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## **Yellow Dust**

### **Introduction**

Since the Industrial Revolution the air is an artificial environment, that has become an indicator of the Anthropocene. Peter Sloterdijk claims that it was not until the 20th century that the air was designed, when the Germans used toxic gas as a weapon during WWI ( 2005; 2009). However, as the architect historian Rayner Banham pointed out, the air –and even more air pollution- has been mostly absent from architecture and urban debates. What do we need to know about it in order to operate in/with it? How can we, as architects, start dealing with it? Can we think about what Sloterdijk termed “air design” (2009), and which tools do we have to develop it?

To respond to these questions, and inspired by Science and Technology Studies (STS) and feminist technoscience, we have been thinking about the urban air as a complex sociotechnical assemblage (Fariás and Bender, 2010), to acknowledge its materiality, its effects, its bodies and politics. If, as a heuristic, we considered this aerial sociotechnical assemblage as a city, what would its urbanisms be?

### **Commons and infrastructures**

The atmosphere is the (sometimes) invisible dump of capitalist practices, but it is also a fundamental component of human and more than human life, that which makes us breathers. We inhale and exhale thousands of times a day, and still we take the air for granted. However, the more polluted the air is becoming globally, the more its image is shifting from an infinite resilient space with never ending waste absorption capacities, to a limited resource that needs to be taken care for. For this reason it has been conceptualised as one the global commons (see Helfrich, 2008; Klein, 2014). And, as this book’s introduction also suggests, we need infrastructures to deal with them, as part of the “imminent urban commons”.

This proposal is a speculation about infrastructures for the air. However, there are some practical difficulties when thinking about how to deal with it. The air is a relational entity, with components that react among themselves, with the weather, or any material that gets suspended in it. This implies that the air is different at neighbourhood, national, or global scales. The air is also inapprehensible, uncontrollable and un-limitable, which poses difficulties for its management. It also travels with the wind, very far away, carrying seeds, ashes, microbes, dust, or radiation to places where they may not be expected or wanted. Very often, in our times, the air is (also) polluted, which

makes palpable its pharmakon condition of being a cure and a danger according to its concentrations. One immediate response to this fact would be to claim that it needs to be cleaned. But how does one clean a global circulating entity when the economic system that has set up this situation does not seem to be changing soon? Deep structural changes are needed from a cleaning approach towards a non-polluting situation, no doubt about it. But as Laurent Berlant has argued (Berlant, 2016), we need forms to deal with the transition which involve, among other, inhabiting polluted sites.

However, there is also a conceptual difficulty when having to think about the infrastructures needed to engage with the commons. What kind of infrastructures are we talking about, and what do we exactly mean by commons? Infrastructures are not only technological devices, but as STS have well demonstrated, socio-technical assemblages composed by hard, soft, human and non-human entities, situated and networked in different ways (Graham, Stephen and Marvin, Simon, 2009; Leigh and Bowker, 2006; Schick and Winthereik, 2016; Star, 1999). Thus we are interested here in the infrastructures that allow us to manage the “terms of transition that alter the harder and softer, tighter and looser infrastructures of sociality itself” (2016: 394). And in the infrastructures able to engage with the different materialities of air, but which also take into consideration and engages openly with their social implications, inspired by Berlant’s question: “what kind of life is an infrastructure” (2016:394)?

The commons is also an unruly concept, as it takes various forms and approaches depending on the context and author. It tends to bring together resources, property rights and regulations. But one of the problems of relating the concept of the commons to limited resource management is that the discussion ends up by being about economy and costs. Frequently, the infrastructures designed to deal with the toxic air are framed from this perspective, mostly infrastructures to clean the polluted air. Which may partially contribute to remediate particle’s concentrations, but are clearly not addressing the causes, the emission of pollutants. So in which other ways can an infrastructure of a common (the air) be also an infrastructure for an expanded idea of the common, one that addresses other forms of being together? With this question comes another problem, because as Berlant (2016) argues, the desired common often reinforces an idea of the collective based on agreement and belonging (to a community, a state). Considering the challenges that these idealistic approaches imply in terms of who and how belongs to that common – inspired in non-sovereign critiques, for instance- we follow Berlant in her proposal of focusing instead on proximity and detection, as “the experience of affect, of being receptive, in real time” (2016:402). How do we start thinking about infrastructures to deal with the air in our context of industrial toxicity, financial insecurity, and permanent war, that enable these other forms of co-habitation?

