India still relies on China for equipment.

India has no real plan in place to ensure solar panel manufacture, much like a lack of a dedicated Industrial Policy.

Low-cost Chinese imports have undercut India's ambitions to develop its own solar technology suppliers.

Imports, mostly from China, accounted for 90% of 2017 sales, up from 86% in 2014.

A continuation of the current approach means India's energy sector will be in the same condition as its defence industry, where enormous amounts of money have been spent procuring weaponry.

According to the Ministry of New and Renewable Energy (2018), India has an annual solar cell manufacturing capacity of about 3 GW while the average annual demand is 20 GW.

The capital expenditure and technical know-how needed for solar photovoltaic panel manufacturing is low.

The Chinese government is clearly adopting an aggressive stance, exploiting India's growing demand for solar power.

The six largest Chinese manufacturers had core technical competence in manufacturing solar cells.

When the solar industry in China began to grow, Chinese companies already possessed the know-how.

Indian companies had no learning background in semiconductors when the solar industry in India began to grow from 2011.

Chinese government has subsidised land acquisition, raw material, labour and export.

Commitment by the government to procure over the long run.

The cost of debt in India (11%) is highest in the Asia-Pacific region, while in China it is about 5%.

Remaining dependent on imports only leads to short-term benefits for India.

Substituting for imports requires human capabilities, technological capabilities and capital in the form of finance.

Need for domestic sector to make the input components locally instead of importing them.

Public procurement is the way forward.

State governments need to support semiconductor production as part of industrial policy to develop the capacity for the future.

India needs a solar manufacturing strategy, perhaps like the Automotive Mission Plan (2006-2016), which is credited with making India one of the largest Automobile manufacturers.

This would also be a jobs-generating strategy for an increasingly better educated youth, both rural and urban.

India has made significant progress in creating capacity for solar energy generation in the last few years.

Despite making significant progress, India still relies on China for equipment.

The unit costs of solar power have fallen, and solar energy has become increasingly competitive with alternative sources of energy.

India expanded its solar generation capacity eight times from 2014 to 2019.

The government had an initial target of 20 GW of solar capacity by 2022, which was achieved four years ahead of schedule.

In 2015, the target was raised to 100 GW of solar capacity by 2022.

In the solar panel manufacturing sector, the Indian government allows 100% foreign investment as equity and it qualifies for automatic approval.

The government is also encouraging foreign investors to set up renewable energy-based power generation projects on build-operate basis.

The safeguard duty on solar cells now puts locally made panels on par with imported ones in terms of cost.

India is blessed with plenty of sunlight for most of the year.

The solar power potential offers a manufacturing opportunity.

India is regarded by the global solar industry as one of the most promising markets.
The major implication will be on the demographic dividend. There will be an increase in young and older population that will face a lack of resources in the future. The employment rates are going down in India and with more young people, India won't be able to absorb them in the workforce.

A high population with no jobs may become a threat to the economy and the current challenges will become harder.

Population growth brings additional challenges in the effort to eradicate poverty, achieve greater equality, combat hunger and malnutrition.

Corporate Social Responsibility (CSR) investments have "not been forthcoming" in the area of reproductive health and family planning.

The inadequate doctors in Government hospitals.

The basic facilities required in the hospitals, like medicine, furniture and equipment are not adequate to serve the population.

Government’s spending on healthcare services is not up to the WHO norms of GDP in healthcare.

At the national level, achieving a reduction in fertility rates in States such as Bihar, Uttar Pradesh, Haryana, Madhya Pradesh, Jharkhand and Chhattisgarh is a challenge for India. India will have a vast number of young people and insufficient natural resources left for exploitation.

The union health ministry in 2017 launched mission Parivar Vikas to increase access to contraceptives and Family Planning services in 148 high fertility districts.

It has been expanded to include the new contraceptives viz. injectable contraceptive, Centchroman and Progestosterone Only Pills (PCP).

The sterilization compensation scheme has been enhanced in 11 high focus states.

Government has also been looking at the private sector for supporting its family planning program.

We need to invest more in health, education and women empowerment as they contribute to slowing down population growth and accelerate development.

We will have to utilize the opportunity provided by a large segment of youth.

Investing in a skilled health workforce can both draw dividend from the youth while meeting the health needs of the elderly.

More support from the private sector is needed for supporting Government’s family planning program.

The rural access to quality medical service has to be improved.

Making agriculture remunerative and keeping food prices stable are crucial to ensure nutrition for all.

The poor, populous northern States must make concerted advances in women’s literacy, health and participation in the workforce.

Need for political will to improve the quality of life for India’s people.

