



ION EXCHANGE

Refreshing the Planet



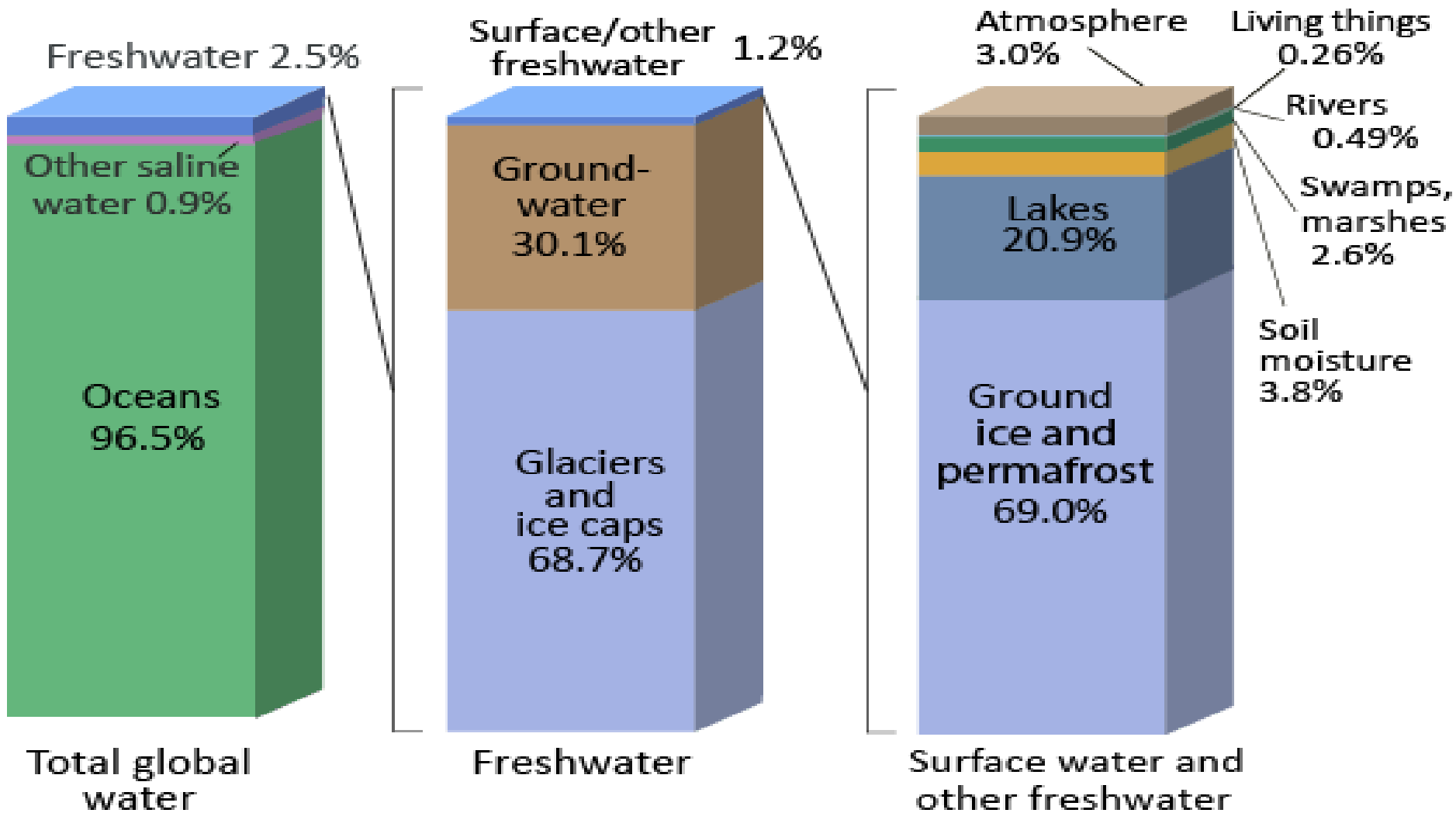
Water Day Message



WATER CHARACTERISTICS



DISTRIBUTION OF EARTH'S WATER



SOURCES OF WATER

1) SURFACE WATER

- Rivers
- Lakes
- Reservoirs



2) GROUND WATER

- Borewell
- Natural Spring



3) RAIN WATER

4) SEA WATER



IMPURITIES IN WATER

Suspended impurities

