over a third of the elective procedures could turn out to be needless.

There are cases of stents being used in absolutely normal patients.

In our country the major gap is in the counselling which the doctor provides. Normally the patients go by the doctor's advice. In the absence of any monitoring, patients in India have no protection from unnecessary use of stent.

As per the study in the US, a few years ago, only half the non-emergency cardiac stenting procedures were appropriate. And the patients insist on angioplasty because they have a feeling that angioplasty will improve their long-term survival.

Currently valued at Rs. 1,400 crore, India's stent industry is heavily import-based, which has also added to the higher procedure costs.

There is no regulation and the Drug Controller is not capable of regulating domestic stent manufacturers. There have been cases where the stent manufacturers have been found making stents in garages.

There is no regulation of hospitals in India, especially in the private sector where a majority of urban Indians seek healthcare. At least 25-30% of the stenting done in this country is inappropriate.

In the absence of any monitoring or oversight, patients in India have no protection from unnecessary use of stent.

Medical Tourism and Stenting procedure

The Indian healthcare market is Rs. 15 billion and growing at over 30 % every year. Indian private hospitals are increasingly finding a mention in the travel itineraries of foreigners, with the trend of medical tourism catching up in the country.

In the last 5 years the implant of stenting in India has increased by 5 times. There is not only a boom in the domestic market, but also foreign patients are coming to India as part of **medical tourism** to get stenting done because the cost of stenting in India is low. This is because there is increased awareness, increased diagnosis, increased availability of the angiograms and increased availability of doctors.

Recovery after angioplasty, patient is faster in case of stents; medication for up to one month to one year would be prescribed, based on medical condition of the patient, to prevent blood clots.

Medical tourism has given a great opportunity to people who cannot afford life saving procedures such as Angioplasty in their country, or in countries where the medical facilities are not developed enough to offer minimally invasive heart procedure such as Angioplasty. Heart hospitals in India offer angioplasty at most affordable prices.

Laws related to illegal use of medical devices

► Power of Section 3 (i) of Drug Price Control Order, 2013:

- Under this section, “the government can regulate distribution and direct any manufacturer to increase production and sell products to institutions, hospitals or any agency as the case may be in case of emergency or in circumstances of urgency or in case of non-commercial use in public interest”. Further, the manufacturers are required to submit a weekly report on stents produced and distributed, to NPPA and Drugs Controller General of India (DCGI).
- However, the regulatory authorities will proceed further only if the preliminary investigation indicates violation. If a hospital is found guilty of overcharging for stents, “the NPPA has the power to recover the overcharged money along with 15 per cent interest under the provisions of the drugs price control order”.

► Other Judicial Measures:

- The PIL- petition was filed because earlier drug manufacturing companies did not mention the maximum retail price on the stent packaging and neither did the hospitals mention the price of the stents in the bill.
- This led to hospitals charging and extracting exorbitant prices for stent implants from their cardiac patients.
- Additionally, the petition had demanded for ceiling the price for all stents. Therefore, after hearing the petition in December 2016, a bench of the Delhi High Court had ordered the Centre to fix maximum retail price and a ceiling price for cardiac stents by March 1, 2017.

Government’s Initiative and Implementation of the Rules

- In July 2016, the health ministry had announced their decision to include all kinds of **stents in the National List of Essential Medicines** in order to bring down the prices of the product. In view of this regards, the public interest litigation

was filed because earlier drug manufacturing companies did not mention the maximum retail price on the stent packaging and neither did the hospitals mention the price of the stents in the bill.

- The government has included two categories of stents in the National List of Essential Medicines (NLEM), a step expected to lead to a steep drop in the prices of the device.
- The health ministry added drug-eluting Stents (DES) and bare metal stents (BMS) to the NLEM 2015.
- The decision was based on recommendations of a sub-committee of expert cardiologists that examined whether coronary stents should be included in the NLEM and will be implemented immediately.
- In 2017, the National Pharmaceutical Pricing Authority (NPPA) has announced a ceiling on the prices of stents. The bare metal stent was capped at Rs. 7,260 while all drug-eluting stents were capped at Rs. 29,600. Previously, the price of stents ranged anything between Rs 23,000 and Rs 2.5 lakh per piece. *(The above measures were the direct outcome of the public interest litigation, filed by an advocate Birender Sanghwan. The petition was filed because earlier drug manufacturing companies did not mention the maximum retail price on the stent packaging and neither did the hospitals mention the price of the stents in the bill.)*
- The National Pharmaceutical Pricing Authority has directed all hospitals to issue detailed bills to patients, specifically and separately mentioning the cost of the coronary stents, along with the brand name of the manufacturer, importer, batch number and other details.
- Hospitals across the country are closely being watched by the NPPA and the State Food and Drug Administration authorities on their pattern of billing after the capping of stent prices.

Creating Artificial Scarcity of Stents:

- Following the NPPA notification, the scarcity of stents in hospitals across cities, including Mumbai have been reported. The high-end stents have been withdrawn from some hospitals to avoid price control.

- ▶ Similarly, the third and fourth generation stents were unavailable to patients on the pretext of price relabelling, despite the NPPA notifying that relabelling is not required.
- ▶ Also, some hospitals are being flooded with the cheaper first and second generation of stents. The state-level Food and Drug Administration (FDA) is carrying out informal surveys to ensure compliance of price capping and availability of implants at hospitals.
- ▶ Moreover, it has also been reported that manufacturers and distributors of the high-end stents, such as Synergy, Alpine, Absorb etc, have informed the FDA officials that the latest stents cannot be made available within the price range fixed by the NPPA.

Ethical Concerns Involved in the issue

As per the NPPA observation-, “huge unethical mark-ups are charged at each stage in the supply chain of coronary stents, resulting in irrational, restrictive and exorbitant prices”. While assurance given by the NPPA chairman, the manufacturers that the capped prices have a provision of an 8 per cent profit margin. Stents account only for 25 per cent of an angioplasty’s bill. Whereas, “about 15 per cent of the bill is the hospital margin on stents and 60 per cent-67 per cent make up for hospital charges, including the doctor’s fees, etc.”

The regulation and capping of the stent prices is commendable, but still a battle half won. The price regulation will only make the stent implants cheaper and affordable. But, the major concern over the practice of irrational stent implants or an angioplasty continues to persist. The use of cardiac stents in India has been growing rapidly at 25 per cent annually. At least 25-30% of the stenting done in this country is inappropriate. There are cases of stents being used in absolutely normal patients.

Ethical dimension with “unnecessary surgery”

Recommending or performing unnecessary surgery is inconsistent with ethical practice because all surgical procedures bear some degree of risk. Performing unnecessary surgery is a major betrayal of the surgeon’s paramount obligation to place the patient’s best interests first in therapeutic decisions.

For ethical purposes, the term “unnecessary surgery” defines when (1) in an individual case there is a

decision to perform a procedure or surgery that is not justifiable in light of the patient’s needs and is substantially inconsistent with accepted professional standards for determining the need for surgery, and/or (2) there is a pattern or practice of performing procedures or operations in what would generally be considered marginally justifiable cases. The following examples illustrate these concepts.

Surgeons have a responsibility to evaluate all of the procedures they perform and to consider whether they are appropriate for a particular patient. Conversely, if a procedure is likely to be significantly beneficial to the patient, medically justified, and desired by the patient, a surgeon should not ordinarily decline to execute a procedure he or she is qualified to perform.

Unnecessary surgery is that which is clearly unjustifiable when the risks and costs exceed the likely therapeutic benefits to the patient based on the patient’s lifestyle requirements. No one factor alone can determine whether a particular surgery is unnecessary; instead, the patient’s quality of life must be taken into account.

The reality shows that, only area where angioplasty has a proven track record is during an acute heart attack, and during such times as well, the procedure has to be done within minutes. Rest of the time, it is done just to make money by instilling fear among patients and their relatives about blocks in the coronary arteries.

Performing unnecessary surgery violates Code of Ethics such as:

- ▶ According to code of ethics the surgeon should fully advise the patient about the proposed surgical procedure, the reasons for proposing it and any substantial risks, benefits, and alternatives.
- ▶ Further after the patient is informed and demonstrates understanding of this critical information, he or she voluntarily consents to the surgery. In most cases of unnecessary surgery, there is a failure to convey adequate information concerning the risks, benefits, and alternatives, or the ophthalmologist may have misrepresented the procedure in order to obtain patient consent.

Performing unnecessary procedures or surgery may be a basis for malpractice liability or tort actions for

fraud and battery even if there is a satisfactory surgical outcome. Claiming reimbursement for unnecessary surgery could also constitute fraud under Medicare/Medicaid or private insurance policies. Performing a higher volume of particular procedures or operations than would be expected given practice specialization and disease prevalence may also suggest the existence of unethical practice and become a subject of scrutiny.

Surgery is unjustifiable when the risks and costs exceed the likely therapeutic benefits to the patient.

Thus, a significant percentage of angioplasties are inappropriate. The Cardiology Society of India should bring out guidelines which the public can access and decide whether stenting or open heart surgery is required.

Cardiology Society of India should create a mechanism to audit themselves rather than giving a chance for an external body to be created. Such an audit is needed as society has lost trust in doctors because of such inappropriate use. It would be difficult to audit during an emergency with acute heart attack with very low chances of surviving if the intervention is not done.

Despite making guidelines there can be aberrations. So making guidelines is not the solution. Losing reputation at the cost of earning money should not be the part of medical treatment.

Is there any Alternatives Available?

Stent implantation helps to clear blocked arteries and keep them open mechanically. There are no mechanical alternatives however, to reduce plaque formation.

Nutritional supplements and alternative therapies that have been recommended to help reduce risks and promote good vascular health include:

- ▶ Vitamins B6 and B12 help to lower homocysteine, an amino acid that is believed to contribute to atherosclerosis. B6 is also a mild diuretic and helps to balance fluids in the body.
- ▶ Folic acid helps lower homocysteine levels and increases the oxygen-carrying capacity of red blood cells.
- ▶ Antioxidant vitamins C and E work together to promote healthy blood vessels and improve circulation.

- ▶ Angelica, an herb that contains coumadin, a recognized anticoagulant, may help to prevent the formation of blood clots.
- ▶ Garlic has been shown in studies to reduce cholesterol and help prevent atherosclerosis.
- ▶ Essential fatty acids help reduce blood pressure and cholesterol, and maintain elasticity of blood vessels.
- ▶ Chelation therapy can be used to break up plaque and improve circulation.
- ▶ Citrin is a herbal extract that inhibits the synthesis of dangerous fats in the body.
- ▶ Certain herbs have been shown to improve circulation and help prevent plaque formation, including cayenne, chickweed, ginkgo biloba, and hawthorn berries.
- ▶ A vegetarian diet, with plenty of whole grains (brown rice, oats, spelt, whole wheat) showed a reversal of coronary artery disease in an American study called the Lifestyle Heart Trial.

Way Forward

- ▶ The government needs to promote and provide incentives to the Indian drug manufacturing companies to help them compete in the stent market, which is largely dominated by foreign companies.
- ▶ Though having slashed the cost of stents by over 85 per cent may reduce certain percentage in the number, but still doesn't guarantee protection of patients against unnecessary stent implants in India.
- ▶ It is essential to frame strict guidelines and following it strictly by all the machineries whereas, making audits mandatory for such procedures. The doctors and hospitals involved in these unethical practices should be seriously dealt with under the law.
- ▶ Unless the patients are protected from doctors and hospitals extracting unethical profits by performing unnecessary stent implants, the struggle for comprehensive healthcare for coronary artery diseases will remain incomplete.
- ▶ Patients need to come forward and complain against any kind of non-compliance. "The government has set up a system in place. So it is now up to the patients and relatives to ensure that the bill they get is itemized.

SPECIAL ISSUE

What make Public Sector Organisation High Performer?

Context

ISRO has been a stellar performer and brought laurel for India. Its record breaking launch of 104 satellites in one mission was one more achievement in a series which included successful missions to Mars and Moon and has added another feather in its hat. ISRO's performance has forced analysts to compare its performance with other PSUs like DRDO, Air India, Indian Banks which are struggling to deliver on their promises. Under such circumstances ISRO provides a good case study which can be used to understand what ails Indian PSUs and what can be done for their turnaround.

ISRO is the space agency of the Government of Republic of India headquartered in the city of Bangalore (South West India). Its vision is to "harness space technology for national development", while pursuing space science research and planetary exploration.

The Indian Space Research Organization is the sixth largest government run space agency in the world and stands in line with the other leaders of space research and development such as NASA, RKA, ESA, CNSA and JAXA.

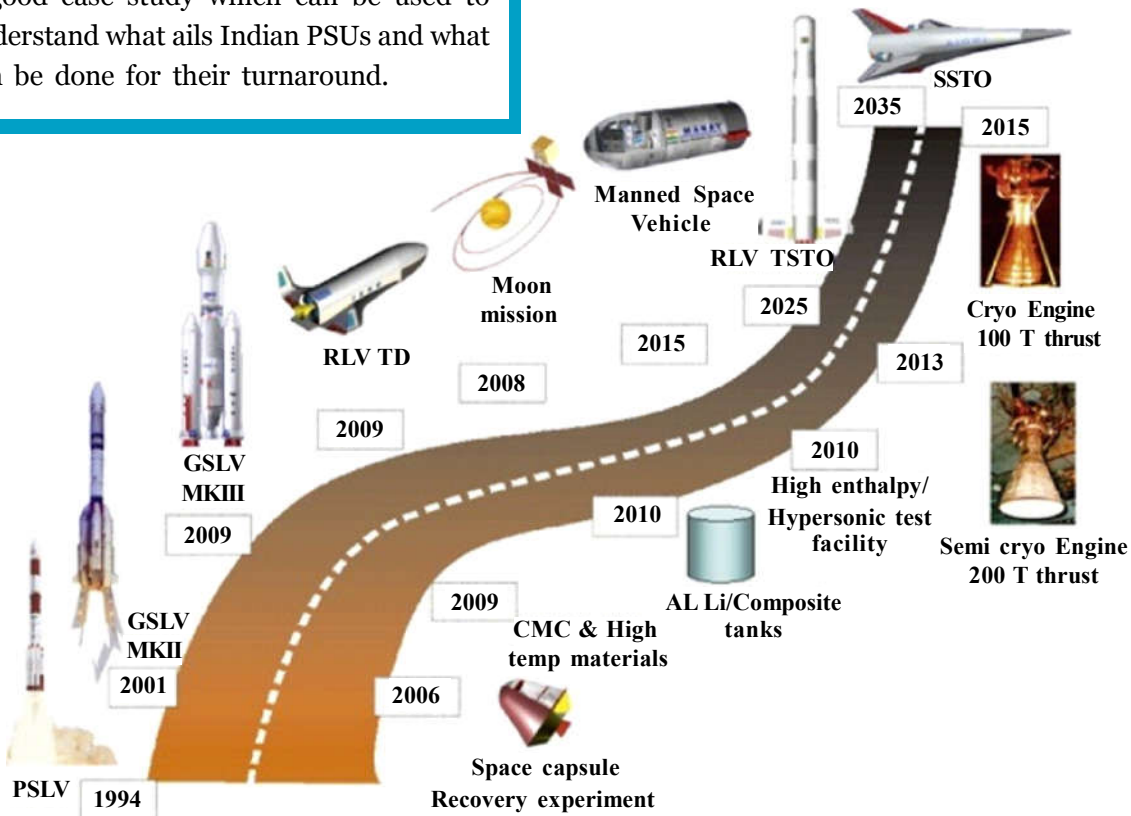


Fig. 2

Other Achievements by ISRO in recent times

- ▶ Successful testing of **cryogenic engine**.
- ▶ Successful trial of **reusable launch vehicle**
- ▶ **Setting** up of indigenous navigation satellite system, IRNSS

Other organization which has performed well:

- ▶ **NPCI – National Payment Corporation of India** has been continuously evolving according to the needs with services like UPI.
- ▶ **National Stock Exchange of India**

Why ISRO has been successful?

ISRO has been successful in various cutting edge initiatives and has made India nearly self reliant in the field of space science and space applications. Behind this success story there have been a number of factors, like:

▶ **Autonomy:**

- ISRO Chairman is secretary of Department of Space and reports directly to PMO.
- ISRO Chairman is also head of space commission which is responsible for overall policy formulation and objective setting for ISRO and other related organizations.

This organizational structure has helped ISRO in a number of ways:

- It prevents micro-management by ministries which is the case in other PSUs. Ministers and bureaucrats are generally not aware of the technical issues and thus causes delays and confusion in decisions making, which happens in the case of relationship between Ministry of Defense and DRDO.
- PMOs internal working has also helped. As PMO work spreads across departments it does not have that much time and energy to micromanage departments attached to it.
- Since ISRO chairman is also chairman of Space Commission, this results into better synergies in planning for the future. In such situations plans better reflects the capacities of bodies entrusted with their implementation,

greater responsibility and accountability in implementation.

▶ **Location of centers:**

Location of an organization matters because:

- Locating headquarters away from field organizations and in national capital creates problems of co-ordination with field organizations and undue influence from parent ministry. This is not the case with ISRO which is headquartered in Bengaluru.
- Geographical location also matters because an organization must be established where proper ecosystem is available. Bengaluru which is emerging as S&T hub provides right ecosystem to attract talent and build its knowledge capabilities more than most government agencies do.

▶ **Human resource**

Human capital plays a very important role in performance of the organization.

- Unlike many government agencies which are staffed by generalists, ISRO is staffed by specialists right from its technocratic top management.
- ISRO is also more ready for cooperating with and working with the best in the private sector. Many of the building blocks of its success stories have been supplied by private sector.

What lessons can be learnt?

- ▶ It shows that it is possible to built high performing government institutions provided sufficient **autonomy** is given to the institution and which is combined with **accountability**.
- ▶ Along with this the idea of specialist heading technical organizations and acting as single point interface between the organization and ministry should be considered.
- ▶ **Location of organizations** should be decided based on criteria of efficiency of management and not on the basis of ensuring control, regional equity etc. This is very much the case for PSUs in manufacturing sector like location of wagon or coach factory in Bihar or Punjab where no raw material is available.
- ▶ **Attraction of right kind of talent** through lateral entry and giving autonomy is also needed for sectors like banking.

