

Environmental events.

→ Industry.

→ Within polar region, almost 200 chemicals found.

Predominantly POP → persistent organic pollutants

Major source of POP, pesticides.

ARCTIC PARADOX

INUIT → People living in Arctic regions. (Canadians, Russian, Alaska).
Eskimos (Banned it seems now)

Primary livelihood - Hunting

Chemicals identified in their body (blood).

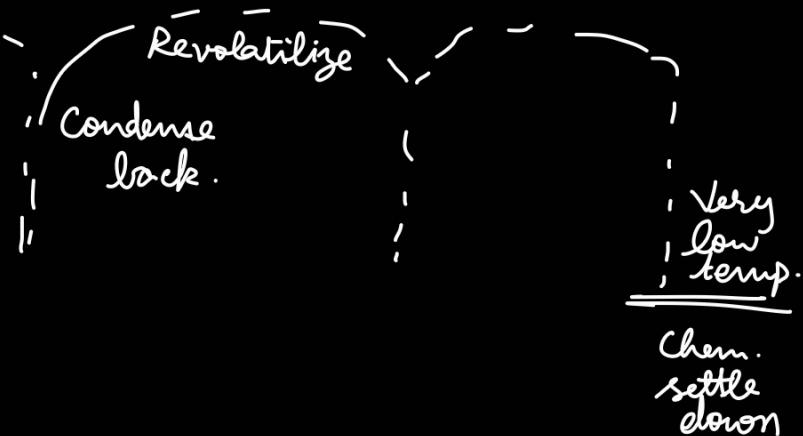
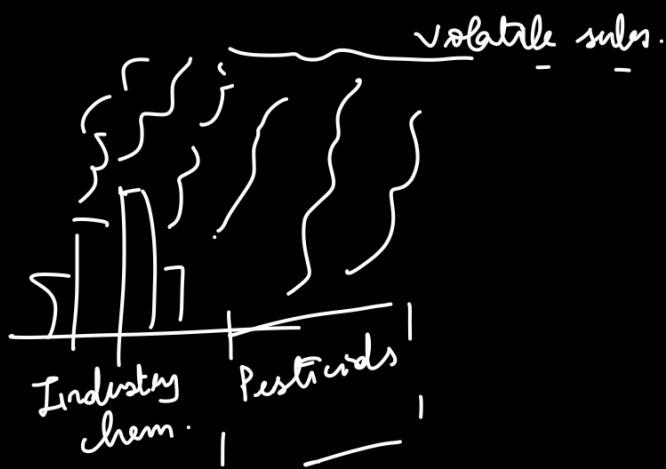
10 times higher than when compared to Americans.

→ Primary reason of chemical found in inuit is because of pollution from far away countries (developed countries).

→ Arctic & antarctic regions - act as sink for these pollutants.

But how?

Global distillation + Grasshopper effect.



POPs affect central & peripheral nervous system

reproductive system → Cancer

breast milk → Mortality

Bioaccumulation & biomagnification

Feed given to chicks - contaminated by PCB

↑
Dioxines

China - lot of emissions.

Impact on Japan, Korea etc. (neighboring)

by Pollution in Britain affecting Sweden.

People who have nothing to do with industries are the ones getting affected.

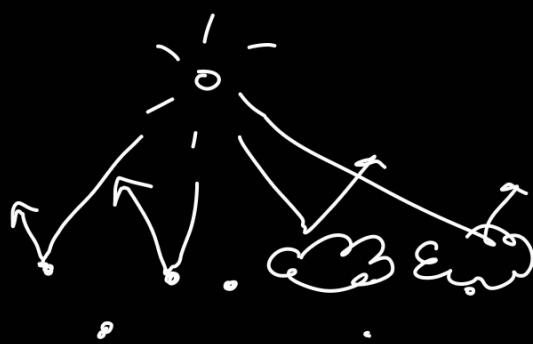
Global dimming

→ Dec. in amt. of solar radiation reaching the surface of the Earth.

Causes:

1. Aerosol
2. Clouds

1950 study.



Impact:

Northern hemi > SH

Dec. in temp.

→ Aerosols absorb radiation & reflect.

→ Aerosols also combine with water vapour → Clouds.