- Suspended solids
- Turbidity
- Silt
- Organics

Micro-organisms

- Bacteria
- Algae
- Virus
- Fungi

Dissolved impurities

1) Gases

- CO_2 O_2 H_2S NH_4

2) Inorganic Salts

- Cation & Anions

3) Organics Salts

Colloidal Impurities

- Clay
- Silica
- Colour



COMMUNITY LEVEL SOLUTIONS



Current Scenario in Rural India



CURRENT SCENARIO IN INDIA



SAFE DRINKING WATER



WATER RELATED DISEASES



DRINKING WATER SOURCE



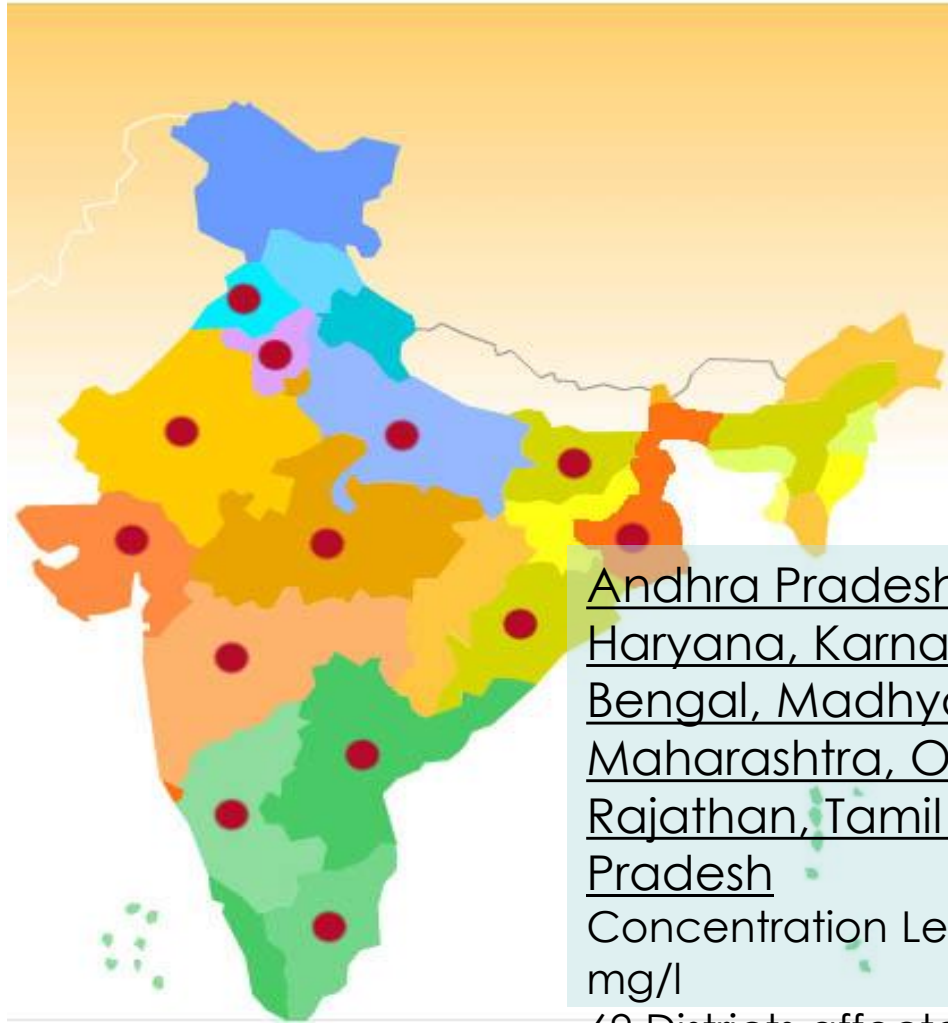
POLLUTED RIVER WATER



TYPES OF CONTAMINANTS



STATES AFFECTED BY FLUORIDE



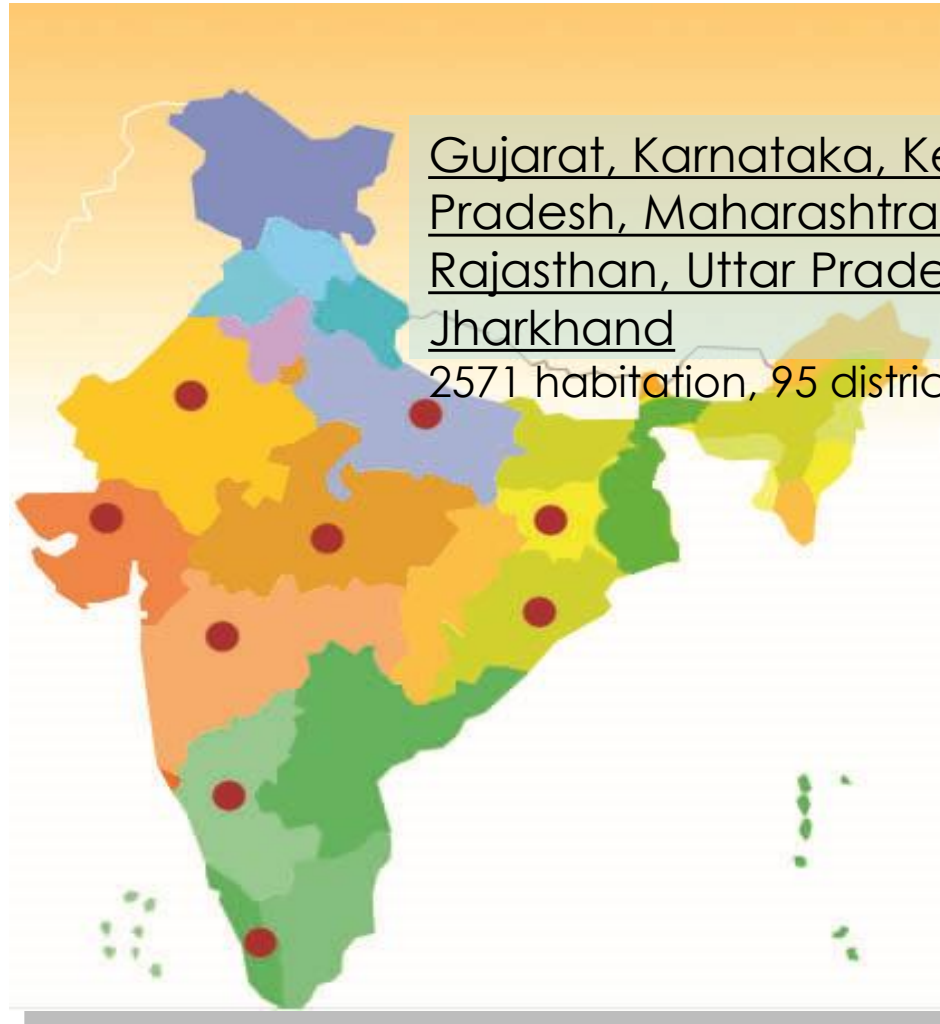
Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, West Bengal, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu & Uttar Pradesh