Philosopher Marina Garcés (Garcés, 2013) argues that due to the complexity of this context, thinking ‘what to do’ can be paralysing. Therefore, she suggests thinking instead about how to change our modes of dealing with things, with each other, and the world. If before these modes have been focused on representation and action she proposes to shift towards “attention and treatment”. Following Garces, *Yellow Dust* is conceived as an infrastructure to deal with the toxic air in a common world, that instead of asking what to do with the polluted air, aims to test if there are other modes of paying attention to it that involve other forms of treatment other than cleaning. But again with Berlant (2016), these infrastructures for the commons acknowledge a broken world, but they also trigger new ways of living on it. I take this as an invitation (and responsibility, from Berlant) to speculate, as the only possible way of dealing with our troubled times, as Haraway claims (Haraway, 2016), which not only means observing the state of reality, but intervening in it (Guggenheim et al., forthcoming). So overall, *Yellow Dust* is a speculation of what air design can do to engage with the urbanisms of the air, what can it mean to care for the environment, and more specifically, to care for air pollution. In other words, it asks: what can ‘air design’ do for dealing with the Anthropocene? What can other forms of sensing do in our relation with the air?

## **Yellow Dust**

*Yellow Dust* is a three-dimensional water vapour canopy that informs about air pollution, and more specifically, about particulate matter (PM2.5). Drawing on architecture references like Diller and Scofidio’s *Blur Building* (2002), it is made of fog and it is reactive to meteorological changes. It is also an inhabitable and media

infrastructure, with a fundamental difference with the Blur Building: the media is not meant to display art or information, but to reveal its own constitution and experience data. In this sense it relates to Philippe Rahm Architect's Eco Jade Park in Taiwan (2005- ) in its intention to condition the public space, as well as to Living Light, The Living's pavilion in Seoul (2009), relying not only on vision, but also exploring less representational and more experiential modes of dealing with knowledge and information.

The canopy generates a floating misty environment that changes density (and therefore the conditions of visibility, humidity, etc.) in relation to the concentrations of particulate matter in the air. It performs counter intuitively, almost paired with the visual conditions of the dust: the more dust, the thicker the cloud, embracing and intensifying the blurriness of our contemporary cities, where the transparency of the modern movement cannot be anymore achieved.

The data is collected by two self-made DIY sensors, which provide alternative data to the Seoul Metropolitan Government. The reason for using DIY sensors, instead of getting the data from the closest official monitoring station, is to test the remediation capacity of the cloud. Because as water sediments dust, it may reduce the concentrations of aerial particles. So one sensor is above the cloud and the other below it, at ground level. The main objective is to explore forms of engagement with the toxic air alternative to existing monitoring practices, by paying attention and speculating with other conditions of the air.

But, what do we need to know of air pollution in the city, as passers-by, neighbours and architects? Yellow Dust suggests other aspects of the air that deserve attention. It moves from numbers to intensities of water vapour, showing the changes of particles concentrations by other means. The de-coding of the information is therefore not immediate, and it may take time for passers-by to be able to compare the conditions of the mist with previous hours or days. It requires time to get to know it, detaching from speed of information tropes.

The intensities do not relate to the Air Quality Index either. The Air Quality Index (AQI) is a colour gradient that correlates the concentration of particles with their effect in human health. The reason for avoiding this relation is double. First, because the project is part of wider research that aims to find other modes of attending to the air beyond human health. This is not to say that human health does not matter. It takes into consideration that everybody—human or more than human—reacts to pollution differently. So, from a cosmopolitical approach, to account for all bodies and their diverse sensitivities to particles, it does not specifically address any of them. Each body might get used or attuned to the infrastructure, or learn to be affected by it. Second, because it is not clear what is the role that human health plays when informing citizens in real-time at a specific location. As AQI advises when to stay indoors, if displayed at a specific location it could reduce the quantity of passers-by, for instance, and put at risk local commerce and therefore threatening other aspects of human life, affecting the less privileged people.

