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India's economy is projected to grow at 6.5% to 7% in the fiscal year ending March 2025.

- ✚ The Economic Survey for 2023-24 highlights the need to address inequality and unemployment as policy priorities.

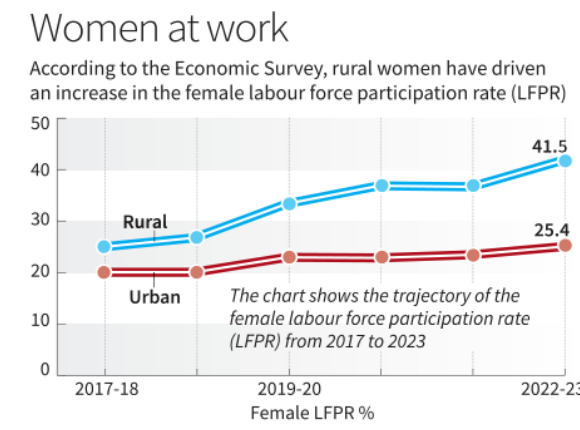
'India has shifted to women-led development; female labour force participation rate rising'

Sreeparna Chakrabarty

NEW DELHI

Observing that India is transitioning from women's development to women-led development, Chief Economic Adviser V. Anantha Nageswaran on Monday said there had been a 218.8% increase in budgetary allocation for schemes for the welfare and empowerment of women even as he acknowledged that women in India faced the "motherhood penalty" with a drop in female labour force participation rate around child-bearing years.

"The share of the Gender Budget in the total Union Budget has increased to 6.5% in financial year 2025, the highest since the introduction of Gender Budgeting Scheme in fi-



ncial year 2006," he said in the Economic Survey, which was tabled in Parliament. This shows that India is shifting from women's development to women-led development. He also underscored the government's commitment towards ensuring

employment opportunities for women in various fields.

The Survey said that skilling schemes had put a dedicated emphasis on covering women, and the number of women trained under the Pradhan Mantri Kaushal Vikas Yojana

(PMKVY) had increased from 42.7% in the financial year 2015-16 to 52.3% in the financial year 2023-24. Under the Jan Shikshan Sansathan (JSS) scheme, women constituted about 82% of the total beneficiaries and in institutes such as the ITIs and the National Skill Training Institutes, the participation of women had gone up from 9.8% to 13.3% during the period.

With rural India propelling the trend, the survey observed that the female labour force participation rate (LFPR) rose to 37% in 2022-23 from 23.3% in 2017-18. The Pradhan Mantri Jan Dhan Yojana had facilitated the opening of 52.3 crore bank accounts, of which 55.6% account holders were women, as of May 2024.

Delving into the crucial

aspect of care economy, the Survey estimated that direct public investment equivalent to 2% of the GDP had the potential to generate 11 million jobs in the sector, nearly 70% of which would go to women. It flagged models of Australia, Argentina, Brazil, and the U.S. in this sector.

"The economic value of developing a care sector is two-fold – increasing female labour force participation rate (FLFPR) and promoting a promising sector for output and job creation. According to International Labour Organisation (2018), the care sector is one of the fastest-growing sectors globally, and investments in the care services sector are estimated to generate 475 million jobs globally by 2030," it said.

Various Challenges discussed

1. Challenges in the IT Sector:

- **Slowdown in Hiring:** The CEA notes a significant slowdown in IT sector hiring over the last two years.
- **AI and Labor:** He encourages the industry to use AI to augment labor rather than replace workers.

2. Skilling Initiatives

- **Addressing Inequality:** The Economic Survey suggests steps to tackle inequality, improve health, and bridge the education-employment gap.
- **Skilling Reboot:** A reboot of India's skilling initiatives is proposed to provide the industry with people having the right attitude and skills.

3. Corporate Sector and Economic Growth

- **Demand and Employment:** The Survey emphasizes the benefits for corporates from higher demand generated by employment and income growth.
- **Warning against Short-Termism:** It warns against "short-termism" which can weaken economic linkages.

4. State Capacity and Consensus Building:

- **Enhancing State Capacity:** Enhancing state capacity is critical for the strategy to work.
- **Need for Consensus:** The CEA stresses the need for consensus between governments, businesses, and the social sectors for effective transformation.

5. Land Acquisition and Investment Concerns:

- **Land Use Norms:** While the Survey does not mention land acquisition reform, it highlights the need to deregulate land use norms and consolidate farmland holdings.
- **Investment Cautions:** The Survey cautions about private capital formation being cautious due to fears of cheaper imports, indirectly referencing China.

6. Foreign Direct Investment (FDI) Challenges:

- **Attracting FDI:** Attracting FDI will be challenging due to higher interest rates and developed countries encouraging domestic investments through subsidies.
- **Addressing Uncertainties:** Despite progress, uncertainties related to transfer pricing, taxes, and import duties need to be addressed.

Structural Reforms

- **Existing Reforms:** Structural reforms such as GST and the Insolvency and Bankruptcy Code are delivering expected results.
- **Next-Gen Reforms:** The Survey calls for "next-gen reforms" that are bottom-up in nature to achieve sustainable, balanced, and inclusive growth.

