



Results of the GSP Survey on Air Pollution and Health for Schools

Webinar

Thursday, 28 May 2020

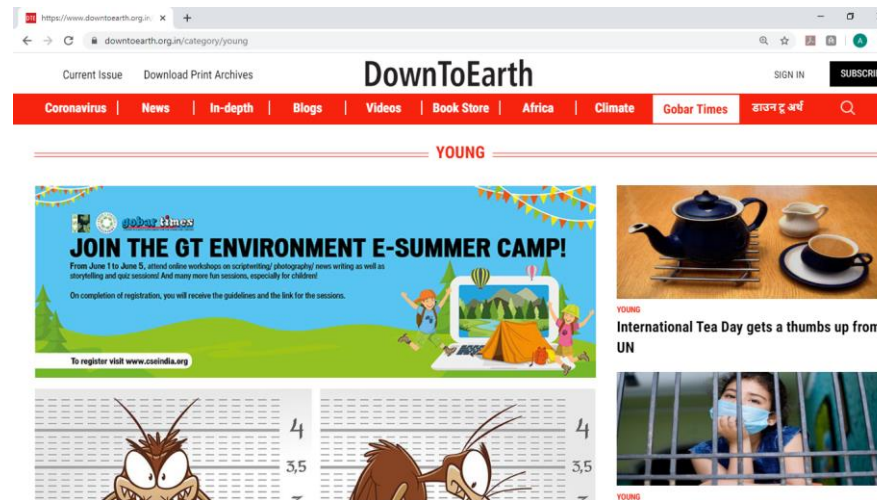
11 am -12 pm



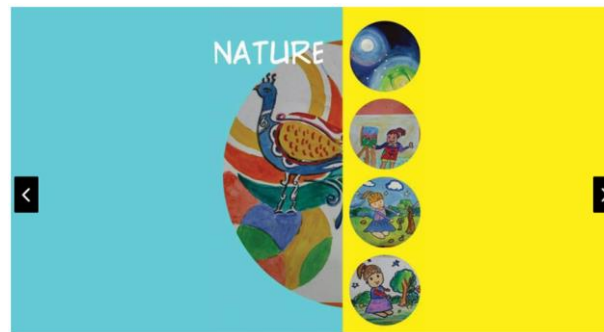


What's New

GT Young - <https://www.downtoearth.org.in/category/young>



This painting was made by Trishelle Joseph of Global Public School, Ernakulam, Kerala. Joseph, who is a student of Class 7, described her painting as narrating the story of a girl who is enjoying the cool breeze on a swing in the company of a book.



Pari Sharma, Jai Gopal, Soiab and Satyam of the Katha Public School paid tribute to Nature on the occasion of Earth Day on April 22, 2020.



Nisha Jain of Vidya Devi Jindal School, Hisar, Haryana is the artist of this painting. Jain is a Class X student. This painting was made as a tribute to the 50th anniversary of Earth Day, observed and celebrated virtually on April 22, 2020 by the students of the school.





GSP Audit 2019 Status

S.No	School Name	State	District	Category
1	MAHINDRA WORLD SCHOOL	Tamil Nadu (TN)	Kanchipuram	Green
2	KENDRIYA VIDYALAYA, KHAMMAM	Telangana (TG)	Khammam	Green
3	CMS LP SCHOOL ENNOORAMVAYAL	Kerala (KL)	Pathanamthitta	Green
4	BISHOP HODGES HIGHER SECONDARY SCHOOL	Kerala (KL)	Alappuzha	Green
5	ST.MARKS BOYS TOWN HIGH SCHOOL	Telangana (TG)	Hyderabad	Green
6	DELHI PUBLIC SCHOOL, PATNA	Bihar (BR)	Patna	Green
7	DELHI PUBLIC SCHOOL, COIMBATORE	Tamil Nadu (TN)	Coimbatore	Green
8	GLOBAL PATHWAYS MATRICULATION SCHOOL	Tamil Nadu (TN)	Coimbatore	Green
9	ZP HIGH SCHOOL.KALLUR	Andhra Pradesh (AP)	Chittoor	Green
10	ZPHS, GOPALAKRISHNA PURAM	Andhra Pradesh (AP)	Chittoor	Green
11	KGBV KVB PURAM	Andhra Pradesh (AP)	Chittoor	Green
12	ZPHS,PATHIKONDA	Andhra Pradesh (AP)	Chittoor	Green
13	ZP HIGHSCHOOL SIDDAMPALLI	Andhra Pradesh (AP)	Chittoor	Green
14	Z.P.H.S KANIPAKAM	Andhra Pradesh (AP)	Chittoor	Green
15	EXCEL PUBLIC SCHOOL	Karnataka (KA)	Mysuru	Green
16	FATHIMA CENTRAL SENIOR SECONDARY SCHOOL	Tamil Nadu (TN)	Chennai	Green
17	JRK GLOBAL SCHOOL	Tamil Nadu (TN)	Kanchipuram	Green
18	V.K.M VIDHYALAYA CBSE SCHOOL	Tamil Nadu (TN)	Viluppuram	Green
19	BHARATIYA VIDYA BHAVANS ATMAKURI RAMARAO SCHOOL	Telangana (TG)	Hyderabad	Yellow
20	MOUNT LITERA ZEE SCHOOL DHR	West Bengal (WB)	South 24 Parganas	Yellow
21	VIDYA MANDIR ESTANCIA	Tamil Nadu (TN)	Kanchipuram	Yellow
22	MONTFORT HIGH SCHOOL	Andhra Pradesh (AP)	Guntur	Yellow
23	MONTFORT HIGH SCHOOL	Andhra Pradesh (AP)	Srikakulam	Yellow
24	ST. THOMAS HIGH SCHOOL	Andhra Pradesh (AP)	Krishna	Yellow
25	N ST MATHEW'S PUBLIC SCHOOL	Andhra Pradesh (AP)	Krishna	Yellow

