Regional Distribution and Production Pattern of Rice in India

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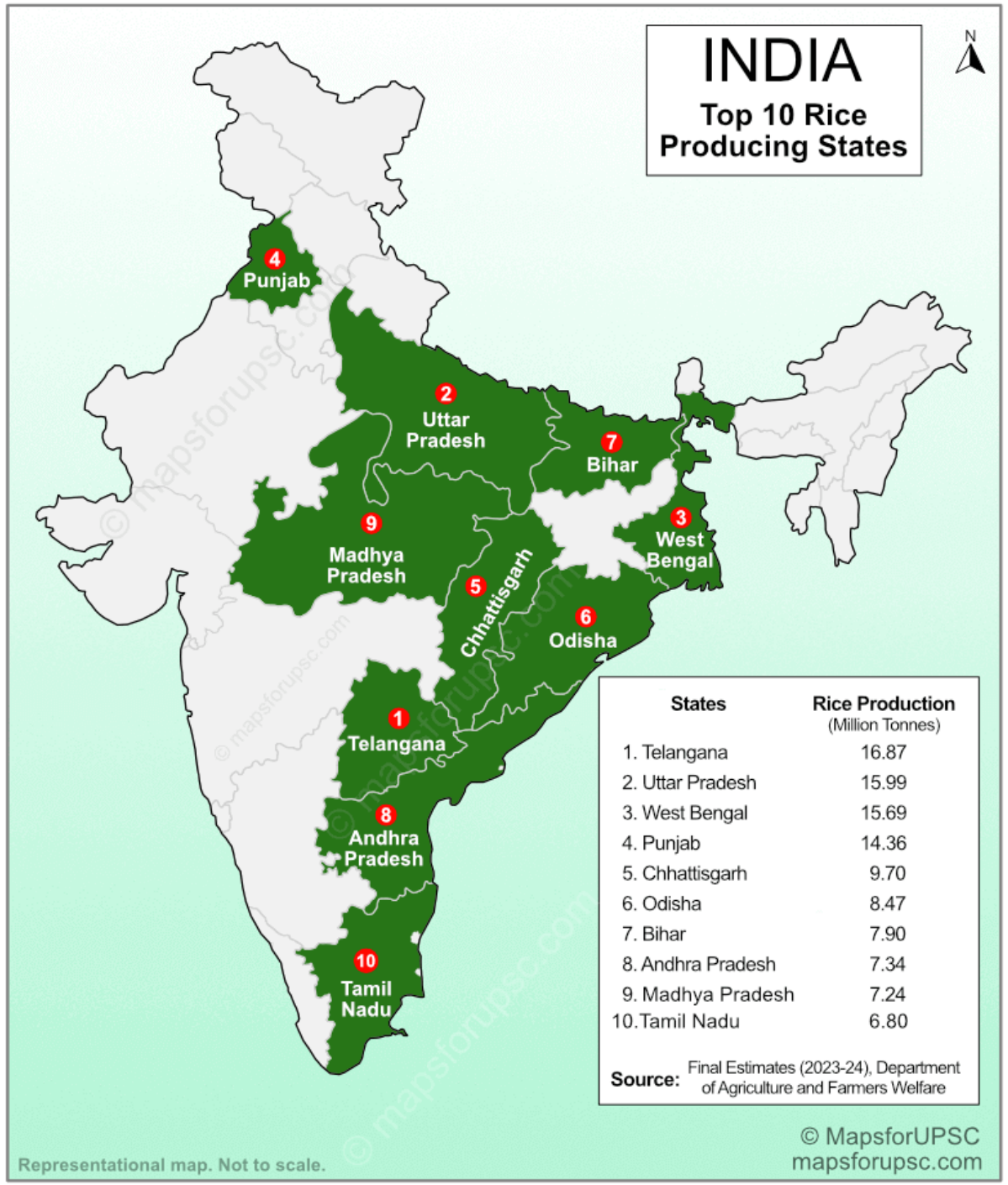
Importance of Rice in India

- "Rice: The Lifeline of India“
  - Staple food for a majority of the population.
  - Significant contributor to the agricultural sector and the Indian economy (3-4% contribution to GDP).
  - Source of livelihood for millions of farmers and agricultural laborers.
  - Cultural and culinary significance across India.


