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Contributions And Achievements Of Stephen Hawking

Relevancy:

- ✓ GS Prelims, GS Mains paper III
- ✓ Sci-tech, contributions of Stephen Hawking, Black holes, theory of relativity, quantum physics, AML disease.

Recently:

- ❖ Renowned Physicist Stephen Hawking died.

Key Achievements of Stephen Hawking:

- Hawking was known for bringing about a limited union between two very different fields: Albert Einstein's general theory of relativity and quantum theory.
- On Black holes: At one time it was thought that absolutely nothing could escape from a black hole. Hawking's equations produced an amazing result – that over time black holes can lose energy – now known as Hawking radiation – hence they can shrink and 'evaporate,' disappearing from the universe.
- On Big Bang: In 1970, working with Roger Penrose, Hawking showed that if a Big Bang had happened and general relativity were true, then the universe must have grown from a point whose volume was zero, but which contained the entire mass of the universe. Such a point of infinite density is known as a singularity.
- Interestingly, at the heart of every black hole lurks a singularity, where gravity has crushed the entire mass of the black hole into a point whose volume is zero.

AML- The disease that made Hawking paralysed:

- Amyotrophic lateral sclerosis, more commonly known as ALS, is a progressive, neurodegenerative disease.
- It affects the nerve cells in the brain and spinal cord that make the muscles of both the upper and lower body work.
- Those nerve cells lose their ability to initiate and control muscle movement, which leads to paralysis and death.
- People with the condition lose control of muscle movement, eventually losing their ability to eat, speak, walk and, ultimately, breathe.
- A highly successful lecturer and author, from 1986 Hawking made use of an adaptive communication system including a speech synthesizer known as the Equalizer to combat ALS.
- Using the Equalizer, he authored books, scientific papers, and lectures, and was capable of communicating at the modest rate of about 15 words per minute.



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Euthanasia In India

Relevancy

- ✓ G.S. Paper 2,4
- ✓ What is 'common cause'?
- ✓ What is active and passive euthanasia?
- ✓ What is the basis of the Common Cause v. Union of India decision?
- ✓ Is active euthanasia morally better?

Recently:

- ❖ Last week, in Common Cause v. Union of India, the Supreme Court ruled that every individual has the right to die with dignity.
- ❖ It upheld the practice of passive euthanasia.

What is "common cause"?

- Common Cause is a public interest organization of long standing, which has been striving for governance reforms through action research, advocacy and public interest litigation.

What is Passive euthanasia?

- It is the removal of life-support mechanisms from persons who, for the most part, have slipped into a persistent vegetative state in order to allow them to die in the natural course of things — and laid down a set of detailed procedural guidelines to facilitate this process.
- These include "**advance directives**" and "**living wills**".
- These are instructions issued by a person specifying what should be done to her in the event of a terminal illness, and who will decide if she herself is incapacitated from giving or withholding consent.
- The court also addressed situations where a patient was terminally ill, but had not issued an advance directive.
- In such situations it held that the consent of the patient's close family, subject to the supervision of and concurrence by trained medical personnel, would substitute for the advance directive.

What is active euthanasia?

- Active euthanasia is defined as the intentional act of causing the death of a patient experiencing great suffering.

What is the basis of the Common Cause v. Union of India decision?

- The SC expounded the basis of its 2011 ruling in Aruna Shanbaug v. Union of India which permitted "passive" euthanasia, including "involuntary" passive euthanasia for mentally incompetent patients, in certain terminal cases.
- Ruling that Article 21 of the Constitution guaranteed the "right to die with dignity", the court also issued interim guidelines to enforce individuals' living wills in case of future incompetence.
- Aruna Shanbaug and Common Cause have incorporated the judicial APD evolved primarily by the U.K. courts.

What is the moral difference between killing and letting die?

- Many people make a moral distinction between active and passive euthanasia.
- They think that it is acceptable to withhold treatment and allow a patient to die, but that it is never acceptable to kill a patient by a deliberate act.
- Some medical people like this idea. They think it allows them to provide a patient with the death they want without having to deal with the difficult moral problems they would face if they deliberately killed that person.

There is no real difference

- Since stopping treatment is a deliberate act, and so is deciding not to carry out a particular treatment.
- Switching off a life supporting system requires someone to carry out the action of throwing the switch.
- If the patient dies as a result of the doctor switching off the respirator then although it's certainly true that the patient dies from lung cancer (or whatever), it's also true that the immediate cause of their death is the switching off of the breathing machine.
- In active euthanasia the doctor takes an action with the intention that it will cause the patient's death.



