

# Topics - MINDS MAPS included (Daily current affairs 9th & 8th December 2024



- **The Indian Star Tortoise: A Unique Marvel of Nature**
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- **Mains**



By saurabh Pandey



THE HINDU

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## Topic → The Indian Star Tortoise: A Unique Marvel of Nature

### Introduction to the Indian Star Tortoise

Have you ever laid eyes on the Indian star tortoise? If not, you're missing out on one of nature's most stunning creations! With its obsidian shell and striking sun-yellow star patterns, this tortoise is not just a pretty face; it's a hardy herbivore that has captured the hearts of many. However, owning one as a pet is illegal in India and raises ethical concerns, as these beautiful creatures are vulnerable in the wild.

### Physical Characteristics

#### The Obsidian Shell and Star Patterns

The Indian star tortoise (*Geochelone elegans*) is a sight to behold. Its shell, resembling polished obsidian, is adorned with intricate star-like patterns that are as unique as fingerprints. These patterns not only serve as a visual delight but also play a role in camouflage, helping the tortoise blend into its arid surroundings.



## Habitat and Distribution

### Natural Habitat in India and Sri Lanka

Endemic to the Indian subcontinent, these tortoises thrive in the arid pockets of northwest India, bordering Pakistan, as well as in South India and Sri Lanka. They prefer dry, open grasslands and savannahs, where they can graze on a variety of vegetation.

### The Global Demand and Illegal Trade

Despite their natural beauty, the Indian star tortoise has become a victim of the exotic pet trade. The increasing demand for these tortoises has led to their entanglement in one of the largest global wildlife trafficking networks. It's not uncommon to find them in homes as far away as Canada and the U.S., far from their natural habitats.



## **Legal Status and Conservation Efforts**

### **CITES and Indian Wildlife Protection Act**

The Indian star tortoise is listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and is protected under Schedule I of the Wildlife (Protection) Act of 1972 in India. This means they receive the highest level of protection under Indian law, yet illegal smuggling continues to be a significant issue.

### **Challenges in Conservation**

Despite the legal protections, officials have seized hundreds of tortoises being smuggled through airports and borders.



# Genetic Diversity and Research Findings

## Distinct Genetic Groups

Recent research conducted by the Wildlife Institute of India and Panjab University has revealed two genetically distinct groups of Indian star tortoises: the northwestern and southern populations. This discovery is crucial for developing effective conservation strategies.

## Implications for Conservation Strategies

The genetic divergences observed in these tortoises can inform where and how to release and conserve rescued individuals.



# The Historical Journey of the Indian Star Tortoise

## Evolutionary Background

Millions of years ago, the ancestors of the Indian star tortoise spread across the Indian subcontinent after it split from the Gondwana supercontinent. As the land evolved, so did the tortoises, adapting to the changing environments.



## **Adaptation to Changing Environments**

Over time, the subcontinent's climate shifted, leading to the growth of savannahs and open grasslands. This change came at the expense of humid forests, which became restricted to certain areas. The separation of these habitats paralleled the genetic divergence of the tortoises into northern and southern groups about 2 million years ago.

## **Conclusion**

The Indian star tortoise is not just a beautiful creature; it represents the delicate balance of nature and the urgent need for conservation efforts. While they may be popular as exotic pets, the reality is that they belong in the wild, where they can thrive in their natural habitats. As we learn more about their genetic diversity and the challenges they face, it's crucial to advocate for their protection and ensure that future generations can appreciate their beauty.








## BIG SHOT



**On display:** A stegosaurus fossil nicknamed 'Apex' was unveiled to the media at the American Museum of Natural History in New York, on December 5. Billionaire Kenneth C. Griffin, who bought the fossil for \$44.6 million, has loaned it to the museum for four years. AFP

# Topic → Stegosaurus Fossil Discovery: 'Apex'

## Key Highlights

-  A fossil of a stegosaurus has been discovered.
-  The fossil has been given the nickname 'Apex'.
-  The discovery contributes to the understanding of stegosaurus species.
-  Stegosaurus lived during the Late Jurassic period.
-  Fossils like 'Apex' help paleontologists study dinosaur behavior and ecology.
-  The fossil may provide insights into the evolutionary history of dinosaurs.
-  'Apex' could be significant for educational and scientific purposes.

## Significance of 'Apex'

**Educational Value:** Enhances knowledge of stegosaurus species.

**Scientific Contribution:** Offers insights into dinosaur behavior and ecology.

**Evolutionary Insights:** May provide clues about the evolutionary history of dinosaurs.

# The issue of India's economic growth versus emissions



**T**he Indian economy has consistently showcased its robust growth over the past few decades. But higher economic growth is believed to have come with increasing environmental pressure, notably through higher greenhouse gas (GHG) emissions. However, India's Economic Survey (2023-24) claims that India has decoupled its economic growth from GHG emissions, as between 2005 and 2019, India's GDP grew at a compound annual growth rate (CAGR) of 7%, while emissions rose at a CAGR of just 4%. This raises a crucial question: has India really decoupled its economic growth from GHG emissions? And, what does this mean for sustainable development?