The Sustainable Development Goals framework provides a roadmap to this new era.

The World Population Prospects 2019 published by the Population Division of the UN Department of Economic and Social Affairs, provides a comprehensive overview of global demographic patterns and prospects.

Global population likely to touch 9.7 billion in 2050 and could peak at nearly 11 billion around 2100.

The countries expected to show the biggest increase are India, Nigeria and Pakistan.

Around 2027, India is projected to overtake China as the world’s most populous country.

India is expected to add nearly 273 million people between 2019 and 2050.

The report has highlighted the higher fertility rates, growing older population and migration are few reasons for projections of the population growth.

Migration has become a major component of population change in some countries.

Some of the largest migratory outflows are driven by the demand for migrant workers (Bangladesh, Nepal and the Philippines) or by violence, insecurity and armed conflict (Myanmar, Syria and Venezuela).

Many of the fastest growing populations are in the poorest countries.

Also a growing number of countries are experiencing a reduction in population size.

Males are projected to continue to outnumber females until the end of the century, but the gap will close.

The report offers a roadmap indicating where to target action and interventions.

**MORE ELDERLY, FEWER KIDS**

**WORLD (2050)**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>35.9</td>
<td>23.6</td>
</tr>
<tr>
<td>15-64</td>
<td>67.5</td>
<td>47.3</td>
</tr>
<tr>
<td>65+</td>
<td>11.6</td>
<td>22.5</td>
</tr>
</tbody>
</table>

**Sex Ratio**

- World: 105.7
- India: 99.7

**World & India Trends**

- India's under-65 population still below under-5 count, but not for long.
- India's under-65 population still below under-5 count, but not for long.

**When India overtakes China**

<table>
<thead>
<tr>
<th>Year</th>
<th>India</th>
<th>China</th>
</tr>
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<tbody>
<tr>
<td>2035</td>
<td>1,445</td>
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<tr>
<td>2045</td>
<td>1,523</td>
<td>1,743</td>
</tr>
<tr>
<td>2050</td>
<td>1,561</td>
<td>1,826</td>
</tr>
</tbody>
</table>
The draft National Education Policy (NEP) developed by a committee chaired by K. Kasturirangan was shared for public comment.

The policy aims to provide high-quality early childhood care and education for all children between the ages of three and six by 2025. This will be done within schools and anganwadis, which will take care of the overall well-being of the child. These institutions will also provide similar support to families for children younger than three years of age—within their homes.

This policy will result in a massive positive multiplier effect on society.

As per UNICEF, early childhood is defined as the period from conception through eight years of age. Early childhood care and education (ECCE) is more than preparation for primary school.

Target 4.2 of SDG 4 aims to 'By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education.

Early childhood, defined as the period from birth to eight years old, is a time of remarkable growth with brain development at its peak. During this stage, children are highly influenced by the environment and the people that surround them. These years lay the foundations for her/his learning and holistic development.

ECCE has the possibility to nurture caring, capable and responsible future citizens.

ECCE is one of the best investments a country can make to promote human resource development, gender equality and social cohesion, and to reduce the costs for later remedial programmes.

Children will be better prepared for primary school and will reach better education outcomes.

Quality ECCE also helps reduce repetition and drop-out rates.

Positive outcomes are even more pronounced among children from vulnerable groups.

An overview of 56 studies across 23 countries found impacts on health, education, cognitive ability, and emotional development.

Key differences between the existing system and the NEP recommendations

**Current system**
- RTE covers Class 1 to Class 8
- Anganwadis, preschool cover 3 to 6 age group
- Focus on health and nutrition in anganwadis
- Rote learning, formal teaching in preschools
- WCD Ministry oversees anganwadi system

**Draft policy recommendations**
- RTE from preschool (age 3 onwards) till Class 12
- Integrated primary school framework from age 3 to 8
- Anganwadis, preschools to be linked to local primary schools
- Focus on play and discovery-based learning
- MHRED to oversee educational aspects

One of the major issues of ECCE is the unavailability of trained teachers. Anganwadis are currently quite deficient in supplies and infrastructure for education.

As a result, they tend to contain more children in the 2-4 age range and fewer in the educationally critical 4-6 year age range.

Anganwadis also have few teachers trained in or specially dedicated to early childhood education.

Private pre-schools often consist of formal teaching and rote memorisation with limited play-based learning.

A 2017 study by the Ambedkar University showed that "a significant proportion of children in India who completed pre-primary education, public or private, did not have the needed school readiness competencies when they joined primary school.

ECCE teacher training should be added as a skill gap in the list of National Skill Development Corporation to ensure that early investment is available to produce efficient ECCE teachers.