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- In passive euthanasia the doctor lets the patient die.
- when a doctor lets someone die, they carry out an action with the intention that it will cause the patient's death.
- So there is no real difference between passive and active euthanasia, since both have the same result: the death of the patient on humanitarian grounds.
- Thus the act of removing life-support is just as much an act of killing as giving a lethal injection.

Is active euthanasia morally better?

- Some (mostly philosophers) say that active euthanasia is morally better because it can be quicker and cleaner, and it may be less painful for the patient.

Points on which 'passive' euthanasia was constructed

- Active Passive Euthanasia Distinction (ABD) is an elaborate and flawed judicial construct arguably necessitated by overarching policy concerns.
- It has the potential for abuse by unscrupulous individuals and the spectre of criminal prosecution of benign doctors and families, etc.

What is the way forward?

- Common Cause signals that APD's days numbered. Whether couched as "dignified death" or "bodily autonomy", there is no reasonable basis for negating the right vis-à-vis a patient whose circumstances warrant assistance to exercise it.
- There must be proper legalization and regulation of active euthanasia.



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Forest Rights Act

Relevancy

- ✓ G.S. Paper 2
- ✓ About FRA and current issue related
- ✓ Importance of FRA

Recently:

- ❖ On March 12, about 50,000 farmers protest march in Mumbai.
- ❖ A majority of these farmers were Adivasis and one of their demands was the implementation of the Forest Rights Act (FRA) and through it, their land rights.

What is FRA?

- The Forest Rights Act (FRA) was enacted in 2006.
- Its aim is to protect the claims of tribal communities over tracts of land or forests they have inhabited and cultivated for generations.
- It has the potential to democratize forest governance by recognizing community forest resource rights over an estimated 85.6 million acres, thereby empowering over 200 million forest dwellers in over 1,70,000 villages.

What is the issue?

- FRA's future is uncertainly balanced between the democratic control and protection of forests on the one hand and greedy corporations backed by an unscrupulous political class on the other.
- It has become the site of a deep conflict.

What needs to be understood?

- It is important to understand what is at stake with the FRA.
- The FRA has two distinct features.
- First, it seeks to restore individual and/or community rights of forest dwellers over land and forest resources.
- These rights include title rights, user rights, forest management rights and relief and development rights.
- Second, it devolves power to village-level gram sabhas to contest and exclude the alienation of land in the Scheduled areas.

Why FRA is important?

- FRA enables village and tribal communities in Odisha, Chhattisgarh, Maharashtra, Madhya Pradesh, Rajasthan and Tripura to veto the land-acquisitions claims of corporations and state governments.
- It expands the mandate of the Fifth and the Sixth Schedules of the Constitution that protect the claims of indigenous communities over tracts of land or forests they inhabit.
- It thus gives jurisdiction to a different practice of “belonging”, where the person and his/her land — the part and the whole — become indistinguishable.
- Such demands for forest rights are a call for upholding local practices of belonging.
- We need to move away from a discourse of governance that thrives on creating internal colonies and fosters subject hood rather than citizenship.



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India-Japan Relationship And Its Potential

Relevancy

- ✓ G.S. Paper 2,3
- ✓ Potential of Indi-Japan relations
- ✓ India and Japan yet to reach its potential
- ✓ How issues can be solved among two countries

Recently:

- ❖ The two governments in recent times have worked hard to upgrade ties.
- ❖ Regular high-profile bilateral visits have resulted into memoranda of understanding, some big-ticket projects, notably Japanese investment in India's first bullet train, and political avowals to grow the economic relationship exponentially.
- ❖ There are now 1,369 Japanese companies and over 4,800 Japanese corporate offices active in India.
- ❖ Japan currently ranks as the third largest investor in India.

How India Japan relationship has the potential to grow?

- In theory, it's hard to find two nations that make a better economic fit than fast-growing, populous India and rich, demographically challenged Japan.
- India needs technical expertise and investments to develop its infrastructure, while Japan has the capital to spare and know-how to share.
- They have a common strategic objective in countering Chinese hegemony in Asia, a goal that can be best met in collaboration.
- They enjoy a rare historic amity, being geographically and culturally close, but not too close and, therefore, free of contentious issues such as border disputes.

