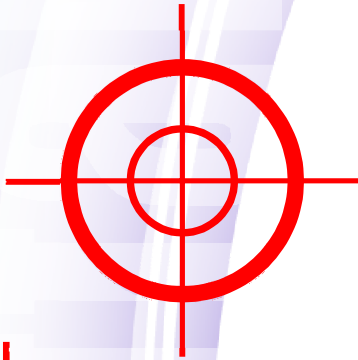


# Current Affairs ANALYST



**Recent Yuan Devaluation:  
An Analysis**

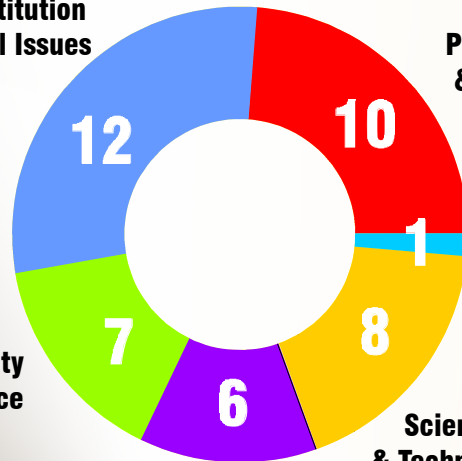
**in focus**



**Saudi Arabia  
and Iran Conflict:  
An Analysis**

**Polity  
+ Constitution  
+ Social Issues**

**Indian Economy  
+ Programmes  
& Schemes**



**IR  
+ Security  
+ Defence**

**Miscellaneous**

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**Geography  
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# FOCUS



## A. Recent Yuan Devaluation: An Analysis



## B. Saudi Arabia and Iran Conflict: An Analysis

### A. Recent Yuan Devaluation: An Analysis

On 7<sup>th</sup> January 2016, the People's Bank of China (PBOC) cut its reference rate for the Yuan by 0.5 per cent, the most since August's 2 per cent devaluation and the eighth straight day that the PBOC has guided the Yuan lower. The move sent the Yuan falling to 6.5945 to the US dollar, its weakest since February 2011. In just four days, the Chinese currency has lost 1.5 per cent in value. In August last year China sent glitters to world market by devaluating its currency; it has repeated the same in January.

#### Reason for this devaluation:

While the Chinese central bank say this devaluation is determined by market forces and it has no role in it, however experts believe that China might be aiming for a competitive devaluation to help its struggling exporters. The latest official trade show that exports in November dropped 6.8 per cent year-on-year - the fifth straight month of decline - as China struggles with weak global demand, rising labour costs and a strong currency. The Yuan has depreciated by over 4 per cent in past three months against the dollar.

#### Immediate effects of these devaluations:

- The higher-than-expected depreciation in China's currency on Thursday has triggered turmoil in global financial markets, Shanghai shares tumbled by 7 per cent, Brent crude prices skidded over 5 per cent to an almost-12-year-low of less than \$30, European stock markets followed Asia lower, with the pan-European FTS Eurofirst 300 index down 2.3 per cent and the euro zone's blue-chip Euro STOXX index falling 2.5 per cent.
- Other regional currencies followed the Yuan down as markets began to worry about competitive currency devaluations from trading partners. Singapore's dollar hit a six-year low, the South Korean won touched a four-month low, and the Malaysian ringgit slumped to a three-month trough.
- As investors fled to safety, the yen rose about 1 per cent to 117.615 a dollar, its strongest in 4 1/2 years. Top-rated German bonds, which are also considered a safe haven, benefitted.
- India's benchmark equity index—the 30-share BSE Sensex—tumbled to a 19-month low after China

pegged the Yuan lower and also the rupee weakened to as much as 67.2550 to the dollar, a level last seen in September 2013.

- The reason for this extreme response was the Risk aversion sparked by concerns over China's worsening economic outlook, its currency and the fallout on global commodity markets.

#### **Future implications of this devaluation on World economy and India:**

- A sustained depreciation in the Yuan puts pressure on other Asian countries to devalue their currencies to stay competitive with China's massive export machine. The experts fear that this can trigger currency war among the developing countries, which can hurt each country.
- The devaluation in Yuan is a signal of struggling Chinese economy and if growth continues to flatter in China, this could purge south East Asian,

African and Latin American commodity exporting countries into recession, since China is a major consumer of commodities imported from these countries.

- The fall in Yuan also makes commodities, which are denominated in US dollars, more expensive for Chinese buyers. This could hurt demand and thus further depress commodity prices which are at multi-year lows.
- Devaluation of Yuan could have both positive and negative effect on India, while Devaluation will benefit Indian consumers in a way that it could make Chinese accessible to them at cheaper rates, while on the other hand it could flood cheaper products from China, e.g. tyres, steels which would harm the local manufacturers in India and further could lead to low profits for already struggling Indian corporate and a bearish outlook for the economy. This devaluation could also pose a challenge for India's nascent Make in India programme.

## **B. Saudi Arabia and Iran Conflict: An Analysis**

- On January 2, 2016, 47 people were put to death in several Saudi cities, including prominent Shiite cleric. NIMR AL-NIMR Protesters of the executions responded by demonstrating in Iran's capital, Tehran. The very day a few protesters were eventually ransacked the Saudi Embassy in Tehran and later set it ablaze.
- On January 3, 2016, Saudi Arabia's foreign ministry announced that it would cut diplomatic ties with Iran due to the violence that had occurred at their embassy and President Rouhani called the damage on embassy "by no means justifiable".
- On January 7, 2016, Iran's foreign ministry made the claim that Saudi warplanes had deliberately targeted its embassy to Yemen in the city of Sana. Iran's report included claims that, "a number of the building's guards" had been injured as a result of the bombing.
- Tensions between Iran and Saudi Arabia have been deteriorating since last few years because they both were supporting opposite sides in Syria and Yemen. But in last few days the relations have touched rock-bottom and many experts are terming the recent conflict as new cold war in the Middle East.

#### **Reasons for conflict between Iran and Saudi Arabia:**

##### **(a) Religious differences:**

- Both Saudi Arabia and Iran are Muslim majority countries, however Saudi Arabia follows Wahabi Sunni Islam, while Iran is a Shia majority state.

Since time memorial followers of Shia and Sunni Islam have always remained in conflict with each other. In modern era the relations between Iran and Saudi Arabia were cordial till 1979, however in 1979 there was an Islamic revolution in Iran and since then the relations deteriorated between both the countries, since Shiite Iran took the responsibility of safety of all Shias in the middle east and it also started supporting Shia militant groups who were fighting for their rights in most of the Sunni majority Arab countries, the biggest example of which is Hezbollah in Lebanon. Saudi Arabia started putting allegation on Iran that it is trying to export its Shia brand of Islam in all Arab countries and thus destabilizing those countries.

##### **(b) Syria and Yemen crisis:**

- Most of the countries in Arab region are Sunnis and thus are allied to Saudi Arabia. Syria, though a Sunni majority country is ruled by Bashar al Assad who is an alawite (an offshoot of Shia Islam), his government is the only solid ally of Iran in the region, thus during the Arab spring when opposition in Syria rose against the regime of Assad, the Saudi Arabia and other gulf countries started supporting opposition (which included secularists, liberal Islamist, Salafist) because they believed that if they could instate a Sunni government in Syria, it would completely isolate Iran, since Syria is the only ally of Iran in the region, while Iran government started supporting Assad regime through arms and funds in order to safeguard its only ally in the region. This conflict

further increased hostility and suspicion between Saudi Arabia and Iran

- In Yemen conflict also both the countries were supporting the opposite sides, while Iran was supporting Houthi rebels which was a Shia tribe, while Saudi responded by bombarding Sana to ensure that Sunni President is reinstated in Yemen.
- Iran's nuclear programme also enhanced the tension between Saudi Arabia & Iran as it is predicted that Iran would become successful in making Nuclear Bomb. It provoked Saudi Arabia to acquire Nuclear Bomb and in turn will further worsen the condition in already destabilized West Asia.

#### **Immediate reasons:**

- The trigger which led to complete break-down of relations between Iran and Saudi Arabia was Execution of Shia cleric NIMR AL-NIMR by Saudi Arabia. In Saudi Arabia Shias are considered as second grade citizens, NIMR AL-NIMR was fighting

for the rights of the Shia Saudi Arabians, however he was executed by the regime on the charge of sedition and disloyalty towards the state, this triggered outrage in Iran and a few protesters eventually ransacked the Saudi Embassy in Tehran and later set it ablaze. This compelled the Saudis to completely cut off diplomatic ties with Iran.

#### **Why this Conflict is Called a Cold War?**

- Cold war between USSR and USA was a war of ideologies and also a proxy war and never a direct war, even the current conflict between Saudi Arabia and Iran is war of ideologies as both countries want other countries in Arab world to follow their brand of Islam. While it was communism and capitalism in the old cold war, it is Shia vs Sunni in the current cold war. Even the conflict between Iran and Saudi Arabia is a proxy war, since they are fighting with each other through proxy forces in Syria and Yemen and before the recent incident of execution. There was never a direct confrontation between Iran and Saudi Arabia.

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# POLITY + CONSTITUTION + SOCIAL ISSUES

## 1. Madras High Court Decision on Dress Code in Temples

Recently, the Madras High Court Bench has passed a ruling that men, women and children wishing to visit temples maintained through the Hindu Religious and Charitable Endowments Department across the state must abide by a dress code.

The judgement was delivered by Justice S Vaidyanathan in a writ petition that was filed seeking to dismiss the order of sub-inspector of Thuvrankurichi Police Station, Trichy which sought to decline permission to conduct a village cultural performance.

- The Court has ordered that police should ensure a dress code for people entering temples —dhoti and shirt or pyjama “with upper cloth” for men and saree or half-saree or churidar “with upper cloth” for women. Children can wear “any fully covered dress”.
- The court directed the state government to take a decision on this issue and directed the authorities to implement the court-mandated dress code from January 2016. It also directed the Hindu Religious and Charitable Endowments Department to communicate to all temples to strictly adhere to the dress code. The court said the objective of the order is to restrict devotees from wearing improper clothing.
- Citing the practices in Tirumala Tirupati Devasthanam in Andhra Pradesh and Sree Somnath Temple, where devotees are not allowed to wear “disrespectful clothing”, the court informed that the purpose of prescribing a dress code to devotees is to restrict devotees wearing “improper clothing” from entering the temple.

Before discussing the larger impact of this ruling, the question that arises is that if this is a case of gross overreaching by the judicial machinery. This judgement raises a rather interesting question of fight between right to equality and right to freedom of religion. This sort of judgment comes purely from a place of a particular cultural standpoint and lends a hierarchy to attires and draws binary distinctions such as good and bad. Extrapolating from this ruling, it is imperative to understand that when the court treats a certain set of clothes as appropriate and inappropriate, it is also assigning that very character of the clothing to the person. This will reinforce the backward and harmful mindset that many men and women are trying to fight against.

It raises the debate whether there is any religious rule linking dress with devotion. It is not clear that why this prescription is gender-based, when some kinds of apparel — shirts and trousers, for instance — are worn by both men and women. Judicial activism, though at times, undoubtedly furthers public interest, but it is equally important that it is not used to impose a particular world view on the public.

The Madras High Court has now stayed this controversial order of imposing a dress code for devotees visiting temples across Tamil Nadu, on a batch of petitions challenging the order on the ground that it was “discriminatory”.

## 2. Ministry of OIA merged with MEA

Nearly 12 years after it was set up to improve engagement with the Indian Diaspora, the government in order to avoid duplication of work and to improve efficiency, has decided to merge the Ministry of Overseas Indian Affairs (MOIA) with the Ministry of External Affairs. This will have the following impacts:

- Since a substantial work of MOIA is done through missions of MEA abroad the government has decided to take this decision so as to avoid duplication of work.
- To deal with foreign workers-related issues and emergencies to have better diplomatic back-up and coordination.
- This will increase the number of staff in the MEA with diplomatic experience in key positions to deal with emergencies.

### The government’s focus:

MEA can have the key operational posts, including that of the Protector General of Emigrants, one of the most important offices in MOIA who is responsible for issuing registration certificates to recruitment agents to have diplomatic focus.

This will be in sync with the broad principle of minimum government, maximum governance of the government.

### About Ministry of Overseas Indian Affairs:

Established in May 2004 as the Ministry of Non-Resident Indians’ Affairs, it was renamed as the Ministry of Overseas Indian Affairs in September 2004 with the primary task of connecting the Indian Diaspora with its motherland. The Ministry initiated various programmes



focusing on developing networks amongst the overseas Indians with the intent of building partnership among the Diaspora.

Positioned as a 'Services' Ministry, it provides information, partnerships and facilitations for all matters related to Overseas Indians: Non-Resident Indian and Person of Indian Origin.

### 3. NDC to be scrapped

After the Planning Commission, government is set to bring down the curtains on another Nehruvian legacy: the National Development Council (NDC).

#### National Development Council:

- The National Development Council set up on August 6, 1952 by an executive order of the government. It served as "the highest decision-making authority" in the country on development matters.
- It was on recommendations of the Administrative Reforms Commission that the NDC was reconstituted and its functions redefined on October 7, 1967.
- Initially in the first meeting of the NDC held on 8-9 November 1952, it comprised the Prime Minister, the Chief Ministers of all States and the members of the Planning Commission.
- The reconstituted NDC comprised of the Prime Minister, all the Union Cabinet Ministers, the Chief Ministers of all States and Union Territories and the Members of the Planning Commission (NITI Aayog). The Delhi Administration is represented in the Council by the Lt. Governor and the Chief Executive Councilor, and the remaining Union Territories by their respective Administrators.

As per India's first Prime Minister Pandit Jawaharlal Nehru, the NDC is essentially a forum for "intimate co-operation" between State governments and the Centre for all the tasks of national development.

#### The functions of the Council:

- To prescribe guidelines for the formulation of the National Plan, including the assessment of resources for the Plan;
- To consider the National Plan as formulated by the Planning Commission;
- To make an assessment of the resources that is required for implementing the Plan and to suggest measures for augmenting them;
- To consider important questions of social and economic policy affecting national development;
- To review the working of the Plan from time to time and to recommend such measures as are

necessary for achieving the aims and targets set out in the National Plan; and

- To recommend measures for achievement of the aims and targets set out in the national Plan.

#### Analysis:

- The NDC was criticized on the ground that in spite of being highest decision making body of country on developmental issues, most of the time it was forced to accept the decision of planning commission. Within the council the voice of the states was not given much attention.
- However one of the most significant of its decisions was the creation (as part of the Gadgil-Mukherjee exercise) of "special category" of States, and the criteria for determining whether a State could receive the status and related financial support from the Centre. The Cabinet will take up NDCs closure and pass a resolution for transferring its powers to the Governing Council of the NITI Aayog.

### 4. The Sugar Cess (Amendment) Bill, 2015

The Sugar Cess (Amendment) Bill, 2015 which was introduced in Lok Sabha in December 2015 has been given consent by the president. Now, Sugar Cess (Amendment) Bill, 2015 has become an act after President's assent. This Sugar Cess (Amendment) Act, 2015 amended the Sugar Cess Act, 1982.

#### Problems with sugar cess act, 1982:

- Sugar Cess Act, 1982 included the provision of imposition of a cess as an excise duty on the production of sugar. The rate of sugar cess is updated and notified by Union Government from time to time. Under Sugar Cess Act, 1982 the ceiling on the cess was at Rs 25 per quintal.
- This is to note that in recent past many sugar mills of India were closed due to bad business conditions or high (government-set) sugarcane prices. For example, in 2015 four mills of companies like Bajaj Hindustan and Balrampur Chini were shut down in Uttar Pradesh.