Universal access to quality early childhood education is perhaps the best investment that India can make for our children's and our nation's future.
Jal Shakti Ministry is created under a full-fledged cabinet minister. The new ministry amalgamates the ministries of water resources, river development and Ganga Rejuvenation with the Ministry of Drinking Water and Sanitation.

Experts feel an exclusive ministry is only a cosmetic change. Water is a State subject and unless states make specific requests the Centre can't intervene. Linking rivers is fraught with ecological and environmental costs.

The Waterman of India and Magsaysay award-winner, Rajendra Singh, has repeatedly warned that interlinking of rivers is a bad idea.

The target is to ensure potable, piped drinking water to every home by 2024, link the rivers, and improve irrigation to farms.

Can a new water ministry tackle the worst water crisis in India’s history?

Jal Shakti Mantralaya

Indira Gandhi’s irrigation policy espoused the idea of storage. Large dams were built in the 1960s to harness water for irrigation. It was later realized that increasing water storage in large reservoirs does not help raise the water table. The new challenge is to manage our aquifers sustainably.

Groundwater, which truly powered the Green Revolution, faces a crisis of sustainability. Water levels and water quality have both fallen creating a new kind of crisis.

If the current pattern of unsustainable water use continues, about half of India’s water demand will be unmet by 2030.

While big dams played a big role in creating a huge irrigation potential, today, the challenge is to effectively utilize this potential.

Storage & transfer problems: Floods in Brahmaputra during monsoon but water scarce in dry months.

To make our irrigation and water systems amenable to modern concepts.

To complete irrigation and water sector reforms.

To implement improved water management, governance and regulation practices.

Pricing system for water: For making people use water efficiently.

Bigger program on water efficiency as energy efficiency - Setting standards for water management.

Ensuring minimal pollution in both urban areas and industry.

Fixing India’s water crisis will need well balanced policies, meticulous strategy and a massive amount of public participation.

Sugar cane consumes a disproportionate amount of water and water-stressed regions must make an effort to move away from the crop.

Comprehensive restructuring of India’s Central Ground Water Board and the Central Water Commission in order to create a new 21st Century management authority.

Right to water should mean a high priority to drinking water.

India has so far seen the water sector in terms of irrigation projects or water schemes. We need to balance between our water-needs and that of the river itself.

Way Forward

India’s priority must be:

India’s Water Crisis

India and its water situation are closely related. The country receives nearly half of its annual rainfall in a few weeks during the monsoon. If the monsoon fails, there is hardly any water available for the rest of the year.

Water levels in India’s major reservoirs have fallen to 21 per cent of the average of the last decade.

Fifty per cent of the country’s groundwater is declining faster than it is being replenished.

There is a crippling dependence on monsoon rains to replenish most of India’s key water sources—underground aquifers, lakes, rivers and reservoirs.

Close to half the country, about 600 million people, face severe scarcity year after year.

A June 2018 Niti Ayog report forecasts water demand will be twice the present supply and India could lose up to 6 per cent of its GDP.

India’s water table is falling in most parts; there is fluoride, arsenic, mercury, even uranium in our groundwater.

The groundwater and sand extraction from most river beds and basins has turned unsustainable.

Tanks and ponds are encroached upon.

Dug-wells and borewells are constructed with alarming impunity to slide deeper and deeper to suck water from greater depths.

Water is being diverted from food-crops to cash-crops; livelihoods to lifestyles; rural to urban—mismangement is a bigger reason for the drought.

Water shortages are hurting India’s ability to produce power and 40% thermal power plants are in areas facing high water stress, a recent World Resources Institute report says.

Not only farmers, urban dwellers in cities and towns across India are also staring at a never seen before drinking water scarcity.

Residents in the arid Thar desert of Rajasthan are spending Rs. 2,500 to buy 2,500 litres of water which they share with their cattle.

Hundreds of small and seasonal rivers are perishing permanently.

Nearly all the major perennial rivers are in the doldrums.

Cauvery and its tributaries haven’t met the ocean for decades— the upstream dams choke its flows downstream, affecting people in Tamil Nadu.

Krishna river runs dry in her delta region for most parts of the year.
A new report by the United Nations has warned that the world is soon going to be hit by a tsunami of electronic and electrical waste (e-waste),

This is due to the sheer amount of e-waste being generated currently and the lack of its recycling.

By 2040, the e-carbon emissions from the production and use of electronics will reach 14 per cent of total emissions.

E-waste export is regulated under the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, which has been ratified by 188 nations.

Even with the convention in place, large amounts of e-waste continues to be shipped illegally.