India and Japan yet to reach its potential-

- The India-Japan economic relationship remains underwhelming both in relation to its potential, and to the ties that each nation shares with China.
- According to Japan External Trade Organization (JETRO) data, China received about five times more Japanese investment between 1996-2015 (\$116 billion) than India did (\$24 billion).
- Japan-India two-way trade — \$13.48 billion in 2016-17 — is also a fraction of the \$350 billion China-Japan trade relationship or even India-China trade (\$84.44 billion in 2017).
- The share of India-Japan trade in Japan's total trade basket is barely 1% and it is a little over 2% of India's trade with the rest of the world.

Why haven't they reached the potential yet?

- Issues that plague foreign investors face in India like inadequate infrastructure, complex tax regulations and land acquisition problems.
- It takes Japanese companies in India longer than their Korean or Chinese counterparts to learn how best to localise their products for the Indian market.
- The greatest challenge is cultural and an outdated and negative image of India.
- The larger corporations may realise India's potential, but small and medium enterprises are the worst culprits of this attitude.
- Japanese corporations are strongly risk averse which makes it difficult for them to cope in the freewheeling, jugaad-proud environment of India, where flexibility and impromptu decision making are necessary skills in the businesses.

How can the issues be resolved?

- Roping in Indian companies to develop and design Japanese products for the South Asian market could be one way forward in deepening the bilateral engagement.
- The recent collaboration between Japan's Panasonic and India's Tata Elxsi to develop smart solutions and products for Panasonic customers in India and the neighboring region is a good start.
- The use of India as a manufacturing base for markets in Africa, a trend that is interesting to Japan's business strategists is another way to move forward.
- Overall, the G (government) to G relationship is far ahead of the B (business) to B." Closing this distance is what is required.

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India: TB Capital Of The World

Relevancy

- ✓ G.S. Paper 2, prelims
- ✓ Issue of TB in India
- ✓ What is TB and how it can be controlled?
- ✓ About RNTCP

Recently:

- ❖ The incidence rate of tuberculosis (TB) in India rising.
- ❖ It is estimated at 200-300 cases per 100,000 population per year. As a comparison, in western Europe it is five per 100,000 per year.
- ❖ “Incidence” in epidemiology is a rate: new cases per unit population, per unit time.

What is the issue?

- India has a high prevalence of TB with an annual incidence of 28 lakhs or 27% of the total global TB incidences.
- India is currently the TB capital of the world and to outsmart the disease, India must intercept - infection, progression and transmission.
- Every day 1,200 Indians die of TB - 10 every three minutes.

What is TB?

- Tuberculosis (TB) is a disease caused when one gets infection with TB bacilli.
- It has the unique character of mimicking other diseases and hence confuses doctors, which delays diagnosis and further treatment.
- Notably, the common symptom associated with Cough and blood in sputum occurs only in lung TB and there are others like Brain TB, Pelvic TB etc.
- TB can affect the lungs, brain, bones, joints, the liver, intestines or for that matter any organ and can progress slowly or kill in weeks.

There are 3 distinct stages in TB - infection, progression, transmission that needs to be understood to designing TB control

Infection

- Infection occurs when TB bacilli are inhaled and the Bacilli may stay in the lungs or travel to other organs.
- Once infected, the bacillus persists lifelong inside an organism’s body, but lies dormant - This phase is “latent TB”.
- This can be diagnosed by a ‘Tuberculin Skin Test’ (TST) and cumulatively, 40% to 70% of us are estimated to be living with latent TB.

Progression

- From this dormant bacterium pool, a few germs slowly lead to the progression of disease in a time span of anywhere between 5 – 30 years.
- Hence, the TB disease sets in only when bacilli become active and starts multiplying, and this phase is called “active TB”.

Transmission

- Only when active TB affects the lungs do bacilli find an exit route to the atmosphere, which is the only mode of transmission.

How can TB be controlled?

- By the concerted use of all interventions — biomedical and socio-behavioral.
- Beginning with schools, public education on TB and its prevention must replace ignorance and misconceptions.
- No one should spit in public places and also practice cough and sneeze etiquette (covering one’s mouth and nose when coughing or sneezing).
- To block transmission, treatment should begin as soon as a symptom shows up.
- Dealing with TB requires mass initiatives - health professionals, policy planners and administrators and the public must come together to solve it.

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What is RNTCP?

- Revised National TB Control Programme (RNTCP) has become a great humanitarian programme of free diagnosis and treatment instead of a control programme.