18 Green; 23 Yellow; 3 Orange





GSP Audit 2019 Status

S.No	School Name	State	District	Category
26	LAKE MONTFORT SCHOOL	Karnataka (KA)	Bengaluru Urban	Yellow
27	MONTFORT SCHOOL,CHINNAKANAL	Kerala (KL)	Idukki	Yellow
28	SBOA PUBLIC (SR SEC) SCHOOL	Kerala (KL)	Ernakulam	Yellow
29	NEXTGEN INTERNATIONAL SCHOOL	Andhra Pradesh (AP)	Prakasam	Yellow
30	GOVERNMENT HIGH SCHOOL PALAMANER, CHITTOOR DT	Andhra Pradesh (AP)	Chittoor	Yellow
31	KENDRIYA VIDYALAYA NO 2 DARBHANGA	Bihar (BR)	Darbhangha	Yellow
32	SRS GOVT. HIGH SCHOOL, NARAYANAVANAM ROAD	Andhra Pradesh (AP)	Chittoor	Yellow
33	KENDRIYA VIDYALAYA PATTOM	Kerala (KL)	Thiruvananthapuram	Yellow
34	MPUPS, CHERLOPALLI	Andhra Pradesh (AP)	Chittoor	Yellow
35	GLOBAL PUBLIC SCHOOL	Kerala (KL)	Ernakulam	Yellow
36	VAV INTERNATIONAL SCHOOL	Tamil Nadu (TN)	Tirupur	Yellow
37	SUCHITRA ACADEMY	Telangana (TG)	Hyderabad	Yellow
38	KAIRALI VIDYA BHAVAN SENIOR SECONDARY SCHOOL NEDUMANGAD	Kerala (KL)	Thiruvananthapuram	Yellow
39	SARALA NODAL HIGH SCHOOL SAINTA	Odisha (OD)	Bhadrak	Yellow
40	KHANNAGAR NODAL GOVT HIGH SCHOOL	Odisha (OD)	Cuttack	Yellow
41	CMS HIGH SCHOOL PALLOM	Kerala (KL)	Kottayam	Yellow
42	GOVT. HIGH SCHOOL FOR GIRLS MADANAPALLE	Andhra Pradesh (AP)	Chittoor	Orange
43	NEHRU NODAL UCCHA BIDYAPITHA	Odisha (OD)	Cuttack	Orange
44	GOVT GIRLS HIGH SCHOOL, KAZIBAZAR, CUTTACK	Odisha (OD)	Cuttack	Orange
45	O.G.P.C NODAL HIGH SCHOOL, CUTTACK	Odisha	Cuttack	Not Submitted
46	MAABHUBASINEE GOVT HIGH SCHOOL	Odisha	Khordha	Not Submitted
47	GOVT.HIGH SCHOOL,PANAGAL	Andhra Pradesh	Chittoor	Not Submitted
48	GOPALKRISHNAHIGH SCHOOL	Odisha	Ganjam	Not Submitted
49	MOUNT LITERA PUBLIC SCHOOL, ULAO, BEGUSARAI	Bihar	Begusarai	Not Submitted
50	ZILLA PARISHAD HIGH SCHOOL VEMPADU VIZAG	Andhra Pradesh	VISAKHAPATNAM	Not Submitted

18 Green; 23 Yellow; 3 Orange





Air Pollution Seminar AAETI - 2019

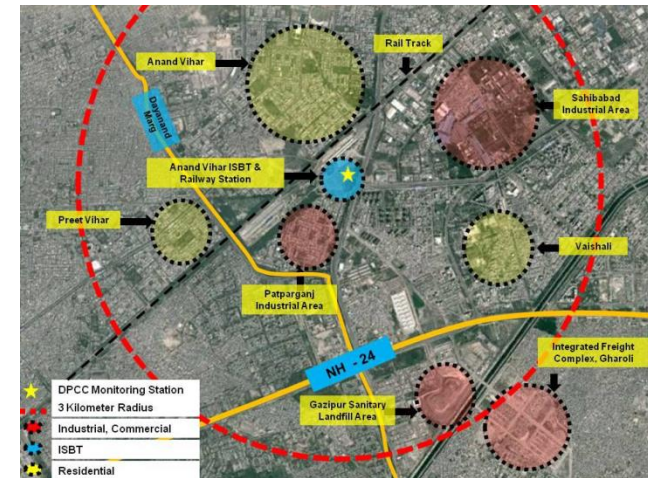
- AAETI Campus Walk
- Affordable sensors for alternative monitoring in schools
- Mobility practices and trends; possible solutions
- Air Pollution Impact on Health
- Spirometer Test
- Survey exercise and Point Source Mapping
- Exposure Visit - Central Pollution Control Board (CPCB) Monitoring Station, ITO, Delhi





Air Pollution Survey

- **Student Survey on air pollution and health:** to be filled by eight students each from grade 4 to 9. Young students could take parents' help.
 - Air quality and public health
 - Source of air pollution
 - Mobility practices
 - General awareness
- **Mapping Exercise** by one student each
- from Grade 7 to 9





Survey Participation

States	No. of Schools	Number of responses	
		Online Survey	Mapping Exercise
Andhra Pradesh	5	165	4
Bihar	2	121	2
Karnataka	1	64	1
Kerala	5	213	3
Odisha	1	12	-
Tamil Nadu	8	386	4
Telangana	2	122	1
West Bengal	1	56	3
Total	26	1139	18





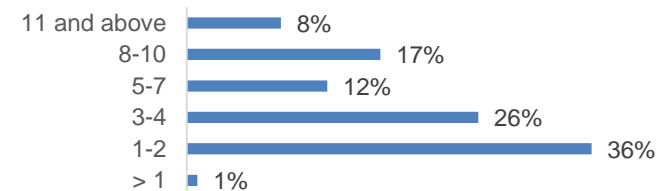
Survey findings – overall

- Air Quality status response indicates the need to develop understanding about the ambient air quality Index (AQI), among the students.
- Maximum exposure is to the traffic and smoky vehicles - 64 per cent respondents. More than 60 per cent respondents spend one to four hours outside.
- Air pollution sources observed more in the residential areas than in the schools' vicinity. Major sources include road dust, vehicle exhaust, large and small industries and garbage burning.
- Interestingly, the majority think that there is no impact of outside air pollution on the indoor air quality.

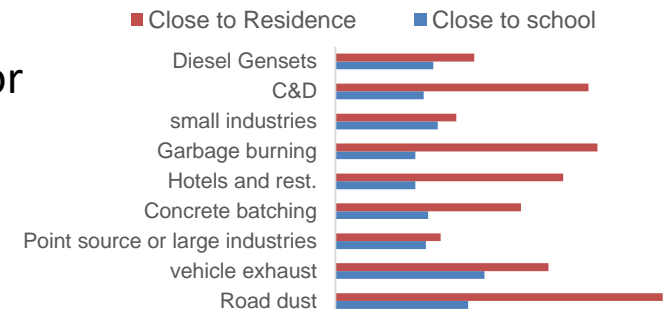
Air Quality



No. of hours spent outside



Air Pollution Sources

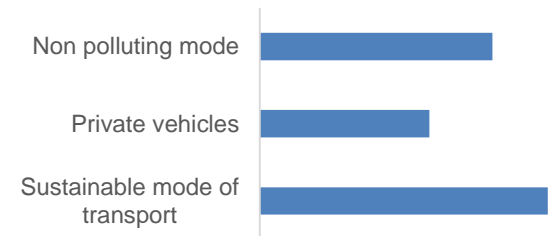




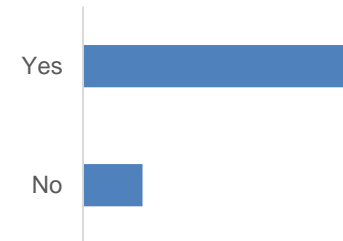
Survey findings – overall

- 75 per cent take sustainable or non-polluting mode of transport. 41 per cent respondents get stuck in traffic and take 30 minutes or more to reach school - face exposure time of minimum one hour in the congested areas, every day.
- More than 35 per cent respondents say that the frequency of visit to doctors increases in winters.
- 38 per cent respondents face special discomfort during severe smog episodes, most common issues include – eye irritation, wheezing, cold, suffocation, etc.
- **95 per cent of the students attribute the increase in respiratory problems to air pollution** and more than 80 per cent are aware that outdoor air pollution is amongst the top killers in the world and in India.

