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# CURRENT AFFAIRS

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## ARTIFICIAL INTELLIGENCE (AI) CHIPS

THIS ARTICLE COVERS 'DAILY CURRENT AFFAIRS' AND THE TOPIC DETAILS OF "AI CHIPS". THIS TOPIC IS RELEVANT IN THE "SCIENCE & TECHNOLOGY" SECTION OF THE UPSC CSE EXAM.

### WHY IN THE NEWS?

In a stunning display of tech prowess, Kerala's Digital University has unleashed the **Kairali AI Chip**, propelling India onto the global edge AI stage. This silicon marvel isn't just a chip; it's a paradigm shift, ushering in an era of intelligent machines operating closer to the data's origin.

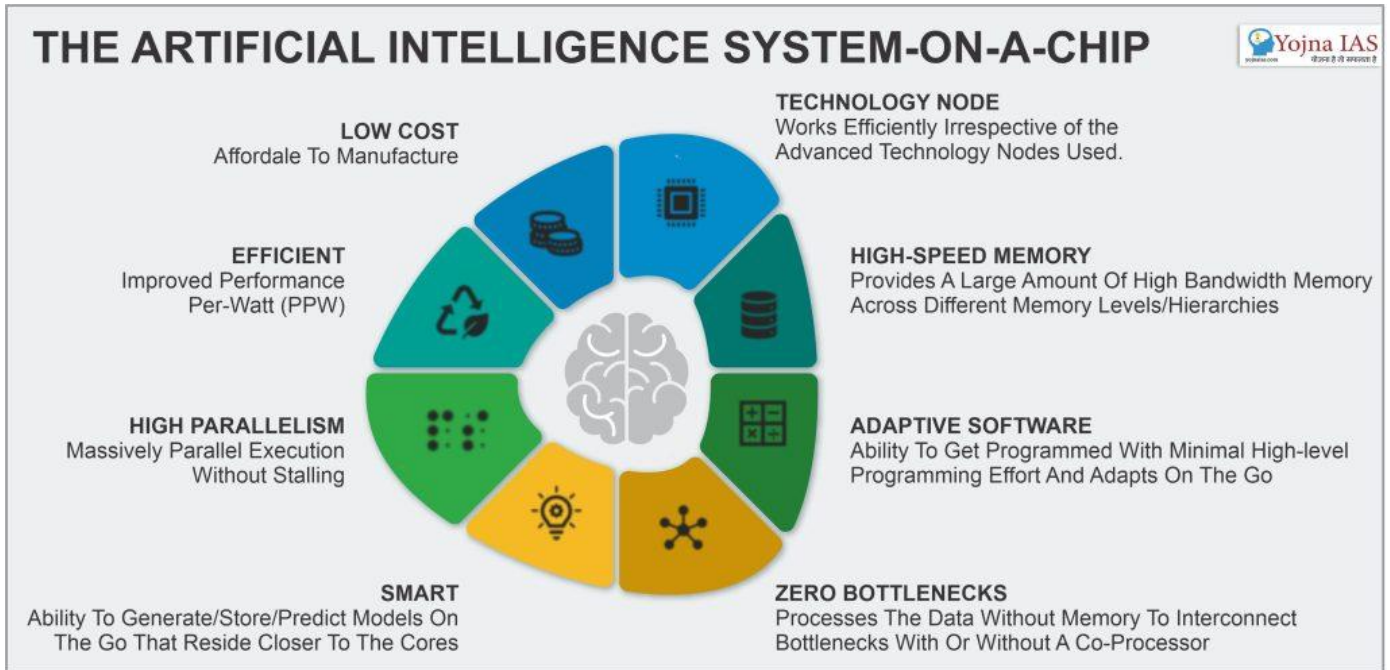
### ABOUT KAIRALI AI CHIP

- Kairali embraces the burgeoning world of edge AI, where **computations occur directly on devices where data arises**.
- It can help smartphones in translating the languages on the fly, analyzing complex images instantly, or making personalized recommendations without sending the data anywhere.
- This **decentralized intelligence**, powered by Kairali, promises **faster processing, lower latency, and enhanced data privacy** – a perfect recipe for revolutionizing countless applications.