Strategic Directions for Growth

- **Six-Pronged Strategy:** The Survey outlines a six-pronged strategy for growth, emphasizing private sector investments and a fair share of income for workers.
- **Focus Areas:** Other focus areas include financing the green transition, removing barriers for MSMEs, and implementing intelligent farmer-friendly policies.

Conclusion

- **Sustained Growth Potential:** The economy can grow at over 7% on a sustained basis in the medium term by building on past reforms.
- **Tripartite Compact:** Achieving this growth requires a tripartite compact between the Centre, States, and the private sector.

UPSC Prelims PYQ : 2013

Ques : Economic growth in country X will necessarily have to occur if:

- (a) There is technical progress in the world economy.
- (b) There is population growth in X.
- (c) There is capital formation in X.
- (d) The volume of trade grows in the world economy.

Ans : c)

Recently, the Chief Economic Advisor (CEA) has mentioned about the 218.8% increase in budgetary allocation for schemes for the welfare and empowerment of women and even acknowledged that women in India face the "motherhood penalty" with a drop-in female labour force participation rate around childbearing years.

'India has shifted to women-led development; female labour force participation rate rising'

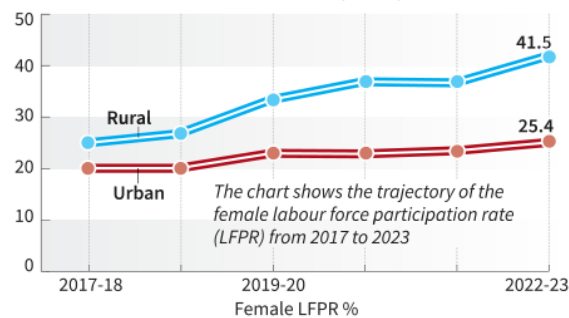
Sreeparna Chakrabarty
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Women at work

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About the move:

- As announced in the budgetary discussion, the central government is going to increase the gender budgeting up to 5% of the GDP, in the financial year 2025.
- The step will enhance the stability of the women-led development model and increase fund allocation for Gender budgeting.

What is Gender Budgeting?

- Gender Budgeting is a powerful tool for achieving gender mainstreaming to ensure that the benefits of development reach women as much as men.

Daily News Analysis

- ✚ The rationale for gender budgeting arises from recognition of the fact that national budgets impact men and women differently through the pattern of resource allocation.
- ✚ Women constitute 48% of India's population, but they lag behind men on many social indicators like health, education, economic opportunities, etc. thus, gender budgeting is important.

Gender budgeting status in India:

- ✚ Gender Budget Statement was first introduced in Budget 2005-06. Various ministries and department provide information to finance ministry based on which Gender Budget Statement is prepared.
- ✚ This helps to monitor expenditure and public service delivery from a gender perspective, as a means of mainstreaming women's concerns in all activities and improving their access to public resources.
- ✚ Also, it was instructed to all the ministries and departments, to open the Gender Budgeting Cell (GBC).

Issues with Gender Budgeting in India:

- ✚ India's gender Budget remains in the range of 4 - 6% of the total expenditure and less than 1% of its GDP. It also lacks fiscal marksmanship, which is the accuracy of budgetary forecasting.
- ✚ Around 90% of gender budgeting is concentrated in five ministries. When it comes to livelihood, MGNREGA is the biggest scheme in gender budgeting.
- ✚ Areas like transportation, water collection and water security remain ignored.
- ✚ The last Budget failed to address critical areas highlighted by the pandemic in 2021-22 and 2022-23, despite the disproportionate impact of Covid-19 on women.

Measures to bring care economy in monetized economy

- ✚ **Recognize unpaid Work:** Recognizing the economic value of unpaid care work.
- ✚ **Equal Pay for Equal Work:** Irrespective of whether it falls under the care or monetized economy.
- ✚ **Social Protection Measures:** Implementing policies like paid parental leave, Work from home (WFH) culture, subsidized healthcare, and pensions, which support women in their dual roles as caregivers and workers.
- ✚ **Supporting Women's Employment:** Providing opportunities to participate in the formal labor force through skill development, training, education, and policies that enable work-family balance.
- ✚ **Promoting Women's Entrepreneurship:** Encouraging and supporting women to start and grow businesses, especially in sectors related to care services. Income-Generating Activities through Self-Help Groups.

UPSC Prelims PYQ : 2017

Ques : Which of the following gives the 'Global Gender Gap Index' ranking to the countries of the world?

- (a) World Economic Forum
- (b) UN Human Rights Council
- (c) UN Women
- (d) World Health Organization

Ans: a)

The Karnataka government's recent intent to introduce legislation for the welfare of gig workers is a necessary step to overcome the challenges to boost gig-economy in India.

