

INDIA'S COOLING MARKET

FACTS & STATS



THE WHY & THE HOW



WHY?

WARMING TEMPERATURES AND HEATWAVES



1. HEATWAVES HAVE KILLED MORE THAN **24,000** PEOPLE IN INDIA SINCE **1992**.

(UNITED STATES INSTITUTE OF PEACE, 2023)



2. THE RISE IN HEAT WAVE INTENSITY IS EXPECTED TO COST INDIA **2.8%** OF GDP BY **2050** ALONG WITH **8.7%** OF DEPRESSED STANDARD OF LIVING BY 2100 RESPECTIVELY.

CNN.(2023)

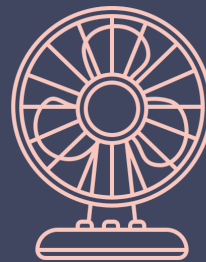


3. HEATWAVES IN INDIA ARE LIKELY TO LAST **25 TIMES** LONGER BY **2036-2065**

BECAUSE OF HIGHER CARBON EMISSIONS CAUSING **GLOBAL TEMPERATURE** TO RISE UP BY **4°C** BY THE END OF THE CENTURY.



(CENTRE FOR SCIENCE AND ENVIRONMENT.(2023)



4. INDIA IS AMONG THE **TOP 5** COUNTRIES THAT SAW MORE THAN **5 HEATWAVES** DAYS IN 2023 BETWEEN OCTOBER AND SEPTEMBER.

(THE INDIAN EXPRESS, 2023)



5. HEATWAVES CAN PUT **4.5%** OF INDIA'S **GLOBAL GDP** (APPROX USD 150-250 BILLION) AT RISK BY THE END OF DECADE.

(MCKINSEY & COMPANY, OUTLOOK INDIA, 2022)



6. THE HEAT INDEX (HI) AND CLIMATE VULNERABILITY INDEX (CVI) **+90% OF** THE POPULATION IS AT DANGEROUS LEVELS OF ADVERSELY IMPACTING ADAPTIVE LIVELIHOOD CAPACITY, DUE TO RISING HEATWAVES.

(GOVERNMENT OF INDIA, MONGABAY, 2023)

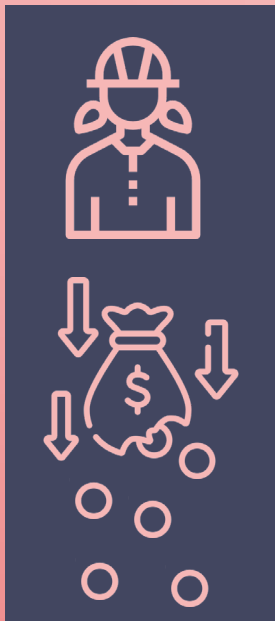


7. IN 2021, INDIA HAD AN ECONOMIC LOSS OF **\$159 BILLION** & **\$167 BILLION** HOURS OF POTENTIAL LABOR DUE TO EXTREME HEAT LEVELS. THIS IS A **39% INCREASE** FROM THE 1990S.

(CLIMATE IMPACT TRACKER, 2023)

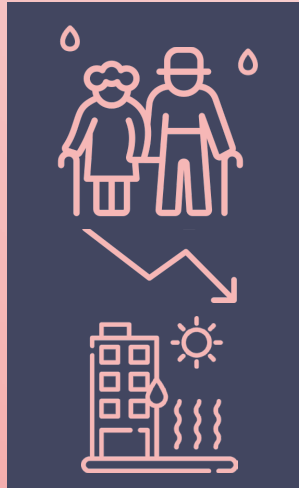
WHY?

WARMING TEMPERATURES AND HEATWAVES



8. HEAT-RELATED INCOME LOSSES EXPERIENCED BY WOMEN REACH AS HIGH AS **260%** COMPARED TO **76%** LOSS FOR MEN, WHICH RESULTS IN WIDENING GENDER INEQUALITY. THE STUDY ALSO SUGGESTED THAT HEAT COSTS INDIA **\$120** BILLION EACH YEAR IN LOSSES TO WOMEN'S PAID LABOR PRODUCTIVITY.

(UNDRR, 2023)



9. HEATWAVES IN INDIA WILL AFFECT **+300 MILLION** PEOPLE BY **2050** AND WILL REDUCE THE LIFE EXPECTANCY OF **+600 MILLION** PEOPLE BY **2100**.