### SOME POTENTIAL USES-

- **Agriculture:** The chip revolutionizes precision farming, providing real-time monitoring of crop health, soil conditions, and environmental factors, optimizing resource usage for enhanced crop yields.
- **Aerospace:** The chip elevates Unmanned Aerial Vehicles (UAVs) and satellites by offering advanced processing power for navigation, data collection, and real-time decision-making with minimal power consumption. It also enhances the capabilities of drones for applications such as delivery services and environmental monitoring.
- **Mobile Phones:** Enhancing the efficiency of smartphones, the chip enables advanced features like real-time language translation, improved image processing, and AI-driven personal assistants.
- **Security and Surveillance:** The chip facilitates faster and efficient facial recognition algorithms, threat detection, and real-time analytics through its edge computing capabilities.

- **Automobile:** Serving as a game-changer for autonomous vehicles, the chip provides essential computing power for real-time processing of sensory information, ensuring safe and efficient autonomous driving.



### ABOUT AI CHIPS

- AI chips, often called artificial intelligence chips, are **specialised processors** that improve the efficiency of Artificial Intelligence (AI) tasks. These chips play an important role in **speeding up the computation-intensive tasks that machine learning and deep learning algorithms require.**
- **Unlike traditional Central Processing Units (CPUs)**, which are general-purpose, AI chips are optimised for specialised tasks, resulting in quicker and more energy efficient processing.
- **One famous type of AI chip** is the Graphics Processing Unit (GPU), which was originally meant to render visuals in video games but has since been repurposed for parallel processing tasks required by AI.
- Furthermore, **Field-Programmable Gate Arrays (FPGAs)** and **Application Specific Integrated Circuits (ASICs)** are gaining popularity because they can give even better efficiency by tailoring hardware to specific AI workloads.

### HOW AI CHIPS WORK

- It is a **collection of computer programmes or algorithms** which stimulate activity and brain structure.
- **Deep Neural Networks (DNNs)** go through a training phase in which they gain new skills based on previous data.
- DNNs can then infer by using the skills learnt during deep learning training to make predictions on previously unknown data.

- Deep learning may accelerate and simplify the collection, analysis, and interpretation of massive volumes of data.
- Chips like these, with their hardware designs, compatible packaging, memory, storage, and connectivity solutions, enable AI to be incorporated into a wide range of applications, transforming data into information and subsequently knowledge.

### **BENEFITS OF AI (ARTIFICIAL INTELLIGENCE) CHIP-**

- **Enhanced Performance:** AI chips are intended to address the special needs of artificial intelligence applications, resulting in much quicker processing rates and higher performance than standard processors. This acceleration is especially important for the complicated computations used in machine learning and deep learning techniques.
- **Energy Efficiency:** AI processors are optimised for parallel processing, which allows AI workloads to be executed more efficiently. This not only speeds up processes, but also lowers energy usage, making AI systems more sustainable and cost-effective in the long term.
- **Specialised Features:** Unlike universal processors, AI chips are designed for specific AI applications. This specialisation allows them to excel at tasks like picture recognition, natural language processing, and data analysis, resulting in more accurate and efficient outcomes.
- **Scalability:** AI chips help to scale AI systems. Their architecture enables smooth integration with a variety of devices, ranging from edge devices such as smartphones and IoT devices to data centres, offering scalability to meet the expanding demands of AI applications.
- **Optimised Hardware Layout:** Manufacturers are always optimising the design of AI chips to increase efficiency and effectiveness. This optimisation takes into account size, weight, and power consumption to ensure that AI-powered devices can be used in a variety of applications and situations.
- **Real-time Processing:** AI chips allow for real-time data processing, which is vital in applications such as autonomous vehicles, where split-second decision-making is required for safety. This skill is especially useful in cases that require quick responses, such as cybersecurity and surveillance.

