

CREATING FERTILITY

An engineer from the prestigious French school of engineering, École Nationale des Ponts et Chaussées, who reinvents himself as a farmer in southern India: that is the astonishing journey of Christian Tarpin, 57, who arrived in Auroville at the age of 50. Christian explains how, gradually, the concept of “smart city” has taken on a whole different meaning for him.

I AM 57 YEARS OLD. I ARRIVED IN AUROVILLE seven years ago, at the age of 50. My training is that of an engineer specialised in urban planning. The first 25 years of my career were spent as an urban planner, specialising in mobility. That included initiating innovative traffic management projects like GPS and traffic data exchange systems. I worked for the city of Paris on a new system that would give a complete view of the traffic in the capital. So I spent a lot of time on technology related to the city – a wonderful technology supposed to give us a wonderful world... The concept of “smart city” is a concept that speaks to me, and I have done some exciting things in this area that have impacted the cityscape and affected millions of people. I was involved in a lot of things which, in the popular imagination, are associated with a “smart city”. French cities are becoming smarter and smarter from the point of view of personal services, from the security and surveillance point of view... but are we deploying technology for really smart projects, I doubt it!

BEING SMART TODAY

At the age of 50, I realised – and that’s why I’m here – that humanity was going astray, and I, too, and that I was using my intelligence, my talents for things without a real future. I turned my back on all this, I stopped all those activities and I became a farmer. I took



*Mulching around
the eggplants in
AuroOrchard*

charge of AuroOrchard, Auroville's second largest farm (44 acres), and the oldest, which I converted to fully organic in 2012 (we are a group of 8 Aurovilians, 12 employees, plus a team of volunteers that can be as many as 25 people).

This deserves some explanation.

I think that where we have to be smart – and I think that in Auroville we are smart – is in our relationship to the planet, to nature, in the way we produce food, in our water management, etc. As an engineer I was trained in all these subjects, because we are supposed to manage sewage, to bring water from point A to point B, etc. For me it's not new, and at the same time it is new because I am approaching things now from another angle.

Today being smart does not revolve primarily around technology.

AuroOrchard was created by the Mother, who entrusted the responsibility for it to Gérard, and gave him the mission of feeding the community. This is one of the first lands that were purchased for Auroville, in 1964. This farm embodies Mother's pragmatic thinking. She insisted that this farm be organic, but Gérard did not have enough confidence in himself to do it entirely. As soon as I set foot in AuroOrchard I fell in love with the place, in love with Gérard and with Bithi. In 2012, when I saw the damage caused by chemical inputs, I said, "we have to go organic". Gérard was delighted and he immediately agreed.


So now we have a farm which is organic. That is a word with a vague definition. Indeed, today organic farming has become a business. Consumers want organic products, so the big systems that fuel consumerism have realised that organic is necessary, and ten years ago all these lobbyists insisted on defining organic specifications for the European market. These specifications have been emptied of all content in order to allow people to massively import from countries which have low labour costs and to cheat the consumers in a big way. The goal was to be able to sell products under an organic label in which the only organic thing was the label itself. The majority of the organic products sold in France, for instance, come from countries like Brazil, India, China. The Indians never see these products, because they are too expensive for them.

I don't want to have anything to do with that kind of "organic". And now I should come back to the question of what is smart.

I think that to be smart is to stick to a sincere "organic" because this is what the world needs.

At AuroOrchard, in order to understand our choices one must remember where we come from: the farm was a conventional one from 1969 to 2012. And 43 years of chemical farming on an extremely fragile soil produced a lot of damage. I arrived on a land that, in terms of agricultural potential, was almost zero. It must have been one of the worst farmlands in Auroville. It was not the worst to work on, because sand is easy to work with, but it was a land that did not have the ability to retain nutrients. The soil was washed away by the slightest rain, scorched and hardened by the slightest sun. It therefore had to be kept alive and fed permanently, otherwise it became brick (I could have opened a brick factory!). So here one is obliged to be smart. I started from the beginning, which was to assess the situation thus: I have a dead land. I took it as a metaphor for the planet. This is what the earth is going through: general exhaustion. Since 2010, agricultural yields have been stagnating or even declining in a context where more and more people have to be fed. It's worrying. One should know that since the beginning of agriculture about 10,000 years ago, 2 billion hectares of arable land have been turned into desert. The amount of fertile soil that gets eroded each year is enormous. Many of these lands have also been converted to urban use; they have been waterproofed, "artificialised". In France it is estimated that an area the size of a *département* of arable land [France is divided in 96 départements] disappears every year – alarming figures. As I am in Auroville to





apply my consciousness to matter, it seemed to me that here was a great opportunity to do so. This awareness has been with me for quite some time, so very naturally I came to the conclusion that for me being smart at AuroOrchard was to develop a regenerative agriculture: not only must we produce food, organic of course, but we also have to produce soil fertility. Because if, when producing food, we do not create fertility, it is destructive, and it is bad for future generations.