(UNIVERSITY OF CAMBRIDGE, 2023)



10. INDIA'S AVERAGE TEMPERATURE HAS INCREASED BY **0.62%** SINCE 1991 AND IS PREDICTED TO RISE BY AN ADDITIONAL **4.4%** BY 2100 DUE TO THE RISING HEAT WAVES.

(CLIMATE IMPACT TRACKER, 2023)



11. THE MORTALITY RATE RELATED TO HEATWAVES IN INDIA HAS **INCREASED BY 62.2%** IN THE PAST 20 YEARS.

(NATURE PORTFOLIO, 2022)



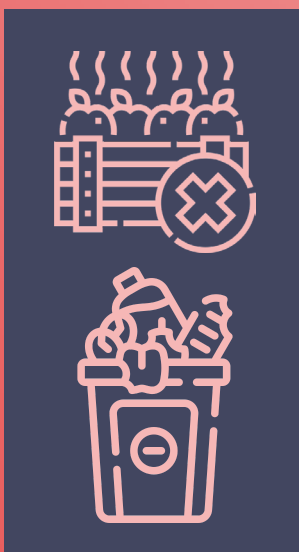
12. A MODEL PREDICTED BY IOP SCIENCE SHOWS THAT HEAT WAVES REDUCED INDIA'S 2022 **WHEAT YIELD BY 4.5%**.

(IOP SCIENCE, 2023)



13. INDIA IS LIKELY TO BE ONE OF THE FIRST PLACES IN THE WORLD WHERE HEATWAVE BREACHES HUMAN SURVIVABILITY THRESHOLD AS CLIMATE CHANGE CONTINUES TO MAKE EXTREME HEAT **X30 TIMES** MORE LIKELY IN INDIA

(DECCAN HERALD, 2023)



14. BY **2020** **FOOD LOSS** DUE TO HEAT DURING TRANSPORTATION WAS **\$13 BILLION ANNUALLY**.

(WORLD BANK, 2022)

WHY?

AIR QUALITY



1. IN 2023, NEW DELHI WAS THE MOST POLLUTED CAPITAL CITY IN THE WORLD WITH AN AVERAGE PARTICULATE MATTER (PM) 2.5 CONCENTRATION OF

92.7

MICROGRAMS PER CUBIC METER OF AIR. THE WORLD HEALTH ORGANIZATION ADVISES THAT ANNUAL MEAN PM 2.5 CONCENTRATIONS SHOULD NOT EXCEED

5 **MICROGRAMS** PER CUBIC METER OF AIR .

(STATISTA, 2024)



2. THE GLOBAL OBSERVATORY ON POLLUTION AND HEALTH AT BOSTON COLLEGE, THE INDIAN COUNCIL OF MEDICAL RESEARCH, AND THE PUBLIC HEALTH FOUNDATION OF INDIA CLAIM THAT AIR POLLUTION HAS ACCOUNTED FOR

1.4%
OF THE GDP

EQUIVALENT TO

\$36.8
BILLION

IN ECONOMIC LOSS IN 2019.

(BOSTON COLLEGE, 2024)



3. THE HIGH BURDEN OF

DEATH & DISEASE

DUE TO AIR POLLUTION AND ITS ASSOCIATED SUBSTANTIAL ADVERSE ECONOMIC IMPACT FROM LOSS OF OUTPUT COULD

IMPEDE
INDIA'S
ASPIRATION
TO BE A

\$5
TRILLION
ECONOMY
BY 2024.

(THE LANCENT, 2020)



4.

1.7 MILLION
DEATHS

IN INDIA WERE
ATTRIBUTABLE TO

AIR
POLLUTION
IN 2019,

WHICH WAS

18%

OF THE TOTAL DEATHS
IN THE COUNTRY.

(INDIAN COUNCIL OF MEDICAL RESEARCH, 2020)



HOW?

COOLING MARKET



1. THE DEMAND FOR COMFORT COOLING IS EXPECTED TO DRIVE THE TOTAL STOCK OF ROOM ACS TO OVER

1 BILLION BY 2050 - A X40-FOLD GROWTH SINCE 2016.

(RMI, 2018)



2. IN 2016, THE

AIR CONDITIONER MARKET PENETRATION RATE WAS ABOUT

5% AND BY 2026 IT IS ESTIMATED TO REACH 12.4%

(STATISTA, 2023)



3. INDIA IS PREDICTED TO ACCOUNT FOR

25% OF ANNUAL EMISSION GLOBALLY BY 2050 DUE TO UNPRECEDENTED RISE OF COMFORT COOLING DEMAND, PARTICULARLY IN RESIDENTIAL AREAS.