### **PRELIMS PRACTICE QUESTION**

**Q1) Consider the following statements:**

- 1) AI chips in autonomous vehicles can be used to enhance safety features
- 2) AI chips in edge devices reduce the latency by processing AI tasks locally
- 3) General-purpose computing is a key feature of AI chips

**How many of the above statements are true?**

- a) One
- b) Two
- c) Three
- d) None

**ANSWER: B**

### MAINS PRACTICE QUESTION

- Q1) Considering the environmental impact of technology, how can the design and manufacturing of AI chips be optimized to minimize their carbon footprint?
- Q2) As AI chips become increasingly integrated into everyday devices, how do you foresee the ethical implications and privacy concerns associated with the widespread use of AI in various aspects of our lives, and what measures should be taken to address these issues?

Himanshu Mishra

## THE BLURRY PICTURE OF INTERNAL FEMALE MIGRATION AND THE PROBLEMS OF MIGRANT WOMEN WORKERS

SOURCE - THE HINDU AND PIB

GENERAL STUDIES - SOCIAL JUSTICE, WOMEN'S MIGRATION, GENDER-DISCOURSE, PERIODIC LABOR FORCE SURVEY, FEMALE LABOR FORCE PARTICIPATION RATE.

WHY IN THE NEWS ?



- A recent report of the United Nations states that India is going through a kind of urban revolution. According to this report, by 2031, India's urban population will be approximately 60 crores. Three big cities of India due to displacement; Delhi, Kolkata and Mumbai will be counted among the most densely populated cities in the world. The 2011 census reveals the fact that 80 percent of displacement is caused by or caused by women. **There are two reasons for this -**
  - (1) **Migration of women after marriage**
  - (2) **Increase in demand for women workers in the export-based economy during the liberal period.**



- Recent data shows that 101 percent of female workers have migrated compared to 48.7 percent of male workers.
- Both the Census and the National Sample Survey Office do not give prominence to work as the reason for women's displacement and consider only marriage as the main reason. Such survey organizations continue to consider women's economic participation as secondary.
- While poor migrants are deprived of identity cards, housing and other economic services, women migrants are subjected to various types of discrimination. In the field of work, apart from basic facilities, they are deprived of maternity benefits and care.
- Most migrant women remain victims of sexual exploitation. They are paid less than male and local female workers. Female migrants with relatively low skills are employed in jobs hazardous to health.
- According to a study by CIVIDEP, 90 percent of women working in textile industries in Bengaluru suffer from physical and mental problems like respiratory problems, tuberculosis, depression and back pain.
- Unlike China's Hukou system, India does not have a system to register different categories of migrants, so that it can easily divide them into political, administrative, labor and economic-social categories.
- PLFS data shows that the major reason for migration among women is marriage (81%), followed by migration of family members (10%), employment (2.42%), and migration for educational opportunities (0.48%). Is. There is no provision to address secondary causes/motives such as climate shocks and food insecurity, which can be an important driver/carrier of migration for women.

### INDIA MIGRATION REPORT 2020 - 21 :



- In a study released in June 2022, the Ministry of Statistics and Program Implementation compiled data on migrants and short-term tourists. 0.7% of the country's population were recorded as 'temporary immigrants' during the period July 2020–June 2021. Temporary immigrants were defined as those who arrived in their homes after March 2020 and stayed there for at least more than 15 consecutive days but less than six months. More than 84% of these 0.7% temporary immigrants returned home due to the pandemic. In India, only 86.8% of women migrate after marriage, while 49.6% of men migrate in search of employment. The migration rate at all India levels in July 2020 – June 2021 was 28.9%, with 26.5% migration rate in rural areas and 34.9% in urban areas.

- Women recorded a high share of migration rate of 47.9%, 48% in rural and 47.8% in urban areas.
- The migration rate of males was 10.7%, which is 5.9% in rural and 22.5% in urban areas.
- National surveys such as the PLFS collect information on female migrants but often present an inaccurate picture. For example – surveys only ask respondents about their primary reason for migration. Do women also migrate independently? Is there any change in the status of migrant women in their families? Does migration remove women from patriarchy in one place and push them into patriarchy in another place? To get answers to all these questions, first we need to understand migration from a gender perspective.
- Around the world, more people are migrating than ever before. Many of them migrate in search of new opportunities and a better life for themselves and their families. Many people are forced to migrate due to disaster or conflict. Traditionally, moving from one area to another in search of better life prospects has been considered a man's job. However, along with men, women are also migrating in large numbers.