What currently characterises the planet is an uncontrolled race ahead that takes us straight to a catastrophe. Being smart means integrating the current context, taking into account our mistakes and correcting them – trying to do what the planet really needs. Build “the city the earth needs”. Among other things, the earth needs people who care for soil fertility, and who preserve the earth’s ability to bear life. For that is endangered. So to be smart for me, is surely not to keep enlarging the cancers of the big cities. It is to go back to the land, creating new farming systems that grow food while creating fertility.

FOUR OBJECTIVES

I even went further, because at Orchard I set four objectives, which according to me define what could be a smart agriculture.

- 1) Grow food
- 2) Create fertility
- 3) Produce water (because when you have 44 acres of flat land, which receives 1.25 m of water each year, it is your responsibility to generate water and make it available to neighbours). I keep data on the percentage of water that I send into the water table and that I re-pump for agriculture. For the moment this percentage is around 10 to 15%. The standard globally is 75%. In fact I should pump more to produce more, but for the moment there is a bottleneck in my irrigation system. I would rather go up to 30%, and then I would produce twice as much food.

- 4) Be an energy producer. Two considerations: first of all today all local agriculture depends on the TNEB [Tamil Nadu Electricity Board]. Almost no-one does rain-fed agriculture. All farmers pump water with electric pumps. The day the TNEB stops functioning – because it will surely stop one day – all agriculture will collapse. So it is imperative to become independent from TNEB and to be a net energy producer, because as long as I am not my agriculture

is dependent on an uncontrolled, unsustainable element. With 44 acres of land, with timber, hens, cows, etc., we are rich in biomass, we can make biogas, we can pyrolyze chicken manure, there is enough surface for solar panels, etc. If I cannot produce energy, who will? We should all have this goal. I am writing a project, writing to people who could help me. This year I would like to take a first step towards this goal.

So for me to be smart is to look at the state of the planet, and at what it needs. Everything else, well, it's not smart.

Being smart is also anticipating the future and growing neglected or forgotten vegetables like yam, sweet potatoes, tapioca. For 42 years Gérard had mainly grown vegetables of a special kind, like beans, peppers, cucumbers, tomatoes, pumpkin, etc. This requires a lot of energy from the soil, and it always takes the same nutrients away from it. To keep a balance we must rotate crops and also produce

Permaculture



leaves, roots, flowers, grains. Root vegetables are a very nourishing food for the body, unlike cucumbers. We also grow several kinds of spinach, salads, etc.; we diversify so that the farm gets healthier.