#### Key facts:

- The amendment bill seeks to amend the Sugar Cess Act, 1982 which provides legal provision for the imposition of a cess as an excise duty on the production of sugar.
- The bill proposes to increase this ceiling of sugar to Rs 200 per quintal from existing Rs 25 per quintal specified in the principal Act.
- The principal Act empowers central government to fix the rate of sugar cess from time to time.

**Implications of hike in sugar cess:**

- It would lead to increase in the accruals to the Sugar Development Fund (SDF) which in turn would facilitate rehabilitation and modernisation of sugar mills and thereby helping cane growers. In present scenario, it will help in revival of stagnant sugar economy by helping cash-starved mills and sugarcane growers. It would increase the government's expenditure on interventions to ensure that the outstanding dues to sugarcane growers are paid.

**5. Kerala becomes first state to achieve 100% primary education**

- Kerala has become the first Indian state to achieve 100 per cent primary education. Though Kerala is known for its high literacy, this time it has topped the country for being a state which has achieved full coverage of primary education in the country.
- Kerala state was able to achieve 100 per cent primary education through its flagship primary education equivalency drive **Athulyam Scheme** which was meant to provide primary school education to people aged between 15 and 50. It was launched in March 2013 and was carried out in two phases.
- It focused on state level literacy mission aimed at educating those who had been unable to complete their primary education up to fourth standard. The mission mainly focused on deprived sections viz. the scheduled caste, scheduled tribe, physically, financially weak and mentally disabled among others. The second stage of the scheme was **Mission 676** that also aimed at targeting those who had dropped out of the formal education process.
- Prior to Athulyam Scheme, Kerala state government had launched fourth standard equivalency programme in 2000 in association with local bodies. Under this programme Kannur district of state became the first district to achieve 100 per cent primary education in the country in 2001.

**6. Proposed open book test scheme**

- In order to bring significant assessment reforms, the HRD Ministry has urged state and central school boards to consider introducing open-book tests in secondary- and senior secondary-level examinations.
- Open-book assessment allows students to refer to their notes or textbooks while answering questions.

- Last year the HRD Ministry set up an eight-member committee to work on "common design of questions papers". The inclusion of open text-based assessment (or OTBA) in board examinations is one of the key action points of the committee.

**Reason for this proposal:**

- Government believes that focus of studies should not be on memorizing information, but on applying that information and Examinees are not expected to merely reproduce textbook material, but to interpret it in the context of specific questions and scenarios.
- Some experts feel that it could help reduce the influence of coaching institutes.
- Open Book based examination is a good point for consideration as the testing will not be on memory but on comprehension and understanding. In such a format, rote learning will not work as the pattern of questions will focus on thinking.
- In India as shown by various ASER and other surveys, curriculum structure of education at school promotes rote learning and memorization without really understanding the essence of the facts. This is responsible for the lack of innovation in India and also for lack of employability of the graduates.
- This will reduce the fear of examination in students thus it may reduce the suicide numbers & they will be able to focus more on understanding & practical use of knowledge & learning.

**Concerns raised:**

- Getting reform after reform in the current system is not only troubling students but also teachers and principals.
- It will have to wait at least until the previous ones are implemented systematically. Such things need proper training and most importantly, a mental preparedness among teachers and students
- For various reasons, students may choose to go to boards other than CBSE after class X; they will not get this facility there. Also it would make comparison of marks difficult between CBSE and other boards.
- Many proponents of this scheme believe that rather than introducing it directly for Class XII students, the committee can consider introducing it at lower levels, may be Class VI or VIII so that the students get trained under this system for some time and the pilot study data can be used to decide whether it can be introduced for Class XII exams, based on which their future is mostly decided.
- When the question papers are badly set, this scheme become a superficial exercise

- The format has also to be made conducive to students with dyslexia and other learning disabilities, which is a challenge for teachers.

#### Conclusion:

- Thus, even though this scheme is novel in its intent and can move our education system away from rote learning, its implementation should be done in a gradual manner, instead of being implemented directly for board classes, it should first be implemented for middle school as a pilot project.

## 7. Should Jallikattu be banned?

Jallikattu is a bull's game day event happening in Tamil Nadu as a part of Pongal celebrations. Bulls are bred specifically by some private rich persons of the village & temples for the event.

#### Factors favouring the practice:

- Jallikattu has been known to be practiced during the Tamil classical period. It is serving as proof for knowing Tamil civilization that they were highly civilized to make a festival game day even for their bulls and cattles which help very much in their agriculture.
- Most of the breeds of bulls and cows have got extinct from our soil due to the introduction of foreign breed like jersey. Jallikattu also serves as the mean through which native indigenous breeds of India are saved and protected.
- It is argued that Tamil Nadu Regulation of Jallikattu Act, ensures the required pre and post event medical health checks of bulls and only healthy and unintoxicated bulls can participate in the event.

#### Why should it be banned?

- Animal activists, the FIAPO (Federation of India Animal Protection Agencies) and People for the Ethical Treatment of Animals (PETA) India, have protested against the practice over the years which has documented that during jallikattu, terrified bulls are often deliberately disoriented through substances like alcohol; have their tails twisted and bitten; are stabbed and jabbed by sickles, spears, knives or sticks; are punched, jumped on and dragged to the ground.. The Animal Welfare Board of India filed a case in the Supreme Court of India for an outright ban on Jallikattu because of the cruelty to animals and the threat to public safety involved. Protestors point out that Jallikattu is promoted as bull taming, but that there is no 'taming' involved at all. Jallikattu exploits the bulls' natural nervousness as prey animals by deliberately placing them in a terrifying situation in which they are forced to run away from those they perceive as predators. The practice effectively involves catching a terrified animal, not taming it.

- In May 2014, the Supreme Court of India banned the practice, citing animal welfare issues. On 8 January, 2016, the Government of India passed an order exempting Jallikattu from all performances where bulls cannot be used, effectively reversing the ban. However, on 14 January, 2016, the Supreme Court of India upheld its ban on the event, leading to protests all over Tamil Nadu.
- The move of government is also seen as political opportunism during an election year to gain the mileage by supporting local tradition even when it perpetrates cruelty on animals and endangers the lives of the participants.
- In a harmonious reading of animal rights in the context of the Universal Declaration of Animal Welfare (UDAW), the provisions of the Prevention of Cruelty to Animals Act and the Constitution, the court has ruled that animals have a right against human beings inflicting unnecessary pain and suffering on them. In effect, the entire sport has been declared violative of the law against cruelty. Treating animals in a humane, non-exploitative way is now a constitutional requirement for any executive action related to them. The State's earlier regulatory Act on jallikattu was dismissed as an anthropocentric law that was repugnant to the eco-centric law against cruelty to animals. Instead of continuing this artificial confrontation between tradition and modern law it would be appropriate for the TamilNadu government to absorb reasoning and explain it to rural youth who have complained about the loss of their traditional 'sport'. 'Yeru Thazhuvu' in Tamil tradition, is to embrace bulls and not over-powering the bull, to show human bravery. The festive atmosphere during Pongal and the traditions of community bonding and competition can still be easily retained without the irrational practice of jallikattu.

## 8. Government Decision on maternity leave for women

In an attempt to arrest the declining rates of female work participation, the Union Government recently came out with decision to increase maternity leave. This decision is expected to amend the Maternity Benefit Act, 1961, which presently entitles women to 12 weeks of maternity benefit whereby employers are liable to pay full wages for the period of leave.

Under the new rules, maternity leave has been increased from the current 12 weeks to 26 weeks. This will be extended to all women workers in both public and private employment.

Also, it is now mandatory for all establishments with 30 women workers or 50 total workers to provide crèche facilities for their employees, either at the premises or within half a kilometre.

**Need of such measures:**

- India has low rates of recognised work participation by women (around 24%) that have even declined over the past decade. This obviously represents a huge economic loss for the country and is also a sign of the continuing low status of women and their lack of agency in Indian society.
- Most of women working in the unorganised sector, in small establishments or in domestic work or as casual workers earning daily wages or as self-employed workers, do not get any kind of paid maternal leave.
- The sheer inadequacy of job creation in the economy makes it hard for women to find suitable jobs. Gender gaps in education and patriarchal attitudes within families and social restriction on mobility also work against them.
- There are also difficulties of managing domestic responsibilities along with the paid jobs, given the unequal division of household work between men and women within families. The double burden of paid work and unpaid work creates problem.

**Significance of these announcements:**

- These are definitely welcome measures and are good responses to low and declining rates of female work participation.
- Six months of breastfeeding is important to combat malnutrition, diarrhoea, and other diseases in infants and to lower the infant mortality rate. This decision will help to implement this and reduce child illness occurring mainly due to lack of proper care in the initial stages.
- This is a step towards somewhat easing the double burden that working mothers face.
- It will create stress free mind for women, in turn increases the performance in both professional and personal activities.
- It will help women to build up their carrier and help in achieving desired positions who otherwise could not do so because they had to plan their families also.
- Longer maternity leave will also help employers to retain expertise.
- At last, it will also strengthen the relationship between mother and the child.

**Negative implications:**

- While the government's move is a positive one, private companies could accuse it of too much interference. It would make companies think twice before hiring women employees, especially because Maternity Leaves would be a paid leaves.

- Major concern is that of affordability for smaller companies that may struggle to meet the increased financial burden of providing longer paid maternity leave.
- It is also anticipated that women will lose touch with work-related developments, become distracted by baby and family, and lag behind on resuming work.
- Further, being limited to the organised sector, the proposal may benefit less than a quarter of working women.

**Conclusion:**

These are definitely welcome measures, apparently a response to low and declining rates of female work participation. As it happens, most women in India do indeed work, but they are involved not in paid employment but in unpaid work in their homes or communities but one of the major issues for working women are maternity leave for the actual period of childbirth. If the government does succeed in making private employers provide increased maternity leave and in providing crèches at or near workplaces, that will certainly be a step towards easing the double burden that working mothers face.

But Indian working women would be in a better position only if these laws are actually implemented. So this is still just a tiny step towards the larger goals of improving women's participation in paid work and increasing their economic empowerment. To make a real difference, public intervention has to be wider and more ambitious. Without serious attempts on all these fronts and on enforcement, these newly declared measures will seem like tokenism.

**9. EPFO wins National Award on e-Governance for UAN**

- The Employees' Provident Fund Organization has won the National Award on e-Governance 2015-16 for launching the Universal Account Number (UAN).
- The UAN facility enables workers to transfer their provident fund deposits while switching jobs anywhere in India easily

**What is Universal Account Number?**

- Through UAN, active employees are provided a universal number which can be linked to various provident fund account numbers provided to them while working in different organizations. A single account number can be used through all of workers' employments with various organizations. When a worker changes his job, he is required to inform his UAN to new employer and after the previous and present employments are linked to the number, the transfer process happens on its own.

- Earlier, the workers had to apply for transfer of funds on change of job from one organization to another. The portal also allows a worker to view his provident fund balance on a real-time basis without going through the employer.

## 10. IPC Section 295 : An analysis

- Section 295(A) says that Deliberate and malicious acts, intended to outrage religious feelings of any class by insulting its religion or religious beliefs. Whoever, with deliberate and malicious intention of outraging the religious feelings of any class of [citizens of India], [by words, either spoken or written, or by signs or by visible representations or otherwise], insults or attempts to insult the religion or the religious beliefs of that class, shall be punished with imprisonment of either description for a term which may extend to [three years], or with fine, or with both.

### Why is it in news?

- TV Actor Kiku Sharda, who mimicked a scene from a film starring Dera Sacha Sauda chief Gurmeet Ram Rahim Singh while performing in a popular comedy show, was arrested recently under Section 295A of the Indian Penal Code (IPC) for outraging the "religious feelings" of his followers and also Hindu Mahasabha leader Kamlesh Tiwari was also booked under it, after he made offensive remarks on the prophet of Islam.

### Arguments in favour of this section:

- Such a provision has its utility as a safety valve to preserve harmony in a multi-religious society by sanctioning penal action against those attempting to disturb the peace.

### Arguments against the section:

- the broad ambit of section 295A - which is non-bail-able and does not recognize even truth as a defense have made it a powerful tool in the hands of the intolerant lot.
- IPC already has several other provisions to deal with those attempting to breach communal harmony, it may be wise to consider watering down or doing away with Section 295A altogether, particularly when unjustified invocation of the penal provision only sparks fears of aggravating communal tension.
- Section 295, which has been the Indian version of anti-blasphemy law since its introduction during the colonial rule, continues even after blasphemy being abolished in the UK.
- It has chilling effect on freedom of speech and expression.
- Though Section 295A envisages malicious intent

behind the offending act and the procedural law mandates the need for sanction from government for prosecution, the ineffectiveness of the safeguards can be gauged from the fact that they could not save even a stand-up comedian from arrest immediately after a complaint.

- Section 295A deters even honest attempts to fight against superstition and prejudices, the broad ambit of the offence had sometimes even put the government and courts in difficult situations.
- The wide ambit of Section 295A has not spared even pure artistic and literary expressions and has often startled even the votaries of the provision with unintended consequences. The biggest example of which is imposition of this section on MF Hussein's Paintings.

### Hurdles in repealing the law:

- With respect to repeal of Section 295A, however, there is a significant problem: in 1957, in, a five-judge bench of the Supreme Court upheld its constitutionality. This means that, if the Supreme Court were to change its mind, it would need a bench of at least seven judges to overrule Ramji Lal Modi, and strike down the law. Procedurally, this would require the challengers to 295A to first convince a two-judge bench (before which any petition originally goes) that there are sufficient reasons for doubting the correctness of Ramji Lal Modi. If convinced, this two-judge bench would need to refer the question to a five-judge bench which, in turn (if convinced), would have to refer it to a seven-judge bench, which would finally hear the case on merits.

### Conclusion:

- Thus arguments given above prove that section 295(A) in practice had a chilling effect on free speech in independent India. This colonial legislation therefore needs to be repealed, However as mentioned above there are judicial hurdles in repealing it, therefore if it is difficult to repeal the section, In short run the centre should come out with clear cut guidelines according to which the application of the section should be limited to situations where there was a degree of proximity between the prescribed speech, and the possibility of public disorder (for instance, inciting an armed mob to destroy public property would qualify, but writing an article in a magazine in defense of the Naxalite movement would not).

## 11. Anubhav e-portal, RIS, e-NPS

**Anubhav: Online System for submission and display of commendable work done by retiring employees.**

### Vision & Mission

A platform for retiring employees to showcase significant

achievements made during their service period. This would provide satisfaction to the retiring employee and also act as a motivator for serving employees. This would also be a wonderful opportunity to garner the resource of retiring employees for voluntary contribution to nation building post retirement

Initially this facility is to be provided only to retiring Central government employees. Employees retiring in the next 6 months may be provided an online facility to submit their achievements. Submission would be voluntary.

#### **eNPS Portal : Open new NPS Account online / Contribute to NPS A/c online**

eNPS is the online portal (<https://enps.nsdl.com>) of NPS Trust wherein a subscriber can register and contribute under NPS online. Through eNPS, a subscriber can register under NPS, generate a Permanent Retirement Account Number (PRAN) and contribute to his/her account.

#### **Advantages of contributing through eNPS:**

- Hassel free and faster remittance of contributions by subscribers.
- Time required for credit of contributions in the NPS account has reduced.
- Subscribers can contribute to his account through use of net banking/debit card or credit card.
- Subscriber will feel ease of operation & can contribute at any time or any day as per his convenience.

#### **Who can contribute through eNPS:**

Existing Government sectors subscriber for making additional contributions to their tier I and/or tier II accounts.

Existing all subscribers under all citizen models can use this platform to make contribution to their tier I and tier II accounts.

Existing corporate sector subscribers can make contributions voluntarily in tier I and tier II accounts.