- ▶ **Collaboration with private sector** to provide synergies. This must be supplemented by collaboration with educational institutions so that right kind of talent is prepared.

Government must use these to strategies for areas like cutting edge technologies where profits are not readily available and private sector may be reluctant to enter.

Way forward

Building successful organization requires continuous nurturing rather than tinkering and faith in the leadership. India has a number of public sector organizations in various sectors like civil aviation, banking, telecom, railway which are not performing well because of political interference, absence of accountability mechanisms and others. There is a need to adopt right strategies for each sector and organization so that taxpayer's money is not wasted.

State Funding of Elections

Context

Electoral process forms the bedrock of representative democracy. However in India it has been beset with a lot of malpractices like use of money and muscle power, non-transparent electoral funding, criminalization etc. In recent there have been a number of steps in reforming the electoral process by judiciary, civil society and other governmental organizations. With the budget 2017-18 proposing electoral bonds, the debate of state funding of elections has emerged; even Prime Minister has called for a debate. But the main question is that whether it practical or is India ready to implement it?

According to the recent Report, Political parties received Rs 7,833 crore funding from unknown sources between 2004-05 and 2014-15, which is 69 per cent of their total income, among the national parties, the Congress tops the list with incomes with 83 per cent income from unknown sources, followed by the BJP with 65 per cent. Under the Income Tax Act, political parties do not have to pay tax provided they accept all donations above Rs. 20,000 in cheque. While they are required to keep details of donations below Rs. 20,000, it has been pointed out that the option of cash donations leaves room for turning black money to white.

This opaque and non-accountable system of political party funding subsumes basic democratic principle of free and fair election as it increases the use of money and muscle power.

Thus many committees have recommended for implementation of State Funding provisions. State

funding basically means that government extending **financial assistance** (cash/kind) to political parties (partly/fully) for contesting elections. The objective is to control and **eliminate outside pressure** over govt. policies and functioning by vested interests.

It will also help in controlling the flow of unaccounted money and muscle power during elections and control the levels of corruption in public life.

There are two formats: direct and indirect state funding.

- ▶ **Direct funding** means giving funds directly to political parties (or candidates).
- ▶ **Indirect funding** takes the form of various subsidies or access. Indirect funding can take the form of subsidized or free media access, tax benefits, free access to public spaces for campaign material display etc.

Significance of State Funding

Indian parliamentary democracy is beset with various issues but the most pernicious among them is use of money power in elections. In 2014 general election individual spending limit was Rs. 70 lakh per constituency. Such huge spending on elections by candidates and political parties gives rise to corruption, crony capitalism, use of black money and vitiates the internal democratic process of political parties as they are hijacked by those with money, rather than by those with statesmanship.

Therefore it is said that state funding if implemented will result into various benefits like:

- ▶ **Will reduce role of money power** and muscle power in elections as winnability of candidates will be decided on the leadership qualities rather than wealth.

- ▶ Will **provide level playing field** to all parties as in present system national parties get much more donations as compared to regional parties, which in turn affect their vote mobilization capacities.
- ▶ Will **curb corruption and crony capitalism**. Since it is alleged that many donations to parties are made in anticipation of returns in form of favourable policies and economic benefits.
- ▶ It will also reduce use of black money. At present nearly 80% of party funds are from unknown sources, state funding of elections will remove this anomaly.
- ▶ Will **promote inner party democracy** as ticket distribution will not be decided on the basis of how much money an individual is able to contribute to the party fund.
- ▶ Will **ensure that good candidates are** given tickets and this will improve the quality of Indian democratic system, debate and legislative functioning.
- ▶ It may put pressure on government to go simultaneous elections as people may not like paying taxes for multiple elections and will put pressure on government to do away with this.
- ▶ In the last general election, 55 crore votes were cast. So, at the rate of Rs.100 per vote it comes to around Rs.5,500 crore that is not too high for transparency and accountability.

Thus overall state funding of elections not only holds promise of cleansing the electoral process and curb generation of black money but also has possibility of an era of good governance, energizing Indian democracy with quality legislators who are able to hold executive accountable and involve more in debates rather than in disruptions.

Globally there are 80 countries which have adopted some form of state funding, like UK, USA, Germany, Japan, Italy, Israel etc.

Countries apply diverse methodology: UK - 3 pounds/vote, other countries matching contributions to funds contributed.

Performance of the system in other countries:

- ▶ For instance, Italy, Israel, and Finland have not seen any visible reduction in expenditures

due to public funding, despite strong systems of checks and balances in place.

- ▶ In the US, big money continues to be routed through political association committees (PACs).
- ▶ However, there are countries like the UK, Germany, and even Japan that have reduced the expenditure, increased transparency, and brought about political competition among diverse players including smaller and new parties.

What are arguments against state funding of elections?

Despite so much support for state funding of elections there are certain valid arguments which have been against it:

- ▶ **Against idea of democracy:** Democracy works on the basis of supporting the ideology of party you like. In state funding no choice is available for taxpayers to decide which party gets their money, it itself is against the idea of democracy.
- ▶ Indian economy is not that strong to support state funding. There will be increased burden of taxation on the people. This may even lead to withdrawal of those who are paying taxes.
- ▶ If government tries to implement it without increasing the tax-to-GDP ratio then public money will be transferred from developmental works for election purpose, which will affect the development of country.
- ▶ The state funding of elections may not be sufficient for elections and parties may continue to use extra money for winning votes. This will further brood corruption.
- ▶ There are chances of misuse of funds in absence of transparent accounting and auditing of political parties.

What is the present status?

While the political parties, Election Commission and various bodies remain committed to state funding of elections, there has been little progress on this.

- ▶ Current state funding measures include provision of free time on public broadcasters for national

parties in general elections and for registered state parties in state legislature elections.

- ▶ Besides this, national parties are provided some benefits like security, office space, utility subsidies etc.
- ▶ Another form of indirect state funding available in India is that registered political parties do not have to pay income tax, as laid down in S.13A of the Income Tax Act.

What are the views of various stakeholders?

Some major reports on state funding include those given by the **Indrajit Gupta Committee on State Funding of Elections (1998)**, **Law Commission Report on Reform of the Electoral Laws (1999)**, **National Commission to Review the Working of the Constitution (2001)** and the **Second Administrative Reforms Commission (2008)**.

- ▶ Except for the 2001 report, all other recommended partial state funding only, given the economic situation of the country.
- ▶ The 1998 report said that state funds should be given only to registered national and state parties and that it should be given in kind only.
- ▶ The 1999 report concurred with this but also recommended first putting a strong regulatory framework in place including internal elections, accounting procedures etc.

Recent initiatives taken in the Budget

Recently the government has proposed the concept of Electoral Bonds. Electoral Bond is a financial instrument for making donations to political parties. These are issued by

Scheduled Commercial banks upon authorisation from the Central Government to intending donors, but only against cheque and digital payments (it cannot be purchased by paying cash). These bonds shall be redeemable in the designated account of a registered political party within the prescribed time limit from issuance of bond.

The bonds will likely be bearer bonds and the identity of the donor will not be known to the receiver.

The party can convert these bonds back into money via their bank accounts. The bank account used must be the one notified to the Election Commission and the bonds may have to be redeemed within a prescribed time period.

Further the threshold limit of cash donations has been put to Rs 2,000. Donations can still be made without any limit by account payee's cheque or bank draft, or e-clearing system through a bank account or electoral bonds.

Way forward

There is no denying that there is an urgent need to bring transparency in funding of political parties. Recent steps of declaring political parties and public institutions and bringing them under the ambit of RTI has not been followed. The only significant move has been launching of electoral bonds, reducing non-disclosable deposit limit to Rs.2,000. Efforts must be made to create a Electoral Trust in which funds can be deposited in a transparent manner and from that these can be distributed to parties based on certain criteria. This will solve the issue of transparency.

Challenge of Ageing with Dignity

Context

India has a rapidly ageing population which is facing various challenges because of economic, technological and value system changes through which the Indian society is undergoing. The challenges of providing healthcare, social security, warmth of family relations etc for old age persons may soon outweigh the demographic dividend of a young workforce. Unless attitudes towards the elderly improve and the government increases resources for their care, India is staring at the prospect of a generational socio-economic crisis.

Elderly or old age consists of ages nearing or surpassing the average life span of human beings. The boundary of old age cannot be defined exactly because it does not have the same meaning in all societies. Government of India adopted 'National Policy on Older Persons' in January, 1999. The policy defines 'senior citizen' or 'elderly' as a person who is of age 60 years or above.

With the rapid advancement in medical science and technology it has now become easier to control various dreaded diseases which were the cause of high mortality earlier. This has resulted in a steady increase in life expectancy. United Nations predict that by 2050, average life expectancy will be almost 80 years in developed regions and more than 70 years in less developed parts of the world.

On the contrary, India would have 30.2 per cent of the population above 60 years by 2100 which is relatively less as compared to other nations.

However in India, though percentage wise graying is not very rapid, but due to its mammoth size, it is a huge challenge for the policy makers.

Population ageing has profound social, economic and political implications for a country.

The increasing number of older persons put a strain on health care and social care systems in the country. Old age comes with lot of ailment and diseases. In case of large number of elderly persons in the population, the country needs more and more health and medical services, facilities and resources. More and more numbers of hospitals, doctors, nurses are required.

Very old people, due to their reduced mobility and debilitating disabilities, need other people to do things for them. With the increasing trend of nuclear families in the society and with fewer children in the family, the care of older persons in the families gets increasingly difficult. To fulfill caring needs of aged persons more and more nursing people with appropriate skills are required.

What is the population of elderly people in India?

By some estimates approximately 20% of Indians will be elderly by 2050, defined as aged 60 years and above, marking a dramatic jump from the 8% level that the figure is at now.

Some other facts related to old age are:

- ▶ India already have the second largest elderly population in the world,
- ▶ 80% of Indian elderly persons live in rural areas,
- ▶ 30% of them are below poverty line, and
- ▶ There is feminization of old age.

What are the expectations of old age persons?

- ▶ Elderly yearned for families and to play a role in their lives by way of care and nurture for their grandchildren.
- ▶ Others hoped to lead lives that offered respect and independence, and wanted to get away when it was denied.
- ▶ At most they want respect from the next generation and governments for their valuable service to the nation, society and family.

What are their problems and why?

The generation gap between the two creates conflict in value system, demands. Younger ones are after securing their future, hoping for better employment, believe in social networking through social media, are technology savvy with individualistic oriented lifestyle. Old age persons look for family warmth through real world connections. All these create a lot of problems for old age persons like:

- ▶ **Impact of globalization and industrialization:** emergence of nuclear families, migration of children for the purpose of employment, higher studies, delay in age of marriage of children are some of the realities associated with families in present times. This makes old age persons feel lonely.
- ▶ Earlier women in the family used to take care of elderly. Now because increased rates of working women in urban areas there is no one to take care of them.
- ▶ **Our social values and attitude towards old age persons:** In poor families income insecurity, migration and displacement for work, smaller tenements, and lack of tangible State social security infrastructure seemed to be feeding into a collective compassion deficit. Such situations makes old aged people look undesired in family.
- ▶ Most of Indians work in informal sector and in the absence of social security mechanisms are dependent on family members and government support during their old age.
- ▶ Health problems are another area of concern for old age persons, as non-communicable disease afflict such people and they need continuous caring which is not available to them.

All these create a situation where in middle and high income groups elderly feel lonely, suffers from depressions or other old age related health problems whereas in low income groups they are forced to live life of destitute and move to old age homes for support.

What is the present status?

- ▶ Thus far, efforts to develop a regime of **health, housing and social care** that is attuned to the shifting needs of the population have been insufficient.
- ▶ While more mature economies have created multiple models for elder care, such as universal or widely accessible health insurance, networks of nursing homes, and palliative care specialisations, it is hard to find such systemic developments in India.
- ▶ There is likely to be a shift in the disease patterns from communicable to non-communicable, which itself calls for re-gearing the health-care system toward “**preventive, promotive, curative and rehabilitative aspects of health**”.

Market based solutions:

Building housing communities or units specifically designed for old age persons of high and middle income, NRI group.

Such communities provide services like:

- ▶ **UberHealth's** preventive health care package takes care of minute details, including booking doctors' appointments, picking up the elderly parents and dropping them back, and having a representative accompany them to take notes on doctors' feedback which will be sent online to the children abroad.
- ▶ Some children use CCTV based monitoring of the conditions of their parents.

What are the steps taken by government?

Government has been aware of the concerns of the old age persons and has launched a number of initiatives. Along with this private sector has also come forward to cater to the needs of those belonging to affluent section.

- ▶ **Integrated Programme for Older Persons (by central government since 1992):** aims to provide senior citizens with basic amenities such as shelter, food, medical care and entertainment opportunities.
- ▶ **Indira Gandhi Old Age Pension Scheme by Ministry of Rural Development** provides a monthly pension of Rs.200 given to person in the age group of 60-79 years and Rs. 500 for those above 80 years and above from BPL households.
- ▶ **Financial inclusion** through health insurance, social security for informal sector persons who will become old in future has been done. PM Jeevan Jyoti Bima Yojana, PM Suraksha Bima Yojana and Atal Pension Yojana are some of the steps in this direction.
- ▶ **Maintenance and Welfare of Parents and Senior Citizens Act:** Act make it a legal obligation for children and heirs to provide maintenance to senior citizens and parents, by monthly allowance and aims to provide more

effective provision for maintenance and welfare of parents and senior citizens.

- ▶ **Steps by other government organizations like Delhi Police** has special cell for old age and celebrates festivals with them and provide help to them when needed.

Apart from these governments provide a number of facilities like subsidised tickets for transportation,

Way forward

There is a need to recognize the contribution of the elderly to ourselves, to society and nation. They should be given due care, respect through greater allocation from the side of government for their health care, housing needs. Changing the attitude of the younger generations regarding importance of family relations, the need to spend time with their parents along with career needs should be focussed. Private companies can give leaves to their employees so that they can spend time with their parents, work stress can be relaxed. In school such values must be taught.

Sharp Reality of Displacement in India

Context

'Development' has become a nightmare for many in the Third World countries in such a way that the so called 'target group' or beneficiary becomes, 'victims' of progress and development. Though it is an established fact that throughout history, re-arrangement in human settlement patterns have been "a companion of development" but the process should be just, humane and as voluntary as possible.

Thus hereby analyzing the sharp reality of the displacement, its negative impact and steps needed.

Introduction

Between 60 and 65 million people are estimated to have been displaced in India since Independence, the highest number of people uprooted for development projects in the world. "This amounts to around one million displaced every year since Independence," says a report released recently by the Working Group on Human Rights in India and the UN (WGHR). "Of these displaced, over 40% are tribals and another 40% consist of dalits and other rural poor".

Why displacement is increasing?

- ▶ **Development vs. displacement** debate has been raging since land has been acquired, forest have been cleared for mining, industrialization and development. The most vulnerable section in this whole development process is the weaker section among society which constitute of SCs, STs, minorities, women and children.

- ▶ According to one study most number of people were displaced because of dam construction in India.
- ▶ **National interest:** Nationalization of natural resources like forest resources, on which STs depended for their survival has been the main cause of displacement.
- ▶ **Absence of true representation:** Representation of such vulnerable section in higher levels of decision making is missing. It makes the development process and development policies myopic, which exclude such sections or neglects their interests. In absence of laws and mechanisms which ensure that their voice is heard, they are left at the receiving end of development.
- ▶ **Exclusion from governance:** Absence of participatory decision making, top down approach of planning process and focus on trickle-down theory the voices of those at the lower level all left unheard.
- ▶ **Regulatory flaws:** Absence of clear land titles in rural areas, community based living of tribals with no clear ownership, absence of mechanism which can identify those dependent on land along with owners resulted into the right to property being violated.
- ▶ Many poor people have faced multiple displacements. They are often displaced from their villages due to projects such as dams or SEZs. With no land and no livelihood, they head to cities where they live in jhuggis that are considered illegal and are often demolished.
- ▶ According to Shivani Chaudhry, associate director, Housing and Land Rights Network, only around 20-25% of those internally displaced are

ever resettled in India, as the vast majority of those forcibly evicted from their habitat are not recognized as internally displaced people.

As a result of it all over the country there are struggles against projects which threaten to displace people, deprive them of land and livelihoods and give them no decent alternatives. Northeast India, ignored by policymakers for long, has become the new battleground against massive hydel projects.

- ▶ Development works are not the only culprits for the displacement of large section of society. The great diversity of India and ensuing communal tension and riots, inter-tribal rivalries has been another major factor which has caused large number of internally displaced people.

Indian north east has been specifically affected because of violence related displacement.

What affect it have on the nation and lives of individuals?

- ▶ No development can be sustainable if it is not inclusive. Treading on a beaten path by ignoring large sections of society in highly diverse country will have serious implications for peace and security of the nations.
- ▶ Problems of **left wing extremism, insurgency in north east** has roots in forced acquisition of lands and resources from the indigenous people and their neglect in the development process.
- ▶ The **peaceful protest against Narmada Dam, Tehri Dam** are all examples of people voicing their concerns against the discriminatory policies of governments.
- ▶ The credibility of the government, its ability to enforce its decision is challenged in long term.
- ▶ It also raises the issue of respect for the basic human rights of people in a democratic country. Right to live with dignity, right to life are fundamental rights and by denying the people of their livelihood opportunities without adequately compensating them is violation of the rights enshrined in Indian Constitution.
- ▶ Displacement does more than effacing identities and disrupting livelihoods, it can reduce life expectancy. **Around 8,000 Sahariya tribal** people were moved out of their ancestral homes in Kuno in 1998-2002 to make space for Asiatic

lions brought in from Gujarat. The families suffered “acute stress” as they coped with their radically changed life in unfamiliar, semi-urbanized surroundings 10 km away.