#### **ACCORDING TO THE STUDY OF MIGRATION POLICY INSTITUTE -**

- According to the World Bank report, the total number of migrant workers is estimated to be 164 million, accounting for almost half of the world's migrants in 2017. Yet little concrete effort has been made to incorporate gender into theories of international migration. According to a study by the Migration Policy Institute, in the 1960s and early 1970s, the phrase 'migrants and their families' was used to understand migration, which implicitly meant, 'male migrants and their wives and children.'

#### **ROLE OF GENDER IN DISPLACEMENT :**

- Women's movements raised questions about the invisibility of women as migrants, their perceived passivity in the migration process, and their place in the home. Women began to be included in research in the 1970s and 1980s. But this did not bring any significant change in the patriarchal thinking towards women due to the male-dominated social system. The important question was whether migration leads to modernization of women? The push-pull demographic model then viewed displacement as the result of individual decisions. It was understood that women's responsibilities as wives and mothers, and men's role as breadwinners, influenced women's decisions. Women are therefore less likely to participate in migration decisions and in the host country's labor force.

#### **ROLE OF MARRIAGE IN MIGRATION OF WOMEN :**

- Marriage continues to play an important role in women's migration. But with time economic factors like employment, business and education have gained importance. This reflects less reliance on marriage as a single factor behind women's migration. Between 2001 and 2011, the number of women migrating for work increased by 101%. This is double the growth rate for men (48.7%). Also, the number of women citing business as a reason for migration increased by 153%, which is four times the rate of men (35%). More women have also migrated for education.

## **PATTERN OF MIGRATION OF WOMEN :**



- According to the 2011 census, there are a total of 31.4 crore internal migrants in India, out of which 30.96 crore are women, i.e. about 68 percent. According to the Migration in India 2020-21 report, marriage was a major reason behind the migration of more than 71% of the migrants. 86.8% of women and only 6.2% of men migrate for marriage. 9.2% of the migrants cited accompanying a earning member of the family or migration of parents as the reason, of which 17.5% were males and 7.3% were females.
- For some women, migration may mean increased social mobility, economic independence, and relative autonomy. For some, labor force participation may increase the burden as they still have to take care of household chores and children.
- Most of the people migrate within their own state, out of which 92.6% are women and 65.6% are men. 7.2% of women and 31.4% of men migrated to another state. 2.9% of men and 0.2% of women moved to another country. More than 63% of female internal migrants moved from rural areas to other rural areas, and only 18% of men. On the other hand, 33.5% of males and 15.6% of females migrated from rural to urban areas. This shows that most of the women migrate near their native places and the majority of men migrate from rural areas to urban areas, pointing to the economic disparity between village and city.

## **NEARLY 50 PERCENT OF THE COUNTRY'S YOUNG WOMEN ARE AWAY FROM EDUCATION AND EMPLOYMENT : REPORT**

### **WOMEN MIGRATING FOR WORK OR EMPLOYMENT :**

- A person's gender identity shapes every stage of the migration experience. Who migrates and where? How people migrate, there is an effect of class.
- Migration for work usually results in relief from poverty, even if it means a difficult life in India's metropolises. For example, a migrant from the drought-prone Marathwada region of Maharashtra temporarily tripled her income after moving to Mumbai. Factors such as agricultural distress in rural areas, changing land use patterns, increasing mechanization, and deteriorating environment have increased poverty and unemployment levels for women, forcing them to move to urban areas for work.



- In urban areas, the emergence of gender-segregated labor markets following liberalization has led to many low-skilled, uneducated women finding opportunities in the informal sector. High female literacy as well as attainment of education is also motivating many women to migrate. However, roughly 80% of the country's migrant women work on a contract basis in the informal sector – in activities such as agriculture, construction, transportation, domestic work and mining. Manufacturing labor is the largest occupation for the female workforce in urban areas (there are 45 lakh women in this sector), followed by teaching (27.5 lakh) and domestic work (20 lakh).