The Ministry of Electronics and Information Technology, MeitY, has initiated an E-waste Awareness programme under Digital India initiatives, along with industry associations from 2015.

This is to create awareness among the public about the hazards of e-waste recycling by the unorganised sector, and to educate them about alternate methods of disposing of their e-waste.

The general public is also encouraged to participate in ‘Swachh Digital Bharat’, by giving their e-waste to authorised recyclers only.

The programme has adopted the best practices for e-waste recycling available globally.

The Ministry of Electronics and Information Technology (MeitY) has developed affordable technologies to recycle valuable materials and plastics in an environmentally sound manner.

Effective awareness would be the right step for all stakeholders.

Need for adopting environmentally friendly e-waste recycling practices.

Unless we have effective implementation of the rule, the country would end up creating many informal processing hubs.

Strict implementation of the rule, creating adequate awareness and training for requisite skill sets to the informal sector could be a game-changer.

This sector needs technological support, from land to capacity building to IT.

This sector could generate jobs as well as viable business prospects for locals.

Waste pickers should be trained to collect e-waste.

More emphasis should be on to reuse the e-waste, for which industries need to design a framework.

India has lot to learn from Norway model of e-waste management.

E-waste is technically all waste electrical and electronic equipment (WEEE) discarded without the intent of reuse.

It is one of the fastest growing waste streams in both developed and developing countries.

According to a 2011 Rajya Sabha secretariat study, e-waste accounts for 70% of Indian landfills.

E-waste is growing at a compound annual growth rate (CAGR) of about 30% in the country.

Assoccham estimated that e-waste generation was 1.8 million metric tonnes (MT) per annum in 2016 and would reach 5.2 million metric tonnes per annum by 2020.

Experts predict that it gets buried under the ground in landfills for centuries as it is not biodegradable.

E-waste contains substances that are hazardous to human health, including, mercury, cadmium and lead.

E-waste can pollute water sources and food-supply chains.

A big majority of the e-waste is recycled by the informal sector, where very crude methods are used.

Women and children are particularly affected as they burn the plastic from electronic goods, in the process getting to metals and other toxins that are also carcinogenic and enter their blood stream.

Findings from many studies show increases in spontaneous miscarriages, still and premature births, as well as reduced birth weights and birth lengths associated with exposure to e-waste.

In India, e-waste accounts for 4% of global e-waste and 2.5% of global GDP (2014 figures) — so it has a higher share of e-waste than its share of gross domestic product (GDP).

In India most consumers are still unaware of how to dispose of their e-waste.

Most Indians end up selling their e-waste to the informal sector, which poses severe threats to human (including children’s) lives.

Use of improper and highly hazardous methods of extracting the trace amounts of precious metal from it for profit.

Due to informal processing hubs in Moradabad and Seelampur, soil, water and air are polluted to a beyond-repairable level.

E-waste will also contribute to carbon emissions.

India figures as one of the regions that receives most of the e-waste export.

India notified the E-waste (Management) Rules, 2016, on October 1, 2016, which made ‘extended producer responsibility’ (EPR) mandatory.

The implementation of EPR remains extremely poor.

The informal sector recycles 95 per cent of the e-waste in India and there is no tangible method to link the formal sector with the informal one.

There is lack of awareness among people as they don’t know that there exist collection centres that collect items for recycling.

The producers/manufacturers do not have adequate information on their website regarding e-waste management.

India being a vast country, setting up collection mechanism is a big challenge.

Improper enforcement of the existing laws is another hurdle.
As Heat Wave is not a notified disaster at the National level, accurate information and data related to heat wave deaths and illnesses are not available.

Heat wave is not notified in the list of disasters eligible for relief under National/State Disaster Response Fund norms.

National programmes in India exist to address many effects of climate change but there is no strategy to adapt to increasing heat.

The worst heat wave that the country has ever seen was in 2015 when 2,300 people died.

Most of the deaths were concentrated in Andhra Pradesh, Telangana, Punjab, Odisha, and Bihar.

Accurate weather prediction and coordinated action plan hold the key to cope with heat waves.

Making communities both aware of and resilient to the impacts of the changing climate.

Establish Early Warning System and Inter-Agency Coordination to alert residents on predicted high and extreme temperatures.

Providing quality healthcare, particularly to the young and elderly, in a timely fashion.

Necessary action for prevention, preparedness and community outreach to save the lives of the general public, livestock and wild life.

Improving the forest coverage and green areas.

Co-ordination among several departments and groups, and training of medical and community workers to prevent and respond to heat-related illnesses.

Ahmedabad Municipal Corporation (AMC) has adopted a heat action plan which necessitates measures such as building heat shelters, ensuring availability of water and removing neonatal ICU from the top floor of hospitals.

