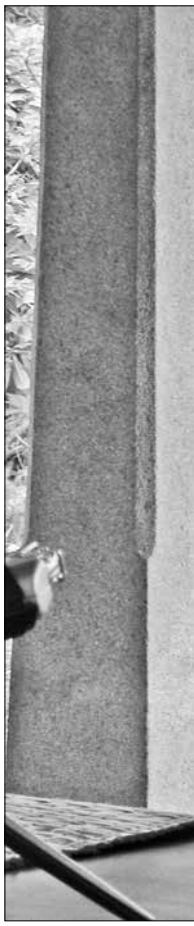
OUR COMMON RESOURCE



Gilles Boulicot has been working in Auroville and in its bioregion in the field of water since 1995. His work is done in collaboration with UNESCO, among other organisations. He specialises in the management of water resources and natural sanitation. He works in India, as well as fifteen other countries, alongside governments, NGOs and private organisations in the fields of rural and urban management of water resources, rainwater harvesting and waste water. Gilles has done a lot of research to find out how to secure the Auroville project's future water resources. As a result he has been able to recontextualise Auroville's position in the greater scope of India and the Tamil Nadu region.

THE VERY MEANS, knowledge and forces that have allowed humanity to build a civilisation with great governmental, urban, rural, technological and social diversity, have, in the view of many, become obstacles, to such an extent that overused and misused planetary resources are now screaming in our ears, calling for a real, radical change in the way our species exists on Earth.

If we consider that the solution is not in colonising another planet or in "virtualising" our world, and that our human limitations remain the same, we must bravely take the path of evolution.

After all, we and our creations are the product of evolution, not in the Darwinian sense of the word but in terms of consciousness. Accepting the limits of our own abilities does not imply that we have come to the end of evolution, but that we must forge ahead beyond those very limits.

One of the most complex challenges facing humanity is access to water. An increasing part of the world's population suffers from

Gilles Boulicot

water resource depletion and degradation.

Given today's population growth and the prevailing patterns of development, largely unplanned urbanisation is spreading at a very fast pace and is far from being smart.

The Auroville bioregion is no exception.

The existence of a 'universal' city, dedicated to human unity and the development of consciousness, constitutes a blessing for humanity. But this does not mean that Auroville is not dependent on material reality.

Water and sanitation facilities are essential to the sustenance of urban life. Currently, running water in India, to which only about half the country's urban population has access, is never available for more than a few hours a day. The amount of non-revenue water (meaning water lost to leaks, theft, unauthorised connections, etc.), is incredibly high, somewhere in the range of 40% and 70%. Only 18% of slums have access to running water, and haphazardly at that.

On the other hand, a very large proportion of waste water is discharged untreated into drains and old irrigation ponds, in those instances where they have not been overrun by urbanisation.

Pollution rates are so high in these urban lakes that they

One of the eight irrigation ponds dug by an Aurovilian of Dutch origin, Kireet, in the Hermitage community

sometimes catch fire spontaneously, as recently happened in Bangalore and Hyderabad. Local groundwater is heavily polluted, and although still used to meet some of the needs of the growing population, it is in fact largely unfit for consumption.

In response to this water shortage, which will have spread throughout India as a whole by 2020, urban supply networks have been extended in a sprawling fashion. Backed by big budget spending, they draw water off rivers, lakes and groundwater sources located far from cities, often several hundred kilometres beyond their undefined borders. And these rural supply areas having become quickly over-exploited, their residents are pushed to migrate... to the cities!

Likewise, owing to an unbridled population growth, urban infrastructure remains inadequate. Sanitation is almost non-existent and fails to cater to the entire population.

More than two-thirds of waste water is discharged into the environment untreated, polluting land, water bodies and groundwater and massively affecting public health. Without adequate access to water, sanitary conditions steadily worsen. So much so that the situation is becoming unmanageable.

Even where cities have a fully modernised sanitation network, around 30% of their population still lacks sanitation facilities.

Paradoxically, rains have come to be considered a nuisance: with urbanisation and concrete everywhere, runoff has increased considerably. It must be disposed of and is evacuated as quickly as possible from the cities' roads, public spaces and activity centres. These waters are thus lost for the cities. Missed opportunity!

What about Auroville in this difficult context?

Does the 'City the Earth Needs' have something to offer in response to this situation? Not only a 'smart' response, but also a more conscious one?

Auroville was envisaged as the cradle for the next stage in human evolution. How, here in Auroville, in the context of South India, can we face these enormous challenges? How can we tap the forces of progress concentrated in this special place in order to create solutions that might help all humanity?

In fact, Auroville is involved in the sustainable management of water resources and sanitation in many cities and regions around India.

For example, there is the decentralised treatment of waste water by natural techniques, which, after more than 20 years' experimentation, is now used in addition to centralised municipal systems in our small community.