Mobility practices

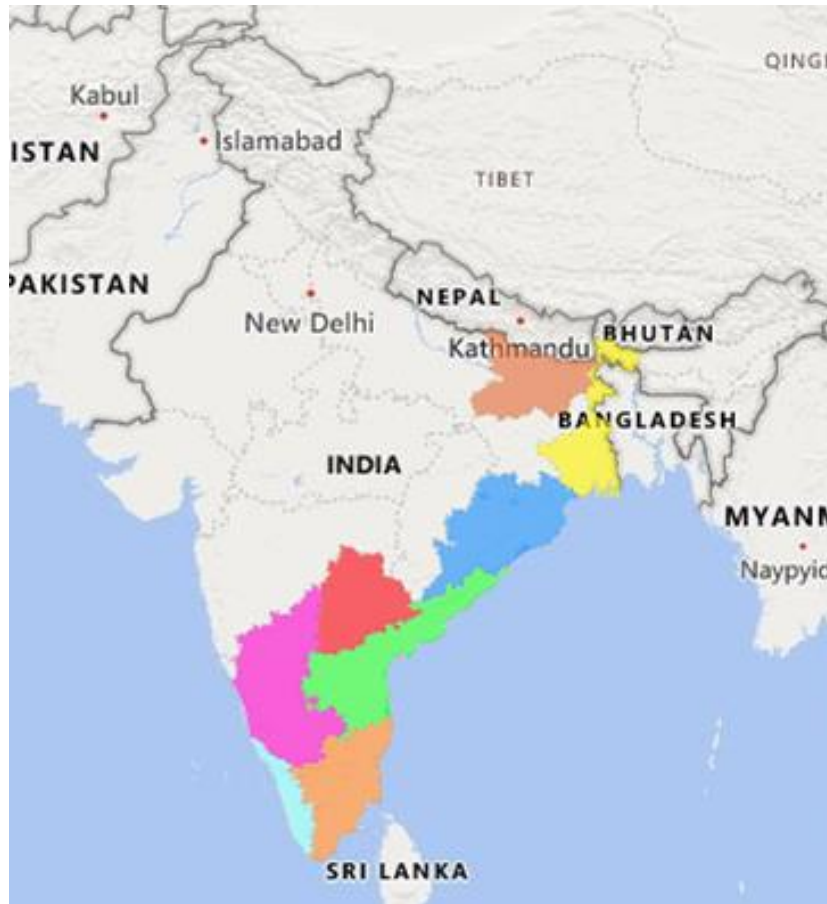


Aware that air pollution is among the top killers





State-wise survey analysis



States:

- About state
- Survey numbers
- About survey
- Summary
- Mapping exercise

- Andhra Pradesh
- Bihar
- Karnataka
- Kerala
- Odisha
- Tamil Nadu
- Telangana
- West Bengal





Andhra Pradesh



Introduction

- 13 cities from Andhra Pradesh come under the list of non-attainment cities list, namely: Anantapur, Chittoor, Eluru, Guntur, Kadapa, Kurnool, Nellore, Ongole, Rajahmundry, Srikakulam, Vijayawada, Vishakhapatnam, Vizianagaram 5 schools participated. 3 in rural areas and 2 in urban
- School from three districts participated in the survey namely Chittoor (60 responses), Krishna (52 responses) and Guntur (53 responses).

Survey Findings

- 30 per cent of the survey respondents know that air pollution is worsening. However, 24 per cent believe it has in fact improved
- Major source of pollution close to residence is from road dust (32 per cent), cooking (23 per cent) and construction & demolition (15 per cent), while commuting to school and near the school the main source of pollution is road dust and vehicle exhaust emissions, as responded by 40 per cent and 47 per cent





Health Impact of Air Pollution



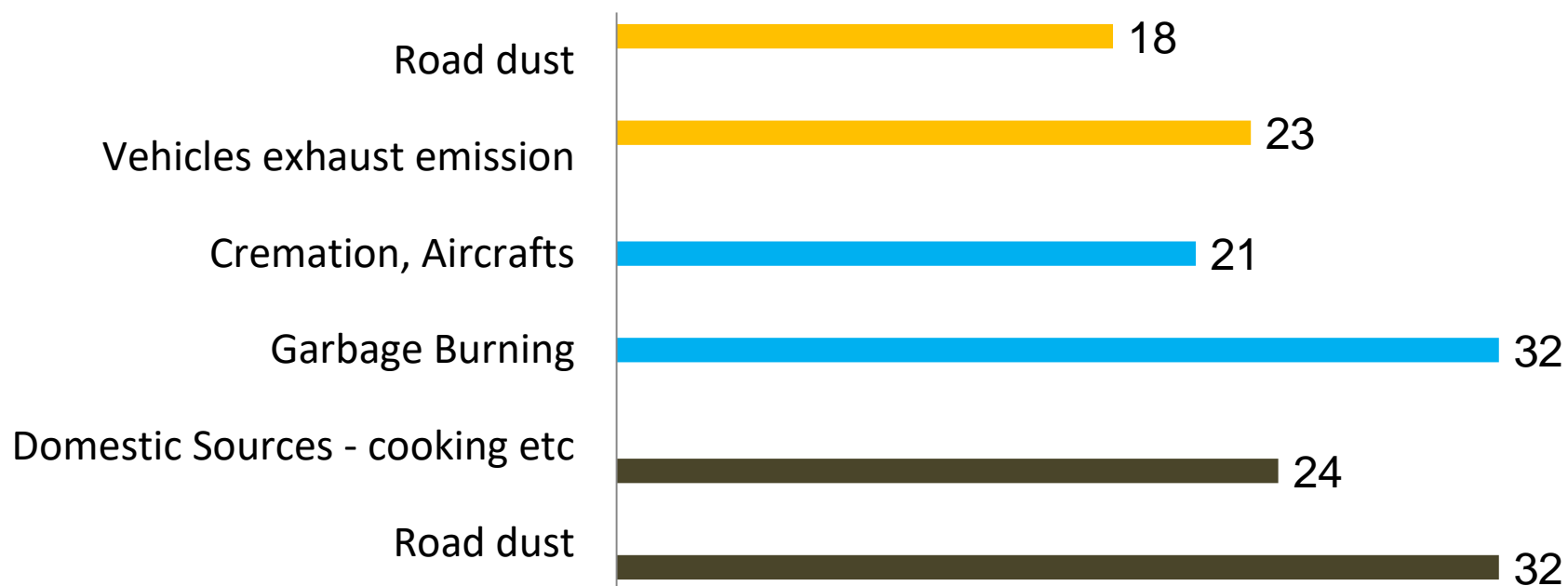
- 52 per cent respondent says that indoor air quality at home gets affected by smoking and other sources such as cookstoves, incense sticks.
- Around 39 per cent of survey respondents have complained of respiratory ailments during winters.
- More than 75 per cent get stuck in traffic while commuting to school.
- 34 per cent feel that they **visit doctors more frequently** for respiratory problems **during winters**
- 90 per cent of the respondents do not have any history of respiratory problems





Sources of pollution- AP

■ School Commute ■ Close to school ■ Close to residence





Bihar



Introduction

- Three cities from Bihar come under the list of non-attainment cities in India - **Patna, Gaya and Muzaffarpur.**
- As per the data from Bihar Economic Survey, It is observed that in the prevalence of main disease, in 2018-19, the number of cases was the highest in respect of Acute Respiratory Infections.