- ▶ Women are the major sufferer. There is an invisible distinction between rural and tribal women with regard to control over lands in traditional land based situations in mainstream India. Tribal women enjoy a greater social status with regard to control over resources. This ensures their active participation and decision-making with regard to land utilization, agriculture and powers over cash flow in a tribal economy. This is enjoyed to a lesser extent by rural women in India. Yet, they have a distinct role in the agrarian society with regard to participation in agricultural work, livestock management, and access to common properties.
- ▶ However, both rural and tribal women are completely alienated from these accesses and rights when the mines come. Testimonies of women from coal mining areas of Orissa (Talcher) show that displacement and loss of land were the most serious problems affecting their lives, as their link to livelihood, economic and social status, health and security all depended on land and forests.
- ▶ Whenever villages have been displaced or affected, women have been forced out of their land based work and pushed into menial and marginalised forms of labour as maids and servants, as construction labourers or into prostitution, which are highly unorganised and socially humiliating.

What steps have been taken to prevent such situation?

- ▶ **Indian Constitution makers** were aware of the vulnerability of the tribals and therefore provided special provisions for the administration of tribals areas through 5th and 6th schedule provisions, which gives tribals say in decision making related to land alienation.
- ▶ **Under Forest Rights Act** recognition of tribals individual and community rights was done, which will help tribals to claim ownership of resources and take part in decision making regarding their lives.

- ▶ **PESA act was passed in 1996 which** gave gram sabhas the power to decide about the land acquisitions.
- ▶ **Land acquisition Act of 2011** gave detailed provisions for social impact assessment before acquisition of land. It also contains details provisions for resettlement and rehabilitation.
- ▶ In 2007 India also voted in favour of the **United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)** which recognizes indigenous people right for development.
- ▶ To prevent displacement because of conflicts, efforts must be made to built social capital and strengthen mechanisms for conflict resolution.

In recent there has been a number of examples where tibals have asserted their rights like in Vedanta mining case in Odisha and have got success.

Way Forward

In such circumstances there can be a perception that vulnerable sections can hamper development

by blocking land acquisition. Here it must be kept in mind that because of past experience they have become apprehensive of development projects. Therefore, there is a need to educate them, make them aware about the development needs and at the same time ensure that they do not suffer because of administrative apathy towards resettlement and rehabilitation. This will help India achieve a inclusive and sustainable growth.

While referring to the acquisition of land for development purposes, it is important to understand what constitutes development itself. Since last few decades, development has been looked at as something beyond a mere growth in GDP, that is, an overall Human Development. There have also been theorized certain basic needs or basic capabilities that all people are entitled to, for a society to ensure true development. If this be so, it is essential that the laws of a democratic country ensure that due to acquisition of land for the growth of few, the displaced persons are not made worse-off.

Supreme Court and Censorship Interference

Context

Bombay High Court's ordered censoring of the 4 scenes of film Jolly LLB despite being cleared by Censor Board. The Supreme Court refused to intervene or to hear the producers on the merits of their case until the High Court passed its final orders.

Supreme Court Passed an "interim order" compelling cinema halls to play the National anthem in November 2016.

Few days back, Supreme Court passed another "interim order", in a case involving sex-determination tests. It directed search engines such as Google to constitute in-house committees to "block" access to such websites, and (in continuation of previous orders) to do so by blocking search "keywords".

Is this example of Judicial Overreach or violation of individuals' fundamental right?

Constitution guaranteed to all citizens fundamental rights, including the fundamental right to the freedom of speech and expression, subjected only to specified restrictions. It envisages its protection through two layers of safeguards: the legislature is expected to make a law, and then the courts are called upon to test its constitutionality.

In the years after Independence, the framers' delicate balancing act — between State and citizen, between rights and public goals, between legislatures and courts — has sometimes come under immense strain, but has survived more or less intact. In recent months, however, that balance is once again under stress because of the Supreme Court. Of late,

fuelled by a sense of moral outrage, the Court has been passing a series of "interim orders" (eventually likely to become final) that are progressively increasing censorship.

Such censorship, undoubtedly, taken on the ground of public interest, has few merits.

Merits

As a guardian of our fundamental rights it is responsibility of courts to intervene in the matters of public interest. It has achieved huge success in ensuring rights of the people through various judgments such as upholding the **law of sedition** while striking down Section 66A of the Information Technology Act, upholding the **law of obscenity** while gradually liberalizing it over the years, and so on.

Such censorship powers will help in regulating the unaccountable private committees, something that internet scholars and activists all over the world have repeatedly warned against.

Demerits

However, of late, the Court has begun to redefine its own role under the Constitution, transforming itself from the guardian of civil rights to a great, overarching moral and political censor.

- ▶ **Totalitarian act** - Some of the censorship act by court is seen as a response made in totalitarian society. For example the Court has ordered to Google or every one regarding blocking of sex determination advertisement without considering its purpose: research, investigation, or even simple curiosity. Today, the Court wants Google to block access to search results involving the word "gender selection". The experts view what will it be tomorrow? "Secession" or "Terrorism" or else?

- ▶ **Dilution of rules and cutting down the rights of the people** - Public interest litigation began as a movement to democratize access to courts. It discarded traditional rules of evidence, and vested vast powers in courts to “do justice”. In 2017, the very dilution of rules and the existence of vast powers have become weapons in the hands of courts to cut down rights through various censorships.
- ▶ **Legality of the issue** - In all these cases, the Court’s censorial actions bear a tenuous connection to “law”. In the Jolly *LLB 2* and *National Anthem* cases, the courts do not even attempt to demonstrate that what they are doing is within the legal framework. In the *Sex Determination* case, vague references are made to the IT Act, but that law simply does not contemplate judicial orders that make the Internet off limits.
- ▶ **Taking over the powers of legislative organs** - The Court’s actions have upended the careful balance that the framers sought to achieve in the Constitution: instead of our elected representatives making laws, which the Court

then tests for constitutionality, the Court has now begun to make its own laws limiting, restricting, and suffocating speech.

- ▶ **Judicial overreach** - The Supreme Court is currently hearing petitions seeking to ban pornography, order a keyword-block for rape videos, and ban racy pictures on condom packets. The Court’s jurisprudence also has an impact downwards: last year, the Madras High Court ordered that the teaching of the Tamil epic *Thirukkural* be made compulsory in all schools — again, in the absence of any law whatsoever.
- ▶ **Making the people passive subjects rather than thinking citizen** - In 2017, the Supreme Court has reduced us to passive subjects instead of active, thinking citizens. The Supreme Court tells us what we can watch and what we can’t watch. The Supreme Court tells us what we can search on the Internet, and what we can’t search. The Supreme Court tells us that we must be patriotic, and how, where, and when, we must be patriotic.

Conclusion

The Court must act in a reasonable manner. It should leave certain things on the people’s wisdom. It should respect the very spirit of our

Constitution, and specifically to its structuring principle of autonomous, thinking citizens.

Medical Tourism

Context

The medical tourism market in India is growing at high pace. The India's medical tourism market is expected to more than double in size from USD 3 billion at present to around USD 8 billion by 2020.

Today Africa, GCC and CIS regions (whose current share is just 30 per cent) present the maximum possible opportunity for the Indian healthcare sector. Medical tourists from these sectors currently favour the South East Asian medical corridors. Reflecting the pulse of the vibrant industry thus hereby analyzing the concept of Medical Tourism, reasons for growth of it in India and challenges.

What is medical tourism?

The term medical tourism is the act of travelling to other countries to obtain medical care. Medical tourism is a new form of niche tourism increasingly becoming popular in the current world and India has emerged as a popular destination for providing Global standards of health care at affordable costs. The **Medical Tourism Market Report: 2015** found that India was "one of the lowest cost and highest quality of all medical tourism destinations, it offers wide variety of procedures at about one-tenth the cost of similar procedures in the United States."

What is the present status and potential?

India's medical tourism market is expected to more than double in size from USD 3 billion at present to around USD 8 billion by 2020. The standards of medical treatment and hospital facilities provided to

patients have significantly improved in India with **21 hospitals in India already accredited by JCI. India ranks 2nd in the world medical tourism sector.** Globalization has further boosted the growth of Medical tourism and it is found to be complimenting the growth of hotel and travel industry business in India. Also India is emerging as a major destination for patients from developing and developed countries.

- ▶ Several global medical tourism corridors - **Singapore, Thailand, India, Malaysia, Taiwan, Mexico and Costa Rica.**
- ▶ Amongst these, India has the second largest number of accredited facilities (after Thailand).
- ▶ Bangladesh and Afghanistan dominate the Indian Medical Value Travel (MVT) with 34 per cent share.
- ▶ Africa, GCC and CIS regions (whose current share is just 30 per cent) present the maximum possible opportunity for the Indian healthcare sector.
- ▶ **Chennai, Mumbai, Andhra Pradesh and NCR** are the most favoured medical tourism destinations.
- ▶ **Chennai has emerges as 'India's health capital'.**
- ▶ Kerala is fast emerging on the medical tourism map of India.

Why India emerge as potential destination?

- ▶ **Range of treatment:** low cost of treatment and alternatives available make India a favorable destination.

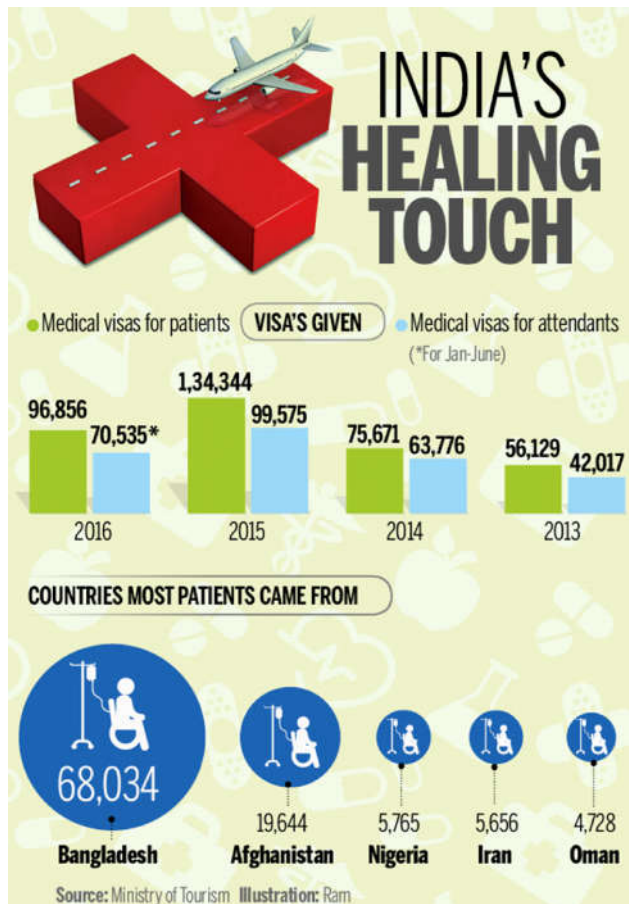


Fig. 3

- ▶ In India the strong traditions of traditional systems of health care. For example Kerala **Ayurveda** centers have been established at multiple locations in various metro cities, thus highlighting the advantages of Ayurveda in health management.
- ▶ In recent times **Yoga** in itself is emerging as new field for health practitioners.
- ▶ **Vacation spots for post treatment recovery and healing:** India provides patients a lot of natural spots in Western Ghats and Himalayas for post treatment healing which is attracting many.
- ▶ High quality medical expertise, medical equipments and quality of healthcare in India has significantly improved with establishment of **super-specialty Hospitals**.
- ▶ **Soft skills:** Despite India's diversity of languages, English is an official language and is widely spoken by most people and almost universally by medical professionals. Some hospitals are even employing the services of translators to help patients from Balkan and African countries.

- ▶ Lax rules and regulations in some cases also attract patients to India.



Fig. 4

What are the challenges?

- ▶ There have been concerns regarding India becoming location not only for low cost medical services but also a nation where its poor people are exploited for the benefit of rich. Fertility tourism in case of surrogacy and organ transplant sector presents these challenges to regulators.
- ▶ Some sections have also raised the issue of discrimination against Indian citizens. Though India is becoming the destination for low cost health services for outsiders, but for Indians these services are very costly. Services at super specialty hospitals are out of reach for many.
- ▶ The price advantage is however offset today for patients from the developed countries by concerns regarding standards, insurance coverage and other infrastructure.
- ▶ The concerns regarding **naming of super-bug on Indian cities** and similar concerns regarding indiscriminate use of antibiotics and emergence of antibiotic resistance bugs can create negative impression about India.
- ▶ Availability of quality hospitality centers like hotels, cleanliness etc. are other areas of concern which if not addressed may impact the growth of the sector.

What are the recent efforts in this direction?

- ▶ Government is planning to launch incredible India campaign to promote medical tourism in India.
- ▶ The government has removed visa restrictions on tourist visas that required a two-month gap between consecutive visits for people from Gulf countries which is likely to boost medical tourism.
- ▶ A visa-on-arrival scheme for tourists from select countries has been instituted which allows foreign nationals to stay in India for 30 days for medical reasons. In 2016, citizens of Bangladesh, Afghanistan, Maldives, Republic of Korea and Nigeria availed the most medical visas.
- ▶ **Improving the quality of services:** For the accreditation of hospitals, the Ministry of Health and Family Welfare has set up a National

Accreditation Board for Hospitals, under the Ministry of Commerce.

Way Forward

Medical tourism helps India in number of ways like providing foreign exchange, boosting growth and investment in health sector, providing employment and building a brand for India. Therefore India should position itself as one of the best providers of high end treatments like **cardiac surgery, orthopaedic, spinal work, alternative medicine, bone-marrow transplant, cardiac bypass, eye surgery, hip replacement and cancer care**. Need to undertake aggressive and focused overseas marketing to make the potential market aware of the unmatched cost and quality offered by Indian healthcare. Along with this visa regulations should be further relaxed for those seeking medical services.

Exports Record Positive Growth

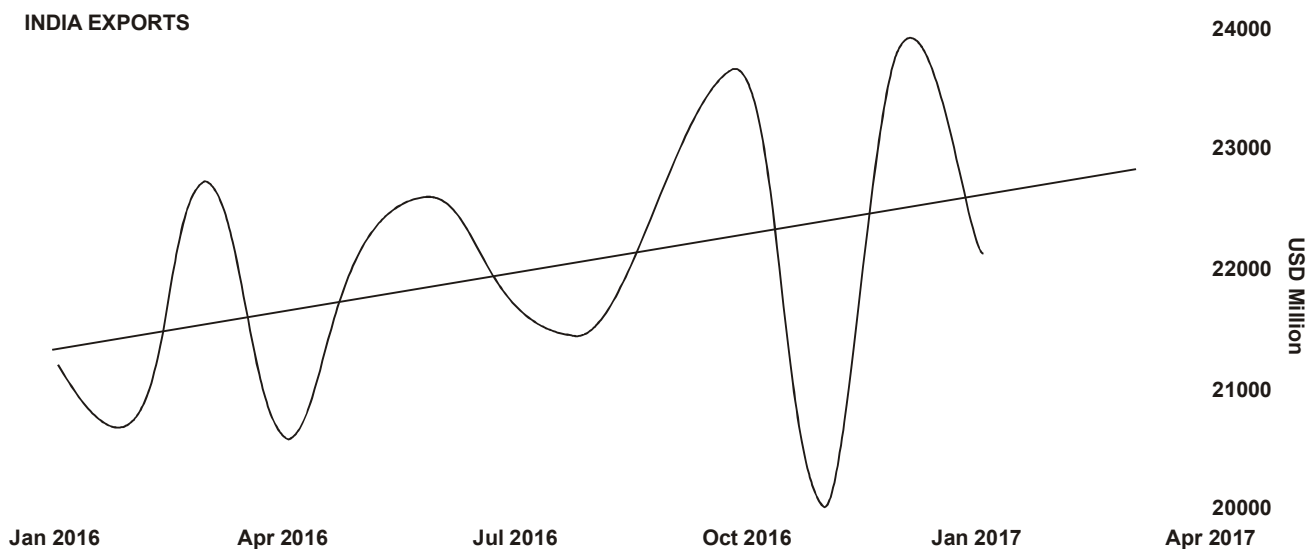
Context

Rising for the sixth straight month, exports posted a 17.48 per cent year-on-year hike in February. This is despite challenges of protectionism, volatile currency and weak prospects. In this context, we will look at current trends in export growth, some of the challenges to Growth and future opportunities for boosting Export Led Growth.

Trends and Reasons for Growth

India's goods exports recorded positive growth for the fifth consecutive month with shipments in January rising by 4.32% to \$22.1 billion following good performance by major sectors such as engineering and petroleum as well as low base of 14.1% contraction in January 2016.

Exports record positive growth for a fifth consecutive month. It is in positive correlation to revival exhibited



SOURCE: WWW.TRADINGECONOMICS.COM | MINISTRY OF COMMERCE AND INDUSTRY, INDIA

Fig. 5

by exports in the previous four months. Such positive growth is also seen across Advance economies too. As per latest World Trade Organisation statistics, the growth in exports is positive for the U.S. (2.63%), the European Union (5.47%) and Japan (13.43%) but was negative for China (1.51%) for November 2016 over the corresponding period of previous year.

Non-petroleum exports in January rose 1.6% to \$19.4 billion while petroleum exports increased by 29% to \$2.7 billion. Oil imports in January surged

61% to \$8 billion while non-oil imports were marginally up by 0.01% to \$23.8 billion. Exports during April-January 2016-17 were also marginally higher by 1.09% to \$221 billion while imports during the period shrunk 5.8% to \$307.3 billion. Trade deficit in April-January 2016-17 also narrowed to \$86 billion from \$107.7 billion during the same period in the previous fiscal.

Exports touched \$24.49 billion in February; it was \$20.84 billion in the same month last year. In February, India imported goods worth \$33.88 billion;

in January, it was \$31.95 billion. A spurt in inbound shipments of gold and high crude price led to the spike.