A case for regulating gig-based work

Karnataka's draft Bill introduces provisions that mandate fair contracts and income security for platform workers. These provisions strengthen the position of workers who are at the same time not considered employees, nor do they enjoy the freedom and flexibility of being independent contractors

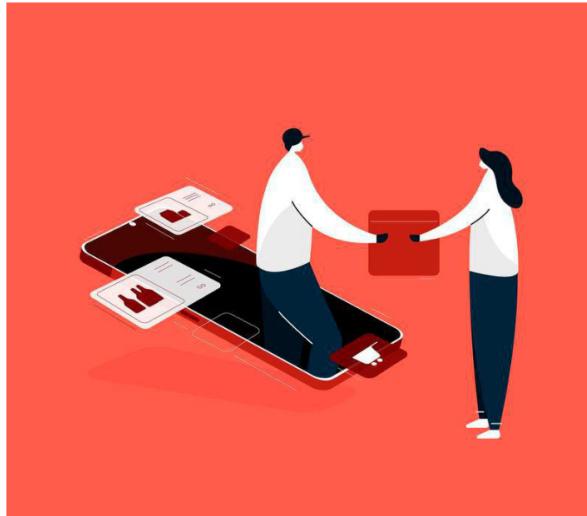
ECONOMIC NOTES

Rakshita Swamy
Biju Mathew

The Karnataka government's intent to introduce a legislation for the welfare of gig workers is a welcome and necessary step. It squarely addresses the three big myths propagated by the gig and platform industry. The first myth that aggregators sell to promote platform work is that they would have "no boss" and would be "partners" and "captains" – anything but workers. This drew in many people, particularly the young, to join platform-based gigs. However, it soon became clear that this was not the case. There was a big boss – the algorithm and a network of team managers deployed at the local level to enforce the algorithm.

Algorithms dictate the number of hours the worker needs to put in on weekends, the orders to be delivered, cancellations and rating scores that ought to be maintained in order for tasks to be continually allocated to the worker, and finally when a worker is deactivated or fired. Shaikh Salauddin from the Indian Federation of App-based Transport Workers put it succinctly when he said that "Gig workers spend hours trying to guess what the algorithm is doing and it feels like they are a rat in a maze". This is totally opposite to the idea of being one's own boss. A plain reading of the digitally generated terms and conditions that the worker has to invariably agree on to commence work dispels any notion of being an independent contractor. Every aspect of the work is monitored and dictated, with workers facing the consequences if they do not comply.

The Karnataka Bill recognises the pervasive role played by such algorithms and makes the aggregator responsible for sharing the parameters that are used by the algorithm to determine allocation of work, grounds for denial of work, the categorisation of workers and how



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personal data of workers is being used to determine their ability to work and earn through the aggregator. The Bill breaks the algorithmic control the companies have and allows workers to take back control for at least some part of their work lives.

The myth of flexibility

The second myth that is perpetuated is that persons engaged in platform work enjoy flexible work arrangements. This assertion has enabled platforms to keep gig-based workers away from protections under labour laws. Multiple studies have shown how the term flexibility is abused in the industry. All flexibility in truth rests only with the employer and none with the worker. The payment structure consisting of a number of incentive schemes which enable workers to earn the minimum

surplus required to cover costs, in effect, leaves no flexibility with the workers. For instance, workers have to comply with mandatory login hours to be eligible for incentives. If they log in after gaps of being 'inactive', they have to make peace with disadvantaged rate cards and incentive schemes. Karnataka's draft Bill introduces provisions that mandate fair contracts, income security and the right of platform workers to refuse work without being slapped with sanctions. The above provisions strengthen the position of these workers who are at the same time not considered employees, nor do they enjoy the freedom and flexibility of being independent contractors.

The third myth is that these are 'part time' workers, who engage in platform-based gig work for additional income. According to a study of the

platform economy in India by PAIGHAM and the University of Pennsylvania, 96% of the cab drivers surveyed, secured 100% of their daily income from gigs. The corresponding figure for delivery workers was 90.7%. Average daily work hours for taxi drivers was in excess of 11 hours, and 10 hours for delivery workers. By making social security a mandatory requirement, the Karnataka Law takes a necessary step towards acknowledging this fact and makes room for an umbrella of schemes that can assist workers through events such as old age, death, health shocks etc.

India's stand

Even though the Government of India endorsed a progressive statement on the rights of platform workers at the G-20 last year, it's Code on Social Security, which is the only legislation that makes a passing reference to gig workers, has been detrimental as it delinks workers from minimum labour protections of wages, occupational safety and health. Significantly, it is the State Governments that are showing the way forward. Rajasthan is the first State to pass a legislation on the issue, closely followed by Karnataka. Jharkhand, Tamil Nadu, Haryana, Telangana are following suit.

In the political context of guarantees funded purely by the state exchequer, this law is an important development. It shows how social security for workers ought to also be financed from the market and that private actors should no longer be abdicated from their primary economic accountability towards workers. There are many things that could be improved in the Bill. These include the Bill's silence on critical issues such as minimum wage, occupational safety and health, working hours, and rights on collective bargaining. However, it is also true that this law allows workers to mobilise and assert for more.