It has helped bring down the impact of heatwave of vulnerable population.

Similar action plan should be developed by other states also.

Climate data from the last 15-20 years can be correlated with the mortality and morbidity data to prepare a heat stress index and city-specific threshold.

Vulnerable areas and population could be identified by using GIS and satellite imagery for targeted actions.

Heat waves is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the pre-monsoon (April to June) summer season.

According to Indian Meteorological Department, Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains, 37°C or more for coastal stations and at least 30°C or more for Hilly regions.

Extreme heat waves will become more common worldwide because of rising average global temperature.

There has been an increasing trend of heat-wave in India over the past several years whereby several cities in India have been severely affected.

The country will likely be among the worst affected by climate change given its weaker health systems and poorer infrastructure.

Extreme heat can lead to dangerous, even deadly, consequences, including heat stress and heatstroke.

Severe heat stroke can lead to multiple organ failure, seizures, and death.

Children, the elderly and those with pre-existing morbidities are particularly vulnerable.

Heat wave also cause death of cattle and wildlife besides affecting animals in various zoos in India.

A decrease in labour output

Burden health systems ill-equipped to cope with the effects of heat stress.

Promote the spread of diseases like cholera and dengue fever across endemic areas.

Rising temperatures negatively affect workers’ output

The agriculture sector experience largest increase in labour loss.
A study was conducted to determine the extent to which a person’s opinion is influenced by a group. According to it, an individual was willing to give a wrong answer just to conform to the majority view.

This also explains the impact of fake news online, which is said to contribute to a polarised society.

A study found that factors like user homophily and algorithmic filtering have created the cycle of enforcing and reinforcing belief systems. This ensures that we don’t open our minds to diverse opinions.

User homophily means users in a social system tend to bond more with ones who are similar to them than to ones who are dissimilar. We are getting trapped in narrower world views that are seeping into not only voter behaviour but everyday personal interactions.

WhatsApp faced severe criticism as lynching incidents flared up by free flow of fake news on the platform.

Twitter along with Facebook came under intense scrutiny of policymakers in the US for its failure to stop the spread of misinformation during the 2016 election.

We live in a world where we aren’t only consumers of information but creators as well. Free service has given access to everyone to post whatever they want and thus create a trend in fake news spreading like wildfire.

Everyone is in hurry to LIKE/SHARE/COMMENT rather than checking the authenticity of the news.

The most common fake stories revolve around politics and the attempt is to polarise society, particularly during political events.

Experts have warned that the Indian elections are at risk too with fake news.

There is no regulator in social media platform as we have in Print or Television media.

WhatsApp launched a nationwide campaign called “Share Joy, Not Rumours” to help prevent the spread of rumours and fake news.

Facebook launched #Socialforgood campaign to address issues such as cyber bullying, mental wellbeing, and entrepreneurship and was targeted primarily at young users.

Twitter launched #PowerOf18 campaign to encourage youth to contribute to public debate and participate in civic engagement in the upcoming election season.

These campaigns are a way to take ownership of what’s happening on these platforms and find ways to weed out negative content.

A better and more effective approach to limit the influence of hoaxes on WhatsApp and other platforms is to increase media literacy.

Data leaks at Facebook and Uber in the recent past have proven that the encryption has to be so high.

The government should bring out a policy framework on the possible harm due to the internet messaging platforms to engage at a deeper level.

The need of the hour is to tackle the gendered aspect of online abuse and uphold the rights of women in India.

Social media plays an integral role in our lives today and has a huge bearing on society and individuals.

Social media has revolutionized the way people communicate and socialize on the web.

There is a positive effect on business, politics, socialization as well as some negative effects such as cyberbullying, privacy, and fake news.

“When the Power of Social Media is that, it forces Necessary Change.”

It is generally agreed that social media provided crucial source of news during the Arab Spring.

It helped in creating awareness about several issues, eg the fight for LGBTQ rights etc.

Social media has definitely made us closer to other parts of the world.

WhatsApp is important for rural users, as it helps them cheaply connect to family members far away and send pictures of their products to clients across India.

Social media platforms provide a platform to raise their voice against injustice and inequality.

Voices previously excluded from conversations can now find a channel.

A few decades ago, if a farmer died due to non-repayment of loans, only the family mourned for the loss.

Today if the same happens, the entire nation seems to empathize with the death of such farmers.

Social media have increasingly been adopted by politicians, political activists and social movements as a means to engage, organize and communicate with citizens.

Technology is double-edged. There are reasons to cheer as also to despair.