Imports rose 21.76 per cent in February, primarily because of a staggering 147 per cent rise in incoming gold (\$3.48 billion). Imports of the precious metal had fallen by nearly 30 per cent in January (\$2.91 billion), and nearly 48.5 per cent in December.

Import of petroleum and other crude products continued to rise by more than 60 per cent, adding \$7.68 billion to the import bill.

As such, trade deficit narrowed to \$8.8 billion in February, from \$9.8 billion the previous month.

Significance in the wake of challenges

The slowdown in global trade continues to impact India as well, and India's goods exports for 2016-17 would be about \$270 billion. Volatility in currencies and uncertainties clouding over global economy pose major challenges for India's exports in 2017.

Since Global financial crisis and Euro zone crisis there is rising wave of protectionism (inclination towards imposing tariff and non-tariff barriers to reduce imports and increase domestic employment and output) across world due to slow growth in Employment and GDP growth. This is evident from competitive devaluation (increasing the exchange rate of foreign currency in terms of domestic currency to make exports more competitive and import more expensive) in China, Exit of Britain from EU and indication of US retreat from regional initiatives such as the Trans-Pacific Partnership (TPP) in Asia and the Trans-Atlantic Trade and Investment Partnership (TTIP) with the EU. Such protectionist policies create challenge for growth in exports of India and other developing countries.

Opportunities

There is expectation in rise in crude oil prices. This may increase the value of petroleum exports in future.

GST is expected to be rolled out by July 2017. The subsuming of major Central and State taxes in GST,

complete and comprehensive setoff of input goods and services and phasing out of Central Sales Tax (CST) would reduce the cost of locally manufactured goods and services. This will increase the competitiveness of Indian goods and services in the international market and give boost to Indian exports. The uniformity in tax rates and procedures across the country will also go a long way in reducing the compliance cost.

India should create enabling environment for labour intensive exports especially in Apparels, Leather and footwear sector. These sectors have high job creation potential for per lakh of investment, especially employment for women. These sectors could be developed in tier II cities which could lead to development of these cities. Rising labour costs means that China is gradually vacating its dominant position in these sectors, affording India an opportunity. To not cede this space to competitors such as Vietnam and Bangladesh will require easing restrictions on labour regulations, negotiating FTAs with major partners. Further, we need to revisit the challenges faced by drugs and pharmaceuticals, gems and jewellery, carpets and plantations commodities so that they may also contribute to export growth in coming months.

Sector	Job per lakh of Investment
Apparel	23.9
Leather Goods	9.9
Footwear	7.7

India should follow 'Not to put all eggs in one basket' approach i.e. in the wake of slowdown in Advance economies India should diversify export basket. In this context, India should direct exports towards emerging Economies of South East Asia, Central Asia, Africa and Latin America.

Trade facilitation: Recent measures undertaken for trade facilitation create enabling environment for increasing exports. Some of the measures include creating paperless 24X7 working environment, creation of council for Trade Development and Promotion that creates dialogue between states and Centre and make states active Partner in boosting Exports.

Conclusion

At a time of a possible resurgence of protectionist pressures and India's need for open markets abroad to underpin rapid economic growth domestically, it is increasingly clear that India and other emerging market economies must play a more proactive

role in ensuring open global markets. India should pursue labour reforms, implement GST on time and FTA with partner countries to make exports more competitive.

Uganda, Rwanda and India Meet

Context

After the India Africa Forum Summit (IAFS) conference in India, there is a renewed and more focused effort by the Government to give a dynamic impetus to India's relations with African nations. Together Vice President Ansari, Prime Minister Narendra Modi and President Pranab Mukherjee visited 12 African nations in 2016. **In February** Indian Vice President was again on state visit of **Uganda and Rwanda in East Africa.**

During 1950s India has built up its political ties with the newly independent countries and freedom movements in sub-Saharan Africa as well as with the countries in northern Africa. In the 1950s, 60s and 70s, apart from strong political and brotherly bonds, India was itself too heavily engrossed in salvaging its own colonial battered socio-economic status battling poverty, disease and hunger, to be a major partner in Africa's rebuilding and rejuvenation programmes, following the phase wise independence gained by countries on the continent. However, even in those days of resource-crunch, India did share with Africa whatever it could spare, particularly teachers and educational experts, doctors and medical staff and experts in varied fields like agriculture, water management, bank management, etc.

India's ties with Africa have been stepped up in the last two decades both bilaterally and with the regional economic communities, initially with the Southern African Development Community (SADC) and Team-9 and continentally through the African Union (AU). Structured engagement with Africa took shape in 2008 with the First India Africa Forum Summit (IAFS-I) held in New Delhi. New Delhi hosted the Third

India Africa Forum Summit (IAFS-III) in October 2015 – a landmark event with delegations representing all the 54 African countries. In addition, a few other countries and international organizations were also represented on the occasion.

This shows the stepping up of bonds between them bilaterally as well as with the regional economic communities.

India-Africa relations:

- ▶ At the October **India-Africa 2015** summit, India promised \$10 billion in new **concessional credit to Africa**, besides \$600 million in **grant assistance**, \$100 million to an **Africa development fund** and \$10 million to an **India-Africa health fund**.
- ▶ India-Africa trade was almost \$70 billion in 2014-15 and Indian investments in Africa in the past decade amounted to \$30-35 billion.
- ▶ Nigeria and Angola supply a major part of India's oil imports.
- ▶ South Africa export coal to India.
- ▶ Mozambique is also the third largest exporter of gas after Qatar and Australia.
- ▶ India offers 400 scholarships to African students.
- ▶ Indian owned or operated companies are 2nd largest employer in Nigeria.
- ▶ India is currently spending USD 7 billion in infrastructure in 40 African countries.
- ▶ India has started "**solar mamas training programme**" that equips older village women on installing and maintaining village solar equipment.

Why Africa has been main focus of Indian foreign policy?

African continent with its nearly 125 cr. Population spread among 54 nations provides immense opportunities to co-operate in diverse areas like:

- ▶ **Human development** – Most of African countries are low on human development indicators and need assistance in areas of education, skill building, health, capacity building, etc.
- ▶ **Institute building:** Africa is a young continent whose population will grow in future and needs investment in human development efforts. India has been providing them with education opportunities in India and in Africa.
- ▶ **Trade and economic co-operation:** African continent is rich in mineral resources like copper in Zambia, oil in Nigeria, Libya etc. and therefore can be a significant partner of India to achieve its energy security and developmental aspirations.
 - ▶ The vast tracts of vacant agricultural lands of many African countries also provide opportunities for India to help achieve the food and nutrition security of India and host country.
 - ▶ India on the other hand has been assisting African countries by establishing industries there and providing employment opportunities.
- ▶ **Security co-operation:** Many countries of Africa like Sudan, Nigeria suffer form security threats from terrorists, civil war and seek help from India. India through UN peacekeeping missions, support for strengthening democratic institutions has been actively helping these countries.
- ▶ **Co-operation for reform in global institutions:** Democratization of the global institutions and establishing an equitable world order has been the aim of India and African countries. Both have suffered from colonialism and have common interests in reform of UNSC, in conclusion of Doha round of talks in WTO, seeking equitable efforts to tackle climate change and therefore co-operate in these areas.

What were the main outcomes of the recent visit?

- ▶ The visit was part of the conscious broadening of **India's diplomatic footprint** in **Sub-Saharan Africa, especially in the Great Lakes region.**

- ▶ This was the **first high-level bilateral visit to Uganda** from India **since 1997** and **first high-level visit to Rwanda.**

India-Rwanda

- ▶ During Vice-President two-nation tour, India signed three agreements with Rwanda in **the fields of innovation, aviation and visa regime.**
- ▶ Indian companies could look at making Rwanda an entry point for Africa by utilizing the dynamism of the Rwandan economy.

India-Uganda

- ▶ Uganda has a large number people of Indian origin and they continue to play an important role in the economic growth of Uganda.
- ▶ During the visit, India and Uganda decided to expand cooperation in the field **of energy sector and training of personnel for space programme and peaceful use of atomic energy**, even as the resource-rich East African country pitched for Indian companies to manufacture automobiles locally to discourage import of cars as there was trade imbalance with Uganda as India exports a lot of things to them and their export basket to India is presently limited.

What are the issues in India-Africa relations?

India's approach in Africa, as long standing friends, has been to give African partners assistance in their developmental programmes in those areas where they want and it is for them to convert that into specific requests. Along with this India has been focusing on human development aspects in areas like health, education which helps in extending India's soft power in region.

Though India-African relations are on ascendency there are several areas of concern.

- ▶ Indian inability to help African countries in areas of security and counter terrorism because of resource crunch, absence of indigenous defence technology and manufacturing is hampering co-operation in these areas.
- ▶ The instances of racial attacks on African students and others in India has become a source of tension and Nigeria even threatened to advise its students from coming to India.

- ▶ Despite Indian efforts India has been far behind as compared to the continent's trade and investment ties with China, which has built large infrastructure projects like roads, railways, airport and government buildings. Reports say China's investments in Africa add up to \$200 billion.

Indian must continue its engagements with the region with focusing on the demands on the local people, which will provide significant good will for India as India tries to emerge as education hub for African students, but at the same times focus on expanding the areas of co-operation to areas like infrastructure building and try increase co-operation in quantitative terms.

Issue of Poor Infrastructure in Schools

Context

Schools are supposed to be the temples of learning, but the average primary educational institution in India is likely to be a dingy, dilapidated place without access to electricity, toilets and with too few teachers. True, just having great school infrastructure is not sufficient to improve learning outcomes, but it is certainly a necessary condition.

In recent decades India has made significant progress on access to schooling and enrollment rates in primary education due to the provision of Right of Children to Free and Compulsory Education Act. However, still Indian primary school education system grapples with a number of issues of basic amenities which goes into hampering the quality of education, enrolment ratio, motivation of students and teachers and thus affect the demographic dividend and future of India. Some of these issues are discussed below:

Facility	Status
Electricity	60%
Toilets	89% (65% usable)
Handwash facilities	51%
Computer facilities	24%
Library facilities	83%
Average class size	42
Student-teacher ratio	27:1
Teachers with graduate degree	69%

Source: *Elementary Education in India: Towards UEE-Flash Statistics, NUEPA & GoI, 2005-06 to 2015-16*

► Appointment of teachers:

- According to the Ministry of Human Resource Development, there are 5.84 lakh vacancies in primary schools alone, and an additional 3.5 lakh posts are vacant in upper primary schools.
- Though the student teacher ratio is good at 27:1 but it covers inter-state and intra-state variations. UP has a ratio of 60:1.
- Along with this is the trend of appointing ad-hoc/contractual teachers (13% of total) who are not much accountable to the system and are not interested in investing energies in absence of long term association.
- The ratio also doesn't reflect the acute shortage of teachers in subjects such as Maths and Sciences, especially at the secondary level, where the crisis turns severe.
- A new report tabled in Parliament revealed that more than 1 lakh schools in the country were run by a single teacher (who also doubled up as clerk, mid-day meal manager, administrative staff, and filled in for other functionaries that a typical school requires).
- Lack of special educators for those in need of special attention like mentally disturbed students.
- Ambarish Rai, national convenor of the RTE forum, says that 6.6 lakh teachers in the country need training. Only 10% of those appeared for TET qualified it.

- **Overcrowded schools:** Many schools are overcrowded with students sitting in open, corridors, multiple classes in same classroom etc.

- ▶ **Schools without building:** Many students in areas like mines, kilns study in schools without buildings or temporary structures like porta cabin-like structures with tin roofs over their heads. They become victims of heat.
- ▶ **No books:** Schools fail to provide books and stationary items to students at the beginning of the session which affect the study of the students.

Other indicators like computer facilities, water facility which are mentioned in table are not in good state.

Why basic infrastructure is important?

Though there is no denying that infrastructure does not assure outcomes and therefore more focus should be given on improving outcomes. But poor building conditions such as leaking toilets, smelly cafeterias, broken furniture, classrooms that are too hot or cold, mouldy walls and plaster falling off ceilings make students feel negatively about their school's norms and expectations. This negative perception of the school's social climate contributes to high absenteeism. In turn, that contributes to low test scores and poor academic achievement.

Girls in particular are pushed out of school if facilities are inadequate. Older primary-age girls miss significant amounts of school or are unlikely to continue at school after they begin menstruation if sanitary facilities are poor or non-existent. Additionally, children may be turned away from school when its official enrollment capacity is reached.

Thus good infrastructure improves the moral of the students, teachers, keep the enrollment rates high and thus create a suitable environment for improving the studying environment.

Some of the attributes of adequate infrastructure are:

- ▶ Sufficient space per child, usually guided by standards set by a country's Ministry of Education.
- ▶ Sufficient space for 30-40 children per classroom, to permit efficient use of teachers.
- ▶ Construction methods that ensure the safety of children in school, suited to natural hazards of the region.

- ▶ Adequate separate sanitary facilities for boys and girls and for staff.
- ▶ Increasingly, electricity and Internet connectivity.

What are other issues?

- ▶ **Too many primary schools:** India has a ratio of 5:1 between primary and secondary schools, which is worst in Bihar with 13:1 and best in Chandigarh with 1.2:1. This affects investment in infrastructure in schools.
- ▶ **Low level of investment in education:** In India total investment in education is around 4% which is well below the 6% recommendation as made by Kothari Commission in 1950s.
- ▶ **Poor outcomes:** ASER survey has continuously mentioned the poor level of outcomes with class V students not able to do class 2 maths. This also increases the drop out ratio among students.

What are the steps taken by governments?

Though education is a state subject, but because of its national importance both union and state governments make policy decisions in this area. Apart from Right to Education which stipulates teacher-pupil ratio, class room strengths etc. government has started programmes to provide drinking water, toilet facilities in schools under Swachha Bharat Abhiyaan, Beti Bachao Beti Padhao, etc.

Government came out with Draft Education Policy, 2016 which focuses on improving the quality of teachers by providing them training, creating new cadre of teachers, centralized recruitment of teachers, creating framework for measurement of outcomes and improving investment in education.

What else should be done?

If all these steps are taken the quality of infrastructure and quality of education will improve. For this to happen there is need to make reforms in governance aspect by providing greater autonomy and more accountability from school heads. Along with this greater involvement of civil society, school management committee members and creating awareness among them about their responsibility is the need of the hour.

Pests and Crop Wastage

Context

Crop loss due to pest attack has been a major concern for farmers, scientists and governments amid the talks of food security, sustainable agriculture, adaptation to climate change and increasing the farmers' income. The recent attacks of bollworm, pink-worm and whitefly on cotton are the major examples of increasing cases of pests attack. Signifying the loss of crop due to such attack P.K. Chakrabarty, assistant director general (ADG) (plant protection and bio-safety) of the Indian Council of Agricultural Research (ICAR) said that about 30-35% of the annual crop, yield in India gets wasted because of pests and serious efforts are required to overcome the agriculture bio-safety and food security issues emerging from it.

Pest is an organism that causes any type of damage to the crop plants. Insects, mites, rodents, animals, birds are considered as pests.

Though, pest attacks have been associated with agriculture but the level of crop loss has become very high in recent. According to the ADG ICAR one among such pests, **nematodes (microscopic worms many of which are parasites)** had recently emerged as a major threat to crops in the country and they caused loss of 60 million tonnes of crops annually. Such large-scale crop-loss has an adverse effect on the agricultural bio-safety which was "paramount to food security."

During recent **pink bollworm attack on Bt Cotton** it was accused that the pest has

developed resistance against the Bt variety of cotton. Whereas the company supplying seeds said that it was because of faulty agricultural practices in which crops spacing and layering of other crops were not introduced resulting into attack.

Nematodes (microscopic worms many of which are parasites): The **nematodes** that inhabit the soil not only damage the stems, but also impair the foliage and flowers. The vegetables damaged by these worms could be harmful for health.

There are various reasons for such high level of loss, like:

- ▶ When crops are selected for their large size, high yield, nutritious value, and clustered in a confined area they also become susceptible to pests attack. A single attack is spread to large areas because of continuous single crop farms.
- ▶ Globalization and increased trade among countries has also resulted into movement of pests and insects.
- ▶ Crops in new areas are not resistant to new types of pests and therefore suffer.
- ▶ Insect pests are capable of evolving to biotypes that can adapt to new situations, for example, overcome the effect of toxic materials or bypass natural or artificial plant resistant, which further confounds the problem.
- ▶ Climatic conditions in India and other tropical countries with sufficient humidity and temperatures provide good conditions for pests to multiply.
- ▶ Within India also pests are spreading from one location to other. A particular kind of nematode which affected plants such as potatoes and tomatoes, it is said the **Potato Cyst Nematode**

was first discovered in the Nilgiris and had now spread to various parts of the country.

Absence of pesticides with farmers and their poor capacity to use advanced pesticides combined with low level of R&D in India in area of pest control.

All these attack Indian food security by reducing crop production. Along with this if farmers indiscriminately use pesticides there are chances of adverse health effects on human beings. Therefore there is a need for more focused approach with scientific interventions.

Methods of Pest Control

Pest causes lot of reduction in the yield and quality of crops. Broadly the measures of pest control are of two types, preventive and protective. Preventive measures are used before the attack of the pest and protective measures are used to control the pest after their attack. The methods of controlling pest are as follows.

- ▶ **Mechanical methods:** This includes the simple fly swat, fly screen and mosquito nets, light traps ('zappers'), exclusion methods such as packaging and sealing (e.g. against storage pests), sifting and separation in flour mills and the use of temperature, humidity and gas regimes against storage and museum pests. It also includes drainage against mosquitoes and removal of bushes against tse tse flies.
- ▶ **Cultural methods:** Cultural controls are generally the cheapest of all control measures because they usually only require modifications to normal production practices. Strategies include:
 - Make the crop or habitat unacceptable to pests by interfering with their oviposition preferences, host plant discrimination or location by both adults and immatures.
 - Make the crop unavailable to the pest in space and time by utilizing knowledge of the pest's life history, especially its dispersal and overwintering habits.
 - Reduce pest survival on the crop by enhancing its natural enemies, or by altering the crop's susceptibility to the pest.
- ▶ **Chemical methods:**
 - This method is used on large scale for direct control of pests. In these methods, chemicals

that kill the pest, insecticides or pesticides are used.