Survey Findings

- 70 per cent of the survey respondents think that air pollution is worsening.
- Almost 76 per cent of the survey respondents think that traffic and smoky vehicles contribute primarily to the problem of air pollution.
- 10 continuous ambient air quality monitoring stations are working in the state and out them six are stationed in Patna only





Health Impact of Air Pollution-Bihar



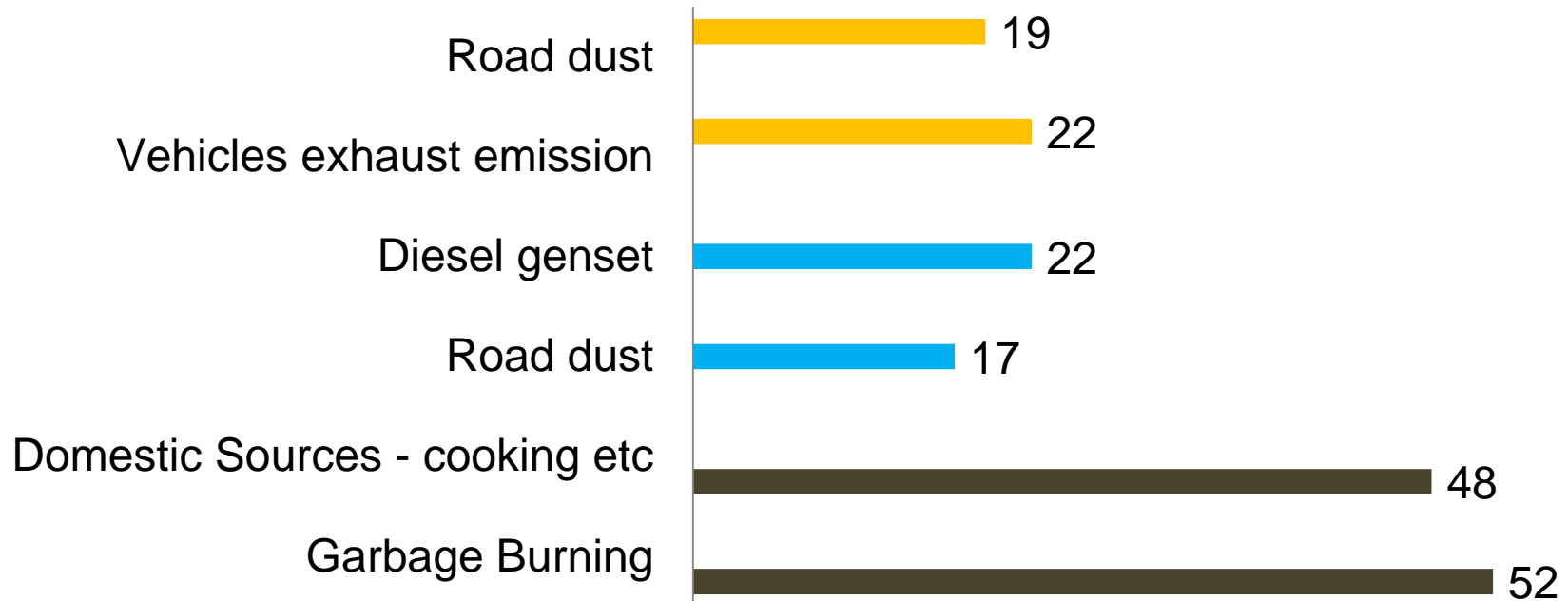
- Around 51 per cent of survey respondents have complained of respiratory ailments during winters
- 56 per cent respondent says that indoor air quality at home gets affected by smoking and other sources such as cookstoves, incense sticks, etc
- 55 per cent of respondents say they feel discomfort in breathing during smog and 48 per cent think the air quality is very bad in their city and around the school
- Cough and Running/congested nose was observed in the responses, by 41 and 35 per cent
- More than 69 per cent get stuck in traffic while commuting to school





Sources of pollution- Bihar

■ School Commute ■ Close to school ■ Close to residence





Odisha



Introduction

- Six cities from Odisha come under the list of non-attainment cities in India Angul, Balasore, Bhubaneswar, Cuttack, Rourkela and Talcher
- Only one school (12 responses) from Cuttack submitted the survey

Survey Findings

- Approximately, 91 per cent of the survey respondents think it has neither improved nor declined over time but has remained the same
- 75 per cent of the survey respondents think that traffic and smoky vehicles contribute primarily to the problem of air pollution
- 75 per cent respondents say that indoor air quality at home gets affected by smoking and other sources such as cookstoves, incense sticks, etc
- Commuting to school and near the school the main source of pollution is road dust and vehicle exhaust as reported by 58 per cent and 33 per cent respondents respectively





Karnataka



Introduction

- 4 non-attainment cities—Bengaluru, Devanagere, Gulbarga, and Hubli-Dharwad
- Lake Montfort School, Bengaluru. Located in the outskirts.
- 56 per cent responses from secondary grades. Rest from primary

Survey Findings

- 86 per cent students say that air quality is worsening. 5 per cent feel it is improving
- Overall, traffic and smoky vehicles main source according to 67 per cent
- 56 per cent students only use buses to commute. 10 per cent use only cars.
85 per cent SMV and 10 per cent NPT (GSP Audit)