#### **RIS:**

India's first river information system by government to facilitate safe and accurate navigation on National Waterway-1 (the Ganga River).

River Information Systems are combination of modern tracking equipment related hardware and software designed to optimize traffic and transport processes in inland navigation.i.e. to enhance a swift electronic data transfer between water and shore through in-advance and real-time exchange of information.

RIS is being implemented under the overall responsibility of Inland Waterway Authority of India, a statutory body administered by the Ministry of Shipping.Phase- II and Phase-III of the System will cover from Farakka to Patna and from Patna to Varanasi respectively.

RIS aims to streamline the exchange of information between waterway operators and users. This would facilitate:-

- Enhancement of inland navigation safety in ports and rivers.
- Better use of the inland waterways.
- Environmental protection

RIS enables achievement of safe and efficient inland water transport by avoiding the following risks:-

Ship- to - Ship collisions

Ship - Bridge collisions

Groundings .

#### **How will RIS work?**

In this project the vessels are being monitored by installing 7 remote (base station site) at the Haldia, Garden Reach (GR) Jetty, Tribeni, Swaroopganj, Kumarpur, Ballia and Farakka at a cost of Rs. 26.23 crores. There would be two control centers at Farakka and GR Jetty. Both the control stations will monitor the vessels plying in this river stretch via Automatic Identification System (AIS) and will communicate with Vessels via VHF. Under this project, there are 30 vessels which are also equipped with Inland AIS system, short range radar and VHF. The AIS data and voice communication of the vessel will be monitored and recorded at the control stations (Farakka and GR Jetty) and can be retrieved/ replayed whenever needed. The vessels can be guided from the control station via VHF and operator can provide the necessary instruction to the vessel.

Trained operators would monitor the activities round the clock and provide the necessary instructions and guidance to the vessel for safe navigation.

## **12. Rights of Transgender Persons Bill, 2015: Draft**

#### **Background:**

- The transgender community, in addition to social stigma, also faces problems enrolling themselves as voters due to lack of legal documents.
- The Transgender community in India is also one of the most neglected and Backward community in India.

**Key provisions of the draft bill:**

- The Union Government of India recently released the draft of the Rights of Transgender Persons Bill, 2015.
  - It proposes reservation benefit for transgenders. According to the draft, transgender, who by birth do not belong to the backward class, such as Scheduled Castes and Scheduled Tribes, would be eligible for reservations under the existing ceiling of the OBC (Other Backward Classes) category.
  - Also, transgenders would not be prevented from competing for seats that are not reserved for them, according to the draft.
  - As per the draft, transgenders will be declared as the third gender and the person should reserve the right to identify as 'man,' 'woman' or 'transgender', and would also have the option to choose any of the options, regardless of surgery or hormones. Nomenclatures such as 'other' or 'others' should not be used when referring to transgender.
  - The Draft Bill promises to issue identity certificates so that transgenders can be included in the mainstream.
  - The certificate thus issued will be accepted by all authorities to indicate the gender on official documents such as ration cards, passports, birth certificates, and Adhaar cards.
- Another remarkable initiative outlined in the draft is the creation of anti-discriminatory cells in education institutions and universities to monitor and prevent discrimination against the transgender community.
  - Government and local authorities shall ensure participation of transgenders in adult education and continuing education programs at par with others. Students in this category will also be entitled to receive benefits such as scholarships, entitlements, and fee-waivers at subsidized rates. Free textbooks and free accommodation would also be provided.

**Supreme Court's Directives on Rights of Transgenders:**

- In a path-breaking judgment, the Supreme Court has affirmed the constitutional rights and freedoms of transgender persons, including those who identify themselves as the third gender and those who identify themselves in a gender opposite to their biological sex, i.e., persons, assigned female sex at birth, identifying as male and vice-versa. By recognizing diverse gender identities, the Court has broken the binary gender construct of 'man' and 'woman' that has pervaded Indian law.
- Supreme Court, granted of equal rights and protection to transgender persons; inclusion of a third category in recording one's sex/gender in identity documents like the election card, passport, driving license and ration card; and for admission in educational institutions, hospitals, amongst others.

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# Indian Economy + Schemes

## 1. The Income based method of giving LPG subsidy

Ministry of Petroleum and Natural Gas has announced the exclusion of high-income households from the LPG subsidy cover. As per this decision, henceforth, **subsidy would not be available for domestic LPG consumers, if the consumer or his/her spouse had taxable income of more than Rs. 10 lakh for the previous financial year.**

The decision makes eminent sense — why should the well-to-do be subsidised? Politically, the decision will win the government a lot of points with the poor, who will hopefully be the beneficiaries of the savings made by limiting the scope of the subsidy. The more the government saves, the more it can spend on expanding the reach of LPG connections among those who currently do not have one. The government's initial Give It Up campaign has encouraged 57.5 lakh beneficiaries of the LPG subsidy to opt out.

### Background:

- In March this year, the government had asked “well-off people” to voluntarily give up using subsidised LPG. So far, of the estimated 14.78 crore LPG consumers in the country, over 52 lakh are reported to have given up access to subsidised fuel voluntarily.
- The number of LPG consumers in the country also fell from 16.35 crore to 14.78 crore after the start of Direct Benefit Transfer on LPG (DBTL) scheme that eliminated inactive customers and duplication in the rolls.

### Significance of this move:

- The subsidy saved from the ‘Give it Up’ campaign will be used for providing new connections to the BPL families. This enables the allocation of LPG to poor households and ensures that they replace the use of fuels such as kerosene, coal, fuel wood.
- As on December 7, a total of 52,58,841 consumers have given up or surrendered their subsidy. Considering this, for the period from April to September, 2015, the annual saving would be approximately Rs 1,167 crore.
- According to a study conducted by the Council on Energy, Environment and Water (CEEW) in 2014, the richest 15% of Indian households can easily be weaned of the subsidy, as the full market price (then Rs. 950 per cylinder) is well within their affordability limits. At present, these households account for 25% of the active consumer base.

- The study also highlights that the richest 10% households in India corner 22% of LPG subsidy, while the bottom 50% households together receive only 30% of LPG subsidy. Thus, the government's move to target beneficiaries by excluding well-to-do households from the subsidy net is well-founded and timely.

### Cons of the decision:

- **Self-declaration:** The government has planned to use taxable income (greater than Rs. 10 lakh per annum) as the basis for exclusion and self-declaration of income as the means for identification. So, the success relies entirely on the integrity of the respondent. To overcome this challenge, the government should consider enforcing the scheme by linking LPG consumer data with the PAN number.
- **Tax evasion and under-reporting:** Less than 3% of India's population pays income tax and a significant proportion under-reports taxable income. Thus, exclusion based on reported income alone would not be as expansive a criterion as is needed indirectly benefiting the tax evaders. It would be more practical and efficient to exclude households based on multiple criteria like asset-ownership, four-vehicle ownership and possession of other assets. Each criterion, though, has its limitation when applied standalone. But, a combination of criteria such as taxable income and ownership of high-end assets, along with a robust database and stringent enforcement mechanism, would help identify and exclude well-to-do households from LPG subsidy effectively.

### Conclusion:

The decision to limit the LPG subsidy by exempting those above a particular income is an attempt to address the mis-targeting problem. By doing this, the government is trying to ensure that the subsidy is only going to go to those who need it. The more the government saves, the more it can spend on expanding the reach of LPG connections among those who currently do not have one. The hope is that rather than using the resultant saving simply to shore up the budget deficit, the Centre will use it to ensure that LPG connections are provided for those who still depend on firewood and kerosene stoves. What will be results of this programme are still to be seen in the longer run.



## 2. MUDRA Scheme: Credit Guarantee Funds

To boost employment and entrepreneurship, the government has approved funds of Rs 8,000 crore that will stand guarantee for loans to new ventures.

### MUDRA scheme:

Indian government has started Pradhan mantri Mudra Yojana which envisages the establishment of MUDRA banks to meet the financial requirements of non farming income generating enterprises and non corporate small business enterprises engaged in trade, services and manufacturing activities.

### Features:

- Mudra banks established by statutory enactment as non banking financial institutions is a wholly owned subsidiary of SIDBI, coordinating with state/ regional level financial intermediaries, with aim of refinancing micro finance institutions, regional, rural, urban cooperative banks, trust, societies, SHG-banks, scheduled commercial banks, last mile financiers (LMF) such as NBFCs.
- Under the scheme the Mudra banks will provide three different financial products depending upon financial requirements such as shishu/kishore/tarun for requirements within 50,000/between 50,000 and 5 lakh/ between 5 lakh and 10 lakh
- The bank will have corpus of 20,000 crore to be made available from PSL with another 3,000 crore as credit guarantee corpus
- Mudra banks would be entrusted with the responsibility of registration, regulation, accreditation of MFIs, setting up policy guidelines for them, ensuring credit guarantee for loans forwarded to micro businesses, promoting right technology solutions and good architecture for credit delivery to last mile financiers and ensuring best financial practices to ward off indebtedness, ensuring recovery of loans and client protection.

Out of Rs 8,000 crore, Rs 3,000 crore has been given to MUDRA Credit Guarantee Fund (CGF) that will safeguard against the default of Rs 50,000 to Rs 10 lakh loan extended to small entrepreneurs.

**Performance till now:** Launched in April 2015, the MUDRA scheme has already extended loans worth Rs 72,000 crore to 1.73 lakh beneficiaries.

### How will it be beneficial?

- It will reduce the credit risk to Banks / NBFCs / MFIs / other financial intermediaries, who are Member Lending Institutions (MLIs). It would incentivize these institution to give loan to small

entrepreneurs without much hassle, and this would increase employment creation in India.

## 3. Commercial Bank Loans Show Recovery

- According to the Reserve Bank of India (RBI), Demand for commercial bank loans are showing signs of picking up after registering single digit growth for almost a year
- According to latest data released by the RBI, the two fortnights of December saw loan growth of close to Rs.1.5 lakh crore, taking the overall credit growth of banks to 11.1 per cent year-on-year compared to 10.1 per cent during the same period last year
- During the fortnight ended 25 December, loans grew by Rs.50,000 crore and in the previous fortnight, it grew by Rs.98,180 crore. In November, credit growth was less than Rs.60,000 crore while in October outstanding loans in the system fell by Rs.26,000 crore.

### Reasons for the recovery:

- Bankers attributed the revival in loan growth to some projects that got stuck due to various reasons such as lack of environmental clearance now showing signs of revival due to the government's initiatives
- Also there is also increasing demand for working capital loans for projects which have been completed.
- A drop in interest rates, following a 125 basis points cut in the repo rate by the RBI in 2015, also had some impact on credit off take.
- The increase in credit growth is also in line with a pick-up in industrial production. In the month of October, the index of industrial production witnessed a jump of 9.8 per cent as the demand rose in the festive month

### Area of concern:

- While credit growth shows revival, fortnightly basis deposit growth slowed to 10.88 per cent from 11.46 per cent. Since credit growth was higher than deposit growth at 11.20 per cent for the first time in recent quarters. The biggest fear of bankers is about savers' money shifting to other financial assets.

### Conclusion:

Thus, though the credit off take shows revival, however deposit growth slowed down which is an area of concern and also it could have negative impact on sustainability of Banks in Long run. What is required is that rates on

other compatible small saving schemes like Kisaan Vikas Patra need to be decreased so that more savers are attracted towards depositing their money in Banks.

#### 4. Government Plans to scrap tax on seed funding

- The government has decided to scrap a tax on seed funding provided to startups by Indian angel investors in the upcoming Union Budget, to help domestic financiers bankroll new entrepreneurial ventures under its Startup India campaign.

##### Reasons for this decision & its impact on start-up:

- This move clearly indicates that the government wants to support the financiers who eagerly want to back up startup sector of the country. Tax is one of the key reasons that 90 per cent of Indian start-ups are financed by foreign venture capital and angel funds.
- Current tax provisions characterize angel investments into a new venture as the investee company's income, thus taking away roughly 30 per cent of the investment from the startup's cash flow as it is taxed. This provision leads to double taxation as angel financiers who may have already paid taxes on their investment amount and would be taxed again on the returns from such investments.
- Current tax applies only to domestic investors and thus acts as a disincentive to local funding for start-ups that the government wants to incentivize instead. Thus India is one of the only countries in the world which taxes its domestic investor more than global investors.
- Angel investing is risky and if a particular investment leads to windfall profits, it must be taxed. But the problem is that tax is levied at the time of investments not at the time of booking profits, so it discourages domestic angel investors who are keen to bet on start-ups as the stock markets are not going anywhere,"
- These rigid and high taxation make it attractive for startup ventures to relocate out of India to countries like Singapore; 65 per cent of successful start-ups that began in India have moved out of the country.
- Returns made by domestic individual investor from their startup investments are taxed at the highest marginal personal tax rate (which is around 33%), while investments routed through a Mauritius-based fund or by corporates who only need to pay long term capital, gains tax of around 10%.

##### Conclusion:

- The success of Stand up and start up India depends on ease of doing business and also in

making tax structure on Angel and venture investors much simpler, This decision of the government would definitely simplify the tax structure in this area and also would prevent relocation of startup venture to foreign countries. The tax on angel investments is something that the government is aiming to fix in the upcoming budget, however, the tax levied on income of individual angel investors could not be resolved so soon. The CII pointed out that the tax on investments by angels is particularly unnerving as it could also lead to disputes on the valuation of such investments with tax authorities and scare investors away.

#### 5. Sharp Drop in new Investment Announcements in Dec 2015 Quarter

- Announcement of proposals to create new capacities, which was on a continuous rise post September 2014 quarter declined sharply in the third quarter of fiscal 2015-16. 383 projects were announced in the December 2015 quarter with an estimated investment of Rs.1 trillion, lowest in the past 5 quarters. On a y-o-y basis, this was lower by 74 per cent.
- New projects announced by the government recorded a steep decline. Average quarterly investment by the Government in new investment proposals from September 2014 quarter to September 2015 quarter - 5 quarters, hovered around Rs.1.1 trillion. This level dropped to Rs.356 billion in December 2015 quarter.
- Similarly private sector participation in announcement of new investment intentions dropped to Rs.692 billion in December 2015 quarter from an average investment of Rs.1.7 trillion in the past five quarters.
- The pace of announcing new proposals for capacity addition, slowed down in fiscal 2015-16. New projects proposed in the first three quarters of 2015-16 dropped to Rs.5.2 trillion from Rs.7.8 trillion worth of projects announced in the first three quarters of 2014-15 - a drop of almost 33 per cent.
- Manufacturing sector attracted the major share of new investments announced during December 2015 quarter. 96 projects with an estimated investment of Rs.552 billion were announced. Large projects were announced in the chemical, textiles, consumer goods and food sectors

##### Reasons for the decline in announcement:

- Slow pickup in demand for goods & services is the most important reason for the fall in announcements of new projects, since corporates are uncertain about long term demands, even

though there is recovery in commercial bank retail credit as shown by recent data (which is an indicator of revival of demand) but corporates are adopting the strategy of wait and watch to ensure the revival in demand is sustained in long run.

- Low capacity utilization is the second factor for this decline.
- Thirdly concentration on commissioning of ongoing projects is keeping promoters from announcing new capacity additions.
- Fourthly slump in real estate sector which is a big contributor to investment is also led to sharp drop in new project announcement.

## 6. SEBI's New Norms for Mutual Funds

To safeguard investors' interest, markets regulator SEBI recently tightened its norms for mutual funds' exposure to riskier corporate bonds.

### Background:

- The issue of reducing the mutual fund exposure limit for debt schemes caught SEBI's attention after JP Morgan Mutual Fund got into troubles due to its exposure to debt securities of Amtek Auto while a few other fund houses have also faced similar problems with regard to corporate bonds of a few other distressed firms.