Our systems are compact and subterranean. Installable under surface roads and playgrounds, they meet the problem of land availability (too often an obstacle in any infrastructure development) and can accommodate population centres of up to 20,000 people.

By multiplying such remedies at an affordable cost, the situation of large, hitherto unhealthy, urban areas has already improved, with programmes under way in Bangalore, Vijayawada (part of the new capital of Andhra Pradesh), and Coimbatore.

Auroville is also well-known for its involvement in storm water management, having participated in the development of an Eco-park near the Adyar river estuary in Chennai [see article p. 192]. This river, which once carried only waste water and rubbish most of the year, has been transformed into an oasis of greenery; it is an example of what a canal or a river can become in a well-adapted urban location.

Several projects are in preparation or under way for the ecological restoration of canals and water bodies in Dwarka, a city of 3.5 million inhabitants in the suburbs of New Delhi. There, 25,000 m^3 of waste water, which are discharged daily into the city's drainage channels, have to be treated; it will regenerate the riverbanks and

make them places of recreation and healing for the population.

In Bangalore, two ponds in the heart of the city have been chosen to demonstrate the effect of environmental regeneration techniques and the benefits that residents can derive from them. In Coimbatore, Tamil Nadu's second largest urban centre, with 3.5 million inhabitants, the eight lakes in the heart of the city are currently undergoing regeneration.

These lakes, key elements of the Coimbatore Smart City Project, are filled through a large regional and urban drainage system. They are located at the crossroads of three ecological systems: the Ghats of Kerala with their typically mountainous terrain, agricultural lands where traditional practices predominate, and an urban setting comprised of various industrial activities.

How to regenerate these vast lakes, largely polluted and silted, and develop a healthy and resilient eco-system in the heart of an industrial city? How to transform these lakes, originally devoted to agricultural irrigation? How to develop their banks and surroundings? How to integrate urban human activities in the abundance of nature? These are a few of the projects where the Auroville experience is paying off.

But this is not enough.

As far as water is concerned the crux of the matter is to secure access to it.

Indeed, Auroville has intervened in several places to ensure access to water, or more generally to promote "water security". In India, several industries, as well as university campuses and engineering schools faced with depleted water resources, have asked for Auroville' s intervention in water management programmes.

Large projects have also emerged in other parts of the world, namely Morocco, Mexico and Tanzania.

In many cases, it is essentially a matter of guaranteeing social, material and financial sustainability. The situation is viewed in its entirety, in order to understand the ins and outs of its environmental, practical, social, financial and managerial aspects.

Drawing on the experience and expertise acquired over the years while working in the Auroville bio-region – 1.5 million inhabitants over 1,500 km^2 – scientific, technical and social approaches are used to find a tipping point. This is the zero point where the demand does not exceed the water availability, "the key to perfect change".

So, yes, Auroville is a great incubator, supporting the development of smart cities in India and across the world.

Coimbatore: the water coming from the mountains is polluted when it arrives in the city

But let's return to what has been achieved so far on the red lands of Auroville.

Have we here in Auroville reached this zero point?

The answer is no.

Auroville, while hosting a lot of endeavours that have been praised as being smart, today cannot yet be seen as a model Smart City.

Why not?

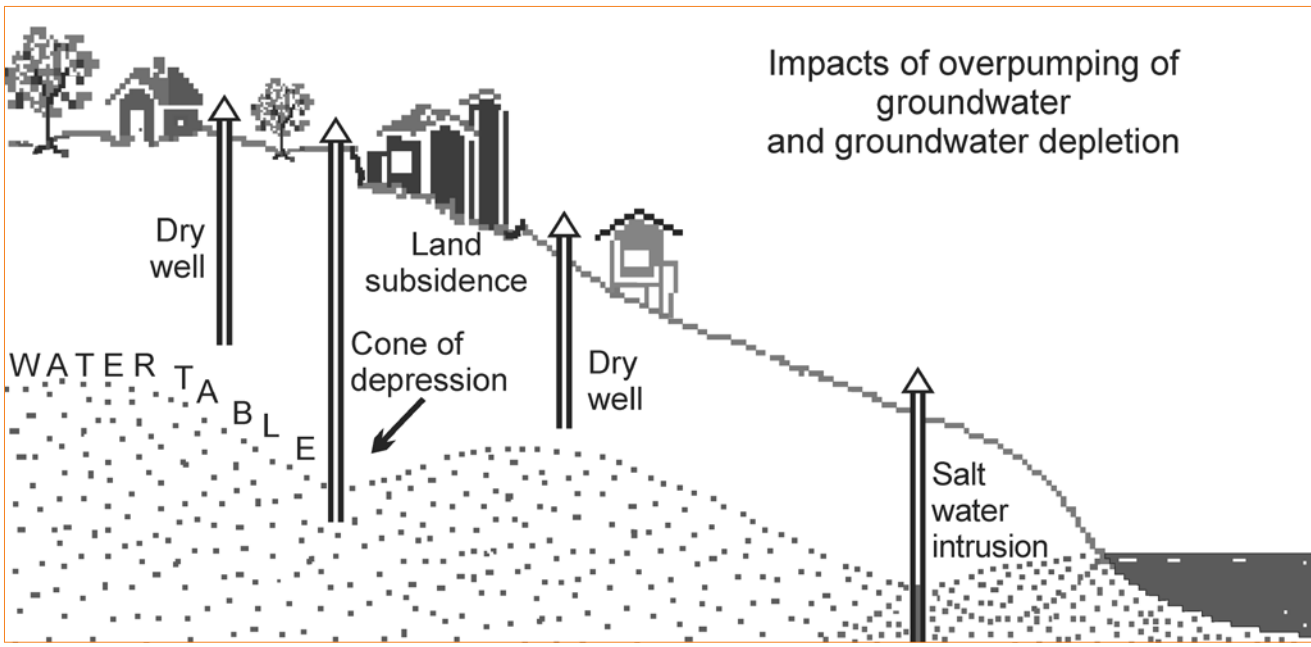
Because after 50 years the lands of Auroville are still largely fragmented. Much like our attitudes and our often beautiful but scattered achievements. But above all we still have yet to achieve Auroville's elusive central goal, Human Unity.