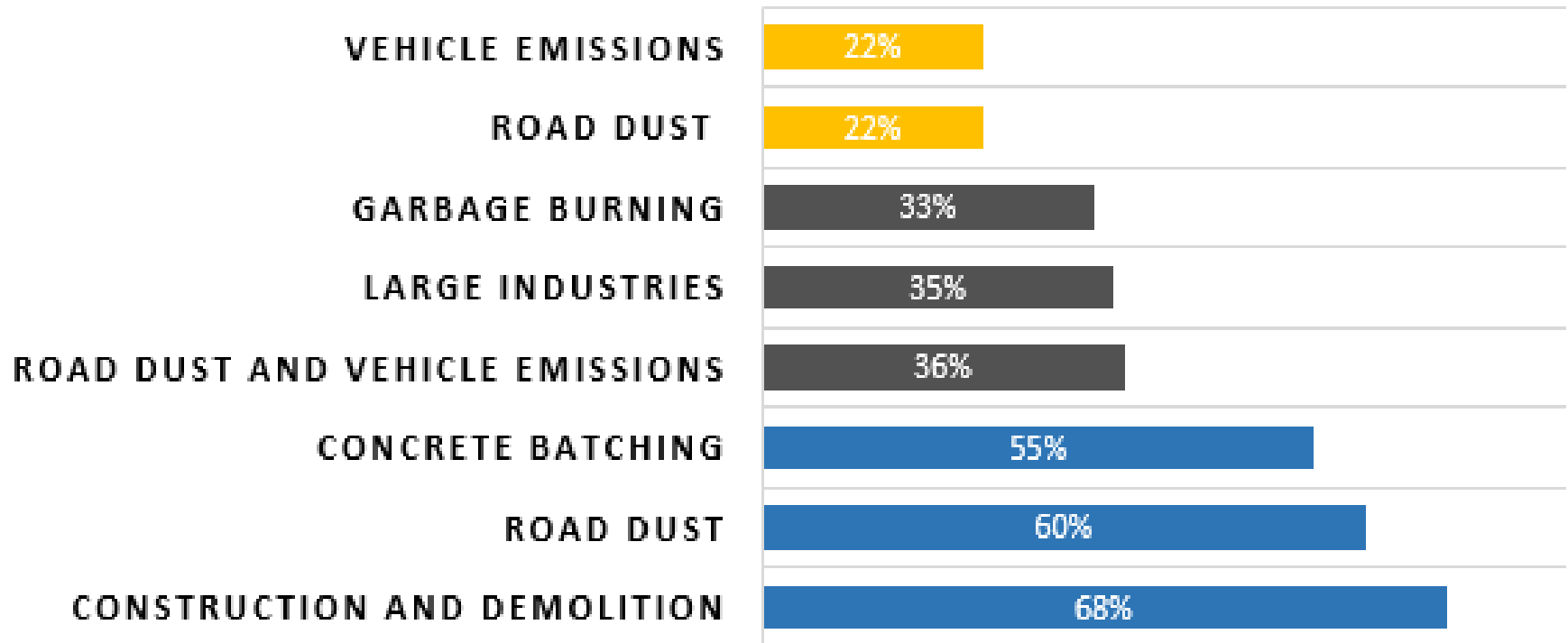


Major Sources of Air Pollution: Karnataka



AIR POLLUTANTS

■ Close to residence ■ Close to school ■ School commute





Health Impact of Air Pollution

- 34 per cent students spend 5 hours or more **outdoors every day**.
69 per cent feel that indoor air quality does not get affected by outdoor pollution—need for awareness
- 59 per cent get stuck in **traffic in commute**—increased exposure to emissions
- 67 per cent feel that they **visit doctors more frequently** for respiratory problems **during winters**
- 92 per cent of the respondents do not have any history of **respiratory ailments**. Despite this, majority feels respiratory issues due to the extent of pollution





Kerala

Introduction

- State with cities that have NAAQS within prescribed limit. Status varies district-wise or even within a district
- 5 schools participated. 3 in rural areas and 2 in urban

Survey Findings

- 34 per cent students say that air quality is worsening. 36 per cent feel it is improving
- Traffic and smoky vehicles main source, as per 67 per cent
- 68 per cent students only bus/car to commute. 23 per cent carpool to school. All schools rely mostly on sustainable motorised vehicles





Major Sources of Air Pollution: Kerala

AIR POLLUTANTS

■ Close to residence ■ Close to school ■ School commute

VEHICLE
EMISSIONS

19%

GARBAGE
BURNING

19%

ROAD DUST

23%

VEHICLE
EMISSIONS

30%

DOMESTIC
SOURCES

48%

ROAD DUST

69%





Health Impact of Air Pollution

- 48 per cent students spend 6 hours or more **outdoors every day**.
- 50 per cent get stuck in **traffic in commute**. Increased exposure to emissions
- 34 per cent feel that they **visit doctors more frequently** for respiratory problems **during winters**
- 80 per cent of the respondents do not have any history of **respiratory ailments**. Despite this, the majority feels respiratory issues due to the extent of pollution





Tamil Nadu



Introduction

- Non-attainment cities: Thoothukudi and Trichy
- Chennai's status and TN in Global Burden of Diseases 2017
- Schools: Eight schools, 386 responses*; four mapping exercise
- State's Combined Ambient Air Quality Monitoring Station (CAAQMS) and Manual AQMS

Survey findings

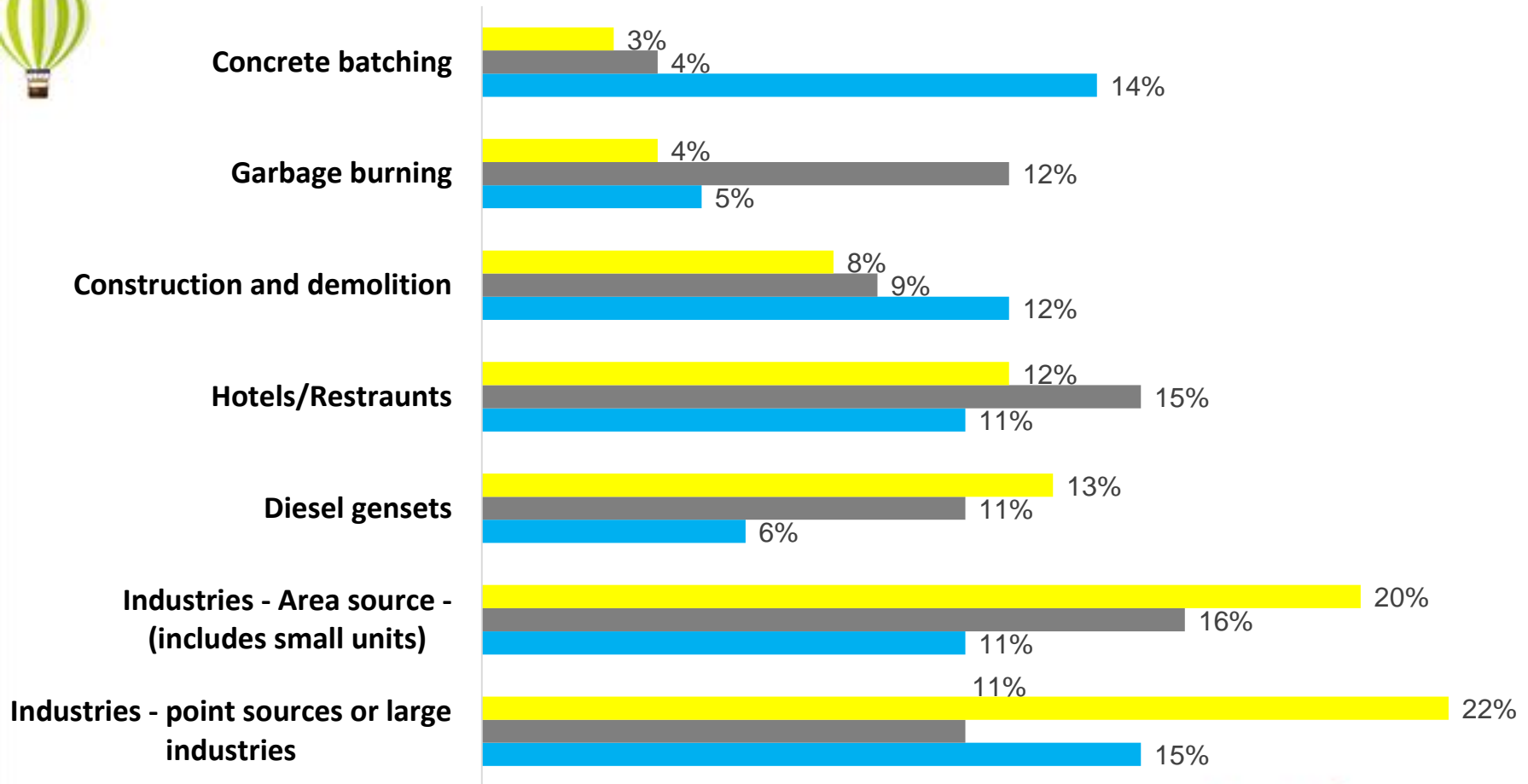
- **Air pollution status as observed:**
21 per cent believe that air pollution is worsening; here too 60 per cent - **IAQ not** affected by outdoor*
- **Sources of pollution:**
Industries, garbage burning smoke (seen by 32 per cent), traffic and smoky vehicles
- **Mobility:**
Sustainable modes by 69 per cent
- **Exposure to dirty air:**
more than 50 per cent reported –less than 15 minutes to reach school
20 per cent get stuck in traffic
61 stay within 500m of main road – exposed to traffic fumes and road dust
- **Good news!** 65 per cent do not use car: use car ones:
26 do carpooling