### What are the norms?

- The norms include capping the investment limit in bonds of a single company at 10%. However, it can be extendable to 12% of Net Assets Value (NAV) after trustee's approval. Currently, the limit is 15%.
- The single sector exposure limit will also be lowered from 30% to 25%, while group-level investment limits of 20-25% have also been introduced for the mutual funds (MFs) investing in debt securities.
- The fund houses will be given appropriate time to confirm that their schemes are in compliance with the new investment restrictions. All Government-owned Public Sector Undertaking (PSU) entities, Public Financial Institution (PFI) and Public Sector Undertaking (PSU) banks will be excluded from group level limits.

### Benefits of this step:

- The steps will mitigate risks arising on account of high levels of exposure in the wake of events pertaining to credit downgrades, put mutual funds in a better position to handle adverse credit events.
- It will also provide mutual fund investors with enhanced diversification benefits.

- It would deepen the mutual fund market in India.

### Concerns raised:

- Some fund managers warned that they could now be forced to buy debt from more companies, potentially pushing them towards riskier bonds they would not have previously considered.

## 7. Pradhan Mantri Fasal Bima Yojana (PMFBY)

- The union cabinet has recently approved Pradhan Mantri fasal Yojana to benefit the Indian Farmers with Insurance cover and thus protecting their livelihood.

### Background:

- So far, farmers have not derived benefits from insurance schemes commensurate with the cost of the premiums they have had to pay (despite government subsidy). In addition, procedures for taking out the policies and claiming compensation have been cumbersome. Therefore, barely 23 per cent of cultivators have till date opted for insurance cover. Coverage in agriculturally advanced states like Punjab and Haryana has been even poorer, because insurance plans did not reimburse even a fraction of the actual losses incurred by the farmers due to bad weather or other factors. Therefore a new crop insurance scheme was launched to remove the deficiencies of the Prevailing schemes.

### Key Features of the New Crop Insurance Scheme:

- In this scheme premium rates to be paid by the farmers have been brought down substantially so as to enable more and more farmers in availing insurance cover against crop loss on account of natural calamities.
- Under the new scheme, farmers will have to pay a uniform premium of two per cent for all Kharif crops and 1.5 per cent for all Rabi crops. For annual commercial and horticultural crops, farmers will have to pay a premium of 5 per cent. The remaining share of the premium, as in previous schemes, will continue to be borne equally by the Centre and the respective state governments.
- Under PMFBY, there will no upper limit on government subsidy and even if balance premium is 90 per cent, it will be borne by the government.
- The use of technology will be encouraged to a great extent under this scheme. Smart phones will be used to capture and upload data of crop cutting to reduce the delays in claim payment to farmers. Remote sensing will be used under this scheme to reduce the number of crop cutting experiments

### Advantages of this scheme

- Presently farmers have been required to pay a premium share of as high as 15 per cent in several areas in the country; This crop insurance scheme would cap the premium at 2% for kharif crops and 1.5% for rabi crop. This would make it affordable for the farmers to buy crop insurances and therefore it will derisk Agriculture in India from vagaries of nature.
- Secondly in Earlier schemes there was a provision of capping the premium rate which resulted in low claims being paid to farmers This capping has now been removed and farmers will get claim against full sum insured without any reduction
- Thirdly in the current insurance schemes damage is calculated by sample cutting methods which not only delay payment of insurance claims but also is prone to error, under this scheme use of technology will be encouraged and smart phones will be used to capture and upload data of crop cutting to reduce the delays in claim payment to farmers.
- Another unique feature is that this insurance scheme will provide localized risk coverage and has added a number of natural calamities. For instance, given that last year, unseasonal rains during March and April had destroyed crops during the harvest season in several states, the insurance plan will now provide coverage for post-harvest losses caused owing to rain and hailstorm across India. Earlier, this was applicable only to cyclone-prone regions. Further, the insurance scheme also makes provision for compensation if farmers have to skip sowing owing to natural calamities like floods, unseasonal rains, hailstorm and cyclones.

### Challenges:

- In a drought year like the current one, the outgo from the PMFBY — assuming it is implemented in the manner proposed — may not be small.
- The financial liability is expected to touch a whopping Rs 8,800 crore once the target of bringing 50 per cent crop under insurance is achieved in three years as the Centre's financial liability goes up, the bill of the states where the scheme gets implemented will also go up correspondingly. This could have negative effect on the fiscal consolidation process of the incumbent government.
- Other major Problems are that, insurance cover cannot be held hostage to the possession of unflawed land title - that will limit farmers' access, given poor records and the frequent need to bribe officialdom to prove title even when legality is unquestioned.
- Further, success depends on how sincerely insurance companies implement the scheme. It is

unclear as to how the programme will be monitored; close supervision is imperative to eliminate malpractices at different levels, which had contributed to the failure of earlier insurance schemes.

### Conclusion:

- Thus though there are certain challenges in the proper implementation of the scheme and it would also have negative implication on the government finances however that price may still be worth paying for a country where only a fifth of farmers have crop insurance coverage. Subsidized premiums and prompt claims settlement enabled by remote sensing and GPS technology — as opposed to Patwaris and crop-cutting experiments — should help substantially expand coverage. An increase in the area insured should also bring down premium rates, through spreading of risks across more farmers. That would also help contain the government's subsidy burden.

## 8. Revival of MNREGA: An Analysis

### Background:

Since last 2-3 years Number of job days created under MNREGA has been deteriorating. In 2014-15, the programme — which provides 100 days of guaranteed wage employment in a year to every rural household whose adult members volunteer to do unskilled manual work — generated only 166.32 crore person-days employment, compared to 221.15 crore and 230.33 crore in the preceding two fiscals and the peak 283.59 crore achieved in 2009-10 (a drought year) .

- Also, the average days of employment provided per household dropped to 40.17 in 2014-15, from 45.98 in 2013-14, 46.19 in 2012-13 and 53.19 days in the best performance year of 2009-10

### Turnaround:

- MNREGA appears to be staging a revival of sorts in the latest quarter. And this turnaround is being attributed mainly to better monitoring by the Centre and timely release of funds.
- The July-September quarter witnessed 45.82 crore person-days of employment generated under MGNREGA. This was the highest for the quarter in the last five years. "It was more than even the 42.40 crore person-days during July-September 2012, which also happened to be a not-so-good monsoon year.

### Reasons for this turnaround:

- Experts and officials believe that better numbers this year mainly to better monitoring by the Centre and timely release of funds. In 2014-15, most states, including those implementing the

programme well, ran out of funds by October. When supply of funds dried up, leading to delayed payment of wages, there was less demand from the Gram Panchayats as well to take up works even in a drought year.

- That has changed this year, with the proportion of delayed payments — i.e. beyond 15 days after the closure of muster rolls — falling to 53 per cent from 72 per cent in 2014-15.
- Development economists believe that MGNREGA's apparent turnaround in the last two quarters was a result of political and civil society pressure, forcing the government to release funds.

#### **Sustainability of the turnaround:**

- Experts believe that the turnaround could well be temporary, given the continuing paucity of funding for the programme.
- Currently, 12 states have a negative fund balance totaling Rs 1,089 crores that makes it impossible for Gram Panchayats to take up fresh works under the scheme.

- Apart from these, states such as Bihar, Gujarat, Maharashtra and Manipur face the danger of slipping into a negative balance if additional funds are not made available. Even Rajasthan, which is beset by drought, has run out of money. Chhattisgarh, which has been performing well on **MNREGA** before, has been squeezed dry last few months due to lack of funds.
- In the current fiscal, merely 4 per cent of the total 3.75 crore MGNREGA-registered households have been provided their entire 100 days work entitlement. The average number of days of employment provided per household for the entire country so far during 2015-16 is 38.

#### **Conclusion:**

- Thus above figures indicate that NDA government has finally understood the importance of MNREGA as a cushion during drought conditions and as a result the funds for MNREGA have been released at adequate time by the government, However this should not be a onetime affair, the long run sustainability of MNREGA Depends on continuous attention on MNREGA even in non-drought years.

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# International Relations + Security + Defence

## 1. Growing proximity between Nepal and China: An Analysis

Nepal has just come out of its two greatest crises namely natural crisis in the form of earthquake & constitutional crisis. Both the events have shaken the roots of Himalayan country. However, two events had contrastingly affected the India-Nepal relations. Cooperation & timely support during the earthquake proved India's worth for Nepal & its irreplaceable geostrategic position. However, forming of new constitution & its implementation created a tense scenario between the two nations & overshadowed the Indian rescue efforts during earthquake.

In both the events China took advantage to deepen its ties with Nepal & put India on the strategically disadvantageous position, whereas, Nepal also seems to play the China card with India on India's suggestions for the demands of Terai people and constitutional reforms i.e. for more representation of Terai people in parliament, provincial territory demarcations and issues related to citizenship rights.

Now it is necessary to analyze the current situation whether growing proximity of China & Nepal is a real threat for India or it's just an overemphasized perception and if it's a new reality in triangular relations how India is going to be affected by it.

### Evolution of China Nepal relations:

For a brief overview of these triangular relations would help to focus the areas of analysis & discussion. India and Nepal are not only linked due to the proximity of land, but it is the cultural affinity that binds the two nations. The common linguistic and ethnic identities, Hindu religious practices, similar festivals, affinity of food, resemblance of dresses, and the overall way of thinking, all make inseparable ties between India and Nepal.

While China-Nepal relations dwell into the border conflicts that resulted in Nepal-Tibet-China war (1789-1792) over territorial dispute. Further advancement in time will give even grimmer picture of Nepal-Tibetan war of 1855 that was concluded in 1856 with the Treaty of Thapathali with the special status of China as a mediator. Thereafter, by the early 19th century, Nepal broke all relations with China. Can such hostile relations shake the foundation of two thousand year old ties between India and Nepal? Not really, unless we see the developments of Nepal-China relations in the present times and reassess the grounds on which the current relations are established.

Nepal and China resumed diplomatic relations in the mid 1950s. The basis of signing the Treaty of Peace and Friendship in 1960 was Nepal's recognition of Tibet as a part of China and a resolution to the long-standing border problem. Thereafter, China has constantly spread its sphere of influence on the Himalayan Kingdom by expanding greater economic linkages and extending substantial military assistance to Nepal. In the 1970s, when King Birendra of Nepal proposed Nepal as a "zone of peace" between India and China, India did not show keen interest, while China was quite supportive. These and many such issues created a rift in Nepal-India ties; while at the same time China has been pro-active to support and aid Nepal.

### Why is China keen to increase the proximity now & its efforts in this direction?

Although Nepal and India have an open border and free mobility of populace across borders; it is China that is increasingly working to take over India's position of the largest trading partner of Nepal. As India is largest economy of south Asia & has been emerging as a leader of south Asian countries, China wants to contain the India's growing power & status which may become a threat to Chinese dream of becoming the superpower.

- In 2011-2012, India-Nepal trade was USD 3 billion and the total volume of trade between Nepal and China amounted to USD 1.2 billion. To enhance these ties, China has offered zero-tariff treatment to 60 per cent products of Nepal.
- When there was blockade of fuel & necessary supplies on India-Nepal border due to protest by Madhesi, Beijing gave 1.3 million litres of petrol to Nepal as a grant, with the promise of following up after a commercial arrangement was signed between companies on the two sides.
- In 2014, China overtook India as the biggest source of Nepal's foreign investment. Nepalis see Chinese aid as positive because of its focus on infrastructure development, an area in which Chinese seem to have done a good job.
- China's open diplomatic policy in Nepal remains to exploit the resources of Nepal and take advantage of Indian market. Hence, it has completed 22-km road in central Nepal connecting its southern plains with Kyirong, county of Tibet, making the shortest motorable overland route between China and India.
- China also has deeper motives than just business cooperation. The Tibetan community in Nepal is a

serious concern for the Chinese authorities. In particular, the clandestine operations that have its roots in Nepal pose greater challenges for the unity of China's southern periphery. In April 2008, China could use its influence on Nepalese administration to crackdown on Tibetan activities. Hence, it is not wrong to posit that China's business ties are redefining the power equations with that of Nepal.

- Simultaneously there is added emphasis on boosting cultural exchanges. There are now almost 19 China Study Centers (CSC) and Confucius Institutes in Nepal to promote Chinese language and culture.
- Beijing has announced Nepal as an "official destination" for its nationals. The town of Pokhara became a hot attraction after Chinese online guidebooks described it as one of the top ten places "to see before you die". Signboards in Mandarin are now a common sight in Pokhara. More than a dozen hotels in the town have Chinese owners.
- The aim now is to have a comprehensive cooperation that serves mutual development and prosperity with the promotion of trade and tourism, joint border management, development of hydropower projects, building infrastructure for greater connectivity, and bringing in overall socio-economic growth of Nepal.

#### Why is Nepal increasing its interests in China?

- For Nepal, China serves as a potential supplier of goods and assistance that it badly needs in order to recover its economy. Almost half the population of Nepal is unemployed and more than half is illiterate. At the same time, more than 30 per cent of the people in Nepal live in abject poverty. To deal with its internal problems, Nepal surely has serious business to engage with China to overcome its poverty & unemployment.
- Another factor to increase the interest is China card which most of the south Asian countries are playing with India to gain the mileage in negotiations & counter India's Big Brother approach.

#### Why cannot China replace India?

- Most strong argument in this is the deep linguistic & cultural similarity, religious affinity, historical ties & geographical proximity and family connections between Nepal and India — whose trade or economic ties with China alone cannot entirely overwhelm. People-to-people contacts of India & Nepal is way ahead than contact on Chinese side.
- China-Nepal relations are also limited as of now by certain practical problems. Even if Nepal Oil Corporation and Petro China Company Ltd. were to sign an agreement, the issue of dual taxation

in Tibet which raises the cost of fuel — remains unresolved. While the Indian refinery of Barauni is only 374 km away, the nearest Chinese refinery is more than 2,000 km from Nepal. Assuming China sees no reason for a massive oil subsidy to Nepal, this distance alone will make Chinese fuel more expensive than Indian.

- Another factor is difficult border terrain between China & Nepal. Routes are frequently obstructed by landslides so keeping the routes open & maintenance of it a difficult & expansive task.

#### Areas of Common Interest and Way forward:

- Both China and India would like Nepal to have a constitution and political stability. China's security concerns are related to stability in Tibet & India's security concern include smuggling of fake currency, drugs & terrorism so India and China have realized that only a stable Nepal can take care of their security concerns.
- China proposed the establishment of an economic corridor among the three countries to promote trilateral cooperation and common prosperity. Nepal can become a stage for mutually beneficial cooperation between China and India, rather than an arena for competition.
- However, India should take care the special relation that it has with Nepal by focusing on resolving issues through negotiations, development activities & investment in Nepal to reduce the trade distortion for which Nepalese are accusing India.
- In this direction Nepal and India had agreed to form the Eminent Persons Group (EPG) with four members each from Nepal and India and set up secretariats in respective countries mandated to look into Nepal-India ties in totality and reviewing all bilateral treaties. The panel will also make necessary recommendation to the respective countries about the measures to be taken to review or adjust or replace all bilateral treaties, including the Peace and Friendship Treaty of 1950 and others. The panel will visit both sides for necessary consultations and study. The panel will make specific suggestions to settle the outstanding issues and other concerns of both sides, will give non-government and people's level perspective to both sides that is required to revisit the bilateral relations. Apart from this India should also refrain from the acts which pose him as a Big Brother in the region & work to resolve the issues through diplomacy & mutual cooperation.