- The chemical method is effective and faster as compared to other methods but it is hazardous to environment. Improper use of these chemical leads to development of resistance among the pests causing heavy out break which leads to increase in cost of cultivation and heavy loss.
- Chemical control also include **behaviour modifiers**. Attractants cause insects to move towards their source
 - Pheromones - secreted by insect, species specific - may be used to lay trails, or for aggregation, swarming, alarm or sexual attraction.
 - Food and oviposition attractants. E.g. Qld fruit fly is attracted to NH_3 , flavouring essences and protein source.

▶ Biological methods:

- Use of biological agents to control pests is called Bio-control. Biological control is often targeted against pests that are not native to the geographical area. These non-native or introduced pests can easily become a problem because they lack natural enemies that control or suppress populations to levels that do not pose a risk to the crop being grown.
- Ninety eight percent pests are controlled by nature. There are certain predators, parasites, birds, animals, micro-organisms that can be used for control of pests. Certain biological factors used to control the pests are: Tricogama, Crysopa, etc.

What are the initiatives taken by the government?

- ▶ One of the most significant pest management schemes run by the government is the **Integrated Pest Management Scheme (IPM)**. This scheme aims at the best mix of all known pest control measures to keep the pest population below the economic threshold level or ETL. The scheme is 100 per cent centrally sponsored.
- ▶ The government has set up the **National Plant Protection Training Institute** in Hyderabad to impart training in plant protection methods. This institute specializes in human resource development in plant protection technology by

organizing long and short duration training courses on different aspects of plant protection.

- ▶ Different varieties of pest resistant crops especially in cotton have been introduced.
- ▶ **India's Agriculture Biosecurity Bill** tabled in the lower house of Parliament last year (2013) is still pending. The Bill hopes to establish an Agricultural Bio-security Authority of India with headquarters in the national capital region and regional centres all over the country. The authority is expected to be responsible for regulation of the import and export of plants, animals and related products; prevention of entry of quarantine pests; and implementation of post-entry quarantine measures.

What else should be done?

- ▶ Along with R&D on new pesticides focus must be on new forms of agriculture practices which

reduce the possibilities of attacks. There are good emerging trends and solutions for sustainable crop protection which include **soil less farming, crop protection chemicals, agronomy, fertigation, seed treatment, biotechnology development, plasticulture, precision farming etc.**

- ▶ A huge advantage of soil-less farming is that it doesn't allow nematodes (roundworm or threadworm) to affect food crops or vegetables.
- ▶ Facilitating ease of doing business. Making India global manufacturing hub of quality crop protection solutions, Government should quickly pass the **India's Agriculture Bio-security Bill** and ensure proper implementation quarantine methods so that pests and insects are not transported to India from other countries.

ISIS Challenge in India

Context

Over the last couple of years, the ISIS footprint has been discovered in at least a dozen states of India - Telangana, Andhra, Kerala, Karnataka, MP, UP, Maharashtra, Bengal, Rajasthan, J&K, Tamil Nadu, Gujarat. The recent arrest of around half a dozen alleged ISIS jihadists from UP and MP, and the Lucknow encounter in which one alleged member of the ISIS module was killed is illustrative of the increasing threat of the ISIS to internal security. Therefore there is a great need to ensure that such elements are nipped in the bud.

What is ISIS?

ISIS is a terrorist group led by Abu Bakr al-Baghdadi. It began as the Iraqi chapter of Al Qaeda. But the two groups always had disagreements, and ISIS broke away in 2014. Now ISIS and Al Qaeda compete for influence and recruits. The group now controls a vast territory in Syria and Iraq. They've become one of the largest, most successful, and most violent groups operating in Syria and Iraq. ISIS want to set up what they view as a "pure" Islamic state.

ISIS is using the network of their recruiters around the world & paying them \$2000 to \$10000 depending upon who is recruited. Recruiters are using social media platform. They are releasing videos of to target individuals who are susceptible to its message of violence and adventure. ISIS has also benefited from "disseminators", individuals who are sympathetic to their cause but not fighting for them. Social media and other communication methods have also enabled those who are willing to be radicalised to directly engage with the conflicts in Iraq and Syria and communicate with ISIS fighters.

India is also suffered from it however less severely. Fewer than 90 people, according to most estimates are associated with ISIS. More have come from Europe and Maldives than India. In India also the most recruits have been from Kerala, Tamil Nadu, Telangana and Maharashtra states.

The reason for most recruits coming from well off southern states lies in the West Asian connection of the migrant population from this region. Saudi Arabian influence, presence of more hard-line Salafi school in Kerala is said to be the main reason. Hyderabad in itself has become another center which has historically been associated with hard-line Islam.

Despite this the number of Indian joining ISIS are very low because:

- ▶ The majority of the Muslims in India have historically followed the **Sufi strain of Islam**, which is liberal and spiritual. Over the centuries of co-existence and cultural intermingling, there emerged a mixed and mosaic-like Hindu-Muslim culture in the **Indo-Gangetic (popularly known as Ganga-Jamuni Tehzeeb)**.
- ▶ Indian secular polity and efforts to mainstream has also prevented generation of fundamentalist tendencies among Indian Muslims.
- ▶ The fertile grounds of recruitment which ISIS finds in Europe are not present in India. Many of the ISIS cadres from Europe are drug-addicts, new converts and youth suffering from depression; many of them lack a social support system and have weak family ties. Whereas in India the strong family and social support prevents such sentiments.

Why ISIS in India is a worrisome trend?

- ▶ Indian subcontinent is a volatile zone with global epicenter of terrorism operating from here. The porous and difficult borders of India, presence of

radical elements in neighborhood and large Muslim population make India vulnerable to any IS designs in the region.

- ▶ Last year ISIS has announced for setting up its Indian wing and attacks in Indonesia, Bangladesh in 2016 shows increasing ISIS footprint. It has potential to destabilize the whole region with ISIS elements moving from one location to another, making it difficult for security agencies.
- ▶ Terrorism in J&K is itself a problem and this can be compounded if ISIS starts supporting terror elements there.
- ▶ India has witnessed religion based riots. Presence of internet, radicalizing material and organization calling alienated elements to take up path of 'Jihad' can become a threat to Indian internal security.

What steps have been taken?

Indian tradition of tolerance, mutual respect; Indian democratic politic system which focus on inclusiveness have been major bulwarks against major radicalization and as a result of it only few young Indians have been attracted to ISIS. Despite these social and political mechanisms Government has actively taken up the challenge given by ISIS and has taken a number of steps like:

- ▶ **Deradicalization efforts:** Active involvement of the elders, religious leaders of the minority community has been sought by the government under de-radicalization efforts. India has approached Malaysia to help modernize Islamic education system and prevent radicalization of youths.
- ▶ **International co-operation on intelligence sharing and counter terrorism** has been done with many countries in West Asia, like UAE, Saudi Arabia and in South East Asia. As India has large Diaspora in these countries this co-

operation can bear results. Some Indian youths who were trying to sneak into Syria have been sent by UAE in recent.

- ▶ **Active intelligence gathering and co-operation among various agencies** has been ensured with high level meetings of state DGPs with Home Minister finalizing policy interventions needed.

What else should be done?

- ▶ There is a need to focus on political, economic methods to address the grievances of minorities. Indian police forces should be sensitized about the vulnerabilities, undue harassment, false charges and delay in judicial proceedings should be done away with.
- ▶ There is great need to beef up India's **cyber security apparatus**, as most of IS operatives use cyber links to recruit people, train them and support them financially.
- ▶ Highly **bigot and radicalization** oriented material online should be removed. In this people of country must be exhorted by government to report such material to agencies or to the hosting company which should make available such options.
- ▶ ISIS threat will remain as long as ISIS and the fundamentalist forces behind such terrorist organizations remain and provide them with financial and arms support. Therefore there is need for India to invest diplomatic capital in ensuring early adoption of **International Convention against Terrorism** and curb the flow of finances and arms to such organizations.

Further, to ensure that such terror outfits doesn't come up there is need to ensure stability across the world because destabilized region provides fertile grounds for them, as was case for Taliban in Afghanistan, ISIS in Iraq, etc.

University— Industry Partnership

Context

Partnerships between universities and businesses are nothing new, but these partnerships have become especially relevant in the face of increasing economic pressure and global competition, these interdisciplinary approaches and the growing complexity of the problems need solutions.

In recent years, there has been a resurgence of partnering between academic institutions and private industry that's poised to address many of the modern challenges to advancing research, innovation and technological development.

In Academic Institutions research, China spends almost five-times more than India. China spends 2.1% of its GDP in R&D while India spends 0.85%, which is even lower than Brazil and Russia. Another significant fact is that close to 75% of India's R&D costs are government sponsored.

In this context University Industry collaboration is important. Lack of research funding especially by private industry is a concerning issue and Industry need to invest in Research and innovation to realize the dream of Make in India.

Introduction

India can aspire to become a sustainable superpower only after becoming a knowledge superpower. India can fuel its imagination of becoming an industrial power-house, if it is independent in the field of innovative ideas and entrepreneurship. For this purpose India needs to invest in R&D and innovation.

In research funding, China spends almost five-times more than India. China spends 2.1% of its GDP in R&D while India spends 0.85%, which is even lower than Brazil and Russia. Another significant fact is that close to 75% of India's R&D costs are government sponsored. Lack of research funding especially by private industry is a concerning issue and Industry need to invest in Research and Innovation to realize the dream of Make in India.

Why Industry and Universities shall collaborate?

When companies and universities work in tandem to push the frontiers of knowledge, they become a powerful engine for innovation and economic growth. Silicon Valley is a dramatic example. For over five decades, a dense web of rich and long-running collaborations in the region have given rise to new technologies at a breakneck pace, and transformed industries while modernising the role of the university.

Opportunities

- ▶ **Benefits to Educational Institutions** - The benefits to these institutions are substantial streams of external funding, enhanced opportunities for professors and graduates to work on groundbreaking research, vital inputs to keep teaching and learning on the cutting edge of a discipline, and the impact of delivering solutions for pressing global challenges.
- ▶ **Better Skilling of workforce** - There is an alarming situation and truth of consistently increasing unstoppable number of unskilled and unemployed youth generations due to the existing pattern of education, and hence, planned efforts are essentially required to make the existing education more meaningful for skill development to make the educated youth self-employed by improving their employability. University - Industry

collaboration will improve skills by exposing them to practical problems and this will improve their employability.

Provisions in India

The goal of the science, technology and innovation policy brought out in 2013 by the Ministry of Science and Technology, Government of India is to create a strong and viable Science, Research and Innovation System for High technology-led path for India (SRISHTI).

Key policy initiatives in STI policy, 2013

- ▶ Linking contributions of science, research and innovation system with the inclusive economic growth agenda and combining priorities of excellence and relevance.
- ▶ Seeding S&T-based high-risk innovations through new mechanisms.
- ▶ Special and innovative mechanisms for fostering academia-research industry partnerships will be devised. Mobility of experts from academia to industry and vice-versa will be facilitated. Success stories in S&T-based innovations from Indian experience would be replicated and scaled up.
- ▶ Regulatory and legal framework for sharing of IPRs between inventors and investors will be put in place. Measures to close gaps in the translation of new R&D findings and grass root innovations into the commercial space will be taken.
- ▶ Fostering resource-optimized, cost-effective innovations across size and technology domains.
- ▶ Creating a robust national innovation system.
- ▶ Around 10 sectors of high impact potential will be identified for directed STI intervention and deployment of requisite resources. Enabling policy instruments that facilitate both institutional research and R&D enterprises to focus their efforts in these areas will be put in place.
- ▶ The complex value chain of innovation – from idea to market - often calls for STI intervention at all levels: research, technology inputs, manufacturing and services. In the priority areas of socio-economic importance, the policy will enable a holistic approach to intervention, support and investment. Measures taken in this direction will be in consonance with the programmes initiated by the NInC.

Latest Initiatives

Research Parks

- ▶ Central Government's decision to set up 7 new Research Parks in seven different IITs with an initial investment of INR 100 crore each is a highly welcome step. The Research Parks modelled on the IIT Madras Research Park will enable companies with a research focus to set up a base in the Park and leverage the expertise of that IIT.
- ▶ These Research Parks will break down the traditional, artificial barriers of innovation through their connectivity and collaborative interaction.
- ▶ Leveraging best practices from successful Research Parks such as those at Stanford, MIT and Cambridge, these parks will help industry to create, integrate and apply advancements in knowledge. Moreover, mentorship needs to be provided by the educational institutions in order to foster innovation and entrepreneurship, especially in the Product Start-Up Sector.

Incubation Cells

- ▶ Several leading educational institutions in India have started incubation cells to help entrepreneurs in areas like building a business around an idea, creating and testing a prototype and understanding the market.
- ▶ Some examples are Society for Innovation & Entrepreneurship (SINE) – IIT Bombay, NS Raghavan Centre for Entrepreneurial Learning (NSRCEL) – IIM Bangalore and Rural Technology Business Incubator – IIT Madras.
- ▶ The focus needs to be on developing appropriate technologies to respond to local needs, providing business incubation services and imparting entrepreneurship education. The research consortia and long term research partnerships should lead to the emergence of 'Spin-off companies'.

Challenges in fostering Industry - Academia relationship

Despite such widespread recognition of the importance of such partnerships, such collaborations are quite limited not only in India but all over the world. The reason for this are -

- ▶ Lack of a definite model due to many barriers to U-I collaboration that still persist.

- ▶ During its interaction with the academia, a Start-Up's desired time frames are instant, and investment is aimed at how quickly new patents or new products can be obtained. This results in an inherent mismatch between research orientations.
- ▶ Academicians also have widespread apathy towards applied research and they are largely unaware of the real industrial needs. This problem is further exacerbated by a lack of appropriate incentive to faculty & specialized technical infrastructure (R&D Lab.) and absence of exclusive university-industry interaction cells in campuses.
- ▶ Collaboration is costly and the returns only accrue in the medium to long run, but Start-Ups seek short-term results.
- ▶ Bureaucratic hiccups also contribute to the problem as the sluggishness and inflexibility of the government mechanisms result in the delays in requisite funding.

Ways to improve UI collaboration

- ▶ University leadership is vital - University heads need to make industry-university partnerships a strategic priority and communicate the message regularly to the entire academic community.
- ▶ Policymakers need to ensure a predictable, stable environment of funding and regulation for long-term strategic partnerships to thrive.
- ▶ Give universities the autonomy to operate effectively, and form partnerships. The best people to decide a university's strategy are its own board and faculty heads, not government ministries. Without freedom to operate – with appropriate checks and balances – they cannot form effective partnerships.
- ▶ Help universities strive for excellence. Companies want to work with the best – and so India must take care always to feed and promote its best universities, in order that more job-creating partnerships can be formed.
- ▶ It is important for both the stakeholders to strive for mutual benefit during the collaborations by streamlining negotiations to ensure timely conduct R&D of the research findings.
- ▶ This can be achieved by developing an integrated model of Academia-Industry Interface. Eminent scientists/technocrats outside the university system should be encouraged to participate in teaching and research ventures.
- ▶ Tax exemptions could be given in such cases of collaboration for all expenditure on the R&D and the technology transferred by an academic research institution to an industry.
- ▶ To achieve strategic partnership new forms of governance will be required. At the more general level this can be achieved by greater attention to the appointment of business leaders and professionals to university planning committees, advisory and management boards.

Specific reforms needed in India:

India needs to create an enabling policy framework for a strong and meaningful university – industry collaboration and creation of sustainable competitive advantage in manufacturing.

- ▶ It can be achieved by targeted investments by Government in R&D projects of national importance over a reasonable horizon, says 5 years. The Gol needs to fund technology projects that translate scientific discoveries and culting edge inventions into technological innovations, and accelerate technological advances in high-risk areas that industry is not likely to pursue independently.
- ▶ Enabling stronger university–industry collaboration through joint research and contract research in selective universities. In joint research, industry can finance the research and send co-researcher to a university. Researcher from both universities and industrial firms can work together and depending on the contracts joint research could be conducted at universities as well as industrial firms.
- ▶ Enactment of the Indian version of the Bayh Dole Act (passed in US in December, 1980) with a distinct Indian footprint which addresses the country's concerns: In the US, this Act allows patenting and licensing by US universities of inventions based on federally funded research. A similar Act in India with an Indian footprint can incentivise research relevant to industry in certain selected institutions.
- ▶ Human resource development for strengthening the innovation eco-system: This will be required across

the entire value chain from idea to the market – in R&D, licensing/ technology transfer, management of patents and commercialisation of technology.

- ▶ Facilitating access of industry to environment friendly patents and other technology patents, particularly in manufacturing: For example, WIPO Green.

Buyback of Shares in IT Sector

Context

Recently Tata Consultancy Services (TCS), Infosys and Cognizant have announced buyback of their existing shares. Such behaviour is due to excess cash holdings and reduced value of share.

In order to understand such financial manoeuvre, it is important to understand meaning of Buy-back and conditions under which it take place and possible implications. We shall analyse developments in Indian IT sector in light of theoretical underpinnings.

What is buyback of Share?

Buy-Back is a corporate action in which a company buys its shares from the existing shareholders usually at a price higher than market price. When it buys back, the number of shares outstanding in the market reduces. A buyback allows companies to invest in themselves. By reducing the number of shares outstanding on the market, buybacks increase the proportion of shares a company owns.

When a company has substantial cash resources, it may like to buy its own shares from the market particularly when the prevailing rate of its shares in the market is much lower than the book value or what the company perceives to be its true value. Buy-back of shares is subject to the SEBI (Buy-back of Securities) Regulations, 1998.

Reasons

There are reasons why a company would opt for buy-back:

To improve shareholder value, since buy-back provides a means for utilizing the companies surplus

funds which have unattractive alternative investment options, and since a reduction in the capital base arising from buy-back would generally results in higher earnings per share (EPS).