It is relevant to note at this point that the project is not focused on prediction. It reacts to positivist understandings of information, where knowledge produces immediate behavioural change. This is because studies of the impact of air pollution data in citizens have demonstrated that information does not necessarily produce behavioural change. Therefore, the project aims to find alternative modes of engaging with the environment beyond the cognitive, by attuning to toxicity, recognizing or detecting it.

The colour of the fog also plays a role in paying attention differently, in this case to help to identify and locate oneself within conditions that are simultaneously local and planetary. It is coloured yellow in reference to the Yellow Dust (Hwangsa in Korean), transboundary fine soil particles carried by the wind from Mongolia and Northern China, mostly during the spring, which bring with them other types of industrial pollutants. Although there are frequently high levels of particles created by local sources, Yellow Dust creates a sense of invasion, of matter out of place, which reinforces the distinction between the local and foreign air, and triggers legal and political international battles. Which forms of intervention could be opened up that may not get trapped in colonial bias and forms of dealing with the other? Our installation unsettles the idea of the yellow dust as a foreign and unwanted entity, and reveals, in the months where Hwangsa is not blowing, whether there is pollution of local particles in Seoul's atmosphere.

## Other forms of knowing

Yellow Dust proposes an alternative form of getting to know the air. Currently, to get information about air pollution we need to look at digital devices, from mobile phones, to computers or even urban screens. Yellow Dust instead surpasses this mediation and displays air quality information right *in* the air, exactly where it has been measured. The project also expands other forms of sensing or experiencing environmental data that differ from those used by institutional monitoring systems based on vision. The water vapour creates a soft mist of humidity that can be experienced by breath and contact with the skin, which aims to democratise the perception of air pollution and to pay attention to the unevenness of its effects. Only sensitive bodies sense pollution, but it is likely that more bodies sense humidity. In days of high particle concentrations (Hwangsa or not), there are several modes of sensory overlap: visual (the colour of pollution, the colour of the mist), skin based (through humidity and temperature of the mist), and, the nose, eyes or lungs (for particles' sensitive bodies). Water vapour sometimes alleviates asthma symptoms, so the infrastructure may also serve as a relief. Overall, it produces an overlapped—or even excessive— sensorial experience.

## Transforming environments

The fog not only alters human forms of sensing data, but conditions the urban space, changing its temperature and humidity conditions. This conditioning may also have other effects such as remediating particulate matter. As water deposits particles, water vapour may contribute to this process, reducing its concentrations. The installation is therefore an experiment in remediation that tests the decrease in particles from over and below the mist. This hypothesis is inspired by the old practice of watering the streets to reduce dust storms in many countries. Should we water parts of our cities? Could this be a coping strategy for highly polluted areas?

## Urban infrastructures

Yellow Dust is also a speculation on urban infrastructures. As a monitoring infrastructure, it measures and makes visible in the same place, right where the measured object is. It reveals its own infrastructure, the steel that sustains the water vaporisers, the sensors, the cables that channel the water, the lights... opposed to scientific and policy making versions of air monitoring devices, which are invisibilised and black boxed. This is because one of the problems of ubiquitous systems is that their invisibility reduces our possibilities of understanding its performance, and therefore our possibility of intervention. From an ecosystemic perspective, it also makes visible what it takes to monitor and display air pollution information, through water and energy consumption meters.

However, the main components of the installation are water vapour and data, distributed across space and time in an untraceable way. They create some sort of atmospheric media, bringing together technologies and urban conditions below the threshold of sensing. Media and the air become the same thing, elemental conditions that perform as a chemical interaction, as a milieu, and as an environment. From here we ask if in this specific type of infrastructure, it is possible to distinguish between the technology and the matter that acts upon it, since the infrastructure and what is sensed cannot be disentangled, or indeed differentiated. The water vapour dissolves in the air, becoming one. So not only does the infrastructure become atmospheric, but it makes the air infrastructural too, by being the support of its own data, literally making itself visible.

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