## 2. Pathankot attack details and India's security architecture

After 26/11 Mumbai attacks, this time terrorists targeted the security installation. The attack at the Pathankot Air Force Station, located close to the Pakistan border,

began early Saturday. By the evening four terrorists were killed & operations was declared successful by government, but, on next day an NSG official was killed along with five other injured while inspecting a terrorist's body after some time again firing started from two different locations, security forces realize more terrorists are alive & by evening they were also killed. The whole incident killed seven security forces personnel with 20 injured.

After every terrorist attack, there are shallow attempts by the establishment to fit episodic responses into academic frameworks and proposals for security establishment reforms, but in no time things go back to default mode, until the next terrorist attack.

### Issues surfaced in security operation:

This time the intelligence information regarding such incident may happen was available, a foreign intelligence agency had passed on a tip-off about terrorists planning to attack the base. Then why that intelligence was not treated seriously? Is the response a reflection of the poor quality of general intelligence alerts? Do agencies not able to discriminate between a genuine & fake intelligence. On January 1, early morning, the abducted Superintendent of Police, Salwinder Singh, reported to the local police that his vehicle had been snatched. Despite several hours available to intercept the terrorists in a limited space, New Delhi, in its wisdom, decided to waste time by flying in National Security Guard (NSG) commandos from the national capital, while thousands of trained army soldiers were already stationed all over Pathankot which have been more familiar with the terrain? Does it reflect the poor decision making of senior members of the security establishment or does it hint at autocratic decision-making in New Delhi without professional participation?

This incident happened just after the Indian Prime Minister returned from Lahore & discussed to initiate the peace talk. Both countries agreed to delay the talks without canceling them. The challenge thrown up by the terrorist attack on the Pathankot air force base is to evolve India's national security doctrine to include its response to non-state actors while carrying on diplomatic engagement with Pakistan.

Another question is who should be held accountable for the casualties & injuries of civilians, Police as was the case of 26/11 & even armed forces in this case. Those who were supposed to act on the terror alerts, those who were supposed to guard the seas and those who were supposed to protect Mumbai, all carried on with their professional lives. There is a need to frame a better accountability system.

### What should be India's Security Architecture?

- Pathankot has shred to pieces by the cycle of terror responses in India: from processing intelligence alerts, mobilizing first responders, carrying out counter terror operations under a well-

defined command-and-control system, minimizing casualties and, finally, obtaining maximum intelligence to thwart possible future attacks.

- It is time to finally accept the reality and move forward on a broad sweep of reforms in the security establishment. This could be done at three levels — parliamentary oversight, a well-defined national security doctrine and a national security strategy to implement the doctrine, and, finally, an independent federal commission of accountability on security matters.
- India still has no written national security doctrine, and whatever is practiced as the doctrine, and strategy, is vastly inadequate. It is time to move on from the unwritten grand strategy of working only towards the political unity and preservation of India to a written doctrine that defines India's role in the world and its commitment to protecting the life, liberty and interests of its people. The doctrine should be accompanied by a security strategy that should spell out the state response to various kinds of security challenges. If it is a terrorist strike, then the decision-makers must know the responses expected of them, and not try to improvise based on their limited awareness. Command and control for such operations should also be spelt out in the document. To frame it political consensus must be evolved, in a publicly transparent manner, to reflect the complex challenge facing the country.
- Political misuse of state organs and the complete lack of transparency in their operations have resulted in Indian intelligence agencies emerging as obscure centers obfuscating facts or exaggerating things, mostly to impress political masters or for other vested interests. The lack of accountability has also meant that field operations of intelligence agencies are mostly cottage industries run on fake sources or exaggerated claims. Underlying all of it is the significant financial benefits.
- The final result is that even when genuine intelligence alerts are available, they are not acted upon with seriousness. India must constitute a very credible, and permanent, federal commission of accountability on security matters. This is important not just to bring in accountability to the security establishment, but also to ensure that the many insurgencies and terrorist challenges do not result in the intelligence and security apparatus getting a free hand to misuse their powers. Such a commission can also be a watchdog in places like Kashmir and the Northeast, where repeated allegations of human rights violations are haunting political efforts to find peace, and feeding terrorism. It is time to finally show that India can be more than a functional anarchy.



### 3. Sahayog-Kaijin-2016

A joint exercise between Indian and Japan Coast Guard named Sahyog-Kaijin-XV was held in the Bay of Bengal off Chennai on recently.

The Indian Coast Guard fleet consisting of six surface units and two Aircrafts Coast Guard Ships viz; Samudra Paheredar, Vishwast, Rajkamal, Rajtarang, C-417, C-415 one Dornier and one Chetak Helicopter along with Japan Coast Guard Ship ECHIGO with integrated Sikorsky Helicopter participated in the exercise.

#### Objective of Exercise:

Acquainting with each other's capabilities and strengthening their working level relationship including interoperability and further refining joint operating procedures.

**Areas of Training during Exercise:** Hijacking of a merchant vessels and subsequent rescue (Anti piracy operations).

#### About Sahayog-Kaijin:

- The Sahayog-Kaijin is a bilateral exercise, which is a part of the cooperative arrangements between two Coast Guards for the last 15 years.
- The exercise is also a part of the Memorandum on Cooperation, which was signed between India and Japan in 2006.
- It is a biennial bilateral exercise and the venue shifts in both countries on alternate occasions.

This is the second time in three months after exercise 'Malabar' a ship from the Japanese military forces is participating in a military exercise along with India. Joint exercises are an important part of the contemporary military diplomacy. Focus areas of such exercise are anti-piracy, counterterrorism and field search-and-rescue operations, "annual defence dialogue" and "frequent exchanges" of the highest level military officials and leadership visits between the two sides.

### 4. UN Report: Trends in International Migrant Stock

- India's Diaspora population is the largest in the world with 16 million people from India living outside their country in 2015, according to a latest UN survey on international migrant trends.

#### Key findings of the report:

- The survey conducted by the UN Department of Economic and Social Affairs (DESA) said the number of international migrants - persons living in a country other than where they were born - reached 244 million in 2015 for the world as a whole, a 41 per cent increase compared to 2000.

- According to the Trends in International Migrant Stock, Nearly two-third of international migrants lives in Europe (76 million) or Asia (75 million).
- The rise in the number of international migrants reflects the increasing importance of international migration, which has become an integral part of our economies and societies.
- India has the largest Diaspora in the world, followed by Mexico and Russia. In 2015, 16 million people from India were living outside of their country, a growth from 6.7 million in 1990.
- The survey further said that in 2015, two-third of all international migrants were living in only 20 countries, starting with the US, which hosted 19 per cent of all migrants at 46.6 million, followed by Germany, Russia, Saudi Arabia, the United Kingdom, and the United Arab Emirates.
- India ranked 12th out of these 20 countries, hosting 5.2 million migrants in 2015, and a drop from 7.5 million in 1990.
- The UN data shows that the number of international migrants has grown faster than the world's population. As a result, the share of migrants in the global population reached 3.3 per cent in 2015, up from 2.8 per cent in 2000.
- Of 244 million migrants registered last year, 20 million were refugees.
- Among major regions of the world, Northern America hosts the third largest number of international migrants, followed by Africa, Latin America and the Caribbean and Oceania. Between 2000 and 2015, Asia added more international migrants than any other major regions (a total of 26 million additional migrants).

#### Reasons for the increase in migrants' population:

- There are both push factors and pull factors which are responsible for increase in migrants population. While better life, more political and civic freedom, better standard of living attract many migrants from Third world countries to Europe and North America. In last few years push factors have become dominant reason for International migration. Thus conflicts, genocide and rise of terrorism in Syria, Afghanistan, Iraq, Somalia and Libya have forced many people to migrate to Europe and North America, while economic deprivation and droughts have also forced many from Sub Saharan African countries to migrate to Europe.

#### Implications of this report for India:

According to this report India has biggest Diaspora in the world and the population of overseas Indian increased from 6.7 million in 1990 to 16 million in 2015. Having

such a large Diasporic Population provides India with number of benefits which include:

- It provides India with much required foreign exchange to meet our shortfalls in current account, Thus according to latest data remittances inflow crossed \$70 billion in 2014.
- Diasporas are symbol of a nation's pride internationally. They help in building its brand internationally through their huge success stories.
- Many emigrants make huge investments into their home countries in domestic financial, real estates, services and technological sectors helping in huge inflow of capitals that boost local economy and create huge jobs. E.g. - Anil Aggarwal controlled London based Vedanta group.
- **Diasporas are mostly based in foreign countries which are developed and hence are technologically advance and rich in innovations. They help in bringing these technology and innovations to their country of origin through investment and collaborations.**

## 5. Proposed New Norms in Defence Procurement Procedure

### New Changes in Defence Procurement Procedure:

- The DPP will have a new category called the 'IDDM' or 'Indigenously Designed, Developed and Manufactured' platforms. This will get top priority and will be first to be chosen for tenders.
- This will have two sub-categories — one, it will be mandatory to have 40 per cent local content in case the design is also indigenous. Two, in case the design is not Indian, 60 per cent local content will be mandatory.
- Certain leverages are given to foreign companies. It raises the limit of 'off-sets' from Rs 300 crore to Rs 2,000 crore. 'Off-sets' are a provision that makes foreign companies to mandatorily procure 30 per cent of the supplies from Indian partners, in case of winning a bid of Rs 300 crore or more. This limit has been raised to Rs 2,000 crore, as not many Indian companies are available to absorb so much of technology infusion.
- Policy to fund Indian private entities in Research and Development to encourage more local technology development. The Department of Defence Production will fund up to 90 per cent of the R&D, of which 20 per cent will be given in advance and in 24 months the entity will be given tender. If the tender is not given, the private company will get a refund of its expenses. Another one will be funding of Rs 10 crore for R&D to medium-scale industry. This will enhance the opportunities & recognition of the Micro, Small

and Medium Enterprises (MSME) in technology development.

- The DPP sets up an empowered committee to solve disputes or unforeseen issues. Till now disputes went to DAC. Each of the three Services will have a Major-General-rank officer for project management to be run on road map in line with the long-term perspective plan.
- Given the limited choices in defence equipment technology production, bids can be accepted even if there is only one supplier.
- It has also brought down the Acceptance of Necessity validity to six months from earlier one year, which means that the forces will have to issue tenders faster.
- It, however, deferred addressing twin key issues: One, having a method on blacklisting, or not blacklisting, of firms indulging in wrongdoing and two, on having guidelines to select international strategic partners for producing major equipment in India. Without addressing these issues exercise to make the whole system transparent will not be completed.

### Significance of New Changes:

New changes will give top-priority to locally produced equipment and fund Indian private companies to do research and development. This will give a big impetus to indigenization through the 'Make in India' initiative.

The DAC, allowed changes to the Defence Procurement Procedure (DPP)-2013 order based on recommendation of committee headed by former Union home secretary Dhirendra Singh.

### What is Defence Procurement Procedure?

- Defence Procurement Procedure is the procedure or set of regulations that are followed by the Government of India in procuring and buying defence equipment from private companies and other international companies or entities. These covers all the equipment bought or acquired for the three Defence services of India working under the aegis of the Defence Ministry of India namely the Indian Army, the Indian Navy and the Indian Air Force.

### What is Defence Acquisition Council?

- The Defence Acquisition Council was formed by the Union Government, which is responsible for all the decisions taken regarding the acquisition to be made for the Defence forces. Chiefs of all the three armed forces are also members in the council along with other experts. The Defence Minister of India serves as the Chairman of the council. The Defence Procurement Procedure is aimed at streamlining and modernizing the armed forces as per the requirements.

## 6. India to join the International Energy Agency – Ocean Energy System

The Union Cabinet has recently given its approval for India becoming a member country of the International Energy Agency - Ocean Energy Systems (IEA-OES) by signing the Implementing Agreement (IA). The nodal agency for the membership would be Earth System Science Organization - National Institute of Ocean Technology (ESSO-NIOT) under the Ministry of Earth Sciences.

### What is IEA-OES?

- The IEA is an inter-governmental organization with a broad role of promoting alternate energy sources (including renewable energy), rational energy policies and multinational energy technology cooperation and acts as energy policy advisor to 29 member countries.
- The OES, launched in 2001, is an intergovernmental collaboration between countries, which operates under the framework established by the International Energy Agency. This initiative is to advance research, development and demonstration of technologies to harness energy from all forms of ocean renewable resources, as well as for other uses, such as desalination etc. through international cooperation and information exchange.

### Why does India require harnessing Ocean energy?

- The long coastline of India and severe power deficit in the country, warrant the study of ocean renewable energies.
- Secondly India has not been endowed with abundant non-renewable energy sources of energy and even though we have 4<sup>th</sup> largest reserves of coal. The coal available in India is of inferior quality which is not very useful in Industries.

### How will India benefit from joining this group?

- Vagaries of the sea make harnessing ocean energy in India a technological challenge. In the Indian context designing of scaled up ocean energy devices (including wave, currents and tidal) and their techno-commercial viability needs to be undertaken.
- By becoming a member of the IEA-OES, India will have access to advanced R&D teams and technologies across the world. India will partner in developing test protocols along with other countries. This will help in testing Indian prototypes as per international requirements and norms.
- By becoming member even Joint cooperative programs with institutes of member countries could

be taken up. India's own research projects with specific targets can be taken up in conjunction with other countries.

## 7. Implications of Hydrogen Bomb Testing by North Korea

- North Korea claimed to conduct a powerful hydrogen bomb test, a defiant and surprising move that, if confirmed, would be a huge jump in Pyongyang's quest to improve its still-limited nuclear arsenal.

### Reason behind North Korea's Nuclear Programme:

- North Korea needs nuclear tests for practical military and political reasons. The N Korea has now had a nuclear weapons program for more than 20 years. This program has yielded three nuclear tests. It is suspected that North Korean nuclear scientists have access to their counterparts in Pakistan, possibly Iran and may be a few other places. North Korea is trying to develop the technology needed to manufacture a miniaturized warhead that could fit on a long-range missile capable of hitting the U.S. mainland. Nuclear-tipped missiles could then be used as deterrents, and diplomatic bargaining chips, against its enemies and especially against the United States, which Pyongyang has long pushed to withdraw its troops from the region and to sign a peace treaty formally ending the Korean War.

### Implications:

- A confirmed test would further worsen already abysmal relations between Pyongyang and its neighbors (South Korea & Japan) & would compromise regional security. This may also deteriorate ties of Pyongyang with China, the North's last major ally, which has shown greater frustration at provocations and a possible willingness to allow stronger U.N. sanctions.
- Such test may encourage other countries to follow & develop miniature H-bomb & spread of technology. Thus nuclear armament race may be revived which seriously undermines international non-proliferation efforts. Given the rise & reach of terrorist organizations like IS, their reach to such technology may endanger the whole humanity.
- However, Experts are skeptical about North Korean claims about H-bomb saying the estimated explosive yield & seismic wave from North Korea's fourth nuclear explosion was much smaller than what even a failed H-bomb detonation would produce.