### **PROBLEMS OF MIGRANT WOMEN :**

- The biggest problem of migrant women is their invisibility. When we say 'migrant', only the image of men comes to our mind and even today, like in 1950, we are unable to see women and children beyond their dependence on men. Furthermore, there is also a huge lack of awareness about the schemes available after migration. Because of this, women are not able to avail the benefits of Anganwadi services and PDS. Along with this, women are also far away from financial literacy, use of phones and technology. In the cities they have to live in extremely unhealthy conditions in temporary shelters almost instead of working.
- Women constitute more than half (56.7%) of the non-agricultural informal sector, according to the latest data from the Periodic Labor Force Survey Annual Report, 2020 – 2021. Most of them come from marginalized communities, extremely resource-poor backgrounds and are the sole source of income for their families. Informal workers are covered by the Sexual Harassment at Workplace Act but they are often unaware of the law, making it extremely difficult for them to speak out against harassment. They also fear loss of livelihood and the stigma associated with the issue, which prevents them from reporting such violence.

### **MIGRATION RELATED CHALLENGES :**

#### **SOCIAL AND PSYCHOLOGICAL ASPECTS :**

- Migrants are not easily accepted in the new area to which they migrate and are not considered local residents. Therefore they are often treated as second class citizens.
- Language and Cultural Adaptation Any person immigrating to a new country faces many challenges ranging from cultural adaptation and language barriers to homesickness and loneliness.

### **ISSUES FACED BY DISADVANTAGED COMMUNITIES OR CLASSES :**

- People who belong to poor, destitute or deprived communities often find it difficult to socialize with both the local people and the migrating groups in the new place they migrate to.

### **FORCED TO REMAIN FOREVER DEPRIVED OF SOCIAL BENEFITS AND POLITICAL RIGHTS :**

- Migrant workers are deprived of many opportunities to exercise their political rights, such as the right to vote.
- Apart from this, those migrant workers have to face many problems in getting voter ID cards, proof of their residential address, and even making an Aadhar card, which is also due to the



nomadic nature of their life and also due to the instability of residence. They have a tough time and are deprived of access to welfare schemes and policies.

### **LOSS OF INCOME AND LOSS OF LIVELIHOOD :**

- Economic uncertainty and reverse migration due to the Corona pandemic has further increased their suffering. A survey of female migrant workers from 12 Indian states by UNDP found that their incomes fell by more than half during the pandemic compared to pre-pandemic levels.
- Another study found that the pandemic not only led to loss of livelihoods, but after a few months of the lock-down, far fewer women were working than men. This also had a serious impact on the nutrition and health of migrant women.
- The men who migrate in search of employment and the women who stay behind alone to take care of farming, household and children, is a different problem. More than 4.5% of women in rural areas and 1.5% of women in urban areas have husbands living somewhere else.

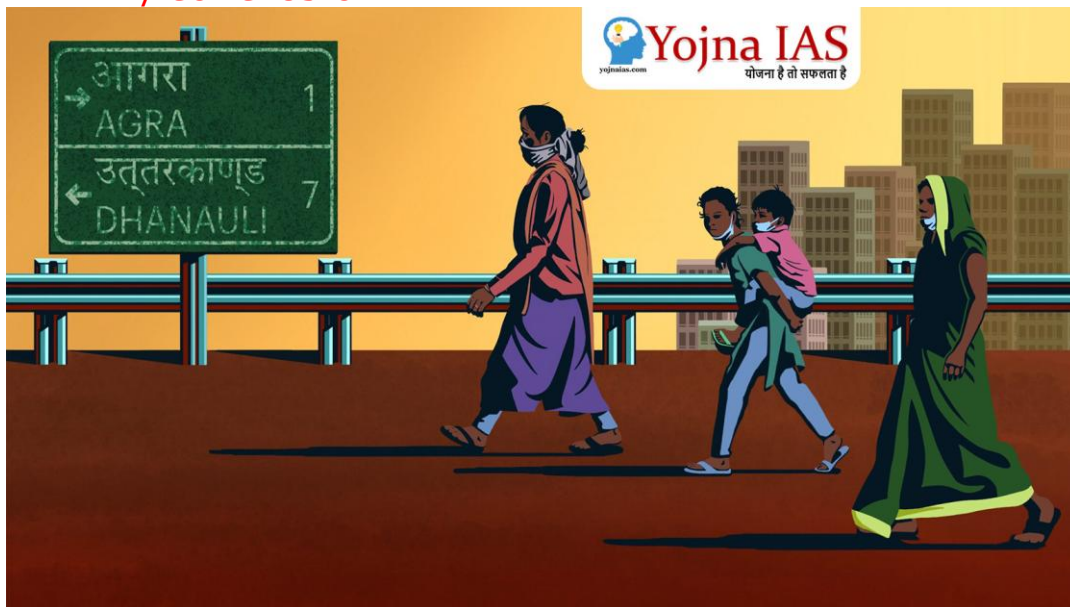
### **PROVIDING PAY EQUALITY, OCCUPATIONAL SAFETY, AFFORDABLE HEALTHCARE, RELIABLE PUBLIC TRANSPORT AND SAFE CITIES :**