$EPS = \text{net income} / \text{average outstanding common shares}$

So, for same net income a reduction in outstanding share would increase earnings per share. Secondly, It would enable corporate to shrink their equity base thereby injecting much needed flexibility as there would be less interference from shareholders.

Other Reasons

- ▶ To prevent unwelcome takeover bids;
- ▶ To return surplus cash to shareholders;
- ▶ To achieve optimum capital structure;
- ▶ To support share price during periods of sluggish market conditions.

The shares repurchase is criticized for the following reasons:

- ▶ This could enable unscrupulous promoters to use company's money to raise their personal stakes.
- ▶ It opens up possibilities for share price manipulation.
- ▶ It could divert away the company's funds from productive investments.

Academic research convincingly demonstrates that buybacks are generally ineffective in long-term value creation, notwithstanding the short-term spikes in stock prices due to optically better Earnings Per Share (EPS).

Two key shortcomings relate to timing the buyback in the context of the market cycles and valuations and the moral hazard of executive compensation being positively correlated to a financially engineered EPS jump.

The key to successful stock repurchase programs thus requires a transparent disclosure of the purpose,

strategy and thinking behind a buyback program, as an integral part of the disclosed long-term philosophy for the company's capital allocation policy.

Recent Buyback in IT sector

Tata Consultancy Services (TCS), the most valuable company of the Tata group, is considering a share buyback. Infosys is also talking about a share buyback and Cognizant recently announced a \$3.4 billion buyback plan.

The Indian software sector is showing signs of slowing down. It is also considered to be the best time to go in for a buyback because companies get to buy their stocks at lower valuations as compared to the past. Most of the top IT companies have a lot of cash on their balance sheet. Their options are either to go in for high dividend payouts or buybacks.

Conclusion

Buyback is a financial engineering method to improve earnings per share. The current spree of buybacks in IT sector is due to availability surplus cash with corporate and reduced value of share

IT companies prefer to go in for buybacks which is a good thing because it boost the earnings per share.

Buybacks work better than paying dividends because payment of dividends attracts a 20 percent dividend distribution tax. So if a company wants to do a dividend distribution of Rs 5,000 crore it is better off going for Rs 6,000 crore of buyback and also save on the tax. In general, share buybacks are associated with technology or software companies that do not have any debt but a lot of cash.

Similarly, public sector companies sitting on estimated cash pile of Rs 2.6 lakh crore. Government wants cash-rich PSUs like Coal India, Oil India and NTPC to take a cue from the private sector and use surplus cash to buy back shares and improve balance sheets.

because of perceived slowdown in the sector. However, how it will impact long term value creation remains to be seen.

GST- Impact on Municipal Finance and City Rejuvenation Programs

Context

Urban local bodies are the third tier of governance in India, but they have not been effective due to lack of Funds, Functions and Functionaries (3-F). Implementation of GST would realize the dream of one economic India but GST would subsume some of the taxes levied by ULB this would further weaken their effectiveness.

In this context, we would look at sources for Revenue for ULB, how GST will subsume these sources, Impact of such a move on finances and city rejuvenation programs like Smart Cities with possible way out.

ULB – Revenue Sources

Urban Local Government in most of the states have been empowered to drive their income from several sources such as taxes, fees, fines and penalties and remunerative enterprises. Apart from these, local bodies also depend upon grants and contributions, loans and some miscellaneous sources. There is tradition to classify the sources of finances into four categories viz.

- ▶ Tax revenue.
- ▶ Non-tax revenue or Assigned Taxes
- ▶ Grants and Contributions
- ▶ Loans

Income from taxes constitute about two third of the revenue accounts of the municipalities and over one half of the total income from all the sources.

A variety of taxes are levied by the urban local government in different states. The most common taxes are property tax/house tax, profession tax, vehicle tax, Octroi, tolls, technical tax, tax on

animals, entertainment tax (levied by state but assigned to ULB), tax on transfer of property and tax on advertisements.

GST- What it would subsume?

At the State level, the following taxes are being subsumed:

- ▶ Subsuming of State Value Added Tax/Sales Tax,
- ▶ Entertainment Tax, Central Sales Tax (levied by the Centre and collected by the States),
- ▶ Octroi and Entry tax,
- ▶ Purchase Tax,
- ▶ Luxury tax, and
- ▶ Taxes on lottery, betting and gambling.

It could be seen that GST will subsume Octroi and Entry tax. Similarly entertainment tax is levied by state but it is assigned to Local bodies so after GST this source will also vanish

Impact of GST on ULB Finances:

GST will subsume most of the revenue sources of urban local bodies, thus depleting its finances.

While GST is expected to be divided between the Centre and states based on a mutually acceptable formula, urban local bodies will have to deal with a huge fiscal gap once local body tax, octroi and other entry taxes are scrapped to make way for the new taxation system. While all cities, except Mumbai, have abolished octroi, none have found a suitable alternative. Octroi was a major money spinner for most municipalities and since its abolition, post the Central government's directives, the resource mobilisation rate of local bodies all over have gone down. This is expected to be hit further with the scrapping of other municipal level taxes post implementation of GST. "In Mumbai, Rs 7,500 crore is garnered through octroi alone.

In cities such as Beijing, Sao Paulo, Tokyo and Argentina, 32 to 78 per cent of income tax, sales tax or value-added tax go towards municipal finance. A High-Powered Expert Committee on Urban Infrastructure Report (2011) has recommended a share for ULBs on all taxes levied by the state on goods and services. The McKinsey Report: India's Urban Awakening (2010), which pegs India's spending on its cities by 2030 at Rs 97.4 lakh crore, has proposed a local body revenue share accounting for 18-20 per cent of the GST.

Smart Cities Mission and Impact of GST

Smart Cities Mission (SCM) is a holistic city rejuvenation programme for 100 cities in India; The SCM initially covers five years (2015-16 to 2019-20) and may be continued thereafter based on an

evaluation. The strategic components of area-based development in the SCM are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a pan-city initiative in which smart solutions are applied covering larger parts of the city.

Under the Smart Cities Mission, each selected city would get central assistance of Rs 100 crore per year for five years. Each Smart City aspirant is selected through a 'City Challenge Competition' intended to link financing with the ability of the cities to perform to achieve the mission objectives. This means a success of smart cities program would depend on effectiveness of ULB in cities. But, reduction of financial flow to ULB due to GST will impair their effectiveness. This would have direct implication on success of Smart cities and other city rejuvenation projects like AMRUT.

Conclusion

Cities are engines of economic growth and a share in the GST is the only hope to shore up the finances of ULBs. A 25 to 30 per cent share in the state's share of the nation-wide goods and services tax (GST) should be assigned for all

urban local bodies. This should be a statutory share for cities in GST, also known as the 'city GST'. This will guarantee a minimum fund to ULB which is essential for success of city rejuvenation programs.

Merger of Telecoms – What it Portrays

Context

India is currently the world's second-largest telecommunications market and has registered strong growth in the past decade and half. The Indian mobile economy is growing rapidly and will contribute substantially to India's Gross Domestic Product (GDP). From having 9-10 mobile operators in each circle just a few years ago, Indian telecom sector is all set for a major consolidation that would reduce the number of players to 3-4.

Reliance Jio's September 2016 launch led to cut throat competition in the telecom market in India. Following that all the other players are facing the heat and changing their policies. Earlier this month, Bharti Airtel, the country's largest telco, reported its lowest consolidated net profit in four years. Some of this was also due to the demonitisation initiative.

Further Reliance Communications announced its move to do a three-way merger with MTS and Aircel and that is followed by the recent proposal to merge Vodafone and Idea Cellular augurs well for an industry that is still reeling from hyper competition.

Idea Cellular agreed to merge with the Indian unit of the U.K.-headquartered Vodafone Plc, making it a \$23 billion giant. The merged entity becomes India's largest mobile telephony and data service provider with 39.25 crore customers, ahead of the current market leader Airtel, which has a 26.44 crore user base.

The merger will push more merger moves in the telecom sector. For example - BhartiAirtel has already bought assets of Telenor and Reliance Communication, Aircel, Tata Teleservices and MTS are in talks for merger.

In this context it is important to overview the telecom sector, various implications of these mergers and role of regulators in emerging scenario.

Introduction

The foundations of India's telecom revolution were laid back in the 1980s by the former Prime Minister Rajiv Gandhi and Sam Pitroda. Later the government came up with its 1999 National Telecom Policy. In 1991, there were six phones per 1,000 people in the country at the time.

In the last 2 decades, India has become the world's second-largest telecommunications market, with over 1.0 billion subscribers as of May 2015. The wireless segment (97.36 per cent of total telephone

subscriptions) dominates the market. It is also the second largest country in terms of internet subscribers. The country is now the world's second largest smartphone market and will have almost one billion unique mobile subscribers by 2020.

Recently, Reliance launched low price data and calling services JIO which led to stiff price competition in the telecom market in India. Following that the competitors Idea Airtel and Vodafone reduced their rates and faced a steep loss in their revenues.

What merger is actually stand for?

A merger usually involves combining two companies into a single larger company. The combination of two companies involves a transfer of ownership, either through a stock swap or a cash payment between the two companies.

To meet the challenges, Idea Cellular with Vodafone India have announced their merger making the joint entity biggest in telecom sector in terms of subscriber base and revenue share of total market. Merger that creates a telecom giant has wide-ranging implications for the industry, services, the staff and consumers.

The merger will push more merger moves in the telecom sector. For example - BhartiAirtel has already bought assets of Telenor and Reliance Communication, Aircel, Tata Teleservices and MTS are in talks for merger.

Government Initiatives for the Telecom Sector

The policies of the Government of India along with strong consumer demand have been instrumental in the rapid growth in the Indian telecom sector. The government has fast-tracked reforms in the telecom sector and continues to be proactive in providing room for growth for telecom companies. Some of the other major initiatives taken by the government are as follows:

- ▶ The Government of India has allocated Rs 10,000 crore (US\$ 1.5 billion) for rolling out optical fibre-based broadband network across 150,000 cumulative gram panchayats (GP) and Rs 3,000 crore (US\$ 450 million) for laying optical fibre cable (OFC) and procuring equipment for the Network For Spectrum (NFS) project in 2017-18.
- ▶ The Ministry of Communications & Information Technology has launched Twitter Sewa, an online communications platform for registration and resolution of user complaints in the telecommunications and postal sectors.
- ▶ The TRAI has released a consultation paper which aims to offer consumers free Internet services within the net neutrality framework and has proposed three models for free data delivery to customers without violating the regulations.
- ▶ The Government of India has liberalised the payment terms for spectrum auctions by allowing

two options of payments to telecom companies for acquiring the right to use spectrum, which include upfront payment and payment in instalments.

- ▶ The TRAI has recommended a Public-Private Partnership (PPP) model for BharatNet, the central government's ambitious project to set up a broadband network in rural India, and has also envisaged central and state governments to become the main clients in this project.
- ▶ The government has enabled easy market access to telecom equipment and a fair and proactive regulatory framework that has ensured availability of telecom services to consumer at affordable prices.
- ▶ The deregulation of Foreign Direct Investment (FDI) norms has made the sector one of the fastest growing and a top five employment opportunity generator in the country. Foreign Direct Investment (FDI) cap in the telecom sector has been increased to 100 per cent from 74 per cent.

Updates in Telecom Sector

- ▶ **Investment-** With daily increasing subscriber base, there have been a lot of investments and developments in the sector. The industry has attracted FDI worth US\$ 23.92 billion during the period April 2000 to December 2016, according to the data released by Department of Industrial Policy and Promotion (DIPP).
- ▶ **Telecom subscriber base** expands substantially India is currently the second-largest telecommunication market and has the third highest number of internet users in the world. India's telephone subscriber base expanded at a CAGR of 19.96 per cent, reaching 1058.86 million during FY07–16. In March 2016, total telephone subscription stood at 1,058.86 million, while teledensity was at 83.36 percent
- ▶ **Wireless segment dominates** the market In March 2016, India's telephone subscriber base reached 1,058.86 million. In March 2016, the wireless segment (97.62 per cent of total telephone subscriptions) dominated the market, with the wireline segment accounting for an overall share of 2.4 per cent. Urban regions accounted for 57.6 per cent share in the overall telecom subscriptions in the country, while rural areas accounted for the remaining share.

- ▶ **Mobile Phones** - In October 2015, India hit the billion mark for its mobile phone subscriber base, according to Telecom Regulatory Authority of India (Trai) data. According to Trai data, the total number of broadband subscribers in the country at the end of October 2016 was 218.42 million. Of this, access through mobile devices or dongles accounted for nearly 200 million. At the same time, almost 75% of telecom companies' revenue comes from voice. Now India's evolution to a digital economy will depend on smartphone penetration, not fixed line.

Recent Price War

- ▶ The latest Reliance Jio's September 2016 launch caused Bharti Airtel, the country's largest telco, reported its lowest consolidated net profit in four years—Rs504 crore for the third quarter ended 31 December, as against Rs1,108 crore for the same period last year. Some of this was no doubt due to the currency-swap initiative.
- ▶ The impact of the Reliance-triggered price war impacted the profits for Idea Cellular, the country's third largest mobile phone operator and it fell 88% for the quarter ended September from the same period a year ago—is likely to reverberate through 2017 and well into 2018.
- ▶ The big three—Airtel, Vodafone and Idea Cellular—have deep-enough tolerance to absorb the losses for now. But smaller companies are not as fortunate and therefore consolidation or exits are inevitable.

Idea Vodafone Merger:

- ▶ Idea Cellular, the Kumar Mangalam Birla-led telecommunications major, agreed to merge with the Indian unit of the U.K.-headquartered Vodafone Plc, making it a \$23 billion giant. The merged entity becomes India's largest mobile telephony and data service provider with 39.25 crore customers, ahead of the current market leader Airtel, which has a 26.44 crore user base.
- ▶ The combined company would have a 35% customer market share and 41% revenue market share. Kumar Mangalam Birla will be the chairperson of the merged entity. The move, though not surprising, has stoked rumours that the current tariff war, initiated by the Mukesh

Ambani-led Reliance Jio's entry into the high-speed data market in 2016, will possibly come to an end in the near future.

- ▶ In contrast to 13 operators a few years ago, the Indian mobile telecom market is down to "four or five operators." "Due to the poor financial health of the sector, market is witnessing mergers, acquisitions and combinations of companies like Idea and Vodafone, Aircel and R Comm and MTS. Other companies such as Videocon and Etisalat have already left the industry because of this hyper-competitive pressure.

Impact Analysis

- ▶ **Messier price wars** - Aggressive entry of Reliance Jio has launched a big price war. With its free services, Jio has upset the bigger players. The Vodafone-Idea merged entity will only add fuel to the fire. Since the merged entity will have more resources, the telecom price war is going to get messier. Idea-Vodafone merger may lead to more consolidation. Reliance Communications, Tata Teleservices and Aircel are already in talks for merger. Airtel has bought India operation.

Higher prices in long term - Though the consolidated entities would fight the price war for a year or two, prices are going to increase in the long term. With fewer companies in the sector, there is a higher chance of consensus on prices. Moreover, as the new biggies offer better consumer experience, it cannot come at low prices.

- ▶ **Financial Health** - Overall consolidation in the debt-ridden telecom industry will lead to better financial health and sustainability of companies. Since consolidation will leave only three big companies in the industry, there will be less competition and bigger revenues.
- ▶ **Layoffs** - Vodafone-Idea merger will result in duplication of resources across the country which might require job cuts too.
- ▶ **Service quality** - Consolidations in the telecom sector will lead to pooling of vital resources and infrastructure, which will inevitably lead to better service quality and customer experience. A merged entity will also have reduced financial challenges, which will encourage it to spend more on quality of service.

Role of regulators:

- ▶ Competition Commission of India has to make sure that such mergers do not cause or are likely to cause an “appreciable adverse impact” on competition and ensure that merger do not

create abusive situation of the market monopoly or cartel.

- ▶ On the other hand, TRAI has to make sure level playing field and fair competition among players even after merger.

Conclusion

After robust growth since late 90's telecom sector has now entered era of turbulence with intense competition among service providers leading to either exit or merger of inefficient firms. This will improve service quality, financial holding of firms but may lead to job cuts and lay off. It is the job

of regulators to keep a tight vigil and make sure mergers does not lead to monopolistic tendencies and reduction in welfare of consumers. The Indian telecommunications sector is at an inflection point as significant as the first mobile phone revolution but this time centred around data.

Border Trade in North East

Context

Border trade remains the most powerful driver of economic development and social progress in the states which borders with neighbouring countries.

India has land border with six countries with maximum potential for border trade exist in North East as it share boundary with four countries and Trade agreements make the trade more lucrative. But there are considerable constraints to create enabling environment.

Recently, India-Bangladesh trade ties are troubled by "poor" rail and river connectivity at the region bordering Assam as well as a delay in the operationalisation of four "new" 'border haats' (or border markets) at the area bordering Meghalaya. Similarly, the crisis caused by the economic blockade in Manipur has affected the bilateral trade with the neighbouring Myanmar.

In this context, we will look at the meaning and importance of border trade and the constraints which impede trade with the border countries.

Introduction

Border trade is defined as overland trade by way of exchange of commodities from a bi-laterally agreed list by people living along both sides of the international border.

Keeping these factors in mind, border trade is allowed so that the residents can trade their surplus produce in exchange of essential commodities from across the international borders.

With respect to Border Trade in North East India, Bangladesh border situation has not yet improved since 20 months after 'historic' visit by PM. India-Bangladesh trade ties are troubled by "poor" rail and river-connectivity at the region bordering Assam as well as a delay in the operationalisation of four "new" 'border haats' (or border markets) at the area bordering Meghalaya.

On the other front with Myanmar, the crisis caused by the economic blockade in Manipur has affected the bilateral trade between them.

What is Border Trade?

Border trade is different from trade through air, land or sea ports as trade through ports involves clearance through customs and has large volume. Border trade in contrast is "over-land trade" by way of "exchange of commodities" from a bi-laterally agreed list by people living along both sides of the international border.

Rationale behind Border Trade

The rationale for border trade arises from two main factors.

