Mains Practice Question

Q. What do you understand by agroforestry? How is it important in context of climate change for India? (250 words)

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Approach

- Define agroforestry as introduction
- State and describe the important features of agroforestry which are helpful in mitigating the effects of climate change.
- Give conclusion

Introduction

- Agro forestry is a land use system that integrates trees, crops and animals in a way that is scientifically sound.
- It is a dynamic, ecologically based, natural resource management system that, through integration of woody perennials on farms and in the agricultural landscape, diversifies and sustains production and builds social institutions.

Body

- Climate change is predicted to have negative consequences for agriculture in India as well as in the world. Extreme weathers which are consequences of climate change are likely to reduce overall productivity of agriculture in India. Extreme weather conditions like flash floods, droughts, untimely rains, hailstorms, heat and cold waves bringing temperature unsuitable for crops will demand adaptation of agriculture practices to new climatic conditions.
- In this context Agro-forestry is important for India as well as other developing countries.

Importance of Agroforestry in context of climate change for India

- **Higher Yields:** Higher yields of crops have been observed in forest-influenced soils than in ordinary soils. In the Tarai area of Uttar Pradesh, Taungya cultivators harvested higher yields of crops such as maize, wheat, pulses etc. without fertilizer. Experiments conducted at IGFRI, Jhansi indicate that the total yield of fodder is more when fodder grasses are grown with fodder trees than pure fodder grass cultivation. Leucaena leucocephala intercropped with agricultural crops and fodder grasses increase the total yield of food grains, fodder and fuel.
- **Lower Consumption of fertilizers:** Nitrogen fixing trees grown in the agroforestry systems are capable of fixing about 50 -100 Kg N/ha/year. These are mentioned as one of the most promising component of agroforestry system. The leaf litter after decomposition forms humus, releases nutrients and improves various soil properties, it also reduces the fertilizer needs.
- **Supplement Organic Farming:** Due to lower requirement of chemical fertilizers agroforestry can supplement organic farming. Use of lesser chemicals will also help in mitigating anthropogenic effect on climate.
- **Economical and Efficient:** Growing of trees and fodder crops (including fodder trees) is more economical, particularly on marginal lands. The total production and value of fuel, fodder and small

timber in degraded lands are reported to be many times more than the coarse grains usually produced on them.
- **Soil regeneration:** Appropriate agroforestry systems improve soils physical properties, maintain soil organic matter and promote nutrient cycling.
- **Clean Biomass energy:** Agroforestry will help in generation and promotion of sustainable renewable biomass based energy.

Conclusion

- Realising the potential of agroforestry in India, Government has brought National Agroforestry Policy to encourage agroforestry.
- Government should incentivize farmers for practicing agroforestry especially marginal farmers should be financially supported.