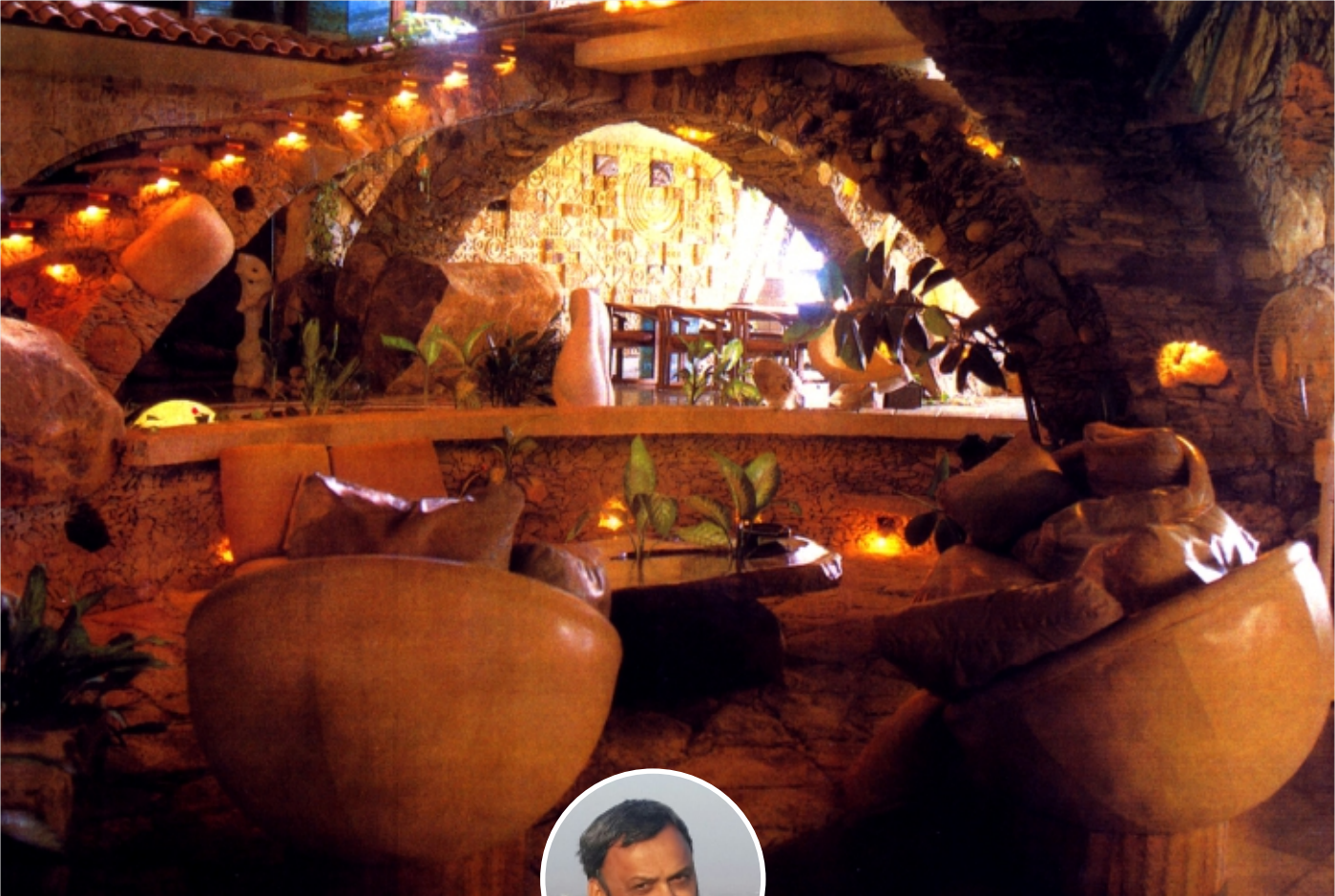




A Green Concern!