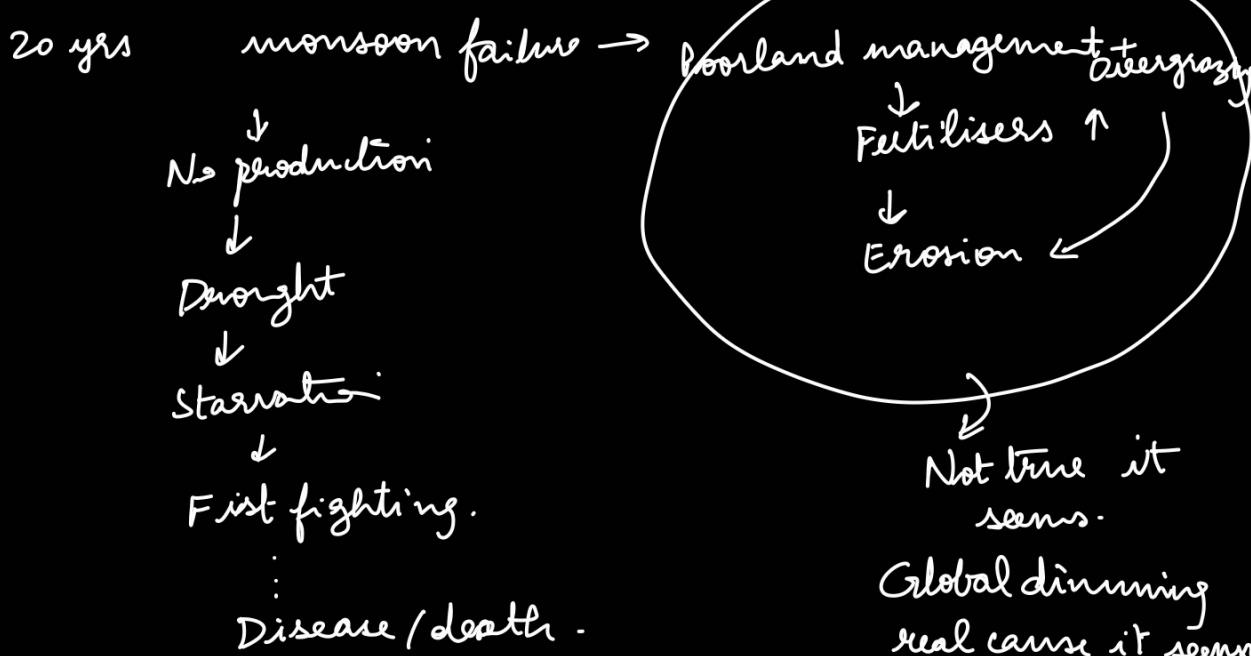
(Brown clouds).

Brown clouds also reflect radⁿ.

→ Contrails are the volatile smooth pollutants coming from aeroplanes.

→ Both global dimming & global warming → severe change in rainfall pattern

1984 - Sahelian drought.



→ 2005 study - Dimming replaced by brightening since 1990

See full form
of
BSRN
GEBA/WRDC

AZOLLA event

50 Ma → Extinction of dinosaurs.

Entire globe - Tropical forest.

High concⁿ of CO₂ in atmosphere

Temp. is very high → causing objects to reflect the radⁿ. → No glaciers or anything.

47000 Ma → 2000 Myrs → Dropping temp.

CO₂ ↓

Happened coz

Ice caps on the poles.

of a very small

fern called AZOLLA → Takes in a lot of CO₂.

Then sinks to sea

Doubles its mass in a very short time

converted to
without O₂

Peat.

Doesn't
decompose

> Converts to coal
with high pressure

Grows in
freshwater

Intolerant to freezing conditions.

So CO₂
not released

Freshwater floats
on sea ??

CO₂: 3500 ppm → 650 ppm

Temp : 3-5°C ↓ .

Polar regions ← 13°C → -9°C

- Change in Earth's rotation due to construction of dams.

When moon
morn't there,
1 day = 5 hrs.
an: $23 \text{ hr } 56 \text{ min } 4 \text{ sec} = 1 \text{ day}$)

Moon rotating very fast → Moon's effect on Earth.
Moon is shifting its orbit ↙

→ Groundwater extraction shifted Earth's axis.

Polar motion : Change in Earth's axis because of change in mass distribution.

Toba catastrophe theory

↳ Very small lake.

Toba volcano. Eruption ~ 74000 yrs ago.

Indonesia 15cm thick smoke & dust
↳ 1000 m height } Also entered stratosphere

Volcanic winter → 6-10 yrs 1000 cooling episode.

Population bottleneck → Africa
India

1815 eruption:

VEI: Volcanic eruption index

Tambora - Indonesia

Collapsing column & convecting column.

$\text{SO}_2, \text{H}_2\text{S}$ gases.

)
Volcano.

Affects sky colour.

Global cooling in 1816.

Because of sulfuric gases in atmos.

Nuclear winter - Hypothetical situation