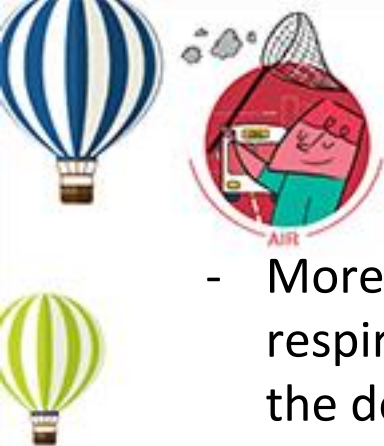




Tamil Nadu– Source of Pollution

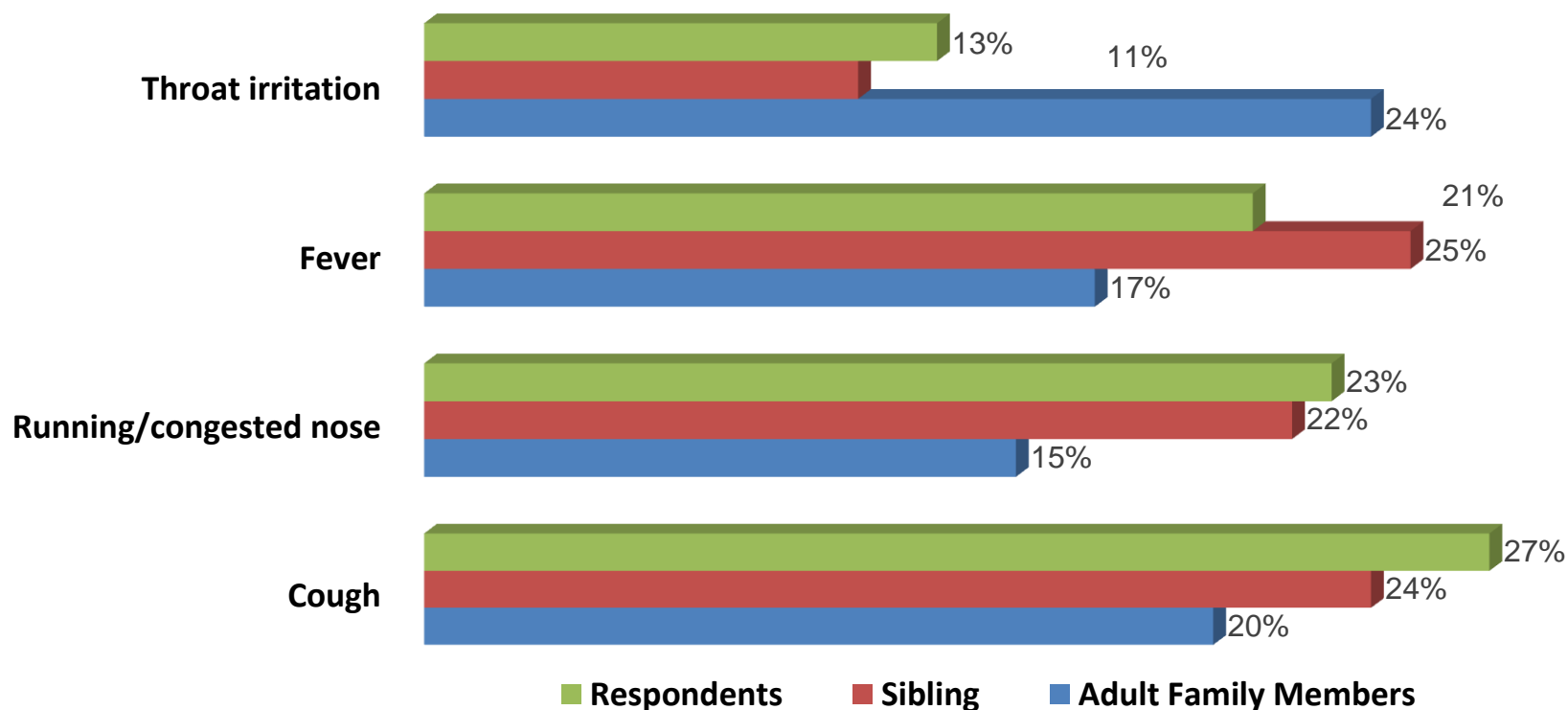
■ School Commute ■ Close to school ■ Close to residence





Health impact

- More than 30 percent of survey respondents have complained of respiratory ailments during winters and that the frequency of visit to the doctors increases in winters
- **In a 1:1 ratio respondents were informed by doctors that air pollution acts as a trigger for ailments like nasal, throat and eye irritation**





Telangana



Introduction

- Non-attainment cities: Hyderabad, Nalgonda, Patancheruvu and Sangareddy
- Khammam and PM 10 levels by CPCB
- Schools: Bharatiya Vidya Bhavan's Atmakuri Rama Rao School, Hyderabad and Kendriya Vidyalaya Khammam; 122 responses* and one mapping exercise
- State's Combined Ambient Air Quality Monitoring Station (CAAQMS) and Manual AQMS