## What it means

Decoupling refers to breaking the link between economic growth and environmental degradation. Historically, economic growth is found to be positively related with environmental degradation, as this growth is believed to be a driver of GHG emissions. However, with the growing climate crisis, the imperative to reduce emissions while ensuring continued economic growth has gained global traction.

Decoupling has largely been classified into two types: absolute decoupling and relative decoupling. Absolute decoupling occurs when the economy grows, while emissions decrease. This is the ideal form of decoupling, where countries grow economically without increasing environmental harm. However, relative decoupling happens when both GDP and emissions grow, but the rate of GDP growth surpasses the rate of emissions growth. While this signifies progress, at the same time, it acknowledges that emissions continue to rise.

Decoupling of economic growth and GHG emissions is important. On one hand, it offers a



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A look at the claim made in the Economic Survey (2023-24), of India having decoupled its economic growth from greenhouse gas emissions

path to sustainable growth and development, a way for nations to grow and improve living standards without exacerbating climate change. On the other, it comes as a response to rising demand for degrowth and sparks the ongoing debate between green growth and degrowth. Proponents of green growth argue that it is possible to maintain or even increase economic growth while reducing environmental harm. In contrast, degrowth advocates suggest that economic growth itself is the primary driver of ecological degradation and should be curbed in favour of reducing resource consumption. But proponents of degrowth overlook the fact that countries, in addition to tackling rising GHG emissions and the climate change, are also required to tackle low standards of living, energy poverty and ensure a decent life, which could be taken care of through economic growth.

## The claim

The claim of India's decoupling made in the Economic Survey comes from comparing GDP and emissions growth rates between 2005 and 2019. The Survey does not specify whether this represents absolute or relative decoupling. Using various decoupling indicators discussed in OECD (2002), we examine the status of the economy-wide and sector-wise decoupling status for India. Since the 1990s, with significant trade liberalisation, India has been experiencing steady and stable economic growth. Hence, we are examining how GDP and emission generation are growing in India with respect to the levels of 1990. While there has been no absolute decoupling in India, since 1990, GDP in India has grown at a much higher pace than the GHG emissions in the country, indicating economy-wide relative decoupling. Since, the agriculture and manufacturing sectors are among

the major contributors of emission generation in India, it is also important to understand whether these sectors have also achieved decoupling or not, which has been assessed by comparing rate of growth of GVA of the respective sector with the rate of growth of GHGs emitted by the sector. From 1990, India's GDP has grown six-fold, while GHG emissions have only tripled.

## Efforts must continue

From the data, it seems that India may have achieved relative decoupling, where emissions are still rising but at a slower pace than the economy. This achievement, while commendable, falls short of the ultimate goal of absolute decoupling, where economic growth can continue even as emissions fall. While most countries fall short of achieving absolute decoupling and still experience rising emissions as GDP increases, many countries have at least managed to achieve a declining rate of growth of emissions. Given that India is a developing country which has not even peaked its emissions yet, emissions are expected to increase with economic growth. Hence, achieving absolute decoupling is not going to happen anytime soon. While India's relative decoupling is a step in the right direction, the path to absolute decoupling is still a long and complex journey. Efforts must still be taken and it will be a significant challenge. This remains a necessary target if India is to meet its long-term climate commitments. Policies and measures that support renewable energy, emission mitigation, and sustainable development will be crucial in ensuring that economic growth and environmental preservation can coexist, ensuring a prosperous and sustainable future for India.



# Topic → The Indian Economy and GHG Emissions

## Introduction

The Indian economy has been on a rollercoaster ride of growth over the past few decades. But with this growth comes a hefty price tag—environmental pressure, particularly in the form of greenhouse gas (GHG) emissions. The recent Economic Survey (2023-24) claims that India has managed to decouple its economic growth from GHG emissions. But is this really the case? Let's dive into this intriguing topic and explore what it means for sustainable development.

## Understanding Decoupling

### What is Decoupling?

Decoupling is a fancy term that refers to breaking the link between economic growth and environmental degradation. Traditionally, economic growth has been a double-edged sword, often leading to increased emissions. But as the climate crisis looms larger, the need to reduce emissions while keeping the economy humming has become a hot topic.



# Types of Decoupling

## Absolute Decoupling

Absolute decoupling is the holy grail of economic growth. It occurs when the economy grows while emissions decrease. Imagine a world where we can have our cake and eat it too—growing economically without harming the environment.

