



Mathematical and Simulation Aspects of Covid-19

Why in News

The **Science and Engineering Research Board (SERB)** has approved **funding for 11 projects under the MATRICS scheme** for studying mathematical modelling and computational aspects to tackle the Covid-19 pandemic.

- It is a **statutory body under the Department of Science and Technology (DST)**, Government of India.

Key Points

- These studies attempt to propose mathematical/simulation models to account for various factors relevant to Covid-19 by **modifying the basic SIR (Susceptible-Infected-Recovered) models**.
 - An SIR model is an epidemiological model that computes the theoretical number of people infected with a contagious illness in a closed population over time.
 - The name of this class of models derives from the fact that they involve coupled equations relating the number of susceptible people, number of people infected, and number of people who have recovered.
- Some of such **factors** are heterogeneity of population, the role of asymptomatic (showing no symptoms) population, migration and quarantine, effect of social distancing and lockdown, socioeconomic factors and so on.
- **Aim**
 - To study Indian conditions and provide an estimate of Basic Reproduction Number (R_0)- the qualitative indicator of the degree of contagiousness of the disease.
 - R_0 tells the **average number of people who will catch the disease from one contagious person**.
 - The **larger this number, the more contagious** is the disease caused by the virus and the faster it will spread in the community.
- It also aims to identify the maximum likelihood infection tree when infection reports and contact network structure are known to the administration.
- To identify possible cures of Covid-19 through the study of DNA (DeoxyriboNucleic Acid) structures by creating patterns of DNA of different viruses.

MATRICS Scheme

- It was launched in 2017 **by the Science and Engineering Research Board (SERB)**.
- It aims to provide fixed grant support to active researchers with good credentials in Mathematical Sciences, Theoretical Sciences and Quantitative Social Sciences.
- The support is provided in the form of research grant of Rs. 2 lakh per annum plus overheads for a period of three years.

Source: PIB

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