Rakshita Swamy is Director, Social Accountability Forum for Action and Research and Biju Mathew is President, International Alliance of App Based Transport Workers.

THE GIST

▼ The first myth that aggregators sell to entice people towards platform work is that they would have "no boss" and would be "partners" and "captains" – anything but workers.

▼ The second myth that is perpetuated is that persons engaged in platform work enjoy flexible work arrangements. This assertion has enabled platforms to keep gig-based workers away from protections under labour laws.

▼ The third myth is that these are 'part time' workers, who engage in platform-based gig work for additional income.

Text & Context

■ Text & Context pages will not be available on July 24, 2024

What is Gig Economy?

- ✚ As per the World Economic Forum (WEF), gig economy is defined by its focus on workforce participation and income generation via "gigs", single projects or tasks for which a worker is hired.
- ✚ Gig economy includes all platforms that hire independent workers across sectors like e-commerce, technology, food & beverages, home services among others.
- ✚ Gig workers are typically hired by companies on a contractual basis and are not considered employees. They do not receive some of the benefits that on-roll staffs do.

Classification: Gig workers can be broadly classified into:

Daily News Analysis

- ✚ **Platform workers:** Those whose work is based on online software apps or digital platforms such as food aggregator platforms Zomato, Swiggy, Ola, and others.
- ✚ **Non-platform-based workers:** Casual wage and own-account workers in conventional sectors, engaged part-time or full-time.

Benefits of Gig Economy:

- ✚ **For Workers:** Gig economy can provide more flexibility, autonomy, income opportunities, skill development, and inclusion.
- ✚ **For Employers:** It can enable access to a large and diverse pool of talent, lower fixed costs, higher scalability, and better customer satisfaction.
- ✚ **For Customers:** It can offer more choice, convenience, quality, and affordability.

Current trend in the Indian Economy-

- ✚ about 47% of gig work is in medium skilled jobs
- ✚ about 22% in high skilled
- ✚ about 31% in low skilled jobs
- ✚ The trend shows the concentration of workers in medium skills is gradually declining and that of the low skilled and high skilled is increasing.

Expected trend:

- ✚ While in 2020-21, the gig workforce constituted 2.6% of the non-agricultural workforce or 1.5% of the total workforce in India, by 2029-30, gig workers are expected to form 6.7% of the non-agricultural workforce or 4.1% of the total livelihood workforce in India.

Why there is a need to regulate Gig- Economy?

- ✚ **Due to non-permanent in nature:** These jobs mainly have temporary contracts typically come with less protection, fewer benefits and pecuniary discounts.
- ✚ **To bring gig-workers under Employment benefits protocol:** The workers are mostly left out of the traditional social protection systems such as unemployment benefits, sick pay and pensions.
- ✚ **Insurance and financial aids:** Most transactions on the gig economy are done via the internet and as such they can be tracked. These companies do need to contribute to insurance and other social contributions.
- ✚ **To reduce inequality of Income:** Due to the increasingly complex supply chains and sub-contracting of gig jobs, make it hard to enforce protections. But without doing so we will not be able to combat the increasing levels of inequality.

UPSC Mains Practice Question

Ques : The gig economy has grown rapidly in India in recent years. In light of this statement discuss the challenges faced by gig workers in India and suggest ways to address them.

Prelims Fact : Kalaripayattu

The Union Minister for Youth Affairs and Sports stated in the Lok Sabha that the Ministry has recognised the Indian Kalaripayattu Federation as the Regional Sports Federation to promote 'Kalaripayattu' in the country.

**About Kalaripayattu:**

- + It is the traditional martial art originated and popularly practiced in Kerala.
- + Mythology has it that the warrior sage Parasurama is the promulgator of Kalaripayattu.
- + It is composed of two words, kalari means "place of combat" and payattu means "fighting" in Malayalam.
- + The four stages of Payattu are:
 1. Maipayattu - Body conditioning exercises
 2. Kolthari - Use of wooden weapons
 3. Angathari: Use of sharp metallic weapons
 4. Verumkai : Bare-handed defense and attack.
- + Women also underwent training in Kalaripayattu, and still do so to this day.
- + The major ethnic style of Kalaripayattu exists in the three regions of northern Kerala (Malabar): Vattenthirippu Style, Arappukkai Style and Pillathangi Style.

Daily News Analysis

- + This martial art stands high and gives trainees incredible strength and stamina, defence techniques, auto reflex, flexibility, confidence, concentration, physical culture and mental discipline etc.
- + It can be said that Kalarippayattu is Yoga in action. This is the only Martial art associated with a treatment branch which can be introduced in the field of sports medicine also.

UPSC Prelims PYQ : 2014

Ques: Consider the following pairs:

1. Puthukkuli shawls — Tamil Nadu
2. Sujni embroidery — Maharashtra
3. Uppada Jamdani saris — Karnataka

Craft Heritage of which of the pairs given above is/are correct?