- The first thing the government needs to do is collect accurate data.
- The government must ensure that women workers have access to quality and affordable child care, pay equality, occupational safety, affordable healthcare, reliable public transport and safe cities.
- Migrant women are considered to be the most vulnerable to job loss due to technological advancements, so it is essential that they are given skills training taking into account the role of technology in shaping the future of work.

### **EMPLOYMENT IS NOT A SUFFICIENT SOLUTION FOR WOMEN EMPOWERMENT**

- The draft Migrant Labor Policy by NITI Aayog proposes to create a suitable policy for migrant workers but it largely ignores the specific needs and concerns of migrant women.
- In the present times when women must advance socially and economically after lagging behind men for decades, it seems that advancement itself is a major obstacle to their opportunities.
- One of the main reasons for this, on the one hand, is patriarchy and ignorance, while the other reason is migration from one place to another.
- There is a need for structural change in the entire system for women in India and there is a strong need for better policy making, which is not only sensitive to the needs of women migrants, but also focuses on creating an integrated social security system for them. Perhaps then Indian society will be able to look at the mobility of women afresh.
- Several steps should be taken to solve this. National surveys should compile more information about their socio-economic conditions after migration as little is known about it. For example, the PLFS indicates that a minute percentage (about 7%) have access to social security benefits, with no data for the rest of the population. There is also a lack of time-use data for migrants as India has not yet standardized it. Time-use data will significantly help advance knowledge regarding unemployed female migrants.

## SOLUTION PATH / CONCLUSION :



- There should be proper arrangement for data collection of migrant women.
- Women's economic participation and their contribution to the nation should be taken into consideration.
- Aadhaar cards of migrant women should be made on priority. They should be given the benefit of Jan Dhan Yojana provided by the government. They should be given the facilities of the National Health Security Mission.
- Austria, Belgium, Norway, UK. On the lines of other countries, there should be arrangements for vocational training for migrant women. They should be given access to support services.
- A lot can be learned from Vietnam's scheme called 'We the Women'.
- The state of Kerala provides free medical facilities and insurance to approximately 3 crore female migrant workers. This should be followed.
- A lot can be learned from Vietnam's scheme called 'We the Women'.
- A separate national policy can be made for women migrants, which will specifically focus on the problems of women migrants, and try to provide them all possible assistance. Political inclusion of migrants will make urban governance more democratic and gender equitable.

## PRACTICE QUESTIONS FOR PRELIMINARY EXAM :

**Q.1. Consider the following statements in the context of internal migration of women in India.**

1. 101 percent of female workers have migrated compared to 48.7 percent of male workers.
2. According to the Periodic Labor Force Survey, the major reason for migration among women is marriage (81%).
3. For women, migration can mean increased social mobility, economic independence, and relative autonomy.
4. According to the latest data from the Periodic Labor Force Survey Annual Report, 2020 – 2021, women constitute more than half (56.7%) of the non-agricultural informal sector.

**Which of the above statement /statements is correct?**

- (A). Only 1 and 4  
(B). Only 2 and 3

(C) None of these.

(D). All of these.

**Answer - (D).**

**PRACTICE QUESTIONS FOR MAIN EXAM :**

**Q.1. Highlighting the main reasons for internal migration of women in India, discuss the major problems of migrant women workers and various suggestions for their solutions.**

**Akhilesh kumar shrivastav**