## Relative Decoupling

On the flip side, we have relative decoupling. This happens when both GDP and emissions grow, but GDP grows faster than emissions. While this is a step in the right direction, it still means that emissions are on the rise.

## The Current State of India's Economy

### Economic Growth vs. GHG Emissions

Between 2005 and 2019, India's GDP grew at a compound annual growth rate (CAGR) of 7%, while emissions only rose at a CAGR of 4%. This raises eyebrows and questions: has India really managed to decouple its economic growth from GHG emissions?



## **The Economic Survey (2023-24) Claims**

The Economic Survey claims that India has achieved this decoupling, but it doesn't specify whether it's absolute or relative. So, what's the real story?

## **The Importance of Decoupling**

### **Sustainable Growth and Development**

Decoupling is crucial for sustainable growth. It offers a pathway for nations to improve living standards without exacerbating climate change. It's like walking a tightrope—balancing economic growth while keeping the environment intact.

### **The Debate: Green Growth vs. Degrowth**

This brings us to a heated debate: green growth versus degrowth. Proponents of green growth argue that we can maintain or even increase economic growth while reducing environmental harm. On the other hand, degrowth advocates believe that economic growth is the root cause of ecological degradation and should be curtailed. But let's not forget that economic growth can also help tackle issues like energy poverty and low living standards.



# Analyzing India's Decoupling Claim

## Historical Context

The claim of decoupling in India is based on comparing GDP and emissions growth rates from 2005 to 2019. Since the 1990s, India has seen steady economic growth, but has it really achieved absolute decoupling? The data suggests otherwise.

## Sector-wise Analysis

When we look at the agriculture and manufacturing sectors—major contributors to emissions—it's essential to assess whether these sectors have also achieved decoupling. Since 1990, India's GDP has grown six-fold, while GHG emissions have only tripled. This indicates relative decoupling, but not absolute.

# The Path Forward

## Challenges Ahead

While India's relative decoupling is commendable, the journey to absolute decoupling is fraught with challenges. As a developing country, India's emissions are expected to rise with economic growth, making absolute decoupling a distant goal.

## Policy Recommendations

To ensure that economic growth and environmental preservation can coexist, India needs robust policies that support renewable energy, emission mitigation, and sustainable development. It's a tall order, but necessary for a prosperous future.

## Conclusion

In conclusion, while India may have achieved relative decoupling, the road to absolute decoupling is long and complex. The country must continue to strive for policies that promote sustainable growth while addressing the pressing issue of climate change.

# Gamify India's skilling initiatives



**T**he problem of unemployment has become a contentious issue in economic policy discussions in India in recent times. Economic Survey 2023-24 estimated that India needs to create 78.5 lakh new jobs in the non-farm sector annually until 2030 to meet the demands of the rising workforce. One of the policy prescriptions often suggested to overcome the unemployment challenge is to close the growing gap between the skill sets of job seekers and the skill requirements of the industry.

## India's skilling challenge

Over time, India has established a comprehensive institutional and policy framework for training and skilling. However, the success of this is somewhat limited. The Periodic Labour Force Survey 2022-23 identified that only 21% of the Indian youth aged 15-29 years had received vocational/technical training through formal and informal sources. The share of youth who had received formal vocational/technical training was 4.4% in 2022-23. The Chief Economic Advisor, V. Anantha Nageswaran, recently stated that only 51% of India's graduates are employable. These facts raise concerns regarding the reach, quality, and industry relevance of existing skilling programmes. Incidentally, one of the focus areas of the Prime Minister's package for employment and skilling announced in the 2024-25 Budget was improving the outcome and quality of skilling and aligning the training content and design to the skill needs of the industry.

The enormity of India's skilling challenge is further aggravated by the need to equip the workforce with skills and knowledge that meet the requirements of industry 4.0 (I4.0), which entails integrating advanced technologies such as artificial intelligence, robotics, the internet of things, and big data to do smart manufacturing. Over two-thirds of Indian manufacturers are expected to embrace digital

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Gamified and simulation-based learning and training modules can potentially improve the quality and outcome of workforce training

transformation by 2025. Government policy support has been given to prepare the industry for I4.0 through the SAMARTH Udyog Bharat 4.0 initiative. But according to estimates, only 1.5% of Indian engineers possess the skills for new-age jobs. Sixty percent of the Indian MSME workforce lacks the new-age digital skills. So, it becomes crucial to skill and upskill our workforce according to I4.0 needs.