Auroville being located on severely eroded lands, securing access to water has been a priority for Aurovilians from the very early days.

The first obvious task was to restore the land, which the residents did over many years by controlling the water flow through carefully devised systems of earth embankments, and by planting trees and shrubs to fix the soil and stabilise it. At the same time they dammed canyons to prevent further erosion. It was also necessary to tap into groundwater, the only resource then available.

On the whole, it has been an intense period of hands-on investigation, to develop, through experience and study, the most appropriate methodology for restoring a dying land.

For the first three decades, land regeneration and reforestation mobilised a large portion of the Auroville population, who, thanks



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to the collaboration of local villagers, transformed this eroded plateau into a marvel of greenery. And gradually the environment became more favourable. The only resource still being extracted was groundwater.

But within the limits of Auroville lands and in the canyons which criss-cross them, erosion control has improved. So the runoff during the rains has decreased, suggesting that groundwater recharge has been substantial. In addition, a few rooftop rainwater harvesting projects have been established, albeit with mixed results.

Nevertheless, this view, pragmatic as it is, turns out to be wrong. We cannot just look at the surface of things. We need to go deeper to understand where the root of the problem lies.

We all live above common aquifers. The extent of the aquifer has nothing to do with properties, fences or administrative boundaries. Whatever the efforts to maintain the underground resources on the Auroville plateau, the fact remains that its exploitation at a regional level is massive.

The water table is steadily dropping, resulting in an intrusion of seawater all along the coast, and it gets polluted very rapidly due to urban, agricultural and industrial activities.

Like any "invisible" problem, it is often perceived only when it touches us directly. This was the case during 2016, when scant rains caused many of our wells to dry up.

The fact is that Auroville, perhaps a little too comforted by its environmental success and lush vegetation, has not secured access to water. With resources being shared among a large population, and those currently in use progressively being exhausted, it has become an imperative to mobilise our efforts so that this wonderful place keeps on living and growing.

But how to do it?

It is here that a few words from the Mother come to mind:

