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On the role that trees play in a city:

There is the obvious stuff that everyone knows about, like the oxygen and CO2 business. But one other huge role that trees play is controlling temperature. A tree can control temperature up to six degrees or so, far more than what people assume. This is because of a number of reasons.

Trees block the rays of the sun. This is something we all know because we all go and sit under trees. Trees prevent heat from hitting us. They also prevent the rays of the sun from hitting the ground and so in turn prevent the heat generated by terrestrial radiation – not just during the day but even after sunshine hours.

Trees also reduce temperature through transpiration. This is something we've all learnt in school but have not put two and two together to see how it benefits us. Trees, as you know, survive on groundwater. You know that the reason you sweat is so that you can cool down. Trees also basically sweat. What they do is that they suck up groundwater, use it for photosynthesis and then release water vapour into the air. So trees are the only way that groundwater can go into the air.

This is important for many reasons. One is that it plays an important role in the formation of rain from groundwater, which would not be possible without trees. The second is that the process during which trees are heated up and groundwater removed also cools down the environment because that heat is absorbed and heat energy is used for evaporation and doesn't reach us.

And then, of course, it rains and that too cools things down.

On the manner in which trees communicate with each other:

Trees are connected to each other through a community of microbes and fungal networks. So basically what trees do is they take sunlight, carbon from the air and put it in the ground and also exchange it with each other through the microbes. It is a symbiotic relationship where the tree roots harbour microbes. The process of exchanging nutritional information through the community of trees is also very interesting and when you cut trees you harm the entire network. The heritage trees play a very vital role in this, and some of them are known as mother trees and they take care of other trees by sending them nutrients when they are sick. The tree knows what

the other trees need and they communicate with each other. On the internet the slang that we use is the Wood Wide Network.

On the ways in which trees benefit us:

How do trees benefit us? There are so many different aspects.

One is that trees support biodiversity – right from fungi and microbes to insects and birds and bees and butterflies.

Two is that every tree has medicinal uses. You google any tree and there will be somewhere in the world that uses the tree parts as medicine. Did you know that you can eat the leaves or the pipal tree? Or the roots of the banyan were once used for making medicine? Or that the sap of the toddy tree could be used to make jaggery and that was used for treating illness?

Then there is pollution control, because trees filter the air that we breathe. They also form soil because when they shed their leaves, these leaves decompose into soil. And topsoil, which is the most fertile part of the soil, is largely made of leaves of trees.

On the challenges faced by trees in Mumbai:

Rampant tree-cutting:

The biggest challenge to the trees is humans cutting them – the killing of trees on a mass and unacceptable scale. Do you know how many trees are being cut legally every day in Bombay? It's 40 trees per day. Which is 1200 trees per month or 14,000 trees per year. So you can see there is a tree genocide going on, and these are just the trees that are being cut legally. In addition there are trees that are being cut down without permission. And now if you start including the trees in Aarey and the trees being cut for the metro –for the 14 lines of the metro, 40,000 trees are going to be cut down – the numbers are huge.

What is interesting is why the trees are being cut down. One is that the government has constantly been increasing the FSI in the city and so indirectly telling people to cut trees.

All over Mumbai, a lot of old buildings are going down and new ones are coming in their place. This is how it works. When FSI increases, the government is telling you that you can demolish your three- or four-storey building and go higher. Everybody is realising that if you tear down these old buildings and cut down these trees you will make more

money and have bigger houses and live in a tower. So there is a financial incentive to redevelopment and to cutting down trees.

My building is also going in for redevelopment. My new flat is going to be worth Rs 1 to 1.5 crores. In a situation like this, everybody will say, "So sad that the trees are going down but it is so nice that I am getting a flat worth Rs 1.5 crores."

In my building the first thing I brought up with the redeveloper was that I would not sign if any tree were to be cut. The society has some 400 flats but I am the only one who said this. If there had been no activist in the building it would have been, "Okay, you do what you need to do."

The same government that is telling you to plant more trees is also telling you to cut down trees. This is the scam that everybody needs to see. Every government school and village school I've been to has these posters saying plant more trees and save trees. But save trees from whom? Save trees from the same people who are telling you to save trees. They are the ones cutting the trees. But people don't somehow put two and two together.

Redevelopment is a big thing. The second thing is government projects. They have a rule that for every tree you cut, you have to plant so many saplings. But a sapling cannot do what a big tree does. It will take 20 years – which means 20 years of heat, 20 years of pollution and at the end of 20 years, someone is going to come and chop those trees also just like someone is chopping trees which were planted 20 years ago.

Let's say you have an adult who is 35 or 40 years old. This adult plays a role in society, they can farm, they can work, they can do many things that a small child cannot. What the government is saying is, "I will kill the mother but it is ok because the baby is there."

But a baby cannot perform the role of the mother. About 70 per cent of the saplings don't even survive because the rule is about planting the saplings, not about helping them to survive. That is another big part of the scam. People will say that we cut trees but we planted three saplings in their place. But that is not sustainable development. Sustainable development is when you stop cutting trees.

