Though it is good news, NASA has cautioned that recent shrinking Ozone hole is not a sign that atmospheric Ozone is on a recovery. Analyze this in the light of Montreal Protocol.

(1)

Ozone layer in the stratosphere acts as a filter of harmful UV radiations from sun before it reaches the earth. It is this unique aspect on planet earth that provides ambience for life. O_3 dep thinning out which was noted in Southern Hemisphere in 1980's have shown signs of recovery by shrinking from 16 mn km² to 10 mn km² hole. However, NASA scientists have termed it to be a temporary phenomenon.

RECOVERING OZONE - TEMPORARY PHENOMENON

1) YEARLY PHENOMENON :-

→ Statistics by NOAA reveals that the extent of ozone recovery increases usually during months of September - October (spring) in Southern Hemisphere.

→ It tends to increase in size with appearances of Polar Stratospheric clouds, dissociating in presence of UV post winter.

CAUSES OF Ozone depletion

1) Climate change
2) Pollution clouds
3) Release of chlorofluro carbons, halogenated chemicals
4) Presence of nacreatic clouds.

2) Climate change:-

→ Polar vortex is increasingly associated with ozone thinning out.

→ Generally, winter season → Polar vortex formation → push PSC → PSC acts as bed for HOCl and $ClONO_2$ compands

O_3 thins out ← ClO & O_3 depletion ← nascent O^* with Cl^- ← UV dissociation

→ This year, erratic temperatures in upper atmosphere and sea surface have reduced the intensity and spread of vortex.

→ Thus, O_3 recovery fastened to shrink the hole size. It may not be permanent on account of play of climatic factors.

3) Goals of Vienna convention :-

→ Vienna convention on Ozone recovery gave rise to first universal

binding Montreal Protocol to phase out HFC's.

→ CFC's have been eliminated at required levels. This partly contributes to Ozone health.

→ However, replacement with HFC's have and other coolents are still not under the phasing out mechanism.

→ Kigali Amendment of Montreal protocol, if not implemented can reverse the trend.

④ Brewing coolant Industry:-

→ The net coolant demands are set to rise by 30% by 2030 date in tropical and subtropical regions, due to 1.5°C rise in average global temperatures.

→ Absence of consensus, alternatives for coolant makes the HFC's, HCFC's usage negligent, prompting O_3 depletion.

Multitude of factors are at interplay to erode the O_3 blanket. While the sign of recovery is good indications, absence of binding phaseout mechanism, climate change prevents from enjoying the success on long run. Kigali amendments phasing levels must be set and National Action plans must be implemented to offset both climate change and Ozone concerns.