- (a) 1 only
- (b) 1 and 2
- (c) 3 only
- (d) 2 and 3

Ans: (a)

Project In News : Upper Karnali Hydro-Electric Power Project

The Indian Renewable Energy Development Agency Limited (IREDA) is set to invest approximately ₹290 crore in the Upper Karnali Hydro-Electric Power Project.

**About Upper Karnali Hydro-Electric Power Project:**

- ✚ It is a 900 MW run-of-the-river hydropower project being developed on the Karnali River in Nepal.
- ✚ The project will supply power to Nepal, India, and Bangladesh for a contracted period of 25 years.
- ✚ The Government of Nepal awarded the project to GMR Upper Karnali Hydro Power Limited (GUKHL), a subsidiary of GMR Group India, under a memorandum of understanding (MoU) signed in January 2008.
- ✚ GMR is developing the project on a build-own-operate-transfer (BOOT) basis.
- ✚ The Nepal Government received 27% free equity in the project as part of the MoU with GMR.
- ✚ It is estimated to generate 3,466 million units of electricity, while offsetting approximately two million tons of greenhouse gas emissions a year.
- ✚ It will feature a concrete gravity dam, headrace tunnels, a fish pass, feeder tunnels, surge and pressure shafts, and silt flushing tunnels.

Key Facts about Indian Renewable Energy Development Agency Limited (IREDA):

- ✚ It is a Mini Ratna (Category I) Government of India Enterprise under the administrative control of the Ministry of New and Renewable Energy (MNRE).

Daily News Analysis

- ✚ IREDA is a public limited government company established as a non-banking financial institution in 1987.
- ✚ It is engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable sources of energy and energy efficiency/conservation.
- ✚ Motto: "ENERGY FOR EVER"

Key Facts about Karnali River:

- ✚ It is a perennial trans-boundary river originating in the Himalaya Mountains on the Nepal side of the Tibet border across from holy Kailash.
- ✚ It is the longest and largest river in Nepal, at 315 miles. More than 90% of the basin lies in Nepal.
- ✚ It cuts through the Himalayas in Nepal and joins the Sharda River at Brahmaghat in India.
- ✚ Together, they form the Ghaghara River, a major left bank tributary of the Ganges.

UPSC Prelims PYQ : 2023

Ques: Read the following statements:

1. Baglihar Hydropower Project has been developed on river Chenab.
2. Dulhasti Hydropower Project has been developed on river Jhelum.
3. Salal Hydropower Project has been developed on river Ravi.

Which of the statements given above is/are correct?

1. 1 only
2. 1 and 2 only
3. 1 and 3 only
4. 1, 2 and 3

Ans: (a)

Heat stress is more than a degree of concern

In recent periods, climate change and environmental degradation have significantly affected the safety and the health of workers worldwide. Heat stress is anticipated to affect labour efficiency and productivity, in turn reducing work hours and hindering the International Labour Organization's (ILO) objective of promoting fair and decent employment. Workers, who are particularly vulnerable to climate change hazards, sometimes cannot cease working despite hazardous conditions because of financial constraints.

The main health effects of heat stress on workers include heat stroke, heat cramps, cardiovascular disease, acute kidney injury, and physical injury. The Intergovernmental Panel on Climate Change (IPCC) states that to retain normal physiological activities, it is necessary to maintain a core body temperature of roughly 37°C. Temperature elevations over 38°C have a deleterious effect on one's cognitive and physical capabilities. During various life stages, women who are employed in heat-exposed sectors, such as subsistence agriculture, may be at risk for pregnancy-related complications, including hypertension, miscarriages, and premature births. An increase in temperature can diminish work productivity due to excessive heat that makes it difficult to work. Or, there is a need for personnel to operate at a slower pace.

ILO study findings

The ILO study (2019) estimated that "Heat stress is projected to reduce total working hours worldwide by 2.2 percent and global GDP by US\$2,400 billion in 2030... Agricultural and construction workers are expected to be the worst affected, accounting for 60 percent and 19 percent, respectively of working hours lost to heat stress in 2030". Agricultural workers face a significantly higher risk from heat than workers in other occupations, with farmworkers being 35 times more susceptible to heat-related fatalities. Recent ILO (2024) estimates that 2.41 billion workers worldwide are exposed to extreme heat. Further, exposure to extreme heat at work is directly associated with about 22.85 million injuries and 18,970 fatalities annually. The Asia and the Pacific regions experience the highest Gross Domestic Product (GDP) losses due to heat stress affecting labour productivity. In 1995, the region's GDP was estimated to have decreased by 1.4%, which is forecast to decrease by 2.3% in 2030 due to climate change. Projections indicate that Thailand, Cambodia, and India will experience significant declines in their national GDP in 2030, with a decrease of over 5%.

Asia and the Pacific exhibit exceptional diversity in terms of climate and the varying levels of economic development among various countries. The geographical distribution of heat stress impact is not uniform. It is projected that

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The Asia and Pacific regions could experience significant economic losses due to heat stress affecting labour productivity

by 2030, there would be a decrease of almost 5% in working hours in southern Asia and western Africa, while the reduction in the European subregions will be only 0.1%.