Cementing and what you can do about it:

There is a court ruling that says that trees need open space of around one meter which is uncemented because trees breathe through their roots and rainwater goes to the roots through mud. It doesn't go in through cement. What we doing this country is that

we pour cement all the way to the trunk so the roots start rotting, the trees get unhealthy and they fall down and when they fall down we say, "Oh, see, trees are falling down" and then chop them before they fall down as if trees are a hazard to people.

Trees falling down has a lot to do with cementing, and even though it is against the law the BMC doesn't do anything about it.

If you see that the tree basin has been cemented you can complain to your ward and they are duty-bound to remove the cement. This is one of the few things regular people can do other than protest. Because there is a court ruling, you can dig it out and show it to the BMC so they have to come and remove it. You can use Twitter and give a complaint in writing and if they don't do anything, you escalate it to their boss and their boss and their boss and at some point they will have to remove the cement around the roots.

Unfortunate superstitions:

There is a superstition about feeding ants near the trees. The thought seems to be that if you feed the ants near a tree you will get a spot in heaven, that basically you will get some brownie points and cancel some of the bad things you do in your life. So what these people do is they put rice and sugar near the trees. Then you have overpopulation of ants near the trees. Ants host these other insects called mealybugs and these bugs start to destroy the roots of the tree and again these roots get unhealthy and the trees fall down and die. This has been happening to some of the raintrees in Bombay. But still this superstition continues, members of one community form huge groups and go and destroy all the trees. It is controversial to go against a particular community but there needs to be some awareness because it is unnatural to put white sugar near a tree. A tree already feeds whatever animal it needs to feed. You don't need to do all this stuff. You just need to stop cutting trees.

Uncontrolled and unscientific pruning:

The other challenge is that in the name of pruning the contractors chop huge portions of the tree. They talk about safety and that the tree may fall, but it's very interesting to see how this system works.

The BMC doesn't do the pruning themselves. It's done by contractors who are hired by the BMC. After all the pruning you know where the wood goes? The wood is sold to these Hindu cremation ghats. So the more these contractors chop the more money they

get. The BMC pays the contractors to chop. Then the more they chop the more money the contractors get.

Meanwhile, who is paying the contractors? We are paying the contractor to chop our trees, then we are complaining that they are chopping the trees. Basically our own guns are turned against us.

Only BMC contractors are authorised to prune the tree. There are rules about how much you can chop which are related to the girth of the tree. But their criteria is how much wood they can sell. They are not pruning it according to the balance needed by the tree. Each time you prune, you are training the tree to grow in a particular direction and shape. Some pruning is sometimes useful but these guys have no method. They just want to extract maximum wood because they want to sell it. So again the incentive is being provided to harm the trees, not to save the trees.

There are certain rules that have to be followed. A BMC junior tree officer needs to be present when trees are being pruned. The absence of the BMC officer can be used as a pretext to stop the activity. You can complain to the BMC that there is no officer here so it is illegal.

Falling trees:

A tree would fall because of the cementing, because you are not taking care of it, because of the unscientific pruning that makes the balance wayward, the feeding of ants, excess construction near the base of the trees. Also, many trees planted are non-native trees because our native trees grow slowly and the government uses fast-growing trees which are not so suited to our environment. Those trees will grow fast but they also fall very fast.

When trees fall, the contractors come immediately to chop them and sell the wood. They will never try to put them up again because you can make money by selling the wood, but you have to spend money to put the trees up. So there is no incentive for the contractors or BMC to save the trees. There is only incentive to chop and sell the wood.

Even when they do transplantation they do it so badly. They make a hole in the road and put the tree up. Then they sanction themselves a budget for watering the tree. So they make money on the transplantation, then on the watering and then, when the tree doesn't survive, they chop up the wood and make money for the third time.

The system is geared to the BMC and contractors killing the trees because it provides financial rewards for killing trees and no financial reward for saving trees. This needs to be changed at a policy level.

Everybody abuses the BMC but we have no feeling of personal power to change the situation. If you've noticed, there has been a movement in Mumbai to save trees. Over the last four five years it has been going viral whenever trees are cut. This is the first time people are actually talking about saving trees.

On being vigilant and pro-active:

When there is redevelopment or construction of any sort, the demand to save the trees by modifying construction has to be done at the very beginning. Usually people only realise once the construction has begun that trees are being cut and then they go and complain to the engineer, but it is too late.

The saving of trees in any construction project has to be done before any planning and drawings of the project. The planning, engineering drawings have to happen keeping in mind the trees. When architects make a drawing, they don't mark the existing trees. They make their drawing and then later they act as if the trees are in the way and chop them. Any construction project should first consider the fact that there are trees before making any drawings and creating any design. The designs should be made to accommodate the trees. This seems like common sense but nobody does it because nobody gives a damn about the trees.

On heritage trees and the law:

There was a law that Aditya Thackeray introduced with a lot of fanfare. It was for identifying and the upkeep of heritage trees.

Unfortunately the law has not stopped the cutting but it has increased the compensatory activities. So it says that if you cut a heritage tree you have to plant a certain type of tree and the number of saplings planted has to be in proportion to the age of the trees.

There are pros and cons of the law – the biggest pro is that it recognises that there is something called a heritage tree. And it can be a basis for future laws to protect trees. But the con is that the law doesn't protect the trees but just makes it more expensive to cut them.