- ▶ The first factor is the remoteness of the border areas, which does not allow access for the local people to commercial centres, sell their products and buy items of daily necessity within the national borders.
- ▶ The second is the traditional socio-cultural ties and economic complementarities that these people share across the border, provides them with a natural milieu for greater economic interactions.

Successful conduct of border trade also curbs smuggling in essential items as it provides legitimacy to traditional exchange of commodities. Border trade also forms a part of border area development plan

as it provides an alternate means of livelihood to the border residents in the economically depressed areas.

Border Trade of India

India has land border with six countries with maximum potential for border trade exist in North East as it share boundary with five countries and Trade agreements make the trade more lucrative.

North Eastern India shares land border with five countries Bangladesh, Bhutan, China, Myanmar and Nepal and has agreements of overland trade with these countries through Land Custom Stations under the Customs Act, 1962.

- ▶ For trading with Bangladesh and Bhutan border, there is a Free Trade Agreement (SAFTA) and
- ▶ For trading with China and Myanmar, Border Trade Agreement have been signed.

Benefits of border trade in North East

- ▶ In Bangladesh and Myanmar there exist huge potential for trade due to expanding and large market in both the countries.
- ▶ Secondly, supplies to North Eastern states from mainland India take lot of time and become costly due to poor infrastructure, frequent blockades and very long distance. Encouraging border trade with Bangladesh and Myanmar would mean products for local needs could be routed through these countries, with less transport cost.
- ▶ Thirdly, encouraging trade with Myanmar could be a gateway for Indian products into ASEAN economies. India has already negotiated a FTA with ASEAN. This means products from North East would find a vast market in ASEAN economies. This may boost NE economy into Trade based economy. Fourthly, Encouraging Trade with both countries is very crucial for India's Look East Policy.

INDIA'S 102nd position in 'Global Enabling Trade Report 2016'

The 'Global Enabling Trade Report 2016' — published by WEF and the Global Alliance for Trade Facilitation — assesses the

performance of 136 economies by way of Enabling Trade Index (ETI). The index assesses the extent to which economies have in place the factors facilitating the free flow of goods over borders and to their destinations. It takes into consideration various factors, including domestic and foreign market access, border administration, transport and digital infrastructure and operating environment.

- ▶ India has improved its ranking by four places to 102nd position among 136 economies in terms of enabling cross border trade, with Singapore leading the list, according to the Global Enabling Trade Report 2016 released by the World Economic Forum (WEF).
- ▶ Among the BRICS nations, India, China and South Africa have improved their ranking from the previous year.
- ▶ While India's position has jumped four slots to 102, that of South Africa has improved three places to 55 while that of China stood at 61 compared with the previous ranking of 63.
- ▶ Brazil's ranking has slipped to 110 from the earlier 97 while that of Russia dropped to 111 from the 105th position.
- ▶ Singapore is leading the top ten economies that are enabling trade across borders followed by the Netherlands and Hong Kong SAR at second and third places, respectively. Others are Luxembourg (4), Sweden (5), Finland (6), Austria (7), the United Kingdom (8), Germany (9) and Belgium (10).
- ▶ The US is placed at the 22nd position.
- ▶ Six nations, home to 2.4 billion people, rank beyond the 100th mark - India (102nd), Brazil (110th), Russia (111th), Pakistan (122nd), Bangladesh (123rd), and Nigeria (127th).
- ▶ Increased integration into the global economy has made the Association of Southeast Asian Nations (ASEAN) region a more accessible market for trading goods than either the European Union or the US.

Indo-Bangladesh and Indo Myanmar Trade

- ▶ Bangladesh was India's largest South Asian trading partner in 2015-16 with bilateral trade worth \$6.8 billion. Bangladesh has border with West Bengal, Assam, Meghalaya and Tripura.
- ▶ India-Bangladesh trade ties are troubled by "poor" rail- and river-connectivity at the region bordering Assam. Road connectivity in the Bangladesh side for Mankachar Border Trade Point (BTP) is very poor, and trade is possible only in summers. Similarly, dredging of the Brahmaputra River on the Bangladesh side was "essential" to make river vessels route navigable.
- ▶ Joint inspection for operationalisation of six "new" 'Border Haats'(or border markets) was pending due to an inadequate response from Bangladesh. Earlier both governments had decided to establish 2 Border Haats in Tripura and 4 Border Haats in Meghalaya. This is in addition to already operational border haats.
- ▶ India-Myanmar bilateral trade has increased from US \$ 1.3 billion to US\$ 2billion during 2010-2014. Myanmar has border with Arunachal Pradesh, Nagaland, Manipur and Mizoram.
- ▶ IMT Trilateral Highway - The India-Myanmar-Thailand (IMT) trilateral highway is a highway under construction that will connect Moreh, India with Mae Sot, Thailand via Myanmar. The road is expected to boost trade and commerce in the ASEAN-India Free Trade Area, as well as with the rest of Southeast Asia. India has also proposed extending the highway to Cambodia, Laos and Vietnam. The proposed 3,200 km route from India to Vietnam is known as the East-West Economic Corridor (EWEC).

Issues with North-East Border Trade

It is important to look into specific constraints which impede India's border trade with Bangladesh and Myanmar. The common constraints in trade are:

- ▶ The most problematic factors for trade include **high cost or delays caused by domestic transportation, crime and theft, corruption on the border and burdensome import procedures.**
- ▶ **Poor Road and Rail Connectivity, Lack of civic amenities,** Warehousing and storage facilities at border posts. Work on Integrated Check Post (ICP) at Moreh (Manipur) is still incomplete.
- ▶ **Lack of awareness on tax regulations and customs procedures** among traders this lead to harassment by officials. This induces traders to use the informal route which cause loss to exchequer.
- ▶ **Lack of financial and advisory services-Financing by banks and financial institutions** to the entrepreneurs for the growth and development of border trade is very crucial. But, all main offices are in Guwahati. EXIM bank and other advisory and information providing organizations are not there in bordering states of Arunachal Pradesh, Manipur, Mizoram, Tripura and Meghalaya. Moreover, traders have resentment over lack of transit insurance facilities in bordering states.
- ▶ **Law and order situation** – Too many check points, corruption, extortion and Illegal taxation by militant group.
- ▶ **Frequent Bandh and Blockades** along the National Highways.
- ▶ **Lack of Entrepreneurship** among the local youth.

Conclusion

- ▶ Free trade remains the most powerful driver of global economic development and social progress. The challenge today is to confront protectionism, but governments also have a duty to make trade a source for more inclusive growth.
- ▶ The trade potential in the North East is substantially high. The only reason for not been

able to meet the targeted growth in trade is due to lack of Infrastructure building and upgrading of storage facilities, parking bays, security and medical facility, inadequate improvement of the existing highways, inadequate restructuring of transport services including freight business, passenger, container and warehousing, slow pace in

Installation and upgradation of banking services, taxation, custom facilities.

- ▶ In order to solve issues with Bangladesh, India should take up the issue with Joint Working Group on Trade and also at the meeting of the subgroup on infrastructure. On trade with Myanmar we need to focus on improving trade infra-structure include better Road- Rail

connectivity till border trading posts, development of warehousing and logistic facilities and financial services. Further, Capacity and Skill building program should be undertaken to develop entrepreneurial spirit among local youth. Finally, improvement in law & order situation along with good governance will have a multiplier effect.

Nations Facing Famine in Africa: Reasons & Analysis

Context

South Sudan along with other Eastern African countries of Somalia, Ethiopia are facing acute food shortage, bringing into focus the fragile nature of human development and globalization which we talk about. 'Man-made' food crisis threatens 100,000 people after war and a collapsing economy devastate agriculture in the South Sudan. A further 1 million people were classified as being on the brink of famine, according to the World Food Programme (WFP) and other UN bodies. The crisis questions the basic idea of humanism, equality and international co-operation and therefore there is a need for all countries to co-operate and find permanent solutions to the recurring problem of famine in African continent.

- ▶ **South Sudan gained independence from Sudan on 9 July 2011 as the outcome of a 2005 agreement that ended Africa's longest-running civil war.**
- ▶ **Civil war** has been continuing since 2013.
- ▶ **South Sudan** economy is oil dependent and the civil war has affected it.
- ▶ Famine has been declared in parts of **Unity State** in the northern-central part of South Sudan as it has been at the centre of some of the fiercest fighting.
- ▶ Food production in South Sudan was devastated by an upsurge in violence last year while soaring inflation – up to 800% year-on-year – and market failure have left its people struggling to cope with massive price rises on basic food items.

What is famine?

According to UN famine is a situation of severe scarcity of food which results into:

- ▶ Food shortage among 20% of households
- ▶ Malnutrition among 40% of population
- ▶ Death of 2 persons among 10,000

Which countries in Africa are facing famine?

- ▶ **South Sudan:** Famine has been declared in parts of South Sudan, where UN agencies warned that war and a collapsing economy have left 100,000 people facing starvation.
- ▶ The UN has warned that three other countries - **Yemen, Somalia and Nigeria** - are at risk of famine.

Why African Nations are facing famine?

Climatic conditions, status of economy and political situations makes many African nations vulnerable to famines.

- ▶ A study shows some 19 African countries now face socio-political crisis. Of these, eight countries have autocratic regimes. They form over 80 per cent of the nearly 2 crore Africans who are internally displaced or are refugees.
- ▶ Many countries in the Sub-Saharan region because of climatic conditions of low rainfall, high temperature are always vulnerable to famine. In the Global Hunger Index countries like Liberia, Ethiopia face high levels on hunger.
- ▶ **Economic structure** of many African nations is agriculture based and thus state have low resource mobilization capacity which further

effects their capacity to invest in agriculture to improve productivity and production.

- ▶ **Civil war:** Civil war has displaces thousands of people, disrupted crop planting, leads to economic collapse. Along with this the resources of the nation, both material and human resource are diverted for war purpose. Sometimes warring forces use blockade as a strategy and create food supply problems. Both **South Sudan and Somalia** are facing war.
- ▶ In civil war conditions people have to do menial jobs which entraps them into poverty and affecting their purchasing power.
- ▶ **Climatic conditions:** According WFP, two seasons of **failed rains in Somalia** have resulted in severe water shortages, tripling the price of a barrel of water. Three-quarters of the country's livestock has died and cereal production is down 75%, sending food prices through the roof.
- ▶ **Low purchasing power of people:** It is said that world has enough food to feed every individual, but because of high levels of wastage and low purchasing power of poor keeps food away from them.
- ▶ **Capacity of the state to undertake preventive measure:** The above condition is accentuated by absence of capacity of states to undertake measure to maintain buffer stock. All these reflect governance deficit in the states because people's participation and accountability mechanism are missing.
- ▶ Low economic status of African nations have resulted into situation where their voices are not

heard, their issues are not given importance at various international forums.

Is it first time that these nations are facing famine?

Famines are not new to this region. Southern Somalia saw one in 2011 and another during 1991-92, southern Sudan in 2008, Gode in Ethiopia's Somali region faced a famine in 2000. And there were many other episodes of famine in Africa in the latter half of the past century itself.

What should be done?

- ▶ **Short term steps:** The UN and other nations must provide humanitarian assistance and unrestricted access to aid workers must be facilitated.
- ▶ **Long term solution:** Since many of these famines are caused in conditions of civil war and autocratic regimes. So, only a lasting political solution can bring in change in this troubled zone of Africa. Attempts to ensure inclusive polity must be made.
- ▶ Given that FDI to Africa crossed \$70 billion in 2014, up from \$14 billion in 2004 efforts must be made by companies and nations to change the structure of the economy of African nations. FDI must be directed towards which improve the human resource potential.

India has played a very important role in Africa in various capacities like through UN Peace keeping missions, support for human resource development by focusing on health and education initiatives and must continue in this direction.

National Solar Mission

Context

Government of India has launched the Jawaharlal Nehru National Solar Mission in 2010. The Mission has set the ambitious target of deploying 20,000 MW of grid connected solar power by 2022. It is aimed at reducing the cost of solar power generation in the country through long term policy, large scale deployment goals, aggressive R&D and domestic production of critical raw materials. Mission was conceived to create an enabling policy framework to achieve this objective and make India a global leader in solar energy.

Later in 2015, under NSM Government raised the Solar power generation capacity target by five times to 1,00,000 MW by 2022, which will entail an investment of around Rs. 6 lakh crore. India's 100-GW Solar Mission is a smart move, as it can cut costs and bring cutting-edge technology to India.

India has around 6 GW of installed solar power generation capacity at end of March, 2016, it was supposed to rise to 12.7 GW. However, India may miss target for 2016-17. This analysing the constraints in the mission.

Introduction

Solar power can contribute to the long term energy security of India, and reduce dependence on fossil fuels that put a strain on foreign reserves and the ecology as well. It will also help India in showing India's commitment towards tackling climate change.

It was in recognition of all these factors that Indian government conceptualized National Solar Mission. The Jawaharlal Nehru National Solar Mission was launched on the 11th January, 2010. The Mission is aimed at reducing the cost of solar power generation in the country through:

- ▶ Long term policy;
- ▶ Large scale deployment goals;
- ▶ Aggressive R&D; and
- ▶ Domestic production of critical raw materials, components and products.

In 2015, Union Cabinet chaired by Prime Minister, gave its approval for stepping up of India's solar power capacity target under Jawaharlal Nehru National Solar Mission (JNNSM) by five times, reaching 1,00,000 MW by 2022. The target will principally comprise of 40 GW (solar) rooftop and 60 GW through large and medium scale grid connected solar power projects. With this ambitious target, India will become one of the world's largest green energy producers, surpassing several developed countries.



Fig. 6

Targets under National Solar Mission

National solar mission with total target of 100GW of installed solar capacity by 2022 includes:

- ▶ 40GW of roof top solar and 60GW through Large and Medium Scale Grid Connected Solar Power Projects.
- ▶ The total investment in setting up 100 GW will be around Rs. 6,00,000 crore. In the first phase, the Government of India is providing Rs. 15,050 crore as capital subsidy to promote solar capacity addition in the country
- ▶ This capital subsidy will be provided for Rooftop Solar projects in various cities and towns, for Viability Gap Funding (VGF) based projects to be developed through the Solar Energy Corporation of India (SECI) and for decentralized generation through small solar projects.
- ▶ The new solar target of 100 GW is expected to abate over 170 million tonnes of CO2 over its life cycle.
- ▶ Decentralized Solar Power Generation in the form of Grid Connected Rooftop Projects will stabilize the grid, it will minimize investment on power evacuation.
- ▶ India's 2022 target is equivalent to 22 per cent of the world's cumulative renewable energy capacity in 2015 — 785 GW, excluding hydel power projects, according to a 2016 report by the Renewable Energy Policy Network.
- ▶ The solar manufacturing sector will get a boost with this long term trajectory of solar capacity addition. This will help in creation of technology hubs for manufacturing. The increased manufacturing capacity and installation are expected to pave way for direct and indirect employment opportunities in both the skilled and unskilled sector.

Proposed Policy interventions

- ▶ **Facilitating setting up of solar plants:**
 - Through identification of waste land, changes in tenancy laws, leasing facilities for setting plants.
 - Government subsidy for rooftops, VGF (Viability Gap Funding) for Solar parks.
 - Inclusion of renewable energy under infrastructure sector, priority sector, giving loans under housing loan category
- ▶ Making provision for roof top and obligatory to have 10% renewable energy in Ministry of Urban development Schemes
- ▶ Amending building by laws to have solar roof tops for new buildings or high FAR (Floor Area Ratio)
- ▶ Facilitating evacuation through **Green Energy Corridor**
- ▶ Setting up dedicated parks for manufacturing **solar photovoltaic's modules** amending Energy Act for strong enforcement of RPO and RGOs.
- ▶ Incorporating measures in **IPDS (Integrated Power Distribution Scheme)** for encouraging energy distribution companies and making **net-metering** compulsory.
- ▶ Collaboration with international agencies, funds like Green Climate Fund, etc.

Steps taken so far

- ▶ **New Power Tariff Policy 2016** - gave deemed generation status to renewable energy generation, removed inter-state transmission charges. Under Deemed Generation, the power generated by the solar plant will have to paid for if power transmitters failed to evacuate it.
- ▶ **Credit Guarantee** - Government has extended credit guarantee to renewable energy funds, facilities for green bonds etc have made cost of funding less.
- ▶ **Lands approvals** - Efforts have been made to smooth the process of making land available.
- ▶ **Solar Photovoltaics** - Reduced cost of solar PVs because of reduced costs in China.
- ▶ **World Bank Loan** - Commitment from World Bank to provided USD 1 billion for solar power. This is the bank's largest financing of solar for any country in the world to date. The projects now under preparation include solar rooftop technology, infrastructure for solar parks, bringing innovative solar and hybrid technologies to the market, and transmission lines for solar-rich States. The commitment includes an agreement for a \$ 625 million grid-connected rooftop solar programme for financing the installation of at least 40 megawatts of solar photovoltaic installations.
- ▶ **Solar Park Schemes** - Government doubles the target installed capacity under Solar Park Scheme to 40GW. The power sector in India produces about half of all CO2 emissions in the

country (805.4 million tonnes), according to the power ministry's Draft National Electricity Plan 2016.

- ▶ **ISA** - ISA (International Solar Alliance) is an alliance of 121 solar power potential countries in the tropic. It focuses on joint research, funding and transfer of technology. Long term strategy by initiatives like International Solar Alliance is changing the attitude of investors, companies in the area.
- ▶ **Expenditure** - The capital expenditure per watt of solar energy produced has fallen to Rs 60.6 in 2015-16 from Rs 79.7 in 2013-14, and is further projected to fall to Rs 53 in 2016-17, according to the BNEF report.

What is the present status?

- ▶ Present status of the total installed capacity stands at around 9GW (as on 31st Dec 2016) which is way behind the target of 100 GW by 2022. Achieving this target will require 18GW addition on per year basis in future. Even for 2016-17 out of the targeted addition of 12GW only, 2.5GW has been added.