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Rebuilding RBI's Regulatory Power

Relevancy

- ✓ G.S. Paper 2
- ✓ Government's response to scams
- ✓ About LoC and LoU and RBI's notification
- ✓ RBI's concerns

Recently:

- ❖ A month after the 12,800-crore letters of undertaking (LoUs) fraud at Punjab National Bank came to light, the Reserve Bank of India has decided to ban such instruments as well as letters of comfort (LoC) issued by bankers to businesses for international transactions.

How did the government respond to the scam?

- The government accused the RBI for its supervisory failures.
- It also blamed the bankers and auditors for their shortfalls.

What is LoC and LoU?

- Letter of comfort (LoC) is an assurance about a debt, short of a legal guarantee, given to a bank by a third party.
- Letter of Undertaking or LoU is a guarantee given by one bank to another bank to repay a loan on behalf of a client. It is generally used when a person imports something from a person in another country.

RBI's notification on LoUs and LoCs:

- The Reserve Bank of India has decided to ban such instruments as well as letters of comfort issued by bankers to businesses for international transactions.
- This is the first major step by the central bank on the banking fraud issue.
- RBI also asked banks to ensure there are no slip-ups between their core banking systems and the SWIFT mechanism used for international money transfers.

What are the RBI's concerns?

- RBI governor made mention of RBI's warnings about possible risks, but said that the PNB's internal systems failed to take note of it.
- In response to the government's accusation, the RBI governor Urjit Patel pointed out the limitations to RBI's power such as -
- The absence of powers to remove the directors on the management of PSU banks who are appointed by the government.
- The lack of power to force a merger or trigger liquidation of a state-owned bank.
- The limited legal authority for RBI to hold these bank boards accountable.
- The government, the owner of public sector banks, still control a dominant share of the country's banking business.
- RBI Governor pointed out that the banking regulatory powers were not 'ownership neutral' in India.
- This is possibly why the RBI could not fully exercise its powers to crack down on corporate governance issues at state-owned banks.
- A system of dual regulation, by the finance ministry in addition to RBI, has resulted in ineffective banking regulation.
- Patel urged the government to strengthen the Banking Regulation Act, 1949 to give RBI enough power to regulate PSU banks.

Why is the industry unhappy with the decision?

- Industry is unhappy with the RBI decision as this would raise the cost for importers, who will now need to rely on more expensive instruments such as bank guarantees and letters of credit.
- The move will also impact the competitiveness of exporters who import raw materials for their products.
- Ban of LoUs will impact the \$85 billion buyers' credit market that was mostly conducted in accordance with the law of the land.

What is the way forward?



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- The RBI's stance is valid, given the discomfort with knee-jerk reactions and the blame games since the fraud came to light.
- The greater challenge is governance reform in banks.
- The government should swiftly settle the issue of separation of ownership and regulatory control.
- It can consider making the regulatory powers of RBI fully "ownership neutral".
- Besides, privatisation does appear to be an easy option to address some of the concerns.
- But it is important to see whether such an option should be exercised during a crisis.



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UGUDI/ Gudi Padwa

Relevancy:

- ✓ GS Prelims
- ✓ Art and Culture, Festivals of India

Recently:

- ❖ The new year in the southern states of India will be celebrated as Ugudi/ Yugudi on 18th March

About Ugudi:

- The word Ugudi or Yugudi can be bifurcated into 2 parts- Yuga, which means 'age' and adi, which means 'beginning'. So the word means – Beginning of a new age.
- The Hindus of the states – Karnataka, Andhra Pradesh, Telangana and Maharashtra celebrate the new year on this day.
- This also marks the beginning of Hindu month Chaitra (as per the Hindu Lunisolar calendar).
- As per the religious texts, this day marks the creation of Universe by Lord Brahma and also the creation of Satyuga.
- Also, this day marks the beginning of Ram Navami Navratras. After nine days from Ugudi, the birth of Lord Rama is celebrated.

How do people celebrate the festival?

- Garlands of flowers and special dishes are offered to the Gods and Goddesses on this day.
- People consume a concoction made of Neem and other herbs in order to purify their blood.
- People decorate their floors with the pattern of colors called Kolamulu/ Rangoli and their doors with the mango leaves called Toranulu

Other names of the festival:

- In Maharashtra, the Hindus celebrate the same festival as Gudi Padwa.
- Sindhis celebrate the same day as Cheti Chand.
- Manipuris celebrate the day as Sajibu Nongma Panba.



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