Social media has various negative impacts like privacy issues, information overloads and internet fraud.

Researchers have found that hyper-networking leads to negative health behaviour leading to laziness, obesity, depression, drug abuse, isolation or in the worst cases it may even lead to suicide.

Social media has made the world a small space by allowing mass cultural exchange and intercultural communication.

India being a secular country is a home for the people of various religious and cultural beliefs.

When these beliefs clash the consequences are unpleasant.

A mere comment or opinion on a certain belief on social media spreads like fire leading to riots and destructive rallies.

Its heavy usage has ill effects on health issues and there is cyber bullying, online harassment and trolling.

The trolling of women has brought to the fore the disturbing reality of online violence and abuse women face in India.
France and China have formalised strategies to harness and realise the potential of AI. US and South Korea are making tremendous advances in AI. Lack of broad based expertise in research and application of AI. Absence of enabling data ecosystems – access to intelligent data. Data usage without consent, data selection bias and the resulting discrimination of AI models. High resource cost and low awareness for adoption of AI. Privacy and security, including a lack of formal regulations around anonymisation of data. Absence of collaborative approach to adoption and application of AI. Challenges remain in respect of applying stringent and narrowly focused patent laws to AI applications. Indian technical universities are not doing enough to strengthen the AI ecosystem unlike their global counterparts.

Supporting partnerships: Providing access to infrastructure, Fostering innovation through research. Creating the demand by seeking solutions for addressing various governmental needs.

The government has to play the critical role of a catalyst in AI research in India is still in its infancy and requires large scale concerted and collaborative interventions. Skilling and reskilling of workforce forms an integral part of adopting AI. Adoption of decentralised teaching mechanisms, working in collaboration with the private sector and educational institutions.

Adoption of AI across the value chain viz. startups, private sector, PSUs and government entities, will truly unlock the potential by creating a virtuous cycle of supply and demand. Data is one of the primary drivers of AI solutions, and thus appropriate handling of data, ensuring privacy and security is of prime importance.

Establishing data protection frameworks and adoption of international standards. In order for India to ride the AI innovation wave, a robust intellectual property framework is required.

Introduction

AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making.

NITI Aayog unveiled its discussion paper on national strategy on AI which aims to guide research and development in new and emerging technologies.

The nascent stage of its adoption worldwide, provides India with an opportunity to define its own brand of AI leadership.

Opportunity

AI has the potential to overcome the physical limitations of capital and labour, and open up new sources of value and growth.

Advancements in technology over the last couple of decades—computing evolution (cloud, big data, machine learning, etc.), falling costs (cheaper data storage) and growing digitalisation.

The demand for AI and machine learning specialists in India could rise by 60%.

Concerns / Challenges

Healthcare: increased access and affordability of quality healthcare.

Agriculture: enhanced farmers’ income, increased farm productivity and reduction of wastage.

Education: improved access and quality of education.

Smart Cities and Infrastructure: efficient and connectivity for the burgeoning urban population.

Way Forward

Role of the Government

Benefits from AI in solving societal needs

NITI Aayog estimates that adopting AI means a 15% boost for the gross value added (GVA) for the economy by 2035.

Increase efficiency and enhance governance across the government.

Helps in improving the ease of doing business, as well as making the lives of people simpler.

Recent Developments

In agriculture, Microsoft, in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (Icrisat), has developed AI-enabled sowing app that sends advisories to farmers on the best date to sow, soil-test based fertiliser and manure application, seed treatment, etc.

In 2017, 3,000 farmers in Andhra Pradesh (AP) and Karnataka used the app, resulting in a 10-30% increase in kharif yields.

NITI has partnered IBM to develop AI-enabled yield-prediction and real-time advisory to the farmer on productivity, pest-warning, etc, using data gathered from remote-sensing satellites, soil health cards, IMD etc.
The rising war talk in the region is yet another contemporary feature of the South Asian regional sub-system. Possibility of a military conflict between Iran and the U.S. would draw many more countries in the region into it. It could lead to widespread instability.

India has found interest in ASEAN countries, Central Asia and its neighbours in the Bay of Bengal region. ASEAN is India’s fourth largest trade partner with a free trade agreement that has helped facilitate trade and the movement of manpower and investments. It has also taken steps to increase its diplomatic engagement with Central Asia, as a part of it “extended neighborhood.” The International North South Transport Corridor, along with the Chabahar port have been two of India’s large scale projects in the region. BIMSTEC has received a push for revival from India.

India’s Approach

India has used different bilateral and multilateral strategies to pursue a regional leadership role in South Asia. Its outreach towards Southeast Asia, Central Asia, as well as the wider Indo-Pacific underscores the renewed importance that New Delhi is giving to Asia and its own footprint in the region.