Key Issues and Challenges

Despite the bold intent the National Solar Mission was to face serious challenges in the form of:

- ▶ Availability of funding, which was estimated to be around Rs. 6 lakh crore using conservative estimates. In the government's Renewable Energy Invest Summit in 2015, developers and manufacturers of wind and solar energy products and plants committed to nearly 240 GW of renewable capacity addition by 2022, but financiers committed money for only 70 GW added capacity, according to CEEW.
- ▶ High cost of funding because of no guarantee of power acquisition by state discoms. Further,

electricity distribution companies do not always pay for electricity on time, with payment delays being common in Tamil Nadu, Rajasthan, Madhya Pradesh and Maharashtra, according to the Mercom Capital report.

- ▶ Absence of storage capacity is also another hindrance in generating solar power because it cannot be switched on and off like other power plants.
- ▶ Intermittent generation which makes evacuation and grid connectivity difficult.
- ▶ All of these combining and resulting into high per unit cost of solar power which neither consumer nor state discoms were ready to bear.

Way Forward

India had become a leader in implementing the promises made in Paris for COP21 and the efforts against global warming. India's plans to virtually triple the share of renewable energy by 2030 will both transform the country's energy supply and have far-reaching global implications in the fight against climate change.

To achieve this India must focus on domestic manufacturing, research and development in the sector. Along with this focus on energy efficient buildings, appliances will help changing the attitude of the people towards the use of solar energy. New innovative instruments like green bonds, CSR funds can be used for financing National Solar Mission.

All the steps augur well for the sector as it will help India in achieving the target set by government. If everything goes well India will be able to emerge not only as major user of renewable energy but also as a nation with complete ecosystem related to renewable energy focusing on research, innovation, manufacturing and utilization. It will strengthen India's credibility as a responsible world power.

Miscellaneous News

Context

Hereby, compiling the important short notes of February (16 to 28), 2017.

1. Earth like planets spotted

Introduction:

- ▶ Astronomers from NASA (National Aeronautics and Space Administration) for the first time have discovered seven new Earth-sized exoplanets, with mass similar to Earth, orbiting around a dwarf star the size of Jupiter, just 39 light years from the Sun, that may be able to sustain life.

Exoplanets: It is a planet that does not orbit the Sun and instead orbits a different star, stellar remnant, or brown dwarf. It is also termed as extra solar planet.

Goldilocks Zone: It refers to a habitable zone in space where the temperature is neither too high nor too low. Such conditions could allow for the presence on the planet's surface of liquid water – a key ingredient for life.

Details:

- ▶ The planets' temperature is low enough to make possible the presence of liquid water on their surface.
- ▶ These planets are found in the **habitable zone** (Goldilocks zone) of the star.
- ▶ The planets are **terrestrial** with liquid water, measurements done by the scientists.
- ▶ Five planets have sizes similar to that of the Earth, while the remaining two are intermediate in size — between Mars and Earth.
- ▶ Based on the mass estimates, the six inner planets may have a rocky composition. The sixth

planet has low density suggesting a volatile rich composition. The volatile content could be either ice layer and/or atmosphere.

- ▶ Findings suggest all seven are tidally locked, with one side perpetually facing **TRAPPIST-1**. (The habitable, water-friendly portion of each planet would likely be the ring between the hot, star-facing side and the cool, dark side.)

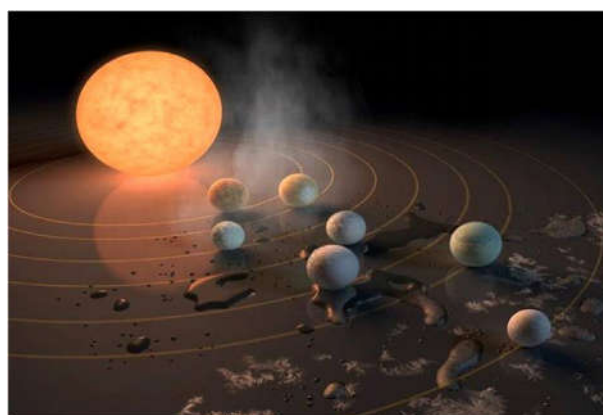


Fig. 6

Orbital periods:

- ▶ The four newly discovered planets orbit around the star every 4.04 days, 6.06 days, 8.1 days and 12.3 days respectively; the orbital period of two of the three planets discovered earlier is 1.51 days and 2.42 days respectively.
- ▶ The gravitational interactions between the six inner planets push them to orbit in a specific pattern around the star, a phenomenon known as a **near-resonant chain**.

2. How ponds can speed up global warming

Introduction:

- ▶ Scientists in Britain, in experiments designed to simulate moderate future warming, found that ponds — a metre across — gradually lose the

capacity to soak up one kind of greenhouse gas and give off even more of another.

- ▶ While ponds and lakes only account for about 0.008 percent of the total volume of water on Earth, they are major contributors of carbon dioxide and methane.
- ▶ The new findings matter because small ponds play an outsized role in the planet's carbon cycles — the balance between input and output of greenhouse gases.

Amplification effect:

- ▶ When fresh-water ponds get warm, they release more methane and are able to store less carbon dioxide. Methane is about 28 times more effective in trapping the sun's radiation in our atmosphere than carbon dioxide, the dominant greenhouse gas.
- ▶ Warming can fundamentally alter the carbon balance of small ponds over a number of years, reducing their capacity to absorb carbon dioxide and increasing emissions of methane. This could ultimately accelerate climate change.
- ▶ Ponds of less than one meter, such as those used in the study, are responsible for the release of 40 percent of all inland methane emissions.

This accelerating effect in ponds, which could have serious impacts on climate change, is not currently accounted for in Intergovernmental Panel on Climate Change (IPCC) models.

3. China building floating nuclear reactor

Introduction:

- ▶ In 2015, China's National Development and Reform Commission — the country's main planning organisation — had approved floating reactor project, steered by the China General Nuclear Power Group (CGN).
- ▶ A five-year plan was published in March 2016 outlining China's desire to expand its nuclear generating capacity.
- ▶ It will cost more than £300 million (\$373 million) each.

Details:

- ▶ China has officially begun construction of its first offshore nuclear power plant, a demonstration project that will employ the

domestically developed ACPR50S small modular reactor (SMR).

- ▶ It expects construction of the demonstration project to be completed by 2020.
- ▶ CGN has signed a framework agreement with Shanghai Electric Nuclear Power Group to accelerate "smart power construction," which entails applying digital tools throughout the nuclear plant process, from design to construction.
- ▶ It will further the country's "strong marine power strategy."

Purpose:

- ▶ All the radar systems, lighthouses, barracks, ports and airfields that China has set up on its newly built island chain in the South China Sea require tremendous amounts of electricity, which is hard to come by in a place hundreds of miles from the country's power grid.

Uses:

- ▶ The plants will provide clean energy, heat and even water to remote islands particularly those recently built in the Spratly archipelago, called the Nansha islands by the Chinese.
- ▶ It has tremendous civilian and industrial uses.
- ▶ The plants will be powering oilfield exploration in the Bohai Sea and deep-water oil and gas development in the South China Sea.

China would not be the first country to employ floating nuclear power plants. In the 1960s, the U.S. Army installed a nuclear reactor inside the hull of a World War II freighter to provide electricity for the Panama Canal Zone.

4. Project loon can now predict weather systems

Introduction:

- ▶ Project Loon is a research and development project being developed by X (formerly Google X) with the mission of providing Internet access to rural and remote areas.
- ▶ It incorporates Helium-filled balloons.
- ▶ The project uses high-altitude balloons placed in the stratosphere at an altitude of about 18 km to create an aerial wireless network with up to 4G-LTE speeds.

Details:

- ▶ The balloons float in the stratosphere around 18 kilometres high.
- ▶ The balloon's path will be controlled by changing its altitude, so that it can optimally use wind speed and direction.
- ▶ The altitude will be altered by pumping or releasing air to raise or lower the balloon. As one 'station' moves off to a new pre-determined location, the next one move in.
- ▶ Users will need a special antenna for receiving and sending radio signals to/from the balloon. They will need a connection to the internet service provider to access the web.
- ▶ The balloons float in the stratosphere around 18 kilometres high. By raising or lowering altitude, the balloons can be caught in different weather streams, changing direction.
- ▶ The Project Loon team, part of the company's X research lab, can now use machine learning to **predict weather systems**, meaning the firm has a greater control over where its balloons go, making it possible to focus on a specific region, rather than circumnavigating the globe.

5. Why earth's inner core does not melt**Introduction:**

- ▶ A study from KTH Royal Institute of Technology puts forward a new theory, simulating how solid iron can remain atomically stable under such extreme conditions.

Details:

- ▶ As with all metals, the atomic-scale crystal structures of iron change depending on the temperature and pressure the metal is exposed to.
- ▶ Atoms are packed into variations of cubic, as well as hexagonal formations. At room temperatures and normal atmospheric pressure, iron is in what is known as a **body-centred cubic (BCC)** phase, which is crystal architecture with eight corner points and a centre point.
- ▶ However at extremely high pressure, the crystalline structures transform into 12-point hexagonal forms, or a close packed (HCP) phase.
- ▶ At Earth's core, where pressure is 3.5 million times higher than surface pressure — and

temperatures are some 6,000 degrees higher — scientists have proposed that the atomic architecture of iron must be hexagonal.

- ▶ Data showed that pure iron likely accounts for 96% of the inner core's composition, along with nickel and possibly light elements. But most importantly, the study found that BCC iron can indeed exist in the core, with its crystal structure remaining stable thanks to the very characteristics that were previously assumed to destabilize it.

Temperature impact:

- ▶ At low temperature, BCC is unstable and crystalline planes slide out of the ideal BCC structure. But at high temperatures, the stabilisation of these structures begins much like a card game — with the shuffling of a "deck."
- ▶ In the extreme heat of the core, atoms no longer belonged to planes because of the high amplitude of atomic motion.
- ▶ The sliding of these planes is a bit like shuffling a deck of cards. Even though the cards are put in different positions, the deck is still a deck. Likewise, the BCC iron retains its cubic structure.
- ▶ Such a shuffling leads to an enormous increase in the distribution of molecules and energy — which leads to increasing entropy, or the distribution of energy states.
- ▶ That, in turn, makes the BCC stable.

6. NIO begins fingerprinting tar balls**Introduction:**

- ▶ Samples collected from the Ennore spill will be fingerprinted at the National Institute of Oceanography (NIO).
- ▶ Tracking the source of oil pollution through fingerprinting is significant as it could identify the polluters and thus fix responsibility.

The National Institute of Oceanography (NIO):

Headquarter: Dona Paula, Goa.

Regional centres: Kochi, Mumbai and Visakhapatnam

It is one of the 37 constituent laboratories of the Council of Scientific & Industrial Research (CSIR), New Delhi.

- ▶ It will help in evaluating the spills and devising methods for averting them.

Process:

- ▶ Crude oil explored from each well has specific characteristics.
- ▶ A comparison of the characteristics of oil spills or tar balls with the crude oil will reveal the location from which the oil originated.
- ▶ After identifying the characteristics of the oil spill or tar balls, it would be easy to track them back to the source.
- ▶ Besides the scientific identification of the source of oil pollution, the fingerprinting would reveal the residence time of the oil residues/tar balls in water and the deposit of the balls on the coast.

The analysis can generate huge data bank on fingerprint results, which ultimately will be useful towards mitigation of oil pollution.

7. High quality grapheme created

Introduction:

- ▶ A group of scientists from the CSIRO created a high quality grapheme, world's strongest material, using soybean.

Background:

- ▶ Until now, the high cost of graphene production has been the major roadblock in its commercialisation.
- ▶ Previously, graphene was grown in a highly-controlled environment with explosive compressed gases, requiring long hours of operation at high temperatures and extensive vacuum processing.

What is graphene?

- ▶ Graphene is a carbon material that is one atom thick.

CSIRO: The Commonwealth Scientific and Industrial Research Organisation is the federal government agency for scientific research in Australia.

Its chief role is to improve the economic and social performance of industry, for the benefit of the community.

- ▶ It can be considered as an indefinitely large aromatic molecule.
- ▶ It is 200 times stronger than the strongest stainless steel.
- ▶ Graphene has excellent electronic, mechanical, thermal and optical properties as well.
- ▶ These properties also enable thinner wire connections; providing extensive benefits for computers, solar panels, batteries, sensors and other devices.
- ▶ Its thin composition and high conductivity means it is used in applications ranging from miniaturised electronics to biomedical devices.

Details:

- ▶ CSIRO scientists have developed a novel "GraphAir" technology which eliminates the need for a highly-controlled environment.
- ▶ The technology grows graphene film in ambient air with a natural precursor, making its production faster and simpler.
- ▶ GraphAir transforms soybean oil - a renewable, natural material - into graphene films in a single step.
- ▶ With heat, soybean oil breaks down into a range of carbon building units that are essential for the synthesis of graphene.

8. Cloud seeding experiment in Maharashtra

Introduction:

- ▶ Cloud seeding involves introducing dry ice or silver iodide into clouds to aid precipitation and rainfall.
- ▶ Cloud seeding is a form of weather modification, is a way of changing the amount or type of precipitation that falls from clouds, by dispersing substances into the air that serve as cloud condensation or ice nuclei, which alter the microphysical processes within the cloud. The usual intent is to increase precipitation (rain or snow).

Cloud Seeding Experiment:

- ▶ Maharashtra Government has approved Rs.250 crore Cloud Seeding Programme during 2017 monsoon season to produce sufficient rain.

- ▶ Under this programme, weather scientists using aircrafts will spray chemicals (silver iodide) over clouds hovering above Solapur district, a rain shadow region of Western Ghats in the state.
- ▶ The aircraft will be based at Aurangabad, which will cover parched areas like Solapur, Sangli, Satara, Latur, Osmanabad and Beed and the radar would help indicate “the accurate movement of clouds with their depth and moisture content”.
- ▶ This will be the first controlled experiment to quantify the extent to which clouds form water drops large enough to make rain.
- ▶ This programme, coordinated by the Indian Institute of Tropical Meteorology, will be the first controlled experiment to quantify the extent to which clouds form water drops large enough to make rain.

HOW IT WORKS

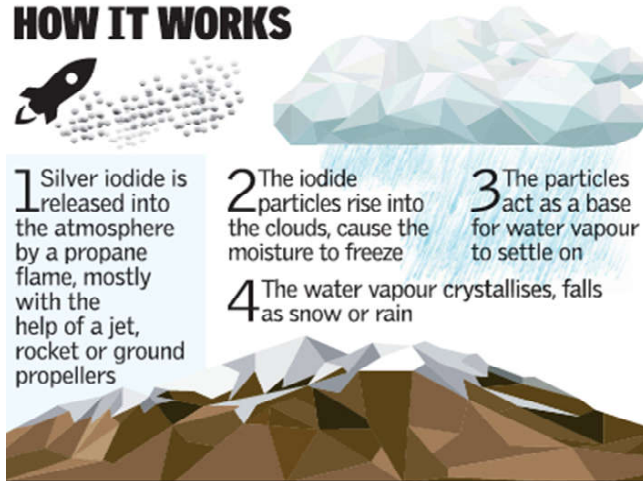


Fig. 7

9. Saathiya Salah

Why in news?

Government has launched the SAATHIYA Resource Kit including ‘Saathiya Salah’ Mobile App for adolescents as part of the Rashtriya Kishor Swasthya Karyakram (RKSK) program.

Features:

- ▶ The key interventions under the programme is introduction of the Peer Educators (Saathiyas) who act as a catalyst for generating demand for the adolescent health services and imparting age appropriate knowledge on key adolescent health issues to their peer groups. In order to equip the Saathiyas in doing so, the Health Ministry has launched the Saathiya Resource Kit (including ‘Saathiya Salah’ Mobile App).

- ▶ RKSK identifies six strategic priorities for adolescents i.e. nutrition, sexual and reproductive health (SRH), non-communicable diseases (NCDs), substance misuse, injuries and violence (including gender-based violence) and mental health.
- ▶ Under this the Peer Educators will be trained across the country in a phased manner, ensuring optimum use of the resource kit, which is a ready source of a range of communication material specially designed to help the Peer Educator to be recognized and respected as ‘saathiya’, a good friend for the adolescents.

10. Bharat QR code

Why in news?

The Union Government has launched Bharat QR code, a quick response (QR) code to enable digital payments without card swiping machines. It is world’s first interoperable payment acceptance solution launched by Indian Government to move towards cashless economy.

Features:

- ▶ Bharat QR code has been developed jointly by National Payments Corporation of India (NPCI), Visa, MasterCard and American Express under instructions from Reserve Bank of India (RBI). It works as common interface for the MasterCard/ Visa/RuPay platforms and also facilitate acceptance of Aadhaar-enabled payments and Unified Payments Interface (UPI).
- ▶ Merchants will be able to generate their own code that will be interoperable with banks, doing away with swipe card terminals.
- ▶ This will lead to some cost savings, and merchants will also receive money instantaneously.

But it also makes the payment system dependent on technology more than ever before, raising the pressure on cyber security .

QR code (Quick Response code) is a two-dimensional (matrix) machine-readable bar code made up of black and white square. This code can be read by the camera of a smartphone. It is used for storing URLs or other information that link directly to text, emails websites phone numbers. It is capable of 360 degrees (omni-directional), high speed reading.

11. Barren Island Volcano active again

The Barren Island, about 140 km from Port Blair, is a tourist destination and surrounded by waters ideal for scuba diving and is home to a wide variety of aquatic life. The island is open to visitors, with prior permission, and as the name suggests is uninhabited and devoid of any significant vegetation. It's the only active volcano along a chain of volcanoes from Sumatra to Myanmar. The 354-metre-high island is the emergent summit of a

volcano that rises from a depth of 2,250 m. The small, uninhabited 3-km-wide island contains a roughly 2-km wide caldera (a volcanic crater) with walls 250-350 metres high.

The Barren Island volcano, on a remote uninhabited island off the country's eastern coast, had been lying dormant for more than 150 years until it saw a major eruption in 1991. Since then it has shown intermittent activity, including eruptions in 1995 and 2005.
