Pandemic Modelling

Why in news?

A committee of experts' forecast on the course of the pandemic in India has brought good tiding.

Who are the committee members?

- The seven-member committee consisted of well-regarded mathematicians and infectious disease experts.
- They were appointed by the Department of Science and Technology.
- The committee made the forecast using **mathematical modelling**.

What was the forecast?

- By their estimate, India passed its Covid-19 peak in September, 2020.
- The decline in the overall caseload is being observed for nearly a month now is to continue.
- Active cases, about 7.5 lakh now, are expected to drop below 50,000 by December.
- By February, 2021, the pandemic is likely to extinguish itself with only 'minimal' (not zero) infections.

What are the assumptions?

- It is reasonable to assume that the committee has been scrupulous.
- But, the warning is that this is still a forecast based on mathematical modelling. There are some strong assumptions.
- The decline will continue only if there are no major mutations during winter, antibodies are durable, and current restrictions are maintained.
- There would be no significant gains from a strict lockdown beyond the district level.
- The current containment measures would suffice, except if there are local outbreaks that threaten to overwhelm health-care facilities there.
- Their calculation showed a peak by July latest, with anything from 6 to 15 times the existing infections had there been no or delayed lockdown.

What is the purpose?

- The purpose of the pandemic modelling is to generate a probabilistic overview of the future.
- Mathematical modelling has become a creative exercise, with several models and forecasts being made available on pre-print servers and pending peer-review.

What was the model used?

- The datasets on which the latest model relied on are publicly available and the modelling employs a category of models called **SEIR**.
- SEIR, within a population, estimates those Susceptible, Exposed, Infected and Recovered.
- It is extremely dependent on the quality of data that is used as an input and relies as much on simplifying assumptions that sacrifice complexity for comprehension.
- But there is nothing to suggest, from what is known about the exercise, that it is more likely to be true than similar estimates from scores of models the world over that subscribe to a certain degree of rigour.

What do the experts say?

- Experts associated with the pandemic have reiterated many times that mathematical modelling ought not to be taken literally.
- The latest assessment too should then be used not to critique or justify past decisions but dwell more on the future.
- To be useful, mathematical models must induce policy or behavioural change to avoid their own worst-case scenarios.
- This latest assessment must be seen - no more, no less - as a tool to this end.

Source: The Hindu

SHANKAR IAS PARLIAMENT
Information is Empowering