Further, southern Asia and sub-Saharan Africa are most susceptible to experiencing declines in labour productivity due to heat stress; these regions are already vulnerable to climate change and home to most of the world's poor population, which counteracts efforts to reduce inequalities. The countries that are most susceptible to experiencing decreases in productivity are those having a significant proportion of their workforce employed in the agricultural and/or construction sectors, as well as those situated in the tropical and subtropical latitudes. The decline in available working hours and output among small-scale and subsistence farmers is expected to affect household food security. Heat stress significantly impacts labour hours and productivity, and the impact is not uniform across regions and genders. Heat stress poses concerns that have the potential to exacerbate gender disparities in the workforce, particularly by deteriorating working conditions for the numerous women engaged in subsistence agriculture. Excessive heat stress is expected to impact the achievement of various Sustainable Development Goals (SDGs).

Impact in India

India is undergoing a consistent increase in temperatures annually. By 2030, an estimated 160 million-200 million individuals around the nation may face the risk of experiencing deadly heat waves every year. Approximately 34 million people in India will experience job losses due to reduced productivity caused by heat stress. A study in West Bengal shows that as the temperature increases by 1°C, there is a corresponding decrease of approximately 2% in the productivity of female brickmaking workers. India is the country that experiences the most impact from heat stress; in 1995, it lost 4.3% of its working hours, which is anticipated to increase to 5.8% by 2030.

In addition, India is expected to experience a significant decline in full-time employment by 2030 as a result of heat stress, which can be attributed to its large population. Further, migrant workers often work in hazardous and physically demanding jobs, primarily in the informal economy. They are particularly vulnerable to the risks posed by climate change, as they usually lack occupational safety and health protections, essential services, and infrastructure.

Informal workers may continue working despite the risk to their health from extreme climate events due to financial constraints. Thus, there is a need to strengthen adaptation and mitigation measures at the global, national, and workplace levels to reduce the detrimental

impact of heat stress on workers.

There are national guidelines under the title, 'Preparation of Action Plan - Prevention and Management of Heat Wave', by the National Disaster Management Authority in collaboration with the Ministry of Home Affairs. These guidelines are designed to protect the Indian workforce from the negative impacts of extreme heat. They are designed to help public officials create heatwave action plans for both urban and rural areas, with a focus on the general population.

The importance of the following factors is highlighted: providing education to workers; ensuring proper hydration; managing work schedules, and offering necessary medical facilities. The General Discussion Committee of the International Labour Conference, in June 2023, highlighted the urgent need to implement measures to ensure the safety and the health of workers impacted by climate-related risks and extreme weather events. This involves tackling the effects on their mental and physical well-being and the advocating of secure and conducive working environments.

In this regard, it is crucial for all stakeholders, including governments, employers, and workers, to collaborate in implementing measures that prioritise the protection of the most vulnerable individuals. These measures should include the development of sufficient infrastructure and enhanced early warning systems for extreme weather events.

Additionally, there should be a focus on improving the implementation of international labour standards that are related to occupational safety and health. This will ensure that those affected by heat stress are provided with suitable working conditions. Further, effective communication between workers and employers is essential to facilitate the adjustment of working hours, guarantee adequate rest breaks, provide access to drinking water, and offer training on the identification and management of heat stress. This can help alleviate the adverse effects of heat stress.

Think of green jobs

The government may implement adequate regulatory and legislative measures in occupations that are susceptible to heat waves in order to ensure the safety and well-being of workers. Additionally, infrastructure-related measures, such as implementing construction standards, should safeguard indoor workers. Considering the current climate change scenario, decent and green employment emerges as a promising solution for the future of work. Green jobs are employment opportunities that help protect or restore the environment while also supporting economic and social well-being.

The views expressed are personal

GS Paper 01 : Geography : Important Geophysical Phenomena

GS Paper 01 : Environment : Climate Change

PYQ: UPSC CSE Prelims 2010:

Ques : What are the possible limitations of India in mitigating global warming at present and in the immediate future?

- 1. Appropriate alternate technologies are not sufficiently available.**
- 2. India cannot invest huge funds in research and development.**
- 3. Many developed countries have already set up their polluting industries in India.**

Which of the statements given above is/are correct?

- (a) 1 and 2 only**
(b) 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (a)

Mains Practice Question **What are the other contributing factors to heat stress in India? What steps can be taken to address this issue?**

(250 w/15m)

Introduction

- +** In recent periods, climate change and environmental degradation have significantly affected the safety and the health of workers worldwide.
- +** Heat stress is anticipated to affect labour efficiency and productivity, in turn reducing work hours and hindering the International Labour Organization's (ILO) objective of promoting fair and decent employment.