## A new initiative

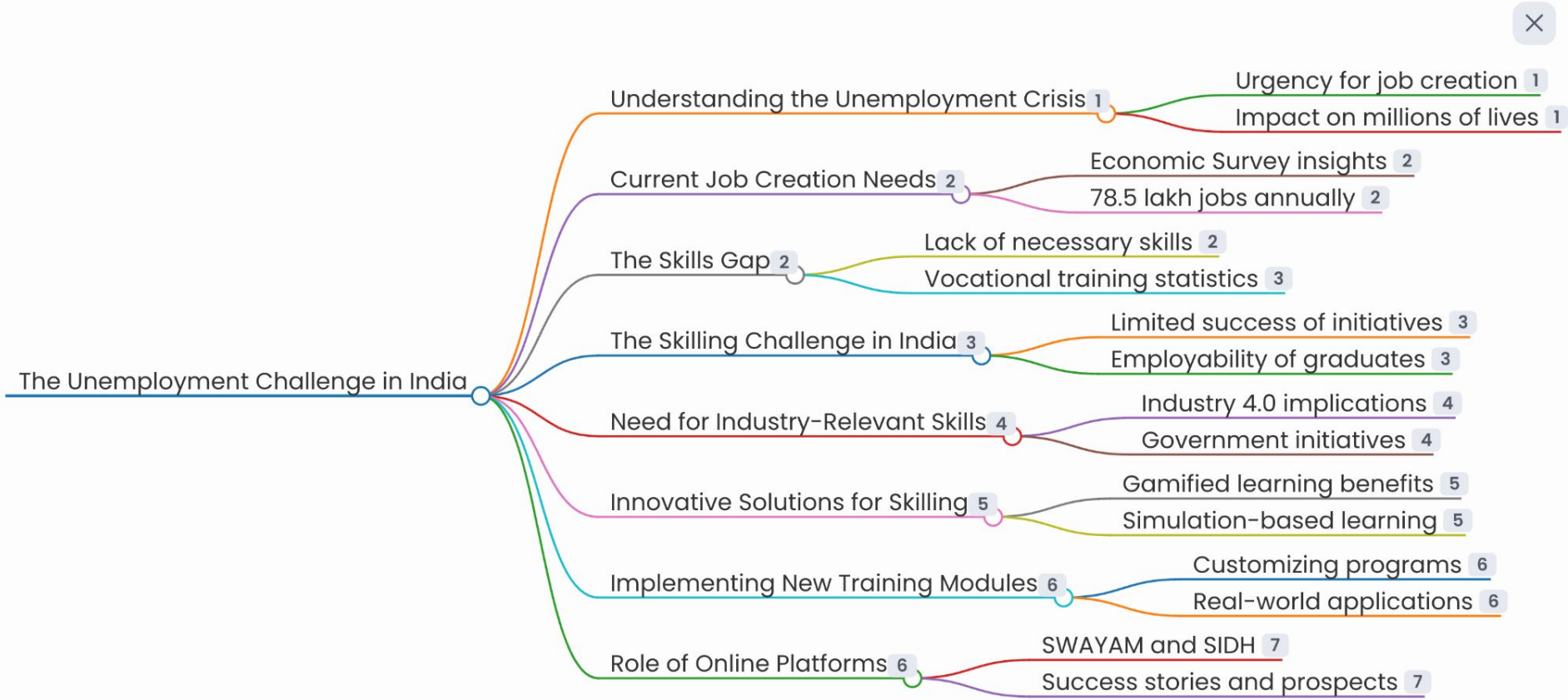
India could consider incorporating gamified and simulation-based learning and training modules. While gamified learning incorporates game elements into skill training, simulation-based learning uses virtual environments that mimic real-world scenarios, allowing learners to practice and apply skills in a safe and controlled setting. Using game mechanics makes skill training interactive and enjoyable, leading to higher participant engagement and knowledge retention than traditional learning methods. Also, the rewards and recognition through points and badges can motivate learners to complete training tasks and strive for excellence. Gamified systems often provide instant feedback to help trainees understand their progress and areas for improvement. Features such as 'Leaderboards and challenges' can foster a sense of competition, thereby encouraging trainees to perform better. Clear goals and milestones in gamified learning help trainees stay focused.

Simulation-based learning provides hands-on experience in a controlled environment and allows trainees to experiment, make mistakes, and learn from them without bothering about real-world consequences. Simulations also help trainees understand complex systems and develop critical thinking, problem-solving, and practical skills. Also, the immersive nature of the simulations allows learners to retain the knowledge gained for longer. Singapore and Germany

have adopted gamified and simulation-based learning into their education, vocational, and skill training systems.