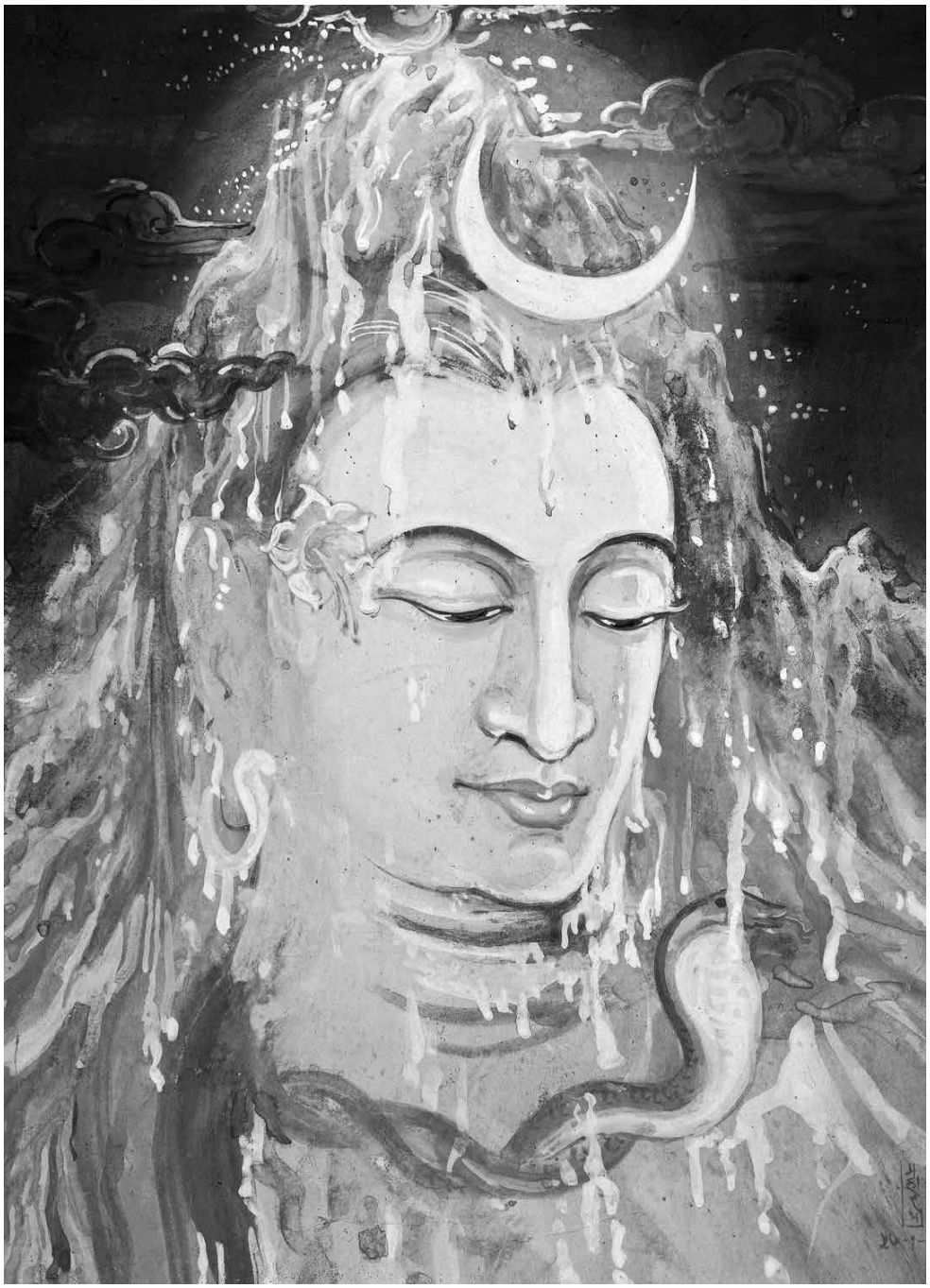
"There is enough water; Aurovilians will have to use their ingenuity to collect it and use it."

Obviously, the situation has completely changed since the time this comment was made. But does it remain valid? And if so, how to find this resource, how to integrate it in our "galaxy" plan?

Is it possible for Auroville to be a city that has a positive impact on water resources? Would it be possible that, by and through urbanisation, water can become more abundant and purer?

We believe it is.

Hermitage



In India the sacredness of water is symbolised by the story of the Ganges descending on earth with such an impetuosity that only Lord Shiva could bear and break the crush of her mighty waters as they spill down onto the Earth's surface. The Ganges plunged down onto the god's head and got caught in his hair, which was a colossal mass of thick intertwined locks. It is said that Shiva's hair symbolises the forests that the earth needs for not being eroded by the might of the floods.

For instance, by developing a network of natural, self-purifying channels and basins to capture runoff – a network that would have to evolve alongside the city. But in the end it would cover a large part of current and future needs.

It would be necessary to integrate and combine it with other systems, such as taking groundwater from areas protected from seawater intrusions and pollution, or desalination of brackish aquifers or seawater during years of severe drought. Resilience would then be assured. We would need also to systematically promote water savings, to treat and recycle all waste water.

One of the remarkable aspects of such an approach is, on the one hand, that it fully takes into account the existing environmental context and naturally evolves with the city. On the other hand it benefits those neighbouring populations on its periphery.

Also remarkable is the fact that most of the necessary knowledge and techniques are already present and developed in Auroville. In addition to the various aspects of water resource management already mentioned, and in which certain groups and individuals are involved, Auroville has other means at its disposal, and these means have tremendous possibilities: topographic tools that Auroville has acquired over a considerable period of time, control and calibration tools for remote monitoring and starting up pumps and other equipment, and an optical network for data exchange and rapid infrastructure activation, ensuring maximum flexibility and adaptability over a multiple-resource network. All this has allowed Auroville to re-initiate its water-table monitoring.

There are still many problems to overcome, of course, so that Auroville becomes not only a smart city, but also an exemplary one.

In the end, the bright and uncompromising line to follow has already been provided:

"All have to agree, this is the only solution."

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Gilles Boulicot