GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 354
TO BE ANSWERED ON WEDNESDAY, 24TH JULY, 2024

URBAN HEAT ISLANDS IN INDIA

354. SHRI KESINENI SIVANATH:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the Government has conducted any research/survey/study on the rising issue of Urban Heat Islands in India;
(b) if so, the details regarding the cities/towns identified to face problems due to Urban Heat Islands phenomena, States-wise, especially in Andhra Pradesh;
(c) whether the Government has put forward any documentation on steps to reduce this phenomenon;
(d) if so, the details thereof;
(e) the steps undertaken by the Government to tackle the issue of Urban Heat Islands phenomena in India;
(f) the allocation of funds to States especially to Andhra Pradesh to tackle the issue of Urban Heat Islands phenomena;
(g) whether the Government has carried out any promotional/awareness campaign on Urban Heat Island phonomena; and
(h) if so, the details thereof along with funding?

ANSWER
THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) Yes.

(b) MoES institutions, including India Meteorological Department (IMD) and other research centers in India, have studied the Urban Heat Island (UHI) in India. One of the studies selected 44 cities in India to understand the urban heat island phenomena using satellite-based dataset from 2000 to 2017. Results show that the mean daytime and night-time surface UHI intensity during summer is positive for 21 and 38 cities, respectively.Vijayawada and Vizag cities in Andhra Pradesh are showing positive trends during both daytime and nighttime. The details are provided in the Annexure-1.

(c) & (d) IMD issues early warning advisories for the heatwave conditions for preparedness.

(e) The India Meteorological Department has taken various steps to improve monitoring and early warning systems, which helped minimize loss of life and property during extreme weather events, including heatwaves due to UHI also. These include:

i. Issuing seasonal and monthly outlook of temperature and heat wave conditions.
ii. District-wise heatwave vulnerability Atlas over India to help State Government authorities and disaster management agencies in planning and taking appropriate action.
iii. The hot weather hazard analysis over India that includes daily temperature, winds, and humidity condition.
iv. Heat index forecast for the entire country and impact-based forecast of heatwave conditions at district levels.
v. Real-time heat wave information and warnings on the Web-GIS platform.
vi. Heat Action Plans (HAPs) in 23 States that are prone to heatwave conditions jointly implemented by the national disaster management authority in collaboration with the State Governments.
vii. Improvement of warning dissemination services; using modern tools of dissemination systems for timely public outreach.

(f) Ministry of Earth Sciences (MoES) implements the central sector schemes uniformly throughout the country and hence the allocation of funds is not State-wise. Funds are not directly released to the State Governments from MoES for the implementation of the central sector schemes.

(g) Yes.

(h) National Disaster Management Authority (NDMA) also organizes annual national workshop with all heat prone states, concerned departments and ministries of Government of India, knowledge partners and other stakeholders for reviewing preparedness of the states for heat wave management and mitigation before the start of heatwave. During the heatwaves season, NDMA also schedule the fortnightly review meetings with the States, IMD, and issue necessary advisories as per the prevailing heatwave situation.

NDMA also runs awareness generation campaign on heatwave from time to time, through electronic including social media to inform, educate and making the public aware about preparedness, precautions and safeguard during the season of heatwave.

Annexure-1

Daytime and night-time surface urban heat island intensity trend (°C/decade) in 44 Indian cities from 2000 to 2017:

S. No.	City	Day	Night
1	Agra	-0.278	0.054
2	Ahmedabad	-0.124	0.17
3	Allahabad	-0.114	0.108
4	Amritsar	-0.368	0.019
5	Aurangabad	-0.176	0.188
6	Bangalore	-0.239	0.117
7	Baroda	0.261	0.226
8	Bhopal	-0.033	0.196
9	Chandigarh	-0.343	0.014
10	Chennai	0.044	0.065
11	Coimbatore	0.124	0.087
12	Delhi	-0.313	0.075
13	Dhanbad	0.019	0.047
14	Guwahati	0.106	0.245
15	Gwalior	0.175	0.181
16	Hyderabad	-0.175	0.238
17	Indore	0.058	0.191
18	Jabalpur	0.372	0.328
19	Jaipur	-0.393	0.015
20	Jodhpur	0.093	-0.182
21	Kanpur	-0.088	0.116
22	Kolkata	-0.03	0.165
23	Kota	-0.225	-0.069
24	Lucknow	0.007	-0.04
25	Ludhiana	-0.376	-0.026
26	Madhurai	-0.21	0.04
27	Meerut	-0.022	0.059
28	Mumbai	-0.083	0.093
29	Nagpur	-0.202	0.109
30	Nashik	-0.312	0.27
31	Patna	0.3	0.279
32	Pune	0.025	0.019
33	Raipur	0.059	0.116
34	Rajkot	-0.214	0.145
35	Ranchi	-0.097	0.181
36	Srinagar	0.345	-0.158
37	Surat	0.008	0.082
38	Tata	0.156	0.222
39	Thrissur	0.182	0.101
40	Trichy	-0.351	-0.025
41	Trivandrum	0.427	0.057
42	Varanasi	0.01	0.237
43	Vijayawada	0.174	0.219
44	Vizag	0.227	0.053

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