Survey findings

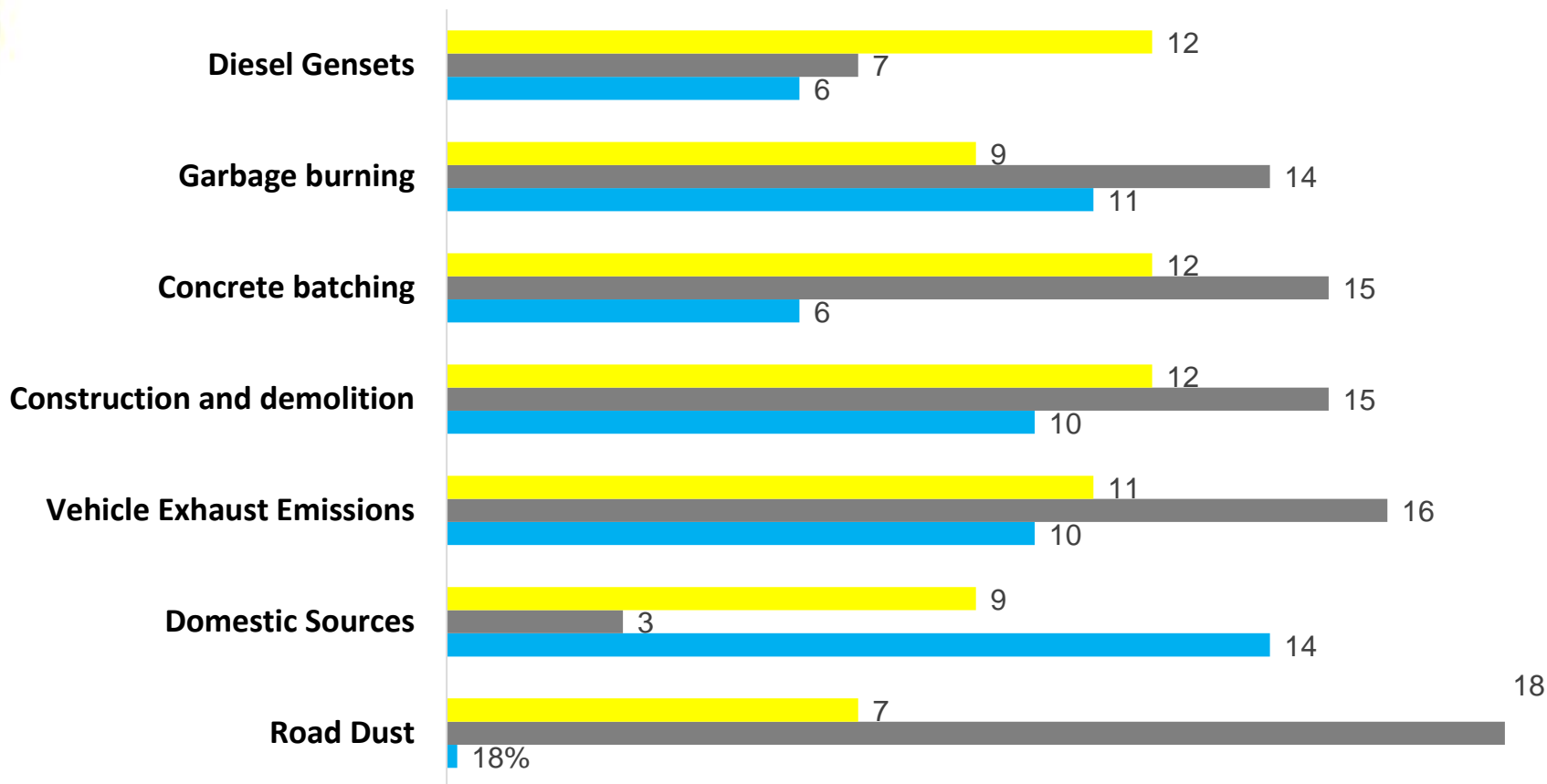
- **Air pollution status as observed:**
worsening by 35 per cent; IAQ not affected by outdoor* - close to 60 per cent
- **Primary sources of pollution observed:**
Traffic and smoky vehicles; smoke from garbage burning (seen close to school by 24 per cent), road dust
- **Mobility:**
Sustainable modes by 85 per cent
- **Exposure to dirty air:**
Majority less than 15 minutes or between half-one hour
55 per cent get stuck in traffic
50 stay within 500m of main road – exposed to traffic fumes and road dust





Telangana– Source of Pollution

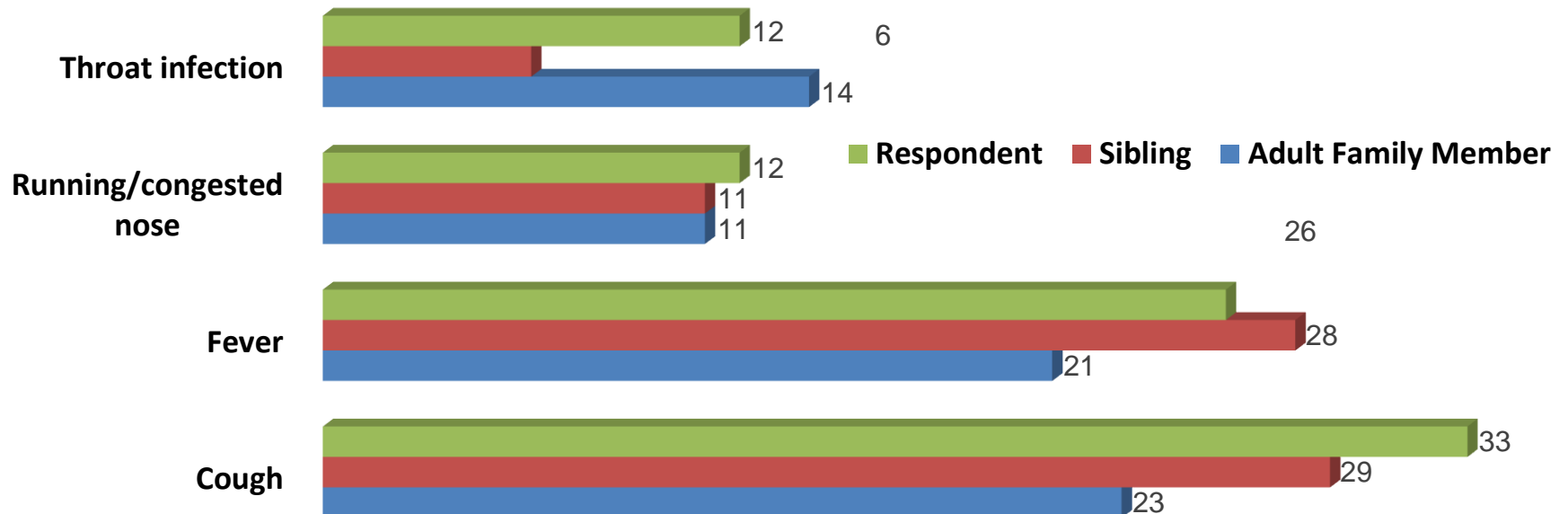
■ School Commute ■ Close to school ■ Close to residence





Health impact

- 80 per cent - spend one to four hours outside daily
- More than 40 percent of survey respondents have complained of respiratory ailments during winters and that the frequency of visit to the doctors increases in winters
- **47 per cent were informed by doctors that air pollution acts as a trigger for ailments like nasal, throat and eye irritation**





West Bengal

- **Introduction**

- 7 non-attainment cities: Asansol, Barrackpore, Durgapur, Haldia, Howrah, Kolkata and Raniganj.
- School: Mount Litera Zee School, DHR, South 24 Parganas (close to Kolkata); 56 responses and three mapping exercise responses
- 32 per cent respondents are from primary classes; Maximum responses received from grade 8 students (23 per cent)