Concentration Levels vary from 0.5 to 50 mg/l

69 Districts affected. More than 65% of India's population exposed to Fluoride risk



STATES AFFECTED BY NITRATE

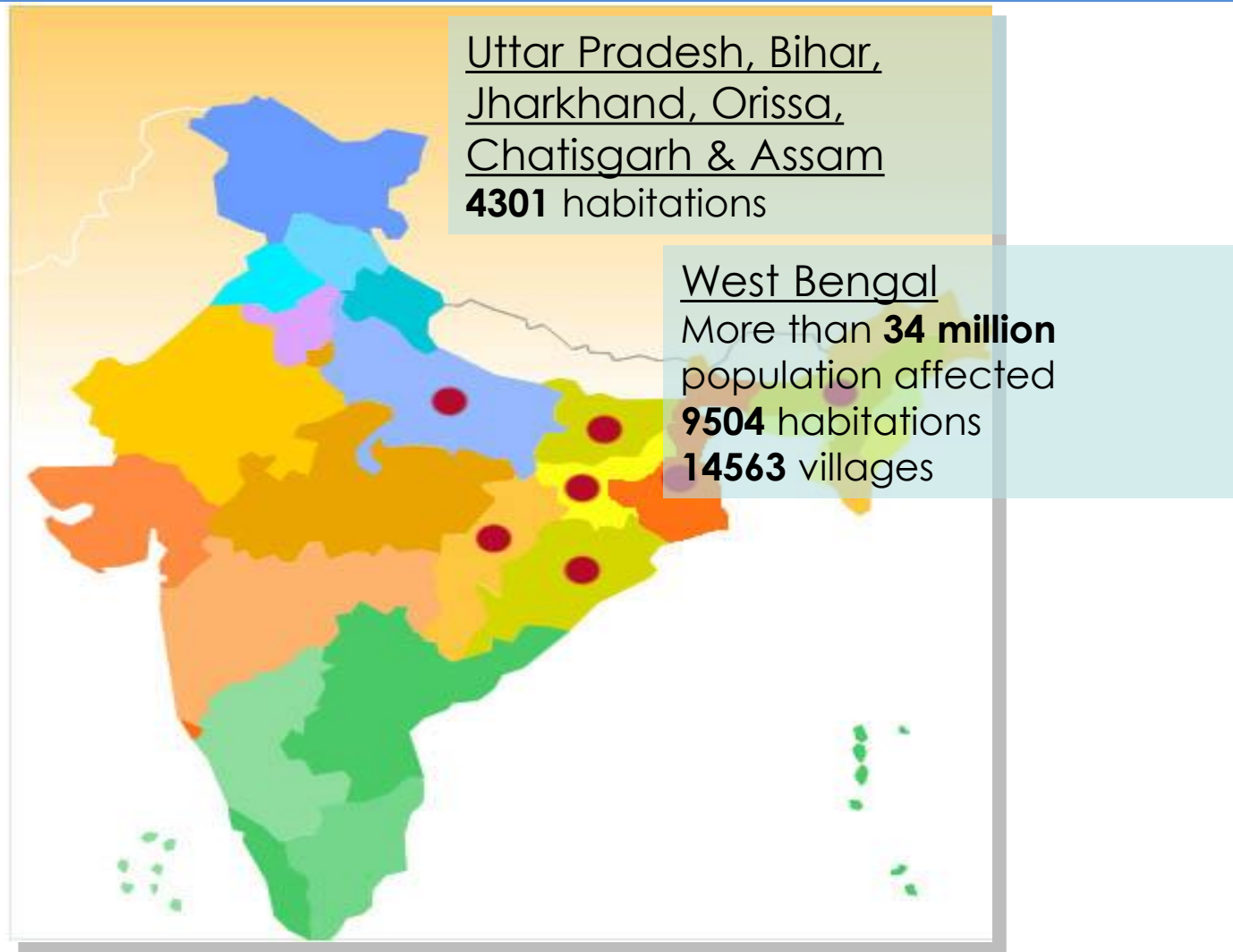


Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh & Jharkhand

2571 habitation, 95 districts



STATES AFFECTED BY ARSENIC



FLUORIDE POLLUTION

Permissible levels – 1.5 parts per million (ppm)

Effects of Fluoride

Fluoride – A Two Edged Sword

<u>Small Dose</u>	<u>Large Dose</u>
Inhibits dental caries	Dental & Skeletal Fluorosis



* **Water Technology Mission - Nearly 65 million people in 160 districts drink fluoride contaminated water. More than 25 million Indians in 8700 villages affected with Fluorosis - crippling bone disease.**



IRON POLLUTION

- Iron is a secondary standard contaminant and not harmful to health
- Its maximum contaminant level is 0.3ppm for potable water
- Excess level of Iron causes rusty or brown stains on plumbing fixtures, utensils, fabrics and dishes
- Excess Iron builds up in pressure tanks, water heaters, pipelines reducing the quantity and pressure of the water supply



ARSENIC POLLUTION

Permissible levels – 50 parts per billion (ppb)

Effects of Arsenic

- Hyper pigmentation
- Cancer



Note: Iron is found wherever there is Arsenic contamination.