### Hydrogen Bomb:

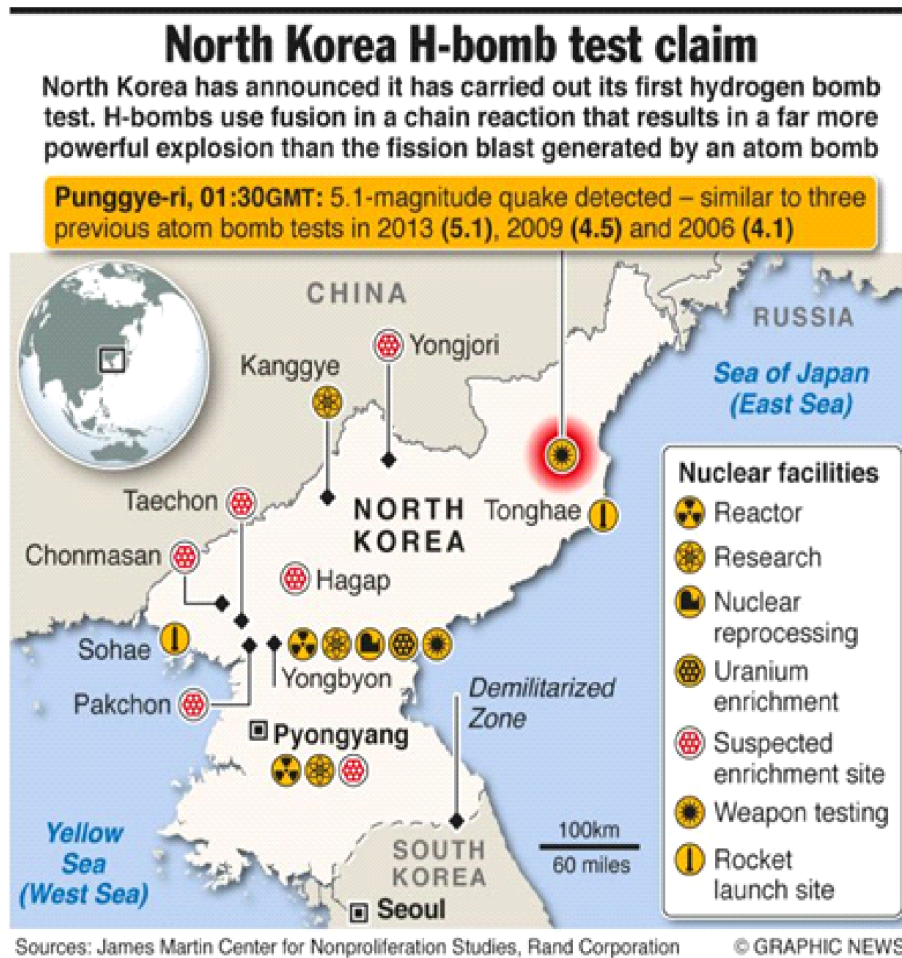
- The hydrogen bomb work on the principal of fusion. It can be hundreds of times more powerful than

atomic bombs that use fission. In a hydrogen bomb, radiation from a nuclear fission explosion sets off a fusion reaction responsible for a powerful blast and radioactivity.

- During N Korea's test an estimated explosive yield of 6.0 kilotonnes and a quake with a magnitude of 4.8 (the U.S. reported 5.1) were detected. That's smaller than the estimated explosive yield of 7.9 kilotonnes and a quake with a magnitude of 4.9

that were reported after the 2013 nuclear test. It is only a fraction of the hundreds of kilotonnes that a successful H-bomb test's explosion would usually yield. Even a failed H-bomb detonation typically yields tens of kilotonnes, the NIS told Mr. Lee, who sits on the parliament's intelligence committee.

- A miniaturized H-bomb can trigger a weak quake magnitude, but only the U.S. and Russia have such H-bombs.



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# GEOGRAPHY + ENVIRONMENT

## 1. A Direct shift from BS-IV to BS-VI By 2020

Ministry of Road Transport & Highways has decided to leapfrog from BS-IV to BS-VI emission norms directly by completely skipping BS-V norms. New BS-VI norms will come into effect from 01.04.2020.

### What are BS Norms?

These norms were introduced in India in 2000, when the Bharat Stage norms were adopted by the then government, based on the European emission norms. Each stage specifies a certain limit on the pollutants released, which is controlled by the type of fuel made by the oil companies and the up-gradations and modifications made by the auto firms to their vehicles to control the pollutants released from the vehicle.

### Present Scenario:

- India had enforced Bharat stage III norms across the country since October 2010. In 13 major cities, Bharat stage IV emission norms were put in place since April 2010. Currently, BS-IV petrol and diesel are being supplied in whole of Northern India covering Jammu and Kashmir, Punjab, Haryana, Himachal Pradesh, Uttarakhand, Delhi and parts of Rajasthan and western UP. The rest of the country has BS-III grade fuel.
- From 1 April, 2016, all of Goa, Kerala, Karnataka, Telangana, Odisha, Union Territories of Daman and Diu, Dadra-Nagar-Haveli and Andaman & Nicobar will get BS-IV fuel. The rest of the country is scheduled to get supplies of BS-IV from 1 April, 2017.

### Arguments behind direct switching to BS VI norms:

- Considering the environmental impact, rising pollution levels and health hazards due to vehicular pollution, the oil ministry took the view that the country should switch over directly from BS-IV to BS-VI fuel standards.
- Secondly there is hardly any difference between BS-V and BS-VI then why should the refineries be asked to invest in making the transition to BS-V and a second one to BS-VI.
- At BS-VI levels, the gap which is currently maintained between emissions from diesel and petrol, wherein diesel cars are allowed to emit more particulate matter and nitrogen oxide, narrows. At that level, emissions will become nearly fuel-neutral.

### Challenges in Switching to BS VI norms:

- There are two major industries which would face challenges: first are the oil refineries that will need a substantial investment to upgrade. These upgrades will allow the refineries to supply fuel types that can match the BS-VI standards. The shift of technology from BS-IV to BS-VI is likely to cost anything between Rs 50,000 crore to Rs 80,000 crore to petroleum companies. This would hit the margins of oil companies.
- Secondly, the automobile manufacturers would require a significant technological jump especially in diesel filter technology & in optimization of selective catalytic reduction technology.
- Bosch Ltd, the world's largest manufacturer of fuel injection systems and engine technologies, had warned the government that such a move could lead to safety and quality problems. It would take as much as four-and-a-half years of lead time for design, application and validation of new engine technologies to move from BS-IV to BS-V, and a similar time to graduate to BS-VI.
- The decision will make cars, sports utility vehicles (SUVs), trucks, buses and auto parts more expensive.

### Supreme Courts Directives:

- Earlier Supreme Court has asked the Union Government to implement BS-VI emission norms earlier than April 2021 deadline amid concerns on rising air pollution in the country. The Supreme Court recently said no new diesel vehicle with an engine capacity of 2000cc or above could be registered in Delhi, where the air quality has become the worst in the world.

### Conclusion:

- There are several challenges related to technology upgradation, availability of fund, rising cost of vehicles, availability of BS VI Fuel in shorter time frame yet this cost would be compensated by the reduction in diseases due to air pollution which has become a severe health hazard for the Indian cities. New norms would be a step in the direction of Right to clean environment & would reduce expenditure on polluted air borne diseases.

### Facts:

#### Difference in BS-IV and BS-VI standards:

The BS norms have been similar to Euro norms till now, and with norms after BS-IV not defined yet, we

compare the existing BS-III and BS-IV norms in India with the Euro 6 norms on which India's emission norms have been set.

Petrol Emission Norms (All figures in g/km):					
Emission Norm	CO	HC	NOx	HC+NOx	PM
BS-III	2.30	0.20	0.15	—	—
BS-IV	1.00	0.10	0.08	—	—
Euro 6	1.00	0.10	0.06	—	0.005
Diesel Emission Norms (All figures in g/km)					
Emission Norm	CO	HC	NOx	HC+NOx	PM
BS-III	0.64	—	0.50	0.56	0.05
BS-IV	0.50	—	0.25	0.30	0.025
Euro 6	0.50	—	0.06	0.17	0.005

Source - Indian Emissions Regulations/ARAI

### Efforts to Control Emissions

India embarked on a formal emission control regime in 1991. Here is a brief history of the country's efforts to cut vehicle emission.

**1991-92:** the first stage of mass emission norms came into force for petrol vehicles in 1991 and in 1992 for diesel vehicles.

**1995:** From April 1995, the government made fitment of catalytic converters compulsory in new petrol-fuelled passenger cars sold in the four metros of Delhi, Calcutta, Mumbai and Chennai, along with the supply of unleaded petrol (ULP). Availability of ULP was extended to 42 major cities and now it is available across the country.

**2000-01:** In 2000, passenger cars and commercial vehicles met Euro I equivalent India 2000 norms. Euro II equivalent Bharat Stage-II (BS-II) norms were in force from 2001 in four metros-Delhi, Mumbai, Chennai and Kolkata.

**2002:** The first auto fuel policy was announced in August 2002. It laid down the emission and fuel roadmap up to 2010. As per the policy, four-wheelers in 13 metro cities moved to BS-III emission norms from April 2005 and the rest of the country of BS-II.

**2010:** BS-IV for 13 metro cities was implemented from April 2010 and the rest of the country moved to BS-III. It has now been extended to more than 50 cities.

**2014:** The second version of the fuel policy-Auto fuel policy 2025-was submitted to the oil and gas ministry. It lays down the emission and fuel roadmap up to 2025 and envisages BS-IV roll out across the country by 2017 in a phased manner, with BS-V emissions in 2021 and BS-VI from 2024. The proposal is yet to be accepted by the government and notified.

## 2. Pollution and congestion issues in Urban Transport: Case of Delhi

India is urbanizing. Its urban population is growing at an average rate of around 3% per year. Assuming decadal increase of around 32%, India's urban population is expected to increase from 377 million in 2011 to 500 million in 2021 however, there is lower pace of infrastructure growth such as roads, transportation and poor planning of urbanization with respect to roads, public transport, residential and industrial area.

This mismatch in urbanization & infrastructure development along with poor urban planning has created several challenges which are:

**Vehicular congestion and road safety issues:** India accounts for 1% vehicles globally but 10% road accidents thus; it is plagued by careless driving and congestion issues. Factors involved in it are:

- Growth in number of vehicles, in the six major metropolises of India which has outpaced population growth.
- Limitation to road expansion; Resource (land & investment) constraints have come in the way of adequate investments in increasing road capacity and even in undertaking timely repair. Inefficient systems of construction coupled with poor maintenance have resulted in poor road infrastructure.
- Poor Traffic Management.
- Absence of Lane Segregation: Mixed traffic (speed differences) hard to handle.
- Road infrastructure is poor: narrow roads, lack of medians, pedestrian crossings, and few traffic signals.
- Poor enforcement of traffic rules.
- Corruption in issuing licenses and permits.
- Inadequate number of trained traffic police.

Pedestrians, bicyclists, motorcyclists, and non-motorized vehicle occupants are often the most vulnerable in Indian cities.

**Externalities: adding unwanted by products (local & global pollution):**

**Factors involved in it are:**

- Enforcement of Pollution check norms is poor.
- Pollution certificates are issued without actual testing of vehicle.
- Poor condition of road also contributed to pollution of the cities because of the slower mobility of vehicles.

- In many cities, there is lack of public transport which leads to high use of many small and private vehicles.
- No policy to phase-out older vehicles.

#### Strategies to mitigate the challenges of urban transport:

- **Ramp metering.** Controlling the access to a congested highway by letting automobiles in one at a time instead of in groups. The outcome is a lower disruption on highway traffic flows.
- **Traffic signal synchronization.** Tuning the traffic signals to the time and direction of traffic flows. This is particularly effective if the signals can be adjusted on an hourly basis to reflect changes in commuting patterns.
- **Incident management.** Making sure that vehicles involved in accidents or mechanical failures are removed as quickly as possible from the road. Since accident on average account between 20 and 30% of all the causes of congestion, this strategy is particularly important.
- **Car ownership restrictions.** Several cities and countries (e.g. Singapore) have quotas in the number of license plates that can be issued or require high licensing fees. To purchase a vehicle an individual thus must first secure through an auction a license.
- **Carpooling.** Concerns two issues. The first and most common is an individual providing ridership to people (often co-workers) having a similar origin, destination and commuting time. Two or more vehicle trips can thus be combined into one. The second involves a pool of vehicles (mostly cars, but also bicycles) that can be leased for short durations when mobility is required. Adequate measures must be taken so that supply and demand are effectively matched.
- **HOV lanes.** High Occupancy Vehicle (HOV) lanes insure that vehicles with 2 or more passengers (buses, taxis, vans, carpool, etc.) have exclusive access to a less congested lane, particularly during peak hours.
- **Congestion pricing.** A variety of measures aimed at imposing charges on specific segments or regions of the transport system, mainly as a toll. The charges can also change during the day to reflect congestion levels so that drivers are incited to consider other time periods or other modes.
- **Parking management.** Removing parking or free parking spaces can be an effective dissuasion tool since it reduces cruising and enables those willing to pay to access an area (e.g. for a short shopping stop).
- **Public transit.** Offering alternatives to driving that can significantly improve efficiency, notably if it circulates on its own infrastructure (subway, light rail, buses on reserved lanes, etc.) and is well integrated within a city's development plans. However, public transit has its own set of issues.
- **Non-motorized transportation.** Since the great majority of urban trips are over short distances, non-motorized modes, particularly walking and cycling, have an important role to play in supporting urban mobility. The provision of adequate infrastructure, such as sidewalks, is often a low priority as non-motorized transportation is often perceived as not modern in spite of the important role it needs to assume in urban areas.
- Carbon tax for commercial vehicles.
- Promotion of CNG & electric vehicles.

With the pace of growing urbanization, the cost effective, timely and better facilitated transport on electric based is the need for the development of green cities. This can be done through the better planning and implementation of the schemes like AMRUT, smart cities.

#### Delhi's Odd Even Formula: A Case Study

Delhi government's much talked odd-even car policy's trial period of 15 days completed and it's time to review the impact of it.

#### What is the odd-even scheme?

- On 3 December, the Delhi High Court - after observing that the air pollution levels in the national capital had reached "alarming" proportions and it was akin to "living in a gas chamber" — had directed the Centre and city government to present comprehensive action plans to combat it.
- A day later, the Delhi government announced that it will restrict the amount of vehicles on the road by allowing cars with odd and even number plates to run on roads only on respective odd and even dates.
- It was also announced that all private vehicles, even having registration numbers issued by neighbouring states, will have to follow the odd-even number formula. Emergency services and public transport will not be under the ambit of the restriction.

#### Other important features of the scheme included the following:

- The rule was to be applicable only between 8 am and 8 pm every day.
- Women drivers, CNG-certified vehicles, VIPs, two-wheelers, ambulances, defence vehicles and embassy vehicles were exempted from the rule.

- Sundays were exempted from the rule.
- Delhi Metro Rail Corporation was asked to increase its frequency and extend its timing.
- 200 check-points in the city were to be created to check pollution levels.

### Concerns over the Policy:

There are two major concerns — one, exemption given to two-wheelers and second, to women. Two-wheelers contribute to more than 30% of the total pollution caused by the vehicles. It should have also been covered under the odd-even formula. And, should there be class differentiation? Majority of women use public transport in Delhi. Government shouldn't have given exemption to women and should have treated them at par.

### Is It a Success?

- The number of cars will be halved on the road, this will free up a lot of space for the city's public transport to become more efficient. Studies show that buses don't even get to complete the scheduled trips. So when you're freeing up space, all modes of public transport will function better - be it autos, taxis or buses. The overall system efficiency to carry more people will improve dramatically. Analyzing real-time vehicle speed data from Uber, Delhi revealed that during the odd-even programme, average speeds went up by a statistically significant 5.4 per cent (2.8 per cent standard deviation from normal). This is an especially significant change given that radio taxi drivers are meant to stay within speed limits.
- While the odd-even policy reduced pollution during its first two weeks in effect, there are reasons to wonder about its ability to reduce pollution over the longer run. A natural concern is that the odd-even policy could easily be gamed or otherwise undermined. Further, Mexico City's experience with the implementation of a similar policy suggests, it could even make pollution worse by encouraging households to purchase second cars that are old and very polluting.
- A more durable effect on pollution might come from a congestion-pricing programme, in which drivers are charged for using the roads at certain places and times. This approach, which has been successful in places like London and Singapore, allows cities to effectively reduce car use at periods of peak congestion and pollution. The Delhi government should pilot the use of congestion charging, and invest any income from the charge in high-quality, high-capacity public transport with zero local emissions — which would again help to reduce demand for driving, congestion, and pollution.
- Moreover it is not just vehicular pollution which is responsible for overall pollution in Delhi, as

according to the IIT Kanpur study, only 20% of Pollution in Delhi is due to Vehicles. Road dust is the most important source of pollution in Delhi. Other important sources include industries, use of Tandoor in Restaurant etc., Thus even if odd-even rule is success it cannot have major impact on reducing pollution in Delhi until and unless, other sources of pollution are tackled.