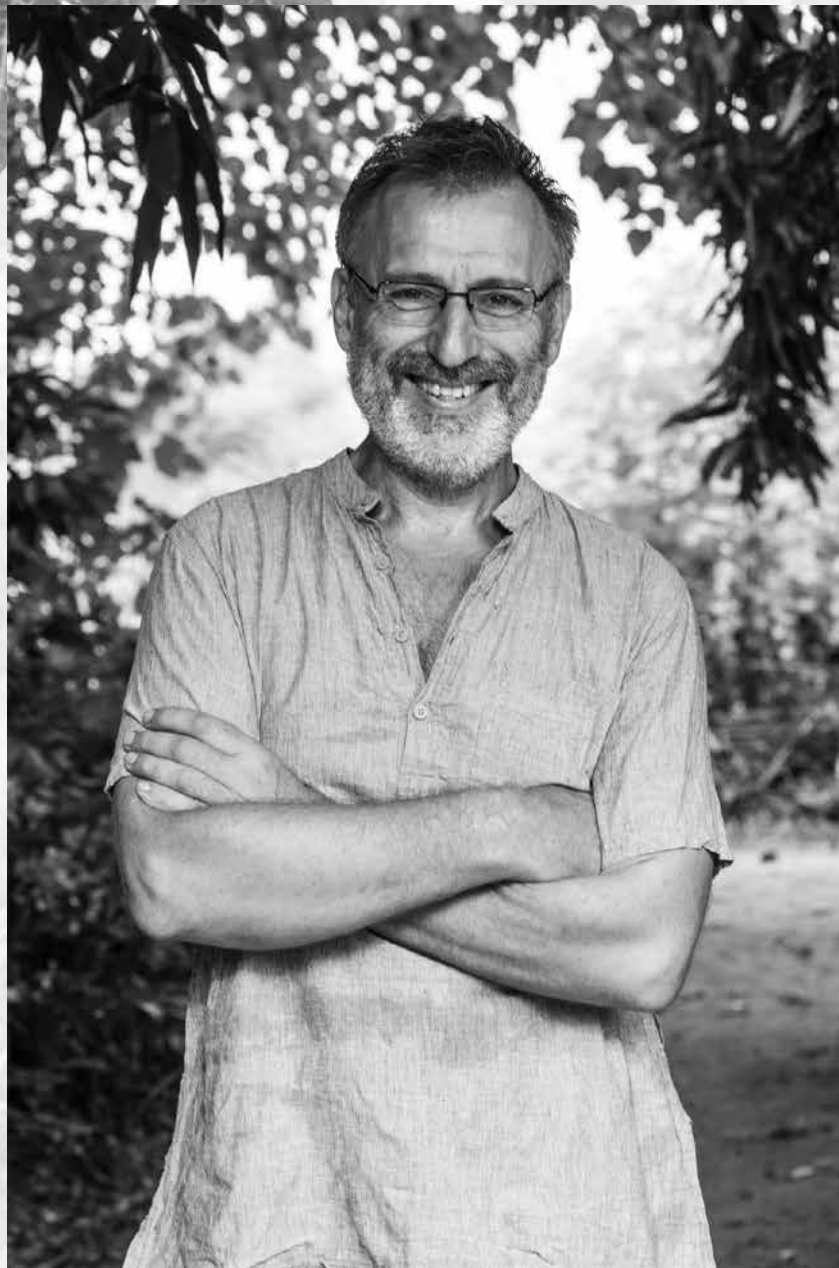
I also forgot to mention, and this is related to that, that I am a collapsology professor at Last School. In Collapsology we study the risks of collapse of the industrial society, the dependence on fossil fuels, etc. These are issues that have bothered me for a long time. We have gone everywhere on the planet, there is nothing more to “take”, to exploit. Now is the time for management. We have to manage what we have. But many people have not yet awakened to that fact; for them, human destiny is still measured by a sort of infinite line, made of progress, of access to more and more elaborate material goods, etc. It will not happen like that. Our energy is essentially based on fossil sources that are not renewable. These are considerations that are part of collapsology. This is why we can predict a collapse of industrial societies. The intelligentsia knows it, but most of humanity has not realised it yet.

Can what we do be replicated elsewhere? I must admit that I take decisions that I can afford to take because I am supported by something big called Auroville, because I have resources in terms of organisational and financial capabilities, but I know that these decisions are not always replicable either globally or at the scale of India. I realise that some of this technology is not accessible to a small farmer, but vis-à-vis the community of Auroville I have a responsibility to produce food. On the other hand, it would be replicable at the scale of an Indian community, a village.


Being smart, surprisingly, could be to abandon drip irrigation, or put it back in its place. Indeed, this technique proceeds from the conventional idea that we must “feed the plant”. Just as we put nitrogen, potassium and phosphorus at the foot of the plant to fatten it, so we give it water directly. But we simply forget the soil! The right irrigation system has to be invented, yes, but it would probably be a mix between drip and sprinklers. The important thing is not to forget the soil. And that brings me to another consideration.

WHAT IS LIFE?