NITRATE POLLUTION

Permissible levels – 45 ppm

Effects of Nitrate

Causes 'Blue Baby Syndrome' in infants



FLUORIDE REMOVAL SYSTEMS

Fluoride reduced to <1.5 ppm WHO standards

Community based system

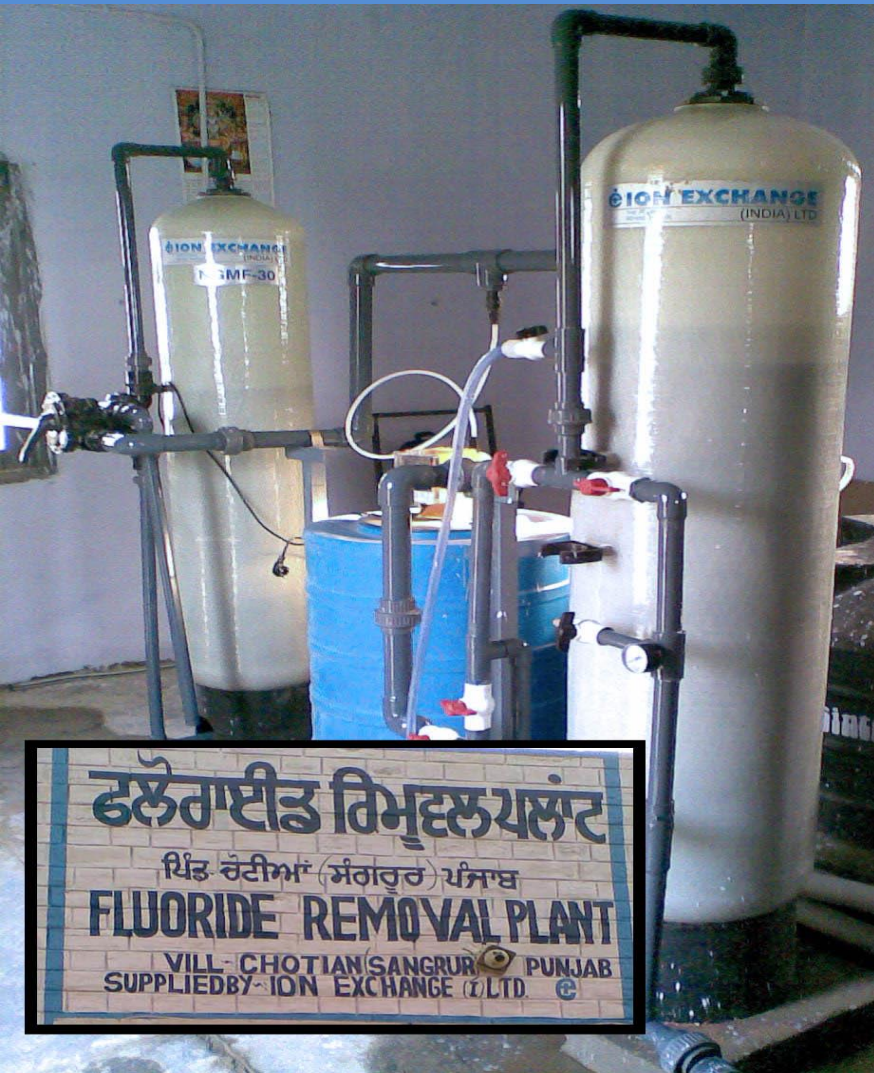
- Fluorides are adsorbed on the resin
- Continuous supply of treated water
- No chemicals for treatment
- Only commonly available alum needed for regeneration
- No electricity for operation
- Maintenance free



Handpump
Attachment



FLUORIDE REMOVAL SYSTEMS



IRON REMOVAL SYSTEMS

Iron Removal System

- Dissolved Iron < 0.3ppm (Inorganic)
WHO standard
- Compact & economical
- No electricity required
- No chemicals required for regeneration
- Sturdy, easy to operate, maintenance free



IRON REMOVAL SYSTEMS



ARSENIC & NITRATER REMOVAL SYSTEMS

Arsenic Removal Systems

Reduces arsenic <50 ppb WHO limit

- No chemicals, no electricity
- Sturdy, easy to operate



**Arsenic Removal -
Handpump
Attachment**

Nitrate Removal Systems

Reduces to <45 ppm WHO limit

- Only sodium chloride is needed for regeneration
- Sturdy, easy to operate, maintenance free



**Nitrate Removal -
Attachment**



INDION WATER POTABILITY TEST KIT



***INDION
WATER
POTABILITY
TEST KIT***



<u>Parameter</u>	<u>Range</u>
pH	6.0 – 9.0
Alkalinity	0 – 800 ppm
Chloride	0 – 1200 ppm
Hardness	0 – 800 ppm
Chlorine	0.1 – 2.0 ppm
Iron	0.1 – 1.5 ppm
Fluoride	0.0 – 2.5 ppm
Nitrate	10 – 100 ppm



***INDION
WATER
POTABILITY
TEST KIT***

- ☞ **All vital parameters covered.**
- ☞ **As per *WHO / BIS* standard.**
- ☞ **Can be used at home/office.**
- ☞ **Huge requirement in PHEDs.**
- ☞ **Economically packaged.**



Email: sudhirkumar.pandey@ionexchange.co.in

THANK YOU