India needs to see through many balancing acts to deal with regional tensions.

India must adopt a slew of balancing acts which is the most appropriate strategy to adopt under the present circumstances.

India must balance its desire to get closer to the U.S. Getting too close to the U.S. will provoke China, and vice versa.

India will have to take care of its energy and other interests (including the Chabahar project) with Iran.

By doing so, it should not alienate the U.S., Saudi Arabia and Israel.

While Iran’s share in India’s energy imports is steadily decreasing, alienating Iran might not suit India’s strategic interests in the longer run.

Dealing with the Russia-China partnership will be crucial for India’s continental strategy. This is with regard to arms sales, the Afghan question or checking Chinese dominance of the region.

The growing relationship between Pakistan and Russia which must be dealt with smart diplomacy.

Another layer that requires careful balancing by India is the strategic partnership between Pakistan and China.

Both Beijing and New Delhi share a stake in the region’s stability.

India must convince Beijing that it has great stakes in regional strategic stability.

If India is serious about having a say in Afghanistan’s future, it would need to enact several balancing acts.

This is between Russia and China, China and Pakistan, the Taliban and Kabul, and the Taliban and Pakistan.

In a constantly changing Afghan geopolitical landscape, the contents of India’s interests should also evolve.

Engaging in a delicate balancing game is undeniable the need of the hour and is what smart diplomacy is meant to achieve.

China Pivot in the Region

By using its economic strength to expand its relations with Sri Lanka, Bangladesh, Nepal and Myanmar China has attempted to control India’s rise, while simultaneously supporting Pakistan’s development.

A significant driver of change in South Asia’s political geography has been the string of infrastructure projects in the subcontinent.

The projects in Pakistan and Sri Lanka have given China strategic access points in the oceans surrounding India.

Another feature of the current regional sub-system is the presence of an extreme trust deficit among the various actors in the region.

There is trust deficit between India and Pakistan, or China and India.

Trust deficit exists between U.S. and India, Russia and China.

It also exists among traditional partners such as Iran and India, and Russia and India.

Trust deficit combined with other factors such as unresolved conflicts, misunderstandings or the occurrence of a crisis could push the region towards more conflict and friction.
India has shown increased interest in the grouping. Leaders of the BIMSTEC countries attended Prime Minister Narendra Modi’s swearing-in ceremony at the BRICS summit in Goa. PM Modi also hosted an outreach summit with BIMSTEC leaders in October 2016. India began focusing on BIMSTEC after a series of terrorist attacks on Indian defence establishments in Uri and Pathankot. Setting up of the BIMSTEC Energy Centre in Bangladesh and the BIMSTEC Business Council, a forum for business organisations to promote regional trade, for India, it aids in its Look East Policy and South—South cooperation efforts.

The development of the Northeastern region, by opening up to Bangladesh and Myanmar, is another incentive. Leveraging BIMSTEC, India focuses on connectivity projects in and around the Bay of Bengal region. Physical connectivity with BIMSTEC would also help India integrate itself with ASEAN’s Master Plan of Connectivity 2025. BIMSTEC could also help in partially addressing India’s growing energy requirements. India, along with other BIMSTEC countries, is exploring energy opportunities at the Rakheine coast of Myanmar in the northern part of the Bay of Bengal.

In recent years, BIMSTEC has gained popularity among South Asian countries as a platform for regional cooperation. The organisation is a bridge between South Asia and South East Asia. BIMSTEC’s major strength is that it includes two influential regional powers: Thailand and India. This adds to the comfort of smaller neighbours by reducing the fear of dominance by one big power.

BIMSTEC also helps smaller countries such as Bangladesh, Nepal and Bhutan to develop connectivity with ASEAN countries. The region has countries with the fastest-growing economies in the world. Trade among the BIMSTEC member countries reached six percent in just a decade, while in SAARC, it has remained around five percent since its inception.

| Infrequency of the BIMSTEC summits. | Consistency in the frequency of the summits to ensure regularity in decision-making. |
| Delay in the adoption of the Free Trade Agreement (FTA). | Improving the capacity of the secretariat, both in terms of manpower and funding. |
| The permanent secretariat faces a severe resource crunch, both in terms of money and manpower. | Projects in the areas of tourism, digital connectivity, energy connectivity and humanitarian assistance in disaster relief should be considered. |

India’s increased interest in BIMSTEC

The failure of South Asian Association of Regional Cooperation (SAARC) to nurture cooperation in South Asia has pushed regional players to search for an alternative. Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) grouping is popularly favoured as the viable option. Recently, BIMSTEC has gained more favour as the preferred platform for regional cooperation in South Asia.

