Open-Source Seeds Movement

For Prelims: IPR, Open-Source Software, WTO, TRIPS, Green Revolution.

For Mains: Open-Source Seeds Movement.

Why in News?

With declining public sector breeding and rising dominance of private sector in seed sector, the concept of **Open-Source Seeds becomes increasingly relevant.**

- 'Open-Source seeds' was **first suggested by a Canadian plant-breeder - T.E. Michaels** in 1999 based on the principles of Open-Source Software.
- Farmers have been sharing and innovating on seeds for centuries without claiming exclusive rights or **intellectual property,** similar to how programmers have been sharing and innovating on software.

What is Open-Source Software?

- OSS is software whose **source code is made available to the public** for anyone to view, modify, and distribute under an open source license. This license typically allows **users to access and modify the source code,** as well as to redistribute the software without any restriction on the use or distribution.
    - The concept of OSS originated in the 1980s, but gained wider recognition and popularity in the 1990s, thanks to the efforts of the Free Software Foundation (FSF) and the Open Source Initiative (OSI).
- The benefits of OSS include the ability to **customize the software to meet specific needs**, a reduced cost of ownership, and the potential for greater security due to the increased transparency of the source code. In addition, OSS can foster innovation by allowing developers to build on existing software and improve it.

What are Plant Breeders' Rights?

- The growth of the commercial seed industry, scientific plant-breeding, and the advent of hybrid seeds led to the establishment of **Plant Breeders' Rights (PBR) in many countries.**
- Under the PBR regime, plant breeders and developers of new varieties have the **exclusive right to demand royalties on seeds** and legally enforce PBRs.
- This limited the rights of farmers to use and reuse seeds and restricted their ability to innovate.
- The establishment of the World Trade Organization (WTO) **in 1994** and the **Trade-Related IPR Agreement (TRIPS)** cast a global IPR regime over plant varieties.
    - TRIPS required countries to provide at **least one form of IP protection for plant varieties,** which raised concerns about the freedom to innovate.

- The **Green Revolution** was spearheaded by public-sector breeding institutions and seeds were available as 'open pollinated varieties', or as reasonably priced hybrids with no restrictions on farmers to cultivate, reuse and share.
- But the genetic revolution in agriculture was led by the private sector, with seeds mostly made available as hybrids **and/or protected by strong IPRs.**

How is IP Protected in Agriculture?

- There are two forms of IPR protection in agriculture: **plant-breeders' rights and patents.**
- Together, **they restrict farmers' rights and the freedom to develop new varieties** using germplasm from IP-protected varieties.
- They have **thus further consolidated the seed sector** and increased the number of plant varieties covered by IPRs.

What are Open Source Seeds?

- **Need**:
  - The high prices of genetically modified seeds and IP claims triggered many problems, including the **State's intervention on Bt cotton seeds in India**. As public sector breeding declined and the private sector began to dominate the seed sector, the **need for alternatives became keenly felt.**
  - This is when the success of open-source software inspired a solution
- **Open-Source Model:**
  - An open-source model was proposed in 2002 by scientists for seeds and plant varieties, calling it the **"BioLinux model",** and scholars and civil-society members alike discussed and built on it.
  - In 2012, Jack Kloppenburg launched the **Open Source Seeds Initiative (OSSI)** in Wisconsin.
  - It can be used in farmer-led seed conservation and distribution systems. There are many traditional-variety conservation and sharing initiatives in India, including those involving farmers.
  - It can also be used to **promote farmer-led participatory plant-breeding exercises.**
  - Traditional varieties often lack uniformity and aren't of excellent quality. Open source principles can help overcome these **two challenges by facilitating testing**, improvisation, and adoption – all of which will ultimately be beneficial to India's food security and climate resilience.

Are there such Initiatives in India?

- In India, the **Hyderabad-based Centre for Sustainable Agriculture (CSA)**, part of the Apna Beej Network, developed a model incorporated into an agreement between CSA and the recipient of the seed/germplasm. It is trying to use this approach through three farmer producer organisations (FPOs).
- Worldwide, the number of seed firms using open-source models and the crop varieties and seeds made available thereunder is small but growing. India is yet to test and adopt it widely.
- Under the **Plant Variety Protection and Farmers' Rights Act (PPVFRA) 2001**, farmers can register varieties as 'farmer varieties' if they meet certain conditions, and **have the right to reuse, replant, and exchange seeds.**
- However, they can't breed and trade in varieties protected under the Act for commercial purposes.

Way Forward

- Using the open-source approach will enable farmers to gain more **rights over germplasm and seeds and facilitate innovation.**
- So there is a need to test this approach with farmers and the three FPOs can take the lead.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. Consider the following statements: (2019)

1. According to the Indian Patents Act, a biological process to create a seed can be patented in India.
2. In India, there is no Intellectual Property Appellate Board.
3. Plant varieties are not eligible to be patented in India.

Which of the statements given above is/are correct?

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

Ans: (c)

- Section 3(J) of Indian Patent Act, excludes from patentability “plants and animals in whole or in any part thereof other than microorganisms, including seeds, varieties, and species, and essentially biological processes for production or propagation of plants and animals”. Hence, statement 1 is not correct.
- The **Intellectual Property Appellate Board (IPAB)** was constituted in 2003 by the Government of India to hear and resolve the appeals against the decisions of the registrar under the Indian Trademarks Act, 1999 and the Geographical Indications of Goods (Registration and Protection) Act, 1999. Hence, statement 2 is not correct.
- Plant variety protection provides legal protection of a plant variety to a breeder in the form of Plant Breeder’s Rights (PBRs). In India, **the Protection of Plant Varieties and Farmers’ Rights (PPVFR) Act, 2001**, is a sui generis system that aims to provide for the establishment of an effective system for the protection of plant varieties and the rights of plant breeders and farmers. A sui generis system is an alternative to the patent system. **Hence, statement 3 is correct.**
- **Therefore, option (c) is the correct answer.**

Source: TH