

Air

Sushant School of Art and Architecture

Workshop with Henrik Valeur
Masters Urban Design and B.Plan students (1st year)
29 February – 4 March 2016

What is air pollution? What are the causes? What are the effects? Why is it relevant to architecture and what can architects do about it?



Theme

Nothing is more vital for human beings than breathing but breathing polluted air may cause severe harm to human health, including irreparable damage to the respiratory system.¹

It has been found that Delhi is the most polluted city in the world² and that India has the world's highest rate of death from respiratory disease.³

The sources of air pollution are multiple and variable.

Sub-themes

1. Energy

The use of diesel generators and the consumption of electricity produced by coal fired power plants for cooling, heating and lighting in buildings contribute significantly to air pollution together with the use of biomass for cooking and heating. Transportation also consumes vast amounts of energy: electricity, compressed gas, ethanol, gasoline and diesel. Energy consumption also contributes to the heating up of the city.

2. Transport

Motorized transportation (both private and public) contributes significantly to air pollution while non-motorized transportation like walking and cycling may have several positive effects on human health. Urban sprawl and functional zoning may increase the demand for (private) motorized transportation with living areas, work places, shopping and recreational facilities etc. being located far apart and away from mass transit hubs like metro stations.

3. Construction

Various toxic chemicals are used in building materials and finishes. The use of heavy machinery for construction causes emissions, energy consumption and raising of dust. The construction industry also produces a lot of waste and necessitates transportation of vast amounts of materials and debris to and from building sites.

4. Vegetation

The construction of roads and buildings may contribute to increased levels of air pollution and overheating of the city (the urban island effect), which in turn leads to an increasing demand for air conditioners and other means of cooling. Unfortunately, it usually also leads to a reduction of the city's "lung capacity", i.e. the amount of vegetation that would otherwise help keeping temperatures down, keeping dust to the ground, absorb pollutants in the air and produce fresh air (indoor and outdoor).

Notes

¹ "[B]reathing polluted air may cause severe harm to the respiratory system, including chronic respiratory diseases like asthma, chronic bronchitis and chronic obstructive pulmonary disease." Other irreversible health effects include "pulmonary, cardiac, vascular, and neurological impairments [that] may not only reduce life expectancy but can also make life very painful." Source: *The horrendous costs of motorized transportation in (Indian) cities*, Henrik Valeur, 26 March 2013: <https://henrikvaleur.wordpress.com/2013/03/26/the-horrendous-costs-of-motorized-transportation-in-indian-cities/> (2.2 Air pollution)

² Source: *Delhi has the worst air pollution in the world: WHO*. The Times of India, 7 May 2014: <http://timesofindia.indiatimes.com/home/environment/pollution/Delhi-has-the-worst-air-pollution-in-the-world-WHO/articleshow/34791079.cms>

³ Source: *Child health fears at the most polluted spot in the world's most polluted city*. The Guardian 24 June 2015: <http://www.theguardian.com/environment/2015/jun/24/indian-children-fall-victim-to-delhis-appalling-pollution>

Time schedule

Friday 26th February – Introduction

2 – 3 pm

- Introduction to the workshop
- Discussion of the theme and sub-themes
- Discussion of the outcome (the report)
- Forming of groups: 1 documentation and 4 project groups

Monday 29th February – Discussion

10 am – 1 pm

- Introduction of the panel
- 4 presentations – 20 min each
- Panel discussion

2 – 4 pm

- Studio work

4 – 5 pm (common discussion)

- How will you conduct research and make proposal?
- What is research and what is a proposal?
- Agreeing on formats and media types to be used.

Tuesday 1st March – Studio work

9 am – 4 pm

- Studio work

4 – 5 pm (common discussion)

What is your research?

Wednesday 2nd March – Studio work

9 am – 4 pm

- Studio work

4 – 5 pm (common discussion)

What is your proposal?

Thursday 3rd March – Studio work

9 am – 4 pm

- Studio work

4 – 5 pm (common discussion)

How will you present your research and proposal?

Friday 4th March – Presentation and evaluation

Before 12 noon

- Submission of the final copy of the presentation

2 – 5 pm

- Presentations of 4 projects

Participants

17 master students of urban design and 5 bachelor students of urban planning are divided into 5 groups.

1 documentation group (2 students)

The documentation group is responsible for editing and designing a report about the workshop, which should introduce and discuss the theme (air) and the sub-themes (energy, transportation, construction and vegetation) and present research and proposals.

This group is thus also responsible for making an introduction about “air”, for taking notes/making recordings of presentations, discussions and evaluations and for editing this, and for collecting and organizing material from the four project groups.

4 project groups (5 students in each)

Each project group is responsible for producing research about and proposals for one sub-theme.

Research and proposals should be related to specific sites or situations in Gurgaon.

Research may include interviews with citizens, activists, bureaucrats and experts, taking pictures, collecting and processing of data and information (making diagrams, selecting quotations etc.). Proposals to improve air quality (indoor and outdoor) in Gurgaon may include actions, designs, strategies etc.

One student in each group will be responsible for coordination with the documentation group.

1. Energy

Improve air quality (indoor and/or outdoor) by reducing the consumption of polluting energy and heat-creating energy emissions.

2. Transportation

Improve air quality (indoor and outdoor) by restricting motorized transportation and promoting non-motorized transportation.

3. Construction

Improve air quality (indoor and/or outdoor) by reducing the use of toxic materials, the production of waste and the raising of dust related to the construction process.

4. Vegetation

Improve air quality and reduce air temperature (indoor and/or outdoor) through the use of vegetation.