(WORLD ECONOMIC FORUM, 2019)



4. THE

TOTAL POTENTIAL ENERGY SAVINGS FROM ROOM AC EFFICIENCY IMPROVEMENT IN INDIA USING THE BEST AVAILABLE TECHNOLOGY WILL REACH OVER

118 TWH IN 2030; POTENTIAL PEAK-DEMAND SAVING IS FOUND TO BE 60 GW BY 2030. THIS IS EQUIVALENT TO AVOIDING 120 NEW COAL FIRED POWER PLANTS OF 500 MW EACH.

(OSIT)



DISTRICT COOLING + COOLING-AS-A-SERVICE (CAAS)



CAAS OFFERS A PAY-PER-SERVICE MODEL WITH INTEGRATED FINANCIAL TOOLS TO RECAPITALIZE TECHNOLOGY PROVIDERS WHO OWN THE EQUIPMENT AND TAKE ON ALL FUTURE COSTS RELATED TO OPERATIONS AND MAINTENANCE, INCLUDING WATER, ELECTRICITY, AND REPAIR BILLS. CAAS CAN ALSO ENCOURAGE MANUFACTURERS OF COOLING TECHNOLOGY TO DESIGN FOR REUSE RATHER THAN OBSOLESCENCE, THUS SUPPORTING CIRCULAR ECONOMY.

(CAAS INITIATIVE)



THE COOLING AS A SERVICE INITIATIVE IS A GLOBAL EFFORT LAUNCHED IN EARLY 2019 BY BASE AND K-CEP TO SCALE UP INVESTMENTS IN CLEAN AND EFFICIENT COOLING BY MAINSTREAMING THE COOLING AS A SERVICE BUSINESS MODEL. THE INITIATIVE IS SUPPORTED BY A DEDICATED GROUP OF PARTNERS TO SPREAD THE WORD ABOUT THE MODEL, BUILD CAPACITY, AND IMPLEMENT THE MODEL IN DIFFERENT SECTORS AND REGIONS.

(CAAS INITIATIVE)



CAAS SAVES UP TO 23% OF COOLING COSTS FOR CUSTOMERS AND **REDUCES EMISSIONS FROM ELECTRICITY USE AND COOLANT LEAKAGE BY UP TO 49%** WHILE PROVIDING SIGNIFICANT PROFITS FOR BOTH TECHNOLOGY AND FINANCE PROVIDERS.

(CLIMATE POLICY INITIATIVE, 2019)



51 MILLION TONS

OF REFRIGERATION (TR) OF THE NATIONAL SPACE COOLING DEMAND COULD CONNECT TO DISTRICT COOLING SYSTEMS (DCSS) BY 2038

(TRADE COUNCIL)

WITH ACCESS TO COOLING AS A SERVICE, SMALLHOLDER FARMER INCOMES ARE EXPECTED TO INCREASE BY 10 PERCENT TO 30 PERCENT PER YEAR, WHILE ALSO REDUCING GREENHOUSE GAS EMISSIONS AND IMPROVING FOOD SECURITY IN LINE WITH SUSTAINABLE DEVELOPMENT GOAL 2

(DATA FOR CHANGE, 2021)

WITH TEMPERATURE STEADILY RISING KEEPING SPACES COOL USING ALTERNATIVE AND **INNOVATIVE ENERGY EFFICIENT TECHNOLOGIES CAN OPEN AN INVESTMENT OPPORTUNITY OF \$1.6 TRILLION BY 2040**. THIS HAS THE POTENTIAL TO REDUCE GREENHOUSE GAS EMISSIONS SIGNIFICANTLY AND CREATE NEARLY 3.7 MILLION JOBS.

(WORLD BANK, 2022)

BY 2037:

THE DEMAND FOR COOLING IS LIKELY TO BE X8 MORE THAN 2022 LEVELS IN INDIA.

THIS MEANS THERE WILL BE A DEMAND FOR A NEW AIR-CONDITIONER EVERY 15 SECONDS IN INDIA.

THIS WILL LEAD TO AN EXPECTED RISE OF 435% IN ANNUAL GREENHOUSE GAS EMISSIONS OVER THE NEXT TWO DECADES IN INDIA.

(WORLD BANK, 2022)