Adopting such a module in government skilling programmes can potentially improve the quality and outcome of workforce training. The module can be customised by identifying areas where skill sets are lacking. Trainees can be presented with challenges during training that will be adjusted based on their progress. The platform can feature training modules that simulate actual professional circumstances, enabling trainees to apply their knowledge practically. Simulations can assess the trainee's decision-making abilities and demonstrate the outcomes resulting from their decisions. At a decentralised level, the module can be extended to education institutes of higher learning by providing the students with a platform to work on real-world projects. Students can be given opportunities to intern on live projects and demonstrate their skills, and industry can use this talent pool while hiring.

The SWAYAM and Skill India Digital Hub (SIDH), the two online platforms for skill education and training initiated by the Indian government, can host the gamified and simulation training module. The SWAYAM platform hosts more than 4,000 courses. Since its inception, over 40 million participants have enrolled in the platform and a lion's share (93.45%) of successful course completions in the platform were under the engineering and physical sciences stream. As of June 2024, 7.63 lakh candidates were enrolled in SIDH's 752 online courses. The platform offers 7.37 lakh minutes of digital content, making it a potentially rich resource for learners. The response to SWAYAM and SIDH demonstrates the huge demand for technical education and training in India and further strengthens the idea of offering gamified and simulation-based skill training on such platforms.



## **Topic → The Unemployment Challenge in India**

Unemployment in India has become a hot topic, sparking debates among policymakers and economists alike. With the Economic Survey 2023-24 estimating that India needs to create a staggering 78.5 lakh new jobs in the non-farm sector every year until 2030, the urgency to address this issue is palpable.

### **: Understanding the Unemployment Crisis**

The unemployment crisis isn't just a statistic; it's a reality affecting millions of lives. As the workforce continues to grow, the need for jobs becomes more pressing. But why is it that despite various initiatives, the unemployment rate remains high?

## **: Current Job Creation Needs**

The Economic Survey highlights a critical need for job creation. With a rising workforce, the demand for employment opportunities is skyrocketing. But how do we meet this demand?

## **: The Economic Survey 2023-24 Insights**

According to the Economic Survey, the creation of 78.5 lakh jobs annually is essential to keep pace with the growing workforce. This figure isn't just a number; it represents the hopes and dreams of countless individuals seeking stable employment.

## **: The Skills Gap**

One of the primary reasons for the unemployment crisis is the skills gap. While there are jobs available, many job seekers lack the necessary skills to fill these positions.

## **: The Skilling Challenge in India**

India has made strides in establishing a framework for training and skilling, but the success of these initiatives has been limited.

## **: Statistics on Vocational Training**

The Periodic Labour Force Survey 2022-23 revealed that only 21% of Indian youth aged 15-29 have received vocational or technical training. Even more alarming is that only 4.4% received formal training. This raises serious questions about the effectiveness of current skilling programs.

## **: Employability of Graduates**

The Chief Economic Advisor, V. Anantha Nageswaran, pointed out that only 51% of graduates in India are employable. This statistic is a wake-up call, highlighting the urgent need for reform in our education and training systems.





## **The Need for Industry-Relevant Skills**

As industries evolve, so do their skill requirements. The challenge lies in equipping the workforce with the skills needed for the future.

## **Industry 4.0 and Its Implications**

The advent of Industry 4.0 (I4.0) brings with it a demand for advanced skills, including artificial intelligence, robotics, and big data. Over two-thirds of Indian manufacturers are expected to embrace digital transformation by 2025.

## **Government Initiatives for I4.0**

The government has launched initiatives like SAMARTH Udyog Bharat 4.0 to prepare industries for this transformation. However, the reality is stark: only 1.5% of Indian engineers possess the skills for new-age jobs.

## **: Innovative Solutions for Skilling**

To tackle the skilling challenge, innovative solutions are needed. Enter gamified and simulation-based learning.

### **: Gamified Learning**

Gamified learning incorporates game elements into skill training, making it interactive and enjoyable. This approach can significantly enhance engagement and knowledge retention.

#### **Benefits of Gamified Learning**

By using game mechanics, learners are motivated to complete tasks and strive for excellence. Features like leaderboards and instant feedback can foster a sense of competition and improvement.

### **Simulation-Based Learning**

Simulation-based learning allows trainees to practice skills in a controlled environment, mimicking real-world scenarios. This hands-on experience is invaluable.

#### **Advantages of Simulation Training**

Simulations help learners understand complex systems and develop critical thinking and problem-solving skills. The immersive nature of simulations aids in long-term knowledge retention.



## **Implementing New Training Modules**

The next step is to implement these innovative training modules effectively.

## **Customizing Training Programs**

Training programs can be customized to address specific skill gaps, ensuring that learners receive relevant and practical training.

## **Real-World Applications**

By presenting trainees with real-world challenges, they can apply their knowledge practically, preparing them for the workforce.