The Effects of heat stress

- ✚ **Health effects** : The main health effects of heat stress on workers include heat stroke, heat cramps, cardiovascular disease, acute kidney injury, and physical injury.
- ✚ **IPCC states** : The Intergovernmental Panel on Climate Change (IPCC) states that to retain normal physiological activities, it is necessary to maintain a core body temperature of roughly 37°C.
- ✚ **Temperature elevations:** Temperature elevations over 38°C have a deleterious effect on one's cognitive and physical capabilities.
- ✚ **Health effects on women:** During various life stages, women who are employed in heat-exposed sectors, such as subsistence agriculture, may be at risk for pregnancy-related complications, including hypertension, miscarriages, and premature births.
- ✚ **Diminish work productivity:** An increase in temperature can diminish work productivity due to excessive heat that makes it difficult to work. Or, there is a need for personnel to operate at a slower pace.

ILO study findings

- ✚ **Global GDP:** The ILO study (2019) estimated that Heat stress is projected to reduce total working hours worldwide by 2.2 percent and global GDP by US\$2,400 billion in 2030.
- ✚ **Agricultural and construction workers:** Agricultural and construction workers are expected to be the worst affected, accounting for 60 percent and 19 percent, respectively of working hours lost to heat stress in 2030.
 - Agricultural workers face a significantly higher risk from heat than workers in other occupations, with farmworkers being 35 times more susceptible to heat-related fatalities.
- ✚ **Affecting labour productivity:** The Asia and the Pacific regions experience the highest Gross Domestic Product (GDP) losses due to heat stress affecting labour productivity.
- ✚ **Region's GDP:** In 1995, the region's GDP was estimated to have decreased by 1.4%, which is forecast to decrease by 2.3% in 2030 due to climate change.
- ✚ **Projections:** Projections indicate that Thailand, Cambodia, and India will experience significant declines in their national GDP in 2030, with a decrease of over 5%.
- ✚ **Exceptional diversity:** Asia and the Pacific exhibit exceptional diversity in terms of climate and the varying levels of economic development among various countries.
- ✚ **Geographical distribution:** The geographical distribution of heat stress impact is not uniform.
- ✚ **Working hours and output:** The decline in available working hours and output among small-scale and subsistence farmers is expected to affect household food security.

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- ✚ **Gender disparities:** Heat stress poses concerns that have the potential to exacerbate gender disparities in the workforce, particularly by deteriorating working conditions for the numerous women engaged in subsistence agriculture.
- ✚ **Sustainable Development Goals:** Excessive heat stress is expected to impact the achievement of various Sustainable Development Goals (SDGs).

Impact in India

- ✚ India is undergoing a consistent increase in temperatures annually. By 2030, an estimated 160 million-200 million individuals around the nation may face the risk of experiencing deadly heat waves every year.
- ✚ A study in West Bengal shows that as the temperature increases by 1°C, there is a corresponding decrease of approximately 2% in the productivity of female brickmaking workers.
- ✚ In addition, India is expected to experience a significant decline in full-time employment by 2030 as a result of heat stress, which can be attributed to its large population.
- ✚ Informal workers may continue working despite the risk to their health from extreme climate events due to financial constraints.
- ✚ Thus, there is a need to strengthen adaptation and mitigation measures at the global, national, and workplace levels to reduce the detrimental impact of heat stress on workers.

Government initiatives

- ✚ **Prevention and Management of Heat Wave:** There are national guidelines under the title, 'Preparation of Action Plan – Prevention and Management of Heat Wave', by the National Disaster Management Authority in collaboration with the Ministry of Home Affairs.
- ✚ These guidelines are designed to protect the Indian workforce from the negative impacts of extreme heat.
- ✚ They are designed to help public officials create heatwave action plans for both urban and rural areas, with a focus on the general population.
- ✚ **The importance of the following factors is highlighted:** providing education to workers; ensuring proper hydration; managing work schedules, and offering necessary medical facilities.
- ✚ It is crucial for all stakeholders, including governments, employers, and workers, to collaborate in implementing measures that prioritise the protection of the most vulnerable individuals.
- ✚ Additionally, there should be a focus on improving the implementation of international labour standards that are related to occupational safety and health.

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- ✚ Further, effective communication between workers and employers is essential to facilitate the adjustment of working hours, guarantee adequate rest breaks, provide access to drinking water, and offer training on the identification and management of heat stress.
- ✚ Additionally, infrastructure-related measures, such as implementing construction standards, should safeguard indoor workers.

Way forward

- ✚ Considering the current climate change scenario, decent and green employment emerges as a promising solution for the future of work.
- ✚ Green jobs are employment opportunities that help protect or restore the environment while also supporting economic and social well-being.

What is Heat Stress?

✚ About

- Heat stress occurs when the body cannot get rid of excess heat. When this happens, the body's core temperature rises and the heart rate increases.
- Basically, it refers to the physiological stress experienced by the body when exposed to excessive heat, particularly in high-temperature environments.

✚ Causes

- High ambient temperatures
- High humidity levels, which reduce the body's ability to cool through sweating
- Physical exertion, especially in hot conditions
- Inadequate hydration
- Poor ventilation in workspaces or living environments

✚ Symptoms

- As the body continues to store heat, the person begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink.
- The next stage is most often fainting and even death if the person is not cooled down.