- **Survey findings**

- 57 per cent know that air pollution is worsening
- 80 per cent think that traffic and smoky vehicles contribute primarily to the problem of air pollution. Only nine per cent consider smoke from garbage burning as worrying
- 57 per cent of the survey respondents agree that indoor air quality is affected by the air pollution
- More than 50 per cent use the bus.
- 40 per cent face traffic congestion during commute

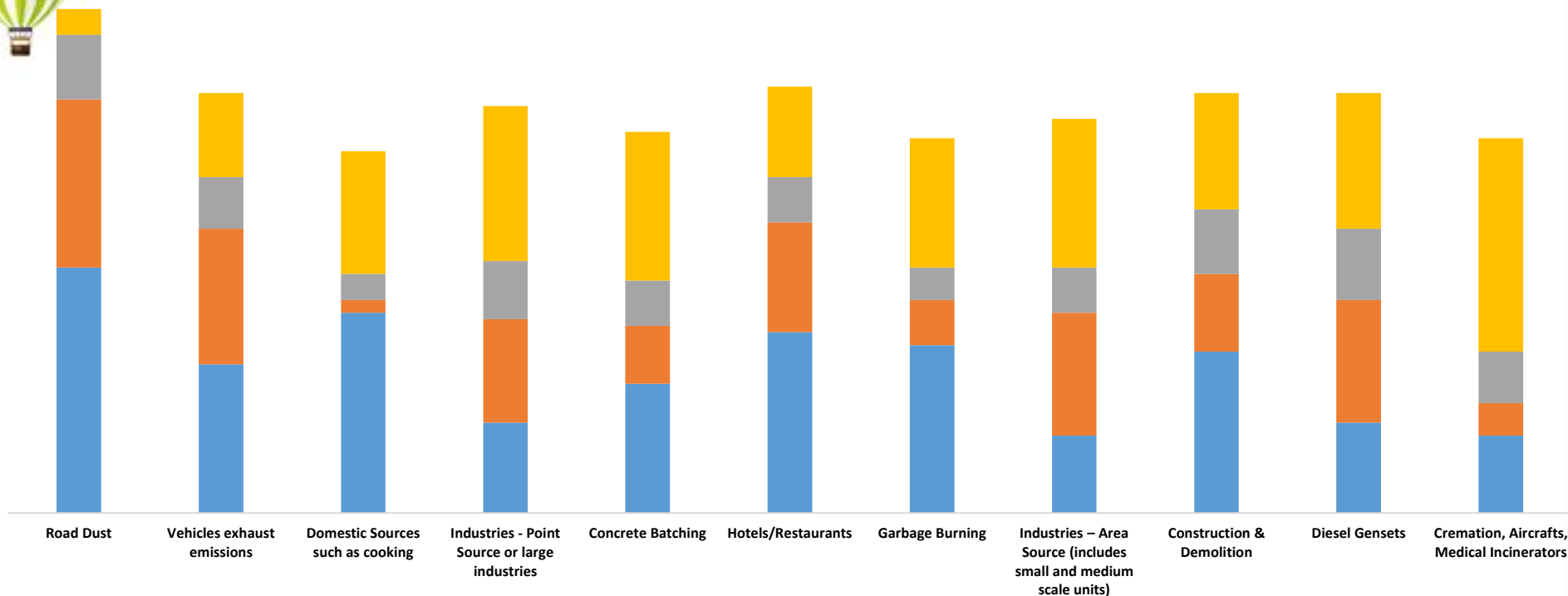




West Bengal – Source of Pollution



■ Close to residence ■ Close to school ■ During commute ■ Not Applicable



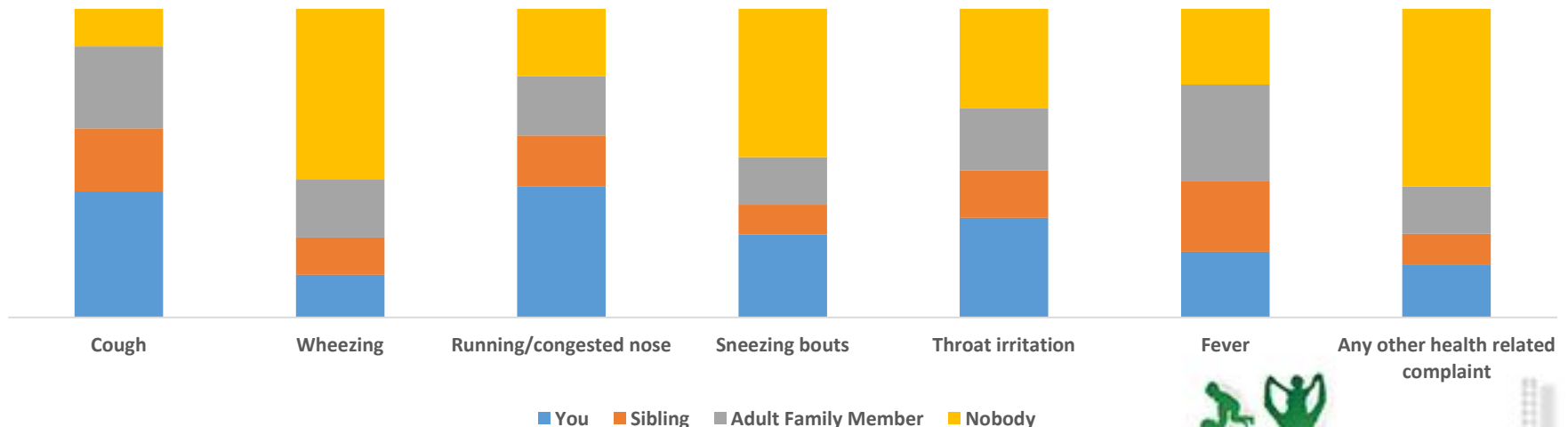
82 per cent say road dust causes air pollution close to school and or residence, 57 per cent have seen burning of garbage close to school or residence.





Health impact

- 40 per cent of survey participants spend more than 6 hours outdoors
- More than 55 percent of survey respondents have complained of respiratory ailments during winters and that the frequency of visit to the doctors increases in winters
- 66 per cent were informed by doctors that air pollution acts as a trigger for ailments like nasal, throat and eye irritation.
- While outdoor time is absolutely essential for us, on high pollution days we should refrain from vigorous outdoor activities





Suggestions and recommendations



- AQI monitoring <http://cpcb.nic.in/>
 - Real-time monitoring stations-
<https://app.cpcbcr.com/ccr/#/caaqm-dashboard-all/caaqm-landing>
- Enable mechanisms to report instances
- Schools could undertake promotional events for children
- Create green barriers
- Encouraging cycling through provision of cycling stands/parking
- Educate the children about the potential health risks related to sources of pollution, health risks, etc
- Preventive measures such as avoiding exposure, using masks, changing routes, etc.





GSP 2020



- GT Environment E-Summer camp



- Coming Soon:
 - GSP Audit from Home
 - Online Course for teachers
 - Activity Book





Thank you