INDIA
Top 10 Rice Producing States
N
4 Punjab
2 Uttar Pradesh
7 Bihar
3 West Bengal
9 Madhya Pradesh
5 Chhattisgarh
6 Odisha
1 Telangana
8 Andhra Pradesh
10 Tamil Nadu
States | Rice Production (Million Tonnes)
1. Telangana 16.87
2. Uttar Pradesh 15.99
3. West Bengal 15.69
4. Punjab 14.36
5. Chhattisgarh 9.70
6. Odisha 8.47
7. Bihar 7.90
8. Andhra Pradesh 7.34
9. Madhya Pradesh 7.24
10. Tamil Nadu 6.80
Source: Final Estimates (2023-24), Department of Agriculture and Farmers Welfare
Representational map. Not to scale.
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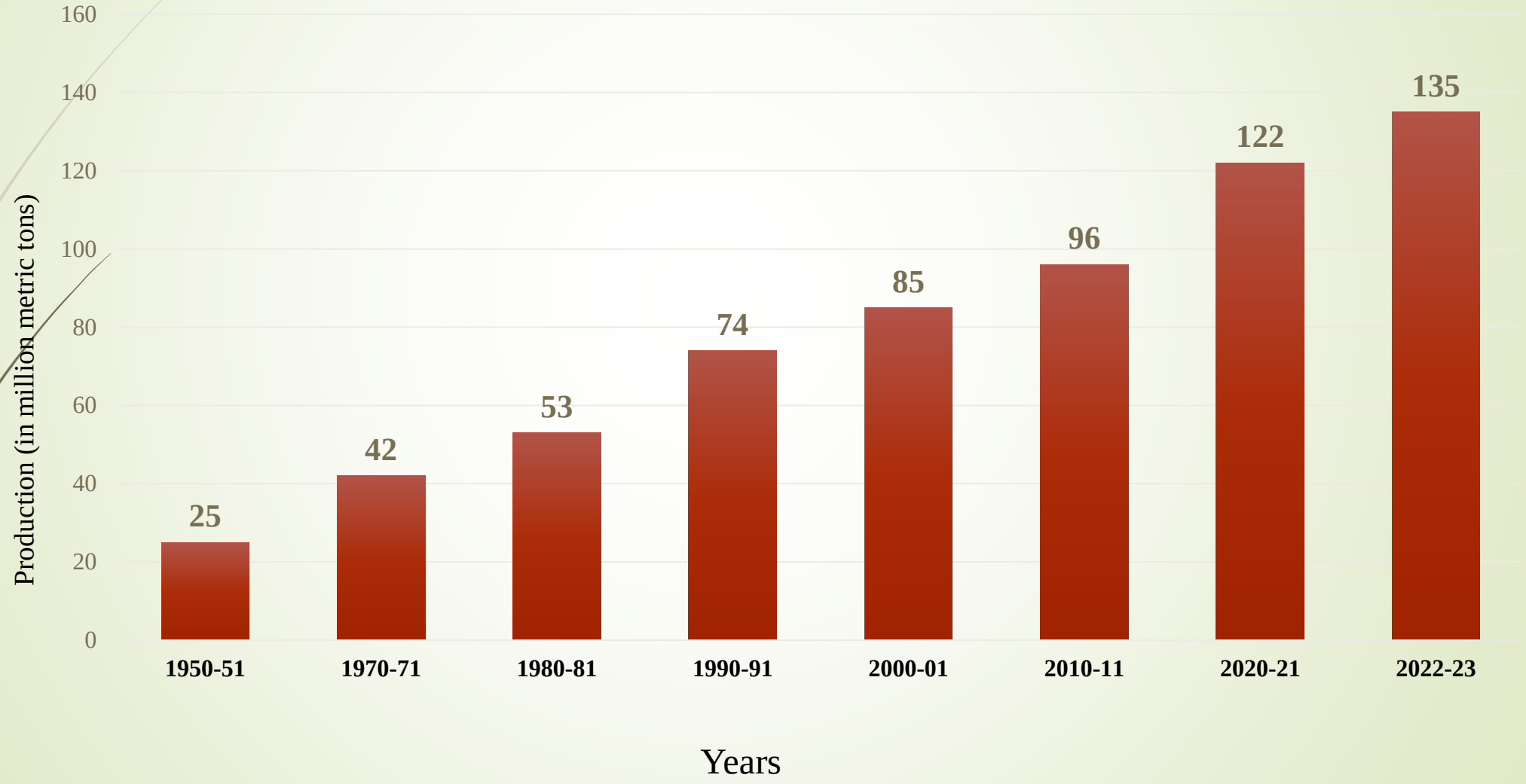
Factors Influencing Rice Production:

- **Rainfall:** Rice is a water-intensive crop, and rainfall plays a crucial role in its production, especially in rain-fed areas.
- **Irrigation:** Irrigation is essential for rice cultivation in areas with low or erratic rainfall.
- **Soil Type:** Rice thrives in alluvial and lateritic soils that have good water-holding capacity.
- **Temperature:** Warm and humid temperatures are ideal for rice cultivation.
- **Government Policies:** Government policies such as minimum support prices (MSP), subsidies on fertilizers and electricity, and irrigation projects have a significant impact on rice production.
- **Technology:** The adoption of high-yielding varieties, modern farming techniques, and mechanization has contributed to increased rice production.
- **Pests and Diseases:** Pests and diseases can cause significant losses in rice production.
- **Labor Availability:** Rice cultivation is labor-intensive, and the availability of labor is an important factor.

India's Rice Production at a Glance

- India's Rice Production: A Global Powerhouse.
  - India is the world’s second-largest producer of rice and the largest exporter of rice in the world.
  - In 2020, world production of paddy rice was 756.7 million metric tons led by China and India with a combined 52% of this total.
  - India’s Rice Production increased from 53.6 million tons in FY 1980-81 to 130 million tons in FY 2021-22.
  - Rice yield per hectare in 2021-22 was 2809 kg/hectare.