## **The Role of Online Platforms**

Online platforms like SWAYAM and Skill India Digital Hub (SIDH) can play a crucial role in delivering these training modules.



## **SWAYAM and Skill India Digital Hub**

SWAYAM hosts over 4,000 courses, with millions of participants enrolled. The demand for technical education is evident, and these platforms can facilitate gamified and simulation-based training.

### **Success Stories and Future Prospects**

The success of SWAYAM and SIDH demonstrates the potential for innovative training methods to meet the needs of the workforce.

### **Conclusion**

In conclusion, addressing the unemployment crisis in India requires a multifaceted approach. By bridging the skills gap through innovative training methods like gamified and simulation-based learning, we can equip our workforce for the future. The time to act is now, and with the right strategies in place, we can turn the tide on unemployment.

# The place of charity in an unequal society

Billionaire Warren Buffet has given away an amount of almost 52 billion dollars to various charities. While such a move is no doubt commendable, one must also question the processes generating the concentration of such wealth in the first place, regardless of whether it is to be used for philanthropy or not

## ECONOMIC NOTES

Rahul Menon

**B**illionaire Warren Buffet, with a net worth of almost \$121 billion by some estimates, has maintained his pledge of giving away his wealth. In a recent message to shareholders of Berkshire Hathaway, he has mentioned a transfer of his wealth to foundations overseen by his children, a total amount of around 870 million dollars. In all, it is estimated that he has given away an amount of \$52 billion.

Mr. Buffet's recent message has captured the attention of mainstream discourse as it has outlined his social philosophy with regard to wealth and its place in society. Mr. Buffet believes that wealth should be used to equalise opportunities, that the luck that favoured certain individuals and helped them get rich should be extended after one's death in order to help those less fortunate.

While it is not wrong to amass and accumulate wealth during one's lifetime, allowing it to build across generations is a problem for society. While it is no doubt commendable that Mr. Buffet wishes to give away his fortune, one must also question the processes generating the concentration of such wealth in the first place, regardless of whether it is to be used for philanthropy or not. Inequality is not a question of luck, but of specific policy institutions determined by society. In a world of spiralling inequality, both private philanthropy and the problems it tries to solve are two sides of the same coin, emerging from the very same set of social processes.

### On luck and equal opportunity

Mr. Buffet's ideas with regard to wealth and welfare can be seen in the context of a philosophical idea called "luck egalitarianism", which states that no-one should have to suffer the consequences of inequality owing to bad luck or adverse situations. As Mr. Buffet repeatedly



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stresses in his letter, he credits much of his personal fortune to fortuitous circumstances, such as being born as a white male in the U.S. Opportunities were open to him that would not be open to women or African-Americans, and the growth of the U.S. over the years caused his wealth to grow significantly through the power of compound interest.

Some might accuse Mr. Buffet of false modesty, claiming that his fortune has been generated through his own diligent efforts and his understanding of markets. But there is truth in what he says. As Branko Milanovic has shown, a significant factor driving global inequality is the differences in income between countries. Where one is born determines how wealthy one might be relative to the global population. In that regard, Mr. Buffet does display a strong egalitarian zeal. If fortune played a huge role in the differences between Mr. Buffet and

others, there is no moral justification for him to pass on his wealth to his descendants. The only moral response is to ensure his wealth can be used to boost the opportunities of those less fortunate. What matters is the equalising of opportunities, and allowing individuals a level playing field in the beginning, rather than trying to equalise final outcomes.

### What about charity?

However, there are some important questions that need to be addressed. The distribution of private wealth through charity may help to equalise well-being between individuals, but the process by which this wealth was generated and concentrated has led to the differences in opportunities in the first place. In the developed world, wealth distribution was largely equal during the post World War II period. Widespread deregulation and a turn towards neo-liberal economics saw

an explosion of wealth inequality from the 1980s onwards, with the 'trickle-down' economics of Ronald Reagan and Margaret Thatcher leading to the concentration of gains for a tiny sliver of individuals and stagnant wages for the majority. In India as well, the liberalisation of the economy may have led to faster growth, but has dramatically increased inequality and skewed the distribution of opportunities.

Differences in opportunities are not merely a question of luck, but of specific policy choices and interventions. Bill Gates' and Jeff Bezos' wealth came from the monopolies they enjoyed in the marketplace; this is less luck than the failure of policy to ensure competitive market practices. McKenzie Bezos might be doing important work in giving away much of her wealth, but one must ask how it was that Amazon generated so much money for its owners while its workers suffered through stagnant wages and harmful working conditions. Mr. Buffet earned much of his wealth through the compounding of his initial equity holdings, but the widespread financialisation of the U.S. economy – concomitant with the reduction in the power of unions and stagnant wage growth – greatly aided this process.

