

C. Subramaniam, Dr. S. Chandrashekhar & Pro-poor Technology

February 6, 2021

The year 1910 was very significant for India and science. This was the year two great Indian stars, the astrophysicist, Dr. Subrahmanyan Chandrasekhar, and C. Subramaniam, were born. C. Subramaniam's call for science for the economic freedom of humanity echoes loudly on his birth anniversary and hence their contributions gain importance from UPSC point of view.

In news: The Hindu article – “A champion of science, pro-poor technology”

Placing it in syllabus: Science & Technology

Dimensions

- C. Subramaniam: Contributions
- Contributions of Dr. Subrahmanyan Chandrasekhar:

Content:

Subramaniam and his Contributions:

- Science for humanity was the call of Chidambaram Subramaniam or CS.
- He **championed the cause of science and technology to solve societal problems**
- He was an **architect of public policy for Indian science** and of **the 'Green Revolution'** in India.
- As the Minister for Food and Agriculture, he ushered the Indian Green Revolution, an era of self-sufficiency in food production along with M. S. Swaminathan, B. Sivaraman and Norman E. Borlaug.
- High-yielding varieties of seeds and more intensive

application of fertilizers were introduced in parts of India which paved the way for increased output of cereals and attainment of self-sufficiency in food-grains in the country.

- When India faced the reality of ship-to-mouth status in the 1960s when a few million tonnes of grain were imported –a superordinate goal that India became self-sufficient in food in five years was set.
- The goal was realised and has been sustained since then.
- After the Green Revolution, the **site used for storing food grains became the Technology Bhavan** that continues to house the Ministry of Science and Technology.

Inspiration for scientists and decision makers

- He serves as a reminder to scientists that **the purpose of public investments in science must include its duty to ensure social and public good.**
- CS had an abiding trust in science and believed that technology alone could offer solutions to the problems faced by society.
- The beneficiary of the long-term impacts of CS's several contributions to education, agriculture, science and technology to name a few.
- He was one of the architects of modern India and **relied on evidence-based approaches in decision making.** Transparency and probity were his powerful tools.
- The blueprint for linking science and technology to the development path of India was cast by CS even before the formation of the dedicated Science and Technology Ministry.
- **His super ordinate national goals, probity in public life and institutional mechanisms** make him an example to be emulated.

Ideas about Economic Freedom

- CS realised that the economic freedom of every citizen of India was heavily reliant on the 4Es: Education, Environment, Economy and Empowerment of our farmers.
- The **National Agro Foundation (NAF)** was his gift to the nation on his 90th birthday; NAF institutionalized his will through farmer-centric programmes.
- He was awarded Bharat Ratna, Indian's highest civilian award, in 1998, for his role in ushering the Green Revolution.

Dr. Subrahmanyan Chandrasekhar:

- Dr. Chandrasekhar worked to unravel the science of the universe.
- Dr. Subrahmanyan Chandrasekhar, or SC was an astrophysicist who explored space and propounded the concept of black holes.
- As an astrophysicist, Dr Chandrasekhar worked on a variety of topics like stellar structure, stellar dynamics, white dwarfs, radiative transfer, and stochastic process, the quantum theory of the hydrogen anion,, and the mathematical theory of black holes.
- He is most famous for what is called the **Chandrasekhar Limit**.
- While at Cambridge, he outlined a theoretical model that explained the structure of white dwarf which considered the relativistic variation of mass with velocities of electrons that comprise their degenerate matter.
- Together with William A. Fowler, Dr. Chandrasekhar won the 1983 Nobel Prize for Physics for key discoveries that led to the currently accepted theory on the later evolutionary stages of massive stars.
- He has received numerous other awards. NASA named one of its 4 great observatories after the scientist, called Chandra X-ray Observatory.

Mould your thought: Discuss the contribution of Chidambaram Subramaniam to the field of agriculture and science

Approach to the answer:

- Introduction
- Discuss role of CS in Green Revolution
- Discuss establishment of NAF
- Discuss his contribution to further science and his use of evidence based decision making
- Conclusion