## 3. Particulate Matter-1

- Particulate matter 1 is a super-fine polluting particle that India has begun to measure for the first time during the odd-even policy

### What are PM 1 particles?

- These are extremely fine particulate matter (PM) particles of diameter less than 1 micron — significantly smaller than PM 2.5 (of diameter 2.5 microns) that have been at the centre of discussions on particulate matter in Delhi's air.
- PM 10, PM 2.5 and PM 1 particles make up the total suspended particulate matter.
- These particles, byproducts of emissions from factories, vehicular pollution, construction activities and road dust, are not dispersed, and stay suspended in the air that we breathe.

### Why are PM 1 particles more harmful than PM 2.5 or PM 10?

- The finer the particles, the more difficult they are to disperse — and the deeper they can penetrate into the blood stream, causing more harm –
- PM 1, which are much finer than PM 2.5 and PM 10, can penetrate the cardiovascular stream even further, and give rise to lasting conditions, such as predisposing people to heart diseases. Studies in the west have shown that PM 1 can lead to premature births and affect foetal development.
- As they are extremely fine so they may suspend in air for longer duration & thus increases vulnerability to children & patients.

### Why is it in news?

- On December 15, 2015, instrumentation company Nevco Engineers Pvt. Ltd. purchased from a New Zealand firm a new mobile air quality sampling machine called Airqual. The machine, installed on a mobile van, is supplying data to the Delhi Pollution Control Committee on six pollutants recognized by the US Environmental Protection Agency as vehicular pollutants that can impact human health.
- Since January 1. The van is on the move from 10 am to 7 pm, and will collect data from some 210 locations spread over all 70 assembly



constituencies until January 15. The government may release the PM 1 data after the impact of the odd-even policy is assessed. The Central Pollution Control Board is yet to prescribe safe standards for PM.

#### 4. Pilot project: e-vehicles may soon become the official ride of the government

- The government has decided to launch e-vehicles as the official vehicles for government ministries and departments. The Department of heavy industry has decided to take this decision in collaboration with the Ministry of Finance. This move is aimed at reducing vehicular emissions and pollution. The project will be launched on a pilot basis for all the Central government ministries and departments along with Central public sector units to procure new electric vehicles for official purposes.
- The vehicles with range of 80-120 km per charge would be suitable for the pilot project. The department has sought healthy response from states of Gujarat, Himachal Pradesh, Jammu and Kashmir, and Arunachal Pradesh. This initiative will be launched under the scheme called FAME India—Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India which is a part of the National Electric Mobility Mission Plan and plans to provide Rs 795 crore in the first two fiscal years beginning 2015-16.

##### Benefits of e-vehicles:

1. This will not only help in reducing pollution but will also bring down the cost of fuel for the exchequer.
2. Electric motors are mechanically very simple and often achieve 90% energy conversion efficiency.
3. They are energy efficient and will help to bring down the energy needs in the longer run.
4. They are a better option in the present context of rising pollution in cities. Launching such projects will help to create awareness among people.

However, they can be used only for short range distance and are not suitable for longer journey. This is a positive step from the government to bring down the increasing vehicular pollution rate in the country. The success of the project can then be replicated at bigger level if it brings desired results.

##### Electric vehicles:

An **electric vehicle (EV)**, also referred to as an **electric drive vehicle**, uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery or generator to convert fuel to

electricity. EVs include road and rail vehicles, surface and underwater vessels, electric aircraft and electric spacecraft. These are energy efficient and give the greatest degree of energy resilience. They are helpful in reducing air pollution and oil consumption.

#### 5. Cetacean stranding

Cetacean stranding is a phenomenon in which cetaceans strand themselves on land, usually on a beach. Beached whales often die due to dehydration, collapsing under their own weight, or drowning when high tide covers the blowhole.

**Species susceptible to stranding:** Whales, dolphins and porpoises. Among them toothed whales, sperm whale, pilot and killer whales, few beaked whale species, and oceanic dolphins are most susceptible to stranding.

##### Causes of Stranding:

**Natural Reasons-** it include rough weather, weakness due to old age or infection, difficulty giving birth, hunting too close to shore, or navigation errors.

Some stranding may be caused by larger cetaceans following dolphins and porpoises into shallow coastal waters. The larger animals may habituate to following faster-moving dolphins. If they encounter an adverse combination of tidal flow and seabed topography, the larger species may become trapped.

**Human-related** issues including by catch, vessel collisions and environmental degradation.

Natural and human-related factors can also interact to cause stranding.

Noise from naval exercises and active sonar can cause the stranding.

##### How to deal with live stranded animals:

Successful refloating and release of some smaller cetaceans is possible when conducted by trained responders in the right conditions. The unnatural weight and pressure on an animal's organs can cause severe internal injury.

Euthanasia can sometimes be the most humane response, but this is also an extremely challenging task. With small cetaceans, chemical euthanasia is similar to standard veterinary euthanasia of companion animals (cats and dogs) and can be done fairly easily and very humanely. However, with larger cetaceans, the size of the animal necessitates large quantities of euthanasia agent and a large, advanced system of delivery which cannot be deployed safely in surf or with an agitated whale.

Many countries have regional or national standings networks which have trained staff to deal with stranding & try to return animal to the sea.

## 6. Why are Winters Warm This Year?

- Average temperatures across the country, except in Jammu and Kashmir and some adjoining areas, are about 4 to 5 degrees above normal.
- THE El-Nino that has often been the bane of the Indian monsoon is also the reason for the unusually warm winter season this year.
- Scientists say the prevailing El-Nino in the Pacific Ocean must be held responsible.

### What is El-Niño? What are its effects on winter temperature?

- El Nino refers to a condition in the equatorial Pacific Ocean, off the coast of Ecuador and Peru in South America, in which sea surface temperatures become unusually warm. The warmer ocean temperatures are the reason behind several weather events worldwide, and are known to suppress the Indian monsoon as well.
- It is not unusual to find winter temperature following an El-Nino event to be slightly "milder" than normal. In 2009-2010 winter, which followed an El-Nino event, was also not very cold. "But the current El Nino has been very strong and prolonged. So its impact is being felt in a more forceful manner.

### Other factors which are causing warm winters:

- There are also local, factors as well that are contributing to the unusually high temperatures this winter. Primary amongst them is the lack of rain.
- In the last week of December, the country as a whole received rainfall that was 86 per cent below normal. Kerala, Tamil Nadu, parts of Andhra Pradesh, Orissa and Jammu and Kashmir received some rainfall but rest of the country was completely dry.
- Scientists blame the prevailing, unusual, atmospheric conditions for this. Rain at this time, at least in northern India, is brought by the 'westerlies, a system of wind that moves in the mid-latitudes (30 to 60 degrees), in northern hemisphere from the west to east direction. But this year, they have remained north of their usual position during this time and as such their zone of influence has only been parts of Jammu and Kashmir, Punjab and Himachal Pradesh where we have seen a little bit of rain.

## 7. New Weather Forecasting Terminology

With an aim to make the interface more audience friendly and fill the communication with civil administration, the India Meteorological Department (IMD) has changed

the languages and also redefined many of its terms. The use of more realistic and precise term would ensure better understand the terms used in weather forecasts.

UPDATED NOMENCLATURE		
New terminology	Old terminology	
Normal	Normal	Percentage departure of realized rainfall is within $\pm 10\%$ of the Long Period Average
Below Normal	Below Normal	Percentage departure of realized rainfall is $< 10\%$ of the Long Period Average
Above Normal	Above Normal	Percentage departure of realized rainfall is $> 10\%$ of the Long Period Average
Deficient Year	All India Drought Year	When the rainfall deficiency is more than 10% and 20-40% area of the country is under drought conditions
Large Deficient Year	All India Severe Drought Year	When the rainfall deficiency is more than 10% and when the spatial coverage of drought is more than 40%

### Classification of seasonal rainfall:

The recent modification has changed the classification of seasonal rainfall. IMD has introduced six new categories to replace the four old rainfall categories i.e, excess, normal, deficient and scanty. New categories are as follows:

- **Large excess:** 60 per cent and above.
- **Excess:** between 20 per cent and 59 per cent.
- **Normal:** minus 19 per cent to plus 19 per cent;
- **Deficient:** minus 20 per cent to minus 59 per cent.
- **Large deficient:** below 60 per cent No Rain: 0 per cent.

### Standardized key terms:

- **Heat wave:** When the temperature is greater than  $4.50^{\circ}$  C above usual temperatures for the particular region.
- **Severe heat wave:** When the temperature greater than or equal to  $470^{\circ}$  C.
- **Cold wave:** When the temperature is less than  $4.50^{\circ}$  C above usual temperatures for the region.
- **Severe cold wave:** When minimum temperature is  $20^{\circ}$  C or lower.

### About India Meteorological Department:

**India Meteorological Department** was established in 1875. It is the National Meteorological service of the country and the principal government agency in all matters relating to meteorology, seismology and allied subjects.

**Functions:**

- To take meteorological observations and to provide current and forecast meteorological information for optimum operation of weather-sensitive activities like agriculture, irrigation, shipping, aviation, offshore oil explorations, etc.
- To warn against severe weather phenomena like tropical cyclones, norwesters, dust storms, heavy rains and snow, cold and heat waves, etc., which cause destruction of life and property.
- To provide meteorological statistics required for agriculture, water resource management, industries, oil exploration and other nation-building activities.
- To conduct and promote research in meteorology and allied disciplines.
- To detect and locate earthquakes and to evaluate seismicity in different parts of the country for development projects.

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## 5. SCIENCE & TECHNOLOGY

### 1. Hybrid Maize: An Emerging Alternative for Farmers

The average maize productivity is estimated to have risen by 98 per cent between 1986 and 2014. This is almost double the increase of about 50 per cent in the average yields of wheat and rice during the same period.

Around 65 per cent of the area under maize is now used to cultivate hybrids, including various types of specialty produce such as **sweet corn, popcorn, baby corn and protein-upgraded corn** called **quality protein maize (QPM)**.

**Factors behind increased production & productivity:**

- **Technology-driven Factors:**

Success in breeding good-quality maize (Enhance the quality of protein, raise its beta-carotene (vitamin A), High-yield, & Disease-tolerant hybrids with better adaptability to weather induced stress.

- **Expansion in crop area** (new areas in states such as Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra)

- **Good agronomic practices.**

Maize has traditionally been grown as a rain-fed crop in the kharif season. But attempts to grow it in the rabi and spring seasons have also proved successful in several areas, notably West Bengal, Bihar and the north-eastern states. In areas where winters ends early, ruling out wheat cultivation, or where rabi rice suffers due to water scarcity, maize is emerging as a potential alternative.

**Areas of Use:** 23 per cent of its output is consumed as food.

**Commercial use:** Feed for poultry, livestock and fish, for producing starch, for producing Bio fuel & for brewery products.

**Future Potential:** Growing export market for Indian maize especially in South East Asia. Availability of specialty corns, notably sweet corn and baby corn, has opened up European markets for Indian maize

### 2. Li-Fi: a new avatar of Wi-Fi

Li-Fi, or **light fidelity**, is a **wireless technology** that makes **use of visible light in place of radio waves to transmit data** at terabits per second speeds—more than 100 times the speed of Wi-Fi. It was invented by German physicist and professor **Harald Haas**. Though it was

discovered in the last decade, proofs of concept to test commercial utilization started emerging only in 2015.

To start with, it is being tested for indoor usage, i.e., in offices and establishments, but it is also sure to go outdoors in a big way by making use of existing infrastructure used for street and traffic lights, which are already moving towards LED lamps. Li-Fi offers great promise to overcome the existing limitations of Wi-Fi by providing for data-heavy communication in short ranges. Since it does not pollute, it can be called a green technology for device-to-device communication in the Internet of Things (IoT).

#### How it works?

Li-Fi is a **Visible Light Communications (VLC)** system which uses visible light instead of Wi-Fi which uses radio waves. This means that it accommodates a photo-detector to receive light signals and a signal processing element to convert the data into 'stream-able' content. An all-IP (packetized) Li-Fi system utilizing existing LED lamps meet the **3L criteria:** Low interference, Low power and Low maintenance and supports; **3H criteria:** High data rates, High reliability and High affordability.

- Here, data is fed into an LED light bulb (with signal processing technology), it then sends data (embedded in its beam) at rapid speeds to the photo-detector (photodiode).
- The tiny changes in the rapid dimming of LED bulbs are then converted by the 'receiver' into electrical signal.
- The signal is then converted back into a binary data stream that the user would recognise as web, video and audio applications that run on internet enables devices.
- To make LED lamps capable of working as an access point as in Wi-Fi, a kind of media converter is required to convert the electrical data signal into photons (light), and a light detector which converts light into electricity is required on the receiving end device.

#### Advantages:

- Li-Fi could make a huge impact on the internet of things too, like data transferred at much higher levels with even more devices able to connect to one another.
- Data-heavy communication in short ranges can be done using Li-Fi which is one of the limitations of Wi-Fi.

- Li-Fi is more secure than Wi-Fi due to its shorter range.
- Since it does not pollute, it can be called a green technology for device-to-device communication in the Internet of Things (IoT).
- Li-Fi systems consume less power.

#### Limitations of Li-Fi:

- As visual light **can't pass through opaque objects** and needs line of sight for communication, its range will remain very restricted to start with. So large number of LED bulbs need to be installed for long range purposes.
- Li-Fi **requires that the light bulb is on at all times** to provide connectivity, for which lights will need to be switched-on during the day.
- Li-Fi is likely to face **interference from external light sources**, such as sunlight and bulbs, and obstructions in the path of transmission, and hence may cause interruptions in communication.
- There will be **high installation costs** of visual light communication systems as an add-on to lighting systems.

#### Challenges:

- The main challenge is to create a Li-Fi ecosystem, which will need the conversion of existing Smartphone into Li-Fi enabled ones by the use of a converter/adaptor.
- Also, an integrated chip that has both light-to-electrical conversion and data-processing capability (Wi-Fi/Bluetooth) combined into one needs to be developed and manufactured in the millions.

#### Applications:

- Li-Fi can be used in street and traffic lights. Traffic lights can communicate to the vehicles and with each other. Vehicles having LED-based headlights and tail lamps can communicate with each other and prevent accidents by exchanging information.
- Visible light be used in places such as petrochemical and nuclear plants and hospitals where radio waves can't be used.
- They can also be used in aircraft, where most of the control communication is performed through radio waves.
- Li-Fi can also easily work underwater, for military and navigational operations where Wi-Fi fails completely.
- It also presents another unique possibility: transmitting power wirelessly, wherein the Smartphone will not only receive data through Li-Fi, but will also receive power to charge itself.

#### Challenges and opportunities for India:

The lack of ubiquitous broadband access, which thereby restricts data access, and chaotic traffic management leading to traffic jams and pollution are just two of the many problems in India. Li-Fi has scope to help with both.

- By converting traffic lights into LED-based access points, traffic management can be made intelligent, adaptive and real-time—and so, more efficient and effective.
- In the same way, street lights can also be converted into Li-Fi access points, making them broadband access transmitters to mobile Li-Fi enabled smartphones, converting areas into seamless hot spots.