After India hosted a mini-summit during the BRICS meeting in Goa in 2016, support for BIMSTEC gained further momentum. SAARC has come under serious scrutiny in the last few years. From its very inception, member countries treated it with suspicion and mistrust. Even after three decades of its existence, SAARC’s performance has been less than satisfactory, and its role in strengthening regional cooperation is being questioned.

In the 30 years of its history, annual SAARC summits have been postponed 11 times for political reasons, either bilateral or internal. Numerous agreements and institutional mechanisms established under SAARC have not been adequately implemented.

Pakistan’s non-cooperation has stalled some major initiatives under SAARC. At the 18th SAARC summit in Kathmandu in 2014, initiatives such as the SAARC—Motor Vehicle Agreement (MVA), could not be signed. The SAARC satellite project that India proposed was abandoned following objection from Pakistan in 2016. 10th summit scheduled to be held in Pakistan in 2016 was suspended for an indefinite period, as member countries declined to participate. While cross-border terrorism emanating from Pakistan is a major concern for India, Pakistan has failed to address these concerns.

The asymmetry between India and other member countries in terms of geography, economy, military strength and influence in the global arena make the smaller countries apprehensive. Smaller neighbouring countries perceive India as “Big Brother” and have been reluctant to implement various agreements under SAARC. SAARC does not have any arrangement for resolving disputes or mediating conflicts. Given SAARC’s failures, member countries have turned to bilateralism, which in turn has adversely affected the organisation.

SAARC faces a shortage of resources, and countries have been reluctant to increase their contributions. Until the member countries resolve their issues, the future of SAARC remains uncertain.

SAARC vs BIMSTEC

BIMSTEC as Vehicle for Regional Cooperation

Way Forward to strengthen BIMSTEC

Reasons for SAARC’s failures

Concerns

Pakistan’s Non-cooperation

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There are differences on the idea of connectivity being put forth by different SCO members.

While India has made its opposition to Belt and Road Initiative clear, all other SCO members have embraced the Chinese project.

Growing closeness of Russia and China

India’s bilateral trade with Central Asia and Russia is very low compared to China’s trade with Russia and Central Asia.

The lack of connectivity has also hampered development of energy ties between the hydrocarbon-rich region and India.

Terrorism, regional cooperation and the future of Afghanistan were major themes at the 2019 Shanghai Cooperation Organisation’s Heads of State summit in Bishkek.

The SCO member states also urged the global community to work towards a consensus on adopting the Comprehensive Convention on International Terrorism (CCIT).

Increase cooperation between SCO and other multilateral organisations.

Need to increase economic cooperation among SCO member states.

Focus on illegal drug trafficking, cooperation in information technology, environment, healthcare and sports.

Strengthen the fight against terrorism, extremism, drug trafficking and organised crime among others.

Increasing awareness of our shared cultures can help boost tourism.

If India is not able to exploit the economic potential of the region, it will be a missed opportunity.

Chabahar port and Ashgabat agreement should be utilised for a stronger presence in Eurasia besides a clear focus on operationalising INSTC.

The Shanghai Cooperation Organisation is a Eurasian political, economic, and military organisation.

SCO assumes greater importance after entry of India and Pakistan.

Recently the Shanghai Cooperation Organization Summit was held in Bishkek in Kyrgyzstan.


Holding regular economic forum of the SCO on a regular basis.

Working for peace in Afghanistan.

Development of the SCO Cooperation Strategy for interconnectedness of efficient economic and transport corridors.

Interaction in the field of smart agriculture and the introduction of agro-innovations.

Adopting the SCO “Green Belt” program in order to introduce resource-saving and environmentally friendly technologies in the member countries.

Regular meetings of the heads of departments responsible for the development of information technologies.

To develop an Action Program on cyber security.

Supporting the World Trade Organisation structure, while building more people-to-people ties, tourism and cultural bonds within the grouping.

The invite for the Prime Minister Narendra Modi’s swearing-in ceremony to the current chair of SCO has signalled India’s desire to increase its engagement with the organisation.

The SCO’s significance for India lies in economics and geopolitics with the Eurasian states.

SCO is a potential platform to advance India’s Connect Central Asia policy.

The SCO member states occupy the huge landmass adjacent to India’s extended neighbourhood where India has both economic and security imperatives.

Importance of SCO-Afghanistan Contact Group to stabilise Afghanistan.

SCO membership provides India a vital counter to some of the other groupings it is a part of.

The SCO provides the only multilateral platform for India to deal in close proximity with Pakistan and Afghanistan.