Trend of Rice Production in India)



Regional Distribution (Major Rice-Producing Regions):

- India's rice production is concentrated in specific regions due to favorable climatic conditions and soil types. Here's a breakdown of the major rice-producing zones:
- **Eastern India:** This is the largest rice-producing region.
  - **States:** West Bengal, Odisha, Bihar, Jharkhand, Assam, and Chhattisgarh.
  - **Characteristics:** High rainfall, alluvial and lateritic soils, and a warm, humid climate. This region often experiences multiple rice crops in a year. West Bengal is often the top rice-producing state.
  - **Cultivation Practices:** Both traditional and modern methods are used. Flooding is common, and traditional varieties are still prevalent in some areas.
  - **Key Varieties:** Aman (winter rice), Aus (autumn rice), and Boro (summer rice) in West Bengal and Odisha. 'Mahsuri' is also widely cultivated.

Regional Distribution (Major Rice-Producing Regions):

- **Southern India:**
  - **States:** Tamil Nadu, Andhra Pradesh, Telangana, and Karnataka.
  - **Characteristics:** Well-developed irrigation systems (especially in the Cauvery delta), fertile alluvial soils, and a tropical climate.
  - **Cultivation Practices:** Highly intensive cultivation with modern methods, including high-yielding varieties (HYVs) and fertilizers.
  - **Key Varieties:** Ponni, IR-20, BPT-5204 (Sona Masuri), and Swarna.

Regional Distribution (Major Rice-Producing Regions):

- **Northern India:**
  - **States:** Uttar Pradesh, Punjab, Haryana, and Uttarakhand.
  - **Characteristics:** Extensive irrigation from the Indo-Gangetic plain rivers (especially the Green Revolution areas), fertile alluvial soils, and a sub-tropical climate.
  - **Cultivation Practices:** Highly mechanized farming with HYVs, fertilizers, and pesticides. Punjab and Haryana have very high yields due to irrigation and technology.
  - **Key Varieties:** Basmati (a premium, aromatic variety), PR-1121, and other HYVs.

Regional Distribution (Major Rice-Producing Regions):

- **Central India:**
  - **States:** Madhya Pradesh.
  - **Characteristics:** Moderate rainfall, black and alluvial soils, and a sub-tropical climate.
  - **Cultivation Practices:** Mix of traditional and modern methods. Irrigation is less developed compared to other regions.
  - **Key Varieties:** Various local and improved varieties.

Key Phases of Growth

- **Pre-Green Revolution (1947 - Mid-1960s):**
  - **Production Levels:** Rice production was relatively low, with yields being significantly lower than current levels.
  - **Methods:** Traditional farming methods were prevalent.
  - **Growth Rate:** The growth rate was slow and primarily dependent on expanding the area under cultivation.
  - **Data Snapshot:**
    - Around 1950-51: Rice Production: 25 million tones.

Key Phases of Growth

- **Green Revolution (Mid-1960s - 1980s):**
  - **Key Drivers:** The Green Revolution was a turning point. It involved the introduction of High-Yielding Varieties (HYVs) of rice, along with increased use of fertilizers, pesticides, and irrigation.
  - **Regions Impacted:** Primarily focused on the northern states like Punjab, Haryana, and Uttar Pradesh initially, but gradually spread to other regions.
  - **Significant Jump in Production:** Rice production saw a dramatic increase, thanks to the higher yields of the new varieties.
  - **Data Snapshot:**
    - Around 1970-71: Rice Production: 42 million tones
    - Around 1980-81: Rice Production: 53 million tones.

- **What is Green Revolution: The Green Revolution was a period of agricultural innovation in the 1960s that increased crop yields and addressed malnutrition in developing countries.**

Key Phases of Growth

- **Post-Green Revolution (1990s - Present):**
  - **Continued Growth:** Rice production continued to grow, though the rate of growth slowed down compared to the Green Revolution period.
  - **Diversification of Varieties:** Development and introduction of new and improved varieties, including Basmati rice for export.
  - **Expansion to New Areas:** Rice cultivation expanded to some non-traditional areas with irrigation infrastructure.
  - **Data Snapshot:**
    - Around 1990-91: Rice Production: ~74 million tones
    - Around 2000-01: Rice Production: ~85 million tones
    - Around 2010-11: Rice Production: ~96 million tones
    - Around 2020-21: Rice Production: ~122 million tones (Record production)
    - Around 2022-23 (estimated): 135 million tones (Another record production)

Recent Trends and Challenges:

- **Climate Change:** Changing rainfall patterns, increased temperatures, and extreme weather events pose a threat to rice production.
- **Water Scarcity:** Declining groundwater levels and increasing competition for water resources are major challenges.
- **Soil Degradation:** Excessive use of fertilizers and pesticides has led to soil degradation in some areas.
- **Diversification:** There is a growing need to diversify cropping patterns to reduce the dependence on rice and promote sustainable agriculture.
- **Promotion of Drought-Resistant Varieties:** Efforts are underway to develop and promote drought-resistant rice varieties to cope with water scarcity.
- **Direct Seeded Rice (DSR):** Promoting DSR is being done to address water scarcity.