In the face of rising inequality, societies face a choice: to either do nothing and hope that private charity increases, or devise policy to counter the negative effects of rising wealth concentration. Thomas Piketty advocates for a system of taxation and redistribution backed by the State to ensure equalisation of opportunities, rather than relying on private philanthropy. Interventionist thinkers and those on the left advocate for higher minimum wages and constraints on billionaire compensation. The use of state policy ensures that one does not have to rely on billionaire conscience to ameliorate the very processes that gave rise to their wealth in the first place.

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## THE GIST

▼ Mr. Buffet believes that wealth should be used to equalise opportunities, that the luck that favoured certain individuals and helped them get rich should be extended after one's death in order to help those less fortunate.

▼ Mr. Buffet's ideas with regard to wealth and welfare can be seen in the context of a philosophical idea called "luck egalitarianism", which states that no-one should have to suffer the consequences of inequality owing to bad luck or adverse situations.

▼ Differences in opportunities are not merely a question of luck, but of specific policy choices and interventions. Bill Gates' and Jeff Bezos' wealth came from the monopolies they enjoyed in the marketplace; this is less luck than the failure of policy to ensure competitive market practices.

# Topic → Warren Buffett's Wealth Philosophy

## Key Points

### Warren Buffett's Wealth 💰

Net worth: ~\$121 billion

Pledge to give away wealth

Transfer to foundations: \$870 million

### Philosophy on Wealth 🤔

Wealth as a tool for *equal opportunity*

Importance of addressing wealth concentration

Criticism of generational wealth accumulation

## Luck and Opportunity 🍀

Concept of Luck Egalitarianism

Wealth attributed to circumstances of birth

Inequality driven by policy, not just luck

## Charity and Wealth Distribution 🧡

Private wealth distribution through charity

Historical context of inequality post-WWII

Critique of neoliberal policies

## Policy Solutions 📜

Need for state intervention

Taxation and redistribution as advocated by Thomas Piketty

Importance of fair wages and competitive market practices



## Single mutation can make H5N1 spread among humans

A recent study led by scientists at Scripps Research reveals that a single mutation in the H5N1 virus – which has recently infected dairy cows in the U.S., causing a few mild human cases but retaining specificity for avian receptors – could enhance the virus’ ability to attach to human cells, potentially increasing the risk of passing from person to person. A single glutamic acid to leucine mutation at residue 226 of the virus hemagglutinin was sufficient to enact the change from avian to human specificity.




## Topic --H5N1 Virus Mutation




A study by Scripps Research focused on the H5N1 virus and its mutations.


 The virus has recently infected dairy cows in the U.S., leading to mild human cases.

 A specific mutation (glutamic acid to leucine) at residue 226 of the virus hemagglutinin was identified.

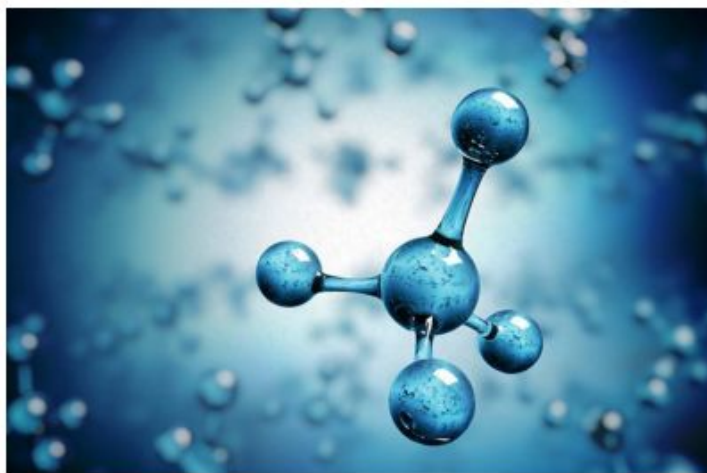
 This mutation may enhance the virus's ability to attach to human cells.

 Increased attachment could raise the risk of human-to-human transmission.

 The virus retains its specificity for avian receptors despite the mutation.

 The findings highlight potential public health concerns regarding the H5N1 virus.

Summary: A mutation in the H5N1 virus could increase its ability to infect humans, raising concerns about transmission risks.










## A new catalyst can turn methane into useful polymer

Although less abundant than carbon dioxide, methane gas contributes disproportionately to global warming because it traps more heat in the atmosphere than carbon dioxide. MIT engineers have now designed a new catalyst that can convert methane into useful polymers, which could help reduce greenhouse gas emissions. The new catalyst works at room temperature and atmospheric pressure, which could make it easier to deploy at sites of methane production, such as power plants and cattle barns.