#### Conclusion:

If Li-Fi can be put into practical use, every LED lamp can be converted into something like a hotspot to transmit data to every mobile device to achieve universal broadband communication between devices. Also, it presents another unique possibility: transmitting power wirelessly, wherein the Smartphone will not only receive data through Li-Fi, but will also receive power to charge itself. The two technologies of Wi-Fi and Li-Fi could be used complementarily to create more efficient, green and future-proof access networks. This presents a ray of hope for the future generations as Li-Fi is green technology and will be considered sustainable for environment.

### 3. Indigenous Anti tank Nag Missile

The indigenously-built third generation, Nag missile, successfully hit the target 4 km away during a night trial in the Mahajan Field Firing Range, Rajasthan.

#### About Nag Missile:

- Nag is a third generation "fire-and-forget" anti-tank missile developed in India. It is one of five missile systems developed by the Defence Research and Development Organization (DRDO) under the Integrated Guided Missile Development Program (IGMDP).
- HeliNa is a helicopter-launched version of Nag.

#### Technology Used:

- The current version of the four-km range Nag missile have the 'lock on before launch' system and an upgraded infra-red seeker which is a unique capability unmatched by any missile in this range world over. The 'lock on before launch' lends a superior tactical capability. The missile acquires the image of the target before launch and keeps updating as it seeks and hits the target with precision. The infra-red seeker capability is developed by DRDO.

- The Nag is claimed to be first anti-tank missile which has a complete fiberglass structure.
- NAMICA (Nag Missile Carrier) is a tank destroyer built for the army. It is equipped with a thermal imager for target acquisition.
- During the test, the Thermal Target System (TTS) developed by a defence laboratory at Jodhpur was used as target for the missile, which is in the final user configuration. TTS simulated a target similar to an operational tank as thermal mapping from tank to TTS was carried out for generating thermal signature.
- Final user trials would be conducted in different conditions in summer and winter this year. Using HEAT (High explosive anti-tank) warhead, the top-attack all-weather fire-and-forget system is capable of destroying modern tanks with armored protection by nullifying their ERA (explosive reactive armor).

#### How would Indigenization of technology help?

As India is moving towards transformation from a regional power to a global power, the defence sector is increasingly occupying even bigger space in the country's long term strategic planning. Indigenization of the defense industry and acquiring advanced technologies would help to reduce dependence on imports from other countries around the world which in turn save hard currency & reduce the current account deficit. Defence sector is also envisaged as a key component in Make in India programme & Indigenization would also create the employment opportunities along entire value chain. In nitty-gritty, it would create a ripple effect that the government is hoping to initiate in this sector.

## 4. India's Grid linked Solar Generation Capacity

India's grid-connected solar power generation capacity has crossed the 5,000 MW mark, with Rajasthan on top with 1,264.35 MW capacity followed by Gujarat.

The Government has set the ambitious target of generating 100 GW of solar power by the year 2021-22 under the National Solar Mission. It is envisaged to generate 60 GW ground mounted grid-connected solar power and 40 GW through roof-top grid interactive solar power to fulfil the 100 GW of solar power. The Ministry of New and Renewable Energy has also fixed year-wise targets to monitor the solar power generation in the country. The target for the current year is 2,000 MW and next year target is 12,000 MW.

#### India's Efforts in the Field to harness Solar Energy:

##### National Solar Mission:

- The National Solar Mission is a major initiative of the Government of India and State Governments to promote ecologically sustainable growth while

addressing India's energy security challenge. It will also constitute a major contribution by India to the global effort to meet the challenges of climate change.

- The program was launched in 2010 with a target of 20GW by 2022 which was later increased to 100 GW in 2015. The target will principally comprise of 40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects.

To facilitate such a massive target, the Prime Minister's Office has been pushing various Ministries to initiate supporting interventions like:-

- Incorporating changes in land use regulations and tenancy laws to facilitate aggregation and leasing of land by farmers/ developers for solar projects;
- Identification of large chunks of land for solar projects;
- Identification of large government complexes/buildings for rooftop projects;
- Clear survey of wastelands and identification of transmission/ road infrastructure using satellite technology for locating solar parks;
- Development of power transmission network/Green Energy Corridor;
- Setting up of exclusive parks for domestic manufacturing of solar PV modules;
- Provision of roof top solar and 10 percent renewable energy as mandatory reform under the new scheme of Ministry of Urban Development;
- Considering infrastructure status for solar projects; raising tax free solar bonds; providing long tenor loans; making roof top solar a part of housing loan by banks/ NHB and extending IIFCL credit facility to such projects by the Department of Financial Services;
- Suitable amendments to the Electricity Act for strong enforcement of Renewable Purchase Obligation (RPO) and for providing Renewable Generation Obligation (RGO);
- Incorporating measures in Integrated Power Development Scheme (IPDS) for encouraging distribution companies and making net-metering compulsory.

#### Importance and relevance of solar energy for India:

- Cost:** Solar is currently high on absolute costs compared to other sources of power such as coal. The objective of the Solar Mission is to create conditions, through rapid scale-up of capacity and technological innovation to drive down costs towards grid parity. The Mission anticipates

achieving grid parity by 2022 and parity with coal-based thermal power by 2030, but recognizes that this cost trajectory will depend upon the scale of global deployment and technology development and transfer. However there are a number of off-grid solar applications particularly for meeting rural energy needs, which are already cost-effective and provides for their rapid expansion.

2. **Scalability:** India is endowed with vast solar energy potential. About 5,000 trillion kWh per year energy is incident over India's land area with most parts receiving 4-7 kWh per sq. m per day. Hence both technology routes for conversion of solar radiation into heat and electricity, namely, solar thermal and solar photovoltaic, can effectively be harnessed providing huge scalability for solar in India. Solar also provides the ability to generate power on a distributed basis and enables rapid capacity addition with short lead times. Off-grid decentralized and low-temperature applications will be advantageous from a rural electrification perspective and meeting other energy needs for power and heating and cooling in both rural and urban areas.

The constraint on scalability will be the availability of space, since in all current applications, solar power is space intensive. In addition, without effective storage, solar power is characterized by a high degree of variability. In India, this would be particularly true in the monsoon season.

3. **Environmental impact:** Solar energy is environmentally friendly as it has zero emissions while generating electricity or heat.
4. **Security of source:** From an energy security perspective, solar is the most secure of all sources, since it is abundantly available.

Theoretically, a small fraction of the total incident solar energy (if captured effectively) can meet the entire country's power requirements. It is also clear that given the large proportion of poor and energy un-served population in the country, every effort needs to be made to exploit the relatively abundant sources of energy available to the country. While, today, domestic coal based power generation is the cheapest electricity source, future scenarios suggest that this could well change. Already, faced with crippling electricity shortages, price of electricity traded internally, touched Rs 7 per unit for base loads and around Rs 8.50 per unit during peak periods. The situation will also change, as the country moves towards imported coal to meet its energy demand. The price of power will have to factor in the availability of coal in international markets and the cost of developing import infrastructure. It is also evident that as the cost of environmental degradation is factored into the mining of coal, as it must, the price of this raw

material will increase. In the situation of energy shortages, the country is increasing the use of diesel-based electricity, which is both expensive – costs as high as Rs 15 per unit - and polluting. It is in this situation the solar imperative is both urgent and feasible to enable the country to meet long-term energy needs

## 5. Technology Acquisition and Development Fund

Technology Acquisition and Development Fund (TADF) has been launched by the ministry of commerce and industry under National Manufacturing Policy being implemented by Department of Industrial Policy & Promotion (DIPP). TADF is a new scheme to facilitate acquisition of Clean, Green & Energy Efficient Technologies, in the form of Technology, Customised Products, Specialised Services, Patents, Industrial Design available in the market of India or globally, by Micro, Small & Medium Enterprises (MSMEs).

### Background:

The Scheme is conceptualised to catalyse the manufacturing growth in MSME sector to contribute to the national focus of "Make in India" and facilitate acquisition of clean & green technologies by micro, small and medium units across the sectors and thus, bridge the technological gap at an affordable cost.

### Key Provisions:

Under the Scheme which would be implemented through Global Innovation and Technology Alliance (GITA), a joint venture company, support to MSME units is envisaged by the following:

- I. **Direct Support for Technology Acquisition:** Proposals from Indian industry will be invited for reimbursement of 50% of technology transfer fee or Rs. 20 lakhs, whichever is lower.
- II. **In-direct Support for Technology Acquisition through Patent Pool:** Financial support will be provided in acquiring of technology/Patent from across the Globe based on applications received from MSMEs.
- III. **Technology/Equipment Manufacturing Subsidies:** The fund will support, via subsidies, manufacturing of equipment, machines, devices for controlling pollution, reducing energy consumption and water conservation.
- IV. **Green Manufacturing-Incentive Scheme:** The scheme will facilitate resource conservation activities in industries located in NIMZ through the introduction of incentive/subsidy schemes for energy/ environmental/ water audits, construction of green buildings, implementation of waste treatment facilities and implementation of renewable energy projects through financial support under the TADF.

## 6. World’s Most Powerful Super Computers(PRE)

China’s Tianhe-2 supercomputer has maintained its position as the world’s most powerful system for the sixth consecutive time, according to a biannual Top500 list of supercomputers.

- Tianhe-2 or Milky Way 2, with a performance of 33.86 petaflops per second (Pflop/s), was developed by China’s National University of Defence Technology and deployed at the National Supercomputer Center in Guangzhou. China is

carving out a bigger share as a manufacturer of high performance computers with multiple Chinese manufacturers becoming more active in this field.

- The Chinese system is almost twice as fast as the next on the list, Titan of the US Department of Energy, which has a performance of 17.59 Pflop/s.
- Still, the U.S. aims to eventually lead the world in supercomputing. Additionally, President Obama signed an executive order in July calling for the U.S. to create the world’s most powerful supercomputer under the National Strategic Computing Initiative.

World’s Top 5 Supercomputers:				
Rank	Rmax/Rpeak(PFlop/s)	Name	Vendor	Site country, Year
1.	33.863/54.902	Tianhe-2	NUDT	National Supercomputing Center in Guangzhou, China, 2013
2.	17.590/27.113	Titan	Cray Inc	Oak Ridge National Laboratory United States, 2012
3.	17.173/20.133	Sequoia	IBM	Lawrence Livermore National Laboratory, United States, 2013
4.	10.510/11.280	K computer	Fujitsu	RIKEN, Japan, 2011
5.	8.586/10.066	Mira	IBM	Argonne National Laboratory, United States, 2013

India’s Top 5 Supercomputers:				
Rank	Site	Name	Rmax (TFlop/s)	Rpeak (TFlop/s)
96	Indian Institute of Science	SahasraT (SERC - Cray XC40)	901.5	1244.2
119	Indian Institute of Tropical Meteorology	Aaditya (iDataPlex DX360M4)	719.2	790.7
145	Tata Institute of Fundamental Research	TIFR - Cray XC30	558.8	730.7
166	Indian Institute of Technology Delhi	HP Apollo 6000 XI230/250	524.4	1,170.1
251	Centre for Development of Advanced Computing	PARAM Yuva - II	388.4	520.4

## 7. Discovery of Element 113

The International Union of Pure and Applied Chemistry certified that a team led by Kosuke Morita at government-affiliated research institute Riken ( Japan) discovered the element 113. It is the first group in Asia to have its accomplishments enshrined in the periodic table.

### How Element is synthesized:

Elements past uranium, No. 92 in the periodic table, do not occur in nature and thus must be created in the laboratory. The Japanese team synthesized element 113 by bringing ions of zinc — No. 30 — to around 10% the speed of light and smashing them into atoms of bismuth,

element 83. That high speed is required to fuse the two atomic nuclei. But using too much force simply makes the atoms break apart and scatter. The speed and path of the particles must be very carefully controlled — an extremely difficult feat requiring cutting-edge technology.

Unstable heavy elements like 113 also break apart into lighter particles almost as soon as they come into existence. The new element typically decays in two thousandths of a second. So extraordinarily sensitive technology is required to detect a success amid all the other matter present.

The name Japonium has been floated for No. 113. An official name could be decided on in 2016.

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## MISCELLANEOUS

### 1. Lodha committee on Cricket

With an emphasis on ensuring players' independence and providing for fixed tenure of office-bearers followed by a cooling-off period, the Supreme Court-mandated Committee headed by former Chief Justice of India RM Lodha which came in the aftermath of the IPL scandal has proposed extensive measures to revamp the functioning of the Board for Control of Cricket in India (BCCI). The committee was set up by the Supreme Court to recommend reforms in the Board of Control for Cricket in India (BCCI).

#### Important recommendations made by the committee:

- **Constitute one cricket body for each state:** One association of each state will be a full member and have right to vote. One unit should represent one state.
- **CEO-run organisation:** Committee suggested the restructuring of the BCCI's administrative set-up, proposing the position of a CEO accountable to a nine-member apex council. An apex council for the BCCI comprising 9 members, of which 5 should be elected, 2 should be representatives of players association, and one woman. CEO to be assisted by 6 professional managers and the team of CEO and managers will be accountable to the apex council. And the president's powers have also been curbed: he no longer has an additional vote at meetings, nor does he have a say in team selection.
- **Under RTI:** To ensure transparency in its functioning, the panel had said that it is important to bring the body under the purview of the Right to Information Act.
- **Ethics officer:** The committee recommended the institution of the office of an Ethics Officer, who would be responsible for resolving issues related to the conflict of interest. Ethics officer would be a former High Court judge.
- **Electoral officer:** The committee had also suggested the appointment of an Electoral Officer to conduct the Board elections. The electoral officer would oversee the entire election process relating to the office-bearers namely, preparation of voters list, publication, dispute about eligibility of the office-bearers.
- **Ombudsman:** It had also proposed an Ombudsman for dealing with internal conflicts. Ombudsman can take cognizance of complaints suo-moto, or received complaint or referred

complaint by the apex council. It also suggested that a person cannot be a BCCI office-bearer and a state association office-bearer at the same time.

#### Aims it seeks to achieve:

- **Governance:** Restructuring governance to bring in accountability, collective participation will ensure a well future of sports. Fixed tenure, age limit, an apex council, inclusion of professional managers, equal representation of all state bodies for decentralisation and division of powers are good steps in this direction.
- **Transparency:** Bringing in BCCI under the ambit of RTI shall usher transparency, citizen participation and uphold the trust of the stakeholders. Disclosure of assets of office-bearers, Inclusion of players in apex council further enhances accountability.
- **Check Conflict of Interest:** Exclusion of ministers, government servants will address the roots of the malice. Separation of BCCI, IPL governing bodies and players-only selection, coaching, evaluation avenues is a game-changer.

#### Analysis:

- Legalizing betting has the potential to unearth black money, under-world links with sports. The betting industry entering mainstream economy will bring in huge tax revenues. Recommendation for ethics officer will make sure that ethical values are not compromised even in the area of sports. Recommendation for women players committee is a way to ensure equality in sports. Segregation of BCCI and IPL will ensure that players are not only lured by money but can promote the very spirit of cricket. The public trust, ethical conduct and well being of the sports should be kept uphold by replicating the above model as a template for various sports bodies.
- However keeping away politicians and persons after 70 years from cricket is questionable as many politicians are actively engaged in reforms of sports and age is just a number as goals can be achieved even after 70 years. Further it is difficult to ensure that involvement of only players will lead to no corruption and transparency. Moreover, suggestion for bringing under RTI may be void as BCCI is registered under Tamil Nadu Societies Registration Act, so recommendations are not binding to be implemented. Thus it is expected from SC and Parliament to take the reformative measures for the Committee to make the sport accountable as Cricket is religion in India.

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