**Ar. Pramod Chaugule**

Editor, Greenery



**Dr. Mrs. Jaya Vikas Kurhekar**

Translation:

## **ARCHITECT NARI GANDHI, MADNESS ..... OF NATURE !!!!!**

**T**here are individuals in this world, who are madly involved in various issues and they alone experiment and build up on things, which finally help innovations! I have come to this firm and final conclusion during the period of 1980s, when I came across a Parsi man, who always rode an old but attractive motor bike! I was in Mumbai Academy then and this Parsi man was considered as a mad and eccentric person who was totally neglected by people. Once, along with friends, I had gone to Lonavala, on an outing. At Tungarlilake, we got to see an enchanting art form and we all were astounded. That day we saw something unimaginable and were spell bound to see that shapes could be arranged in something so grand! When we inquired, we came to know that it was designed by Naribaba! I was just eagerly waiting to meet him personally, on returning to Mumbai. Since then, he became my hero and I cannot but introduce you to him!



Nariman Gandhi was born in 1934, in a Parsi family, in Surat. Out of six brothers, he was the only one educated in Mumbai with a degree of B. Arch. from the famous J. J. School of Architecture, in 1950. Initially he taught in Maharaja Sayajirao University, Vadodra and then in Academy of Architecture, Mumbai. During his thirty active years of working, he concentrated on fifty of his favourite assignments and proved to be a “rare chemical” in “Organic Architecture”. He stayed alone, all his life and was greatly influenced by the great thinker and philosopher, J. Krishnamurty. An extremely religious minded person, who lived simply, Nariman's work depicts his personality.

He was always attracted towards simple and straight forward things and that tendency is inculcated very fluently in his work. It attracted people in a very different way and was also accepted in Architectural principles. His life and work was enriched by his five year stay and learning at Sir Franklin Right's winter residence cum laboratory - “Telescene”, in Arizona. He very religiously followed whatever he had learnt and was totally engrossed in his work, absorbing and utilizing all that he had learnt.



His speciality and skill in using wood and stones beautifully, with his own hands, brought him and India, a lot of accolades and proved his proficiency, with a difference!

He put forth an ideal, in front of the world, of concentrating and completing just one assignment in a year.

He completed thirty assignments in his active working span of thirty years, using his skill, with a difference, instead of being a regular commoner and created beautiful examples of architecture. Extremely mature and advanced, at the same time, very innovative and artistic constructions took shape because of his use of fundamental principles of utilizing appropriate space and its environment. He successfully used arches made up of earthen pots, brick made stair case type arches, artistic and skilful use of equal amounts of stones, bricks, mud,



wood and leather; which resulted in extremely beautiful constructions and sculptures, comfortable and useful, even for the consumers. Combining his striving towards innovative ideas and initiated thought processes, he alienated from routine methods and succeeded in creating a new style of his own! We can easily see that his every creation has a special and different style. His madness and friendship with the nature was responsible for all his creations, melting and merging with the surrounding non constructed spaces. His houses maintain a beautiful harmony with the surrounding nature and are amply provided with sunlight and breeze.

A very unfortunate end of this wonderful, great, nature loving, architect was due to an accident at Khopoli, in 1993, while he was on the way to inspecting his last assignment at Kolgaon. He left an undeniable mark of his own, extremely beautiful, artistic work culture and style on all his assignments at Lonavala, Versova, Korlai, Surat, Alibag, Karjat, Kolgaon-Nagar, Mumbai; before resting peacefully. I salute him for all that he was! We just had a small get together of our 1994 batch at Academy of Architects', at Sanjay Prasade's "OMeera" resort. Very close by, at Korlai, we can still revive his memories by visiting the beautiful creations of Nariman. Hats off to you Nariman!!