# Topic → Methane Conversion Innovation

## Key Developments

-  **Methane Impact:** Although less abundant than carbon dioxide, methane has a significant effect on global warming due to its potent heat-trapping capabilities.
-  **Catalyst Innovation:** Engineers at MIT have developed a novel catalyst that transforms methane into valuable polymers.
-  **Environmental Benefits:** This conversion process offers a promising solution for reducing greenhouse gas emissions.
-  **Operational Efficiency:** The catalyst functions efficiently at room temperature and standard atmospheric pressure.
-  **Implementation Potential:** The technology is suitable for deployment at methane production sites, including power plants and cattle barns.
-  **Environmental Focus:** The initiative aims to tackle environmental issues associated with methane emissions.
-  **Sustainable Progress:** This breakthrough marks a crucial advancement in sustainable management of greenhouse gases










## Coffee wilt disease linked to gene transfer from fungus

Researchers compared the genomes of 13 historic strains and multiple disease outbreaks of coffee wilt disease to investigate how the pathogen *Fusarium xylarioides* has adapted to coffee plants. They found that *F. xylarioides* is made up of at least four distinct lineages, and also found evidence that these strains had repeatedly received segments of DNA from another fungal pathogen, *F. oxysporum*, which enhanced *F. xylarioides*'s ability to infect coffee plants.



## Topic → Coffee Wilt Disease: Genetic Insights

-  Researchers analyzed the genomes of 13 historic strains of coffee wilt disease.
-  The pathogen responsible for the disease is *Fusarium xylarioides*.
-  *F. xylarioides* consists of at least four distinct lineages.
-  The strains have acquired DNA segments from another fungal pathogen, *F. oxysporum*.
-  This genetic exchange has improved *F. xylarioides*'s ability to infect coffee plants.
-  The study focused on multiple disease outbreaks to understand pathogen adaptation.
-  The findings highlight the evolutionary dynamics between fungal pathogens and their hosts.

Summary: Researchers found that *Fusarium xylarioides*, the pathogen causing coffee wilt disease, has multiple lineages and has adapted through genetic exchange with another pathogen, enhancing its infectivity



## Question Corner

# Not a straw

**How do hummingbirds drink nectar at frenetic speed?**

Hummingbird bills look a little like drinking straws. The frenetic speed at which they get nectar out of flowers and backyard feeders may give the impression that the bills act as straws, too. But new research shows just how little water or nectar, that comparison holds. The team discovered that a drinking hummingbird rapidly opens and shuts different parts of its bill simultaneously, engaging in a highly coordinated dance with its tongue to draw up nectar at lightning speeds. By analysing the footage and combining it








with data from micro-CT scans of hummingbird specimens, researchers discovered the intricate bill movements that underlie drinking – 1) to extend its tongue, the hummingbird opens just the tip of its bill, 2) after the tongue brings in nectar, the bill tip closes, 3) to draw nectar up the bill, the hummingbird keeps the bill's midsection shut tightly while opening the base slightly, and 4) then it opens its tip again to extend the tongue for a new cycle.

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Readers may send their questions / answers to [questioncorner@thehindu.co.in](mailto:questioncorner@thehindu.co.in)



## Topic → Hummingbird Nectar Extraction: A Closer Look

-  Hummingbird bills resemble drinking straws but function differently in nectar extraction.
-  New research reveals that the comparison to straws is misleading regarding water or nectar intake.
-  Hummingbirds perform a coordinated movement of their bills and tongues to quickly draw up nectar.
-  Researchers analyzed footage and micro-CT scans to understand the mechanics of hummingbird drinking.
-  The drinking process involves four key movements: opening the bill tip, closing it after nectar intake, keeping the midsection shut while opening the base, and extending the tongue again.
-  Hummingbirds can extract nectar at lightning speeds due to their intricate bill movements.
-  The study enhances our understanding of hummingbird feeding behavior and biomechanics.

Summary: Hummingbirds use a complex series of bill and tongue movements to rapidly extract nectar, challenging the straw-like comparison of their bills

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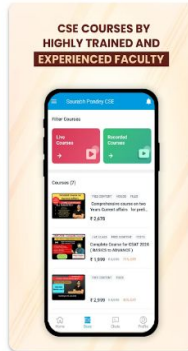
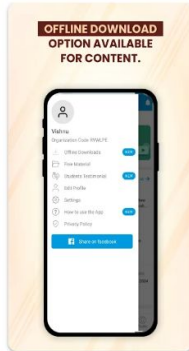
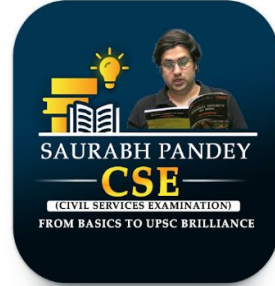
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