What is Urban heat island (UHI) effect?

✚ About

- ✚ UHI effect refers to the phenomenon where urban areas experience significantly higher temperatures than their rural surroundings.

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- + This temperature difference is primarily due to human activities and the specific characteristics of urban environments.

Causes

- + **Surface Characteristics**
 - Urban areas have more asphalt, concrete, and buildings that absorb and retain heat, unlike rural areas with vegetation that provide cooling through evapotranspiration.
- + **Heat Generated by Human Activities**
 - Industrial processes, vehicles, air conditioning units, and other machinery generate heat.
- + **Reduced Vegetation**
 - Less green space and fewer trees mean less shading and cooling from plants.
- + **Building Density**
 - Tall buildings and narrow streets can trap heat and reduce airflow, limiting cooling.
- + **Waste Heat**
 - Energy consumption for lighting, heating, and cooling buildings releases additional heat.

Mitigation Strategies

- + **Increased Vegetation:** Planting trees and creating green spaces can help cool urban areas through shading and evapotranspiration.
- + **Cool Roofs and Pavements:** Using materials that reflect more sunlight and absorb less heat can reduce temperatures.
- + **Green Roofs:** Installing vegetation on rooftops can provide insulation and reduce heat absorption.
- + **Urban Planning:** Designing cities to include more parks, green belts, and open spaces can improve airflow and reduce temperatures.
- + **Energy Efficiency:** Improving the energy efficiency of buildings can reduce the heat generated by human activities.

Mapping : Protected Areas of India

Protected Areas

- In simplest terms, **Protected Areas** are regions or zones of land or sea which are given certain levels of protection for conservation of biodiversity and socio-environmental values. In these areas, human intervention and exploitation of resources are **limited**.



- Protected Areas are the principal mechanism of conservation of biodiversity on Earth and serve as the most important units for **in-situ biodiversity conservation**.
- In India, there are **four major categories** of Protected areas. These protected areas are constituted under the provisions of the **Wildlife (Protection) Act, 1972**.
- The **four categories of protected areas** are:

1. **Wildlife Sanctuaries**
2. **National Parks**
3. **Community Reserves**
4. **Conservation Reserves**

✚ Apart from these protected areas, **India also has the following:**

1. Biodiversity Reserves
2. Tiger Reserves
3. Elephant Reserves
4. Marine Protected Areas

✚ **Forests and wildlife are included in the Concurrent List of the Indian Constitution.** Therefore, the **Union government makes the policies and plans for Wildlife Conservation.** On the other hand, the State Forest Departments are the ones implanting those national policies and plans at the state level.

✚ **National Board for Wildlife (NBWL) puts forward a policy framework for wildlife conservation in India.** The Board was constituted under **Wildlife (Protection) Act, 1972**. It is **chaired by the Prime Minister**.

✚ **National Board for Wildlife:**

- It is a **"Statutory Organization" constituted under the Wildlife Protection Act, 1972.**
- Its role is **"advisory" in nature** and advises the Central Government on framing policies and measures for the conservation of wildlife in the country.
- **The primary function of the Board is to promote the conservation and development of wildlife and forests.**
- It has the power to review all wildlife-related matters and approve projects in and around national parks and sanctuaries.
- **No alternation of boundaries in national parks and wildlife sanctuaries can be done without the approval of the NBWL.**
- **Composition:** The NBWL is **chaired by the Prime Minister**. It has **47 members including the Prime Minister**. Among these, 19 members are ex-officio members. Other members include three Members of Parliament (two from Lok Sabha and one from Rajya Sabha), five NGOs, and 10 eminent ecologists, conservationists, and environmentalists.

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- **National Board for Wildlife may make recommendations** on the setting up of and management of national parks, sanctuaries, and other protected areas and on matters relating to restriction of activities in those areas.
- The **State Board for Wildlife shall advise the State government** on the selection and management of areas to be declared as protected areas.


Wildlife Protection Act, 1972 (with Amendment Acts of 2003 and 2006)

- It provides for the **protection of plants and animals in India**. The aim of the Act is to ensure the ecological and environmental security of India.
- It is the principal act that contains provisions for setting up and managing national parks, sanctuaries, and other protected areas.

Protected Areas of India

Protected Areas	No.	Coverage % of Country
<u>National Parks (NPs)</u>	106	1.35
<u>Wildlife Sanctuaries (WLSs)</u>	567	3.73
<u>Conservation Reserves (CRs)</u>	105	0.16
<u>Community Reserves</u>	220	0.04
Total Protected Areas (PAs)	998	5.28

 As of Jan 2023, there were 998 notified protected areas covering 5.28% of India's land area. This is far below Target 11 of the Aichi Targets – which states that by 2020, at least 17% of terrestrial and inland water areas should be conserved under Protected Areas.

 There are several kinds of protected areas, which vary by level of protection. Examples include national parks, wildlife sanctuaries, marine protected areas, community reserves, etc.

 **In terms of protection, National Parks > Wildlife Sanctuary > Reserved forests > Protected forests**