To be smart today is to awaken to the unity of the living world. We must become aware of the phenomenon of life. Life is a phenomenon where information is maintained in spite of all the laws of physics that say that things can only get worse. When we let things happen,



Christian Tarpin



things evolve towards big freeze, inertia, a kind of uniformity. There is a permanent struggle between this law that tends towards uniformity and some counterbalancing forces that want to create diversity, movement, heat here and cold there, etc., for life to appear. The planet Earth lives because it is placed between a hot point, the sun, and a cold point, the cosmos. The earth develops life only because it is in this flow. Forms are maintained and eventually evolve only because we eat and we eliminate, these are called “dissipative structures” – structures which dissipate energy. Without this flow it does not work. There are three types of living things on earth: plants, animals and soil. Yes, I maintain that the soil is a living being. The animal, the plant, the soil are linked by an ancient alliance. Each one eats the other. What characterises a living being is to be in a flow of energy. It absorbs, it rejects. Carbon is for the structure, nitrogen is for the information. CHON is the recipe of life: Carbon, Hydrogen, Oxygen, Nitrogen. Another characteristic of life is water. Life was born in water and it remains in water. 60% of our body is water. A soil that is dry is a soil that dies. Drip irrigation gives water at the foot of the plant, but 20 cm away the soil will be dry.

NOURISHING THE SOIL

In the tropics farmers have difficulty finding a stable, non-destructive form of agriculture. The stable eco-system in a tropical area is the forest. In our area we had TDEF [Tropical Dry Evergreen Forest]. And the method used by the forest to protect the soil from the sun is to cover it. Trees are the best water infiltrators, they know very well how to harvest water, keep it, and bring it down to the ground. So in our agriculture, we have to be able to reproduce the forest's process. One of the solutions is to have a permanent ground cover: if you do not have trees, then have a lot of plants, and there will be less evaporation. Grow plants or cover the soil with mulch. This encourages small animals, insects, earthworms, etc.

One of the things we do in our farm and which can be replicated elsewhere is to grow auxiliary plants – plants that we will not necessarily harvest but which are good for the overall equilibrium of the farm. We incorporate green manure. In the crop you take away from the earth, but in the green manure incorporation you give back to the earth. There are a lot of such plants, all green manures, and among them local millets and pulses. There is nothing better. With this we manage to create a stable eco-system which can go through



summer without a drop of water, which can bear the monsoons without dying, plus we enrich the soil.

You have to be intelligent. We produce food for people who do not live on the farm. The food is absorbed by Aurovilians who live elsewhere and do not poop on the farm land, but it so happens that the life process is maintained only when the cycle of absorption/*elimination*/recycling is respected. So if I want to create fertility, I have to find other sources of carbon to compensate, and the best sources of carbon are plants, which, with photosynthesis, as soon as there is a bit of sun and a little water, begin to fix carbon in their body. So taking plants and integrating them in the soil in one way or another compensates for the fact that vegetables are sent outside. To be smart is to understand the nature of life, based on carbon, on nutrition cycles, each one eating the remains of the other. So in our farm we grow plants which apparently are useless, but which actually revitalize the soil, like gliricidia, Mexican sunflower, sesbanias, indigos, etc. In fact we have at our disposal all that grows in the place where we live. We must stop destroying what grows, stop destroying the smallest weed. That is Fukuoka's question: what could I *not do* this morning?

You must know that the soil takes its nourishment from above. In a forest, the trees produce leaves (the main part of their structure is made of air, carbon from the air), and drop these leaves, forming a litter which will be decomposed by fauna which live in the first upper millimetres or centimetres of soil, not at the bottom. This is why ploughing is a crime, because it kills the living milieu that is the soil. A living soil is a mix of physical environment and living beings (worms, beetles, slugs, etc.) that form a harmonious whole and work well together, like the cells of a body.

THE FARM AND AROUND THE FARM

We have not spoken yet about what happens outside the farm after the food is harvested, the connection with the society around, problems like marketing, packaging, etc., which are much less fun. The fact is that there is still very little trust on the part of consumers and Auroville institutions responsible for the food chain. Between the farmer and the consumer, there are a lot of intermediaries like Food Link, Pour Tous Distribution Centre, Solar Kitchen, the Cafeteria, etc. There would be a lot to say and a lot of areas that are far from smart.



This is an area where smartness is harder to find, because you have to find it together with other people. On my farm I am the boss, I have people around me who understand our direction and participate in the endeavour; the farm is flourishing, but as soon as you deal with the collective, as soon as you deal with money, things get more difficult. For example, given the size of AuroOrchard, fencing all the land requires huge funds, but Auroville does not contribute for that.

We want to buy and maintain land, but we do not invest in fences. It's not smart either. I am not supported by the community for any investment.

A community that thinks so little about the future, this is worrying.



Christian Tarpin

Discussion in Orchard: a structure has to be built for hanging the pumpkin plants on it

