



Rainfed Farming

This editorial is based on the article [Need to boost rainfed farming](#) which was published in The Hindu BusinessLine on 02/11/2021. It talks about the issues of rainfed agriculture and also suggests a way forward.

It is unequivocal that human influence has warmed the atmosphere, ocean and land mentioned in the recent [IPCC report](#). It also interprets that the heat waves across India will increase thereby putting our agriculture and lives under considerable stress.

The report further infers that pluvial floods (caused by extreme monsoonal rains) will go up. With such an **'expected uncertainty'** businesses can not be as usual. India became food secure after considerable planning and efforts. Maintaining and improving it further by adding nutrition security is sine qua non.

With large parts in India under rainfed farming it is imperative to focus on the [rainfed farming](#) to ensure betterment of the agriculture sector in India.

Rainfed Farming and Agro-Ecology

- Rain-fed areas produce nearly **90% of millets, 80% of oilseeds and pulses, 60% of cotton** and support **nearly 40% of our population** and **60% of our livestock**.
- These facts present an existing vulnerability to ensuing climate change. The only option we have is being prepared, adapt, and mitigate climate change.
- Rain-fed areas are ecologically fragile and hence vulnerable to climate change and they are also largely inhabited by poorer farmers. But at the same time, rain-fed areas provide nutrition security through millets, pulses and oilseeds.
- Most of the endemic and cultivable land races of these regions are ephemerals. The word 'ephemeral' denotes all plants lasting a very short period of time and they inhabit rain-fed areas.
- Whenever rains come, dormant seeds sprout, flower, seed and disperse their seeds in a short time. Productivity of most of the rain-fed crops is meagre as compared to their irrigated cousins and hence traits of resilience and improved productivity are screened for under rain-fed crop improvement programs
- India is a subtropical country with **15 agro-climatic zones** and primarily dependent on the south-west monsoon.
 - Of India's 329 million hectares of geographical area, nearly 140 million hectares are net sown area and out of it 70 million hectares is rain-fed. The average size of Indian farm holdings is about one hectare.

Importance of Agroecology

- The **United Nations Environment Program(UNEP)** defines agro-ecology as "an **ecological approach to agriculture**, often described as low-external-input farming. Other terms such as regenerative agriculture or eco-agriculture are also used.

- Agro-ecology is not just a **set of agricultural practices, it focuses on changing social relations, empowering farmers, adding value locally and privileging short value chains.**
- It allows farmers to adapt to climate change, sustainably use and conserve natural resources and biodiversity.
- In simple words, agro-ecology provides crop diversity but main food staples of the world are: rice, wheat, maize, cassava, potato etc., when there are nearly 30,000 edible plants.
- It seeks low energy external inputs, agro-ecological services as enterprises, soil covered for a large period of time through multiple cropping, niche crops and regional markets.

Challenges of Rainfed Agriculture

- **Frequent Droughts:** Droughts and famines are the general features of rainfed agriculture in India.
- **Soil Degradation:** Since the **Green Revolution** of the 1960s, the national agricultural policy is driven by the need to maximize crop yield, using irrigation and intensive use of HYVs, chemical fertilizers, and pesticides.
 - This has been a major challenge in preserving soil in the drier regions and rainfed farming systems.
- **Low Investment Capacity:** Rainfed agriculture in India comprises small and marginal farmers who accounted for 86% of operational holdings in 2015-2016 compared with 62% in 1960-1961.
- **Poor Market Linkages:** Most of the rural areas are characterized by a subsistence economy. The surplus farm produce is sold only if family requirements are met.
 - Further, individual production units (families) operate independently which makes it difficult to pool the produce for an efficient marketing
- There is generally enough rainfall to double and often even quadruple yields in rainfed farming systems, even in water-constrained regions. But it is available at the wrong time, causing dry spells, and much of it is lost.
 - Apart from water, upgrading rainfed agriculture requires investments in soil, crop, and farm management and improved infrastructure, markets, and better and more equitable access to and security over land and water resources.
 - To improve production and thus rural livelihoods in rainfed areas, rainfall-related risks need to be reduced, which means that investments in water management are an entry point to unlock the potential in rainfed agriculture.

Way Forward

- **Govt Support Needed:** Rain-fed areas and their farmers are hardly benefited by the schemes as they use lesser fertilisers and irrigation thereby receiving lesser fertiliser and power subsidies.
 - These areas deserve renewed attention especially when the climate predictions are not conducive.
- Introducing agro-ecology in rain-fed areas could be a good policy option. The design elements of such interventions must start from seeds and end with markets.
 - Codifying endemic land races, collecting their seeds, creating a repository of indigenous knowledge curated from formal and civil society, improving land races through plant-selection or plant-breeding, developing agronomic practices, region specific orientation, institutions, gender, convergence with other programs, marketing strategies, metric for measurement and technology as an enabler are some of the key design elements.
- In a post-Covid world, there is a need for immunity boosting and nutritious foods with little or no chemical residues.
 - Rain-fed areas are the obvious choice and making markets work for agro-ecology could be a good strategy.
 - Consumer education on how to effectively cook these nutritious crops can create a demand

pull. The Karnataka government has prepared a descriptive and colourful cookbook for millets.

- **More balanced approach is needed**, to give rainfed farmers the same research and technology focus, and production support that their counterparts in irrigation areas have received over the last few decades.
- There is an **urgent need to do more R&D** in rainfed agriculture and bring in more policy perspective like tweaking of government schemes by considering the needs of rainfed agricultural areas.
- In the long run, cash incentives and income support like the **PM-KISAN scheme** announced in the interim budget 2019 are better than extensive procurement as they are inclusive in character, and doesn't distinguish between farmers in one area or another, growing one crop or another.
- Along with income support to help farmers through the current crisis, it is now the time to design better structured interventions for the future.
- Like the **ease of doing business**, ease of doing farming should be done on the parameters of seeds, soil, water in rainfed areas to make agriculture attractive in the long term.

Conclusion

The importance of rainfed agriculture varies regionally, but rainfed areas produce most food for poor communities in developing countries. Although irrigated production has made a higher contribution to Indian food production (especially during the Green Revolution), rainfed agriculture still produces about 60% of total cereals and plays an important role.

In this context, it is imperative to focus on rainfed agriculture in order to make the agriculture sector sustainable and resistant to climate change.

Drishti Mains Question

With large parts in India under rainfed farming it is imperative to focus on the rainfed agriculture to ensure betterment of the agriculture sector in India. Discuss