# A Message - From Mother Nature.



Dr. Jaya Kurhekar

Executive Editor, Greenergy

Can you hear it?  
It's loud and clear.....  
Can you see it?  
It's in front of you, dear.....  
Can you smell it?  
It's just below your nose.....  
Can you feel it?  
You really are too close.....  
Mother Nature is warm and loving,  
She just can't stop worrying and caring,  
She is trying to give small clues,  
She is calling out to all, irrespective of castes and hues,  
It's time, we listened to her pleas,  
It's time we took heed and our actions cease,  
She wants us to be very discreet and sensible,  
With the natural resources bestowed on us, incredible!  
She is the same, ever loving, ever giving .....  
But we differ, in our greed and ever receiving.....  
Our needs have increased, so also our desire,  
Our want for luxuries, our appetite on fire!  
Our future generations will suffer, if we don't take care,  
We have to collect our senses, behave ourselves and beware.  
Water sources are depleting, so is our green treasure,  
We have harmed the environment, beyond any measure,  
But yet the time is not lost, we can still love and care,  
Revert the degradation, with thoughtfulness and avoid despair!

**“Talk with Nature atleast once in a Day .....**  
**Otherwise you will miss your Best Friend in this World !”**

Millions of trees are accidentally planted by squirrels.  
They bury them n forget where they hide it. Moral: Do good...  
green & forget. Some or the other day it will grow ... !!



**" GREEN  
THINKING "**

# MY DEAR OCEAN...!

**O**ur association with you began ever since my birth when baba and his friend by our truck visited ganapatipule in every may and it grew thicker as almost so many decades flew by. Though you mean much more than a childhood friend, I was never enchanted with your presence as I was in the recent past and especially today. Just being with you was so meditative and complete experience today. I was just wondering why I was mesmerised with you so much today and why not for so many years...

Tracing the major milestones of our friendship, I think I am reconnecting to you today after a gap of many years. Though you were at a motorable distance from my hometown sangli, we would meet mostly on holidays. We would wait for days together for the sea bath. And my ancestral home is situated at Urun Islampur - the bank of your backwaters. I just remember how hard we would try to explain the connection between the sea and the backwater to guests just to boast that we live by the seaside. But those were the years when I failed to fathom your vastness, depth and expanse... as a child, I was unmindful of your vastness, wary of your depth and unaware of your expanse... For the past couple of years, it was just like too much of sea and I started avoiding the seashores for holiday outings...

All of a sudden when I visited my wife native place Shri Vardhan, I felt we have much deeper connection. I wanted my one and-a-half-years old niece Divya to be a sea friend. I started visiting you every morning all through my stay there and newly found out unfound meanings and yes, those findings were profound to me.

I also started listing unvisited beaches nearby Shri vardhan and yes, there were a plenty of them. We may separate you by locations but eventually, you are one.

During the recent last week visits, I would enjoy sand walk or even early morning my lovely yoga sessions but just looking at you was a meditation in itself. I can sit next to you for unlimited number hours and immerse myself in the waves as they emerged and merged with you. Some days you would be totally quiet while one day, when it was likely to rain and you were aggressive. The water had reached the small pathway that took us to you. The fort in the sand I made with my niece too, was swept away. I just sat by your side and yes, realised you hadn't lost your rhythm in aggression too...

Your aggression and calmness both represent life as it is. True, you were sending a warning note that you always cannot dance to the man's tune when human beings have been so much inhuman and unnatural with nature...

The next day, you were calm again. I knew my niece was looking for the fort in the sand. She could be little upset but that was a great lesson. We made it with new conviction and realisation that it is bound to be washed away.

My dear ocean, I had sweated it out many times before but with you, I know what it is to perspire, with your depth and expanse, I know better what it is to aspire...

The footprints in the sand are deeper, to be washed away with you and seashore is a clean slate all over again...in life there is nothing concrete, nothing permanent... rhythm is constant in spite of all ups and downs. Calmness at the bottom sea is eternal and all the upheaval is just on the surface.

My dear ocean, I understand you better with every visit and try to better myself leaving behind the footprints in the sand to be washed away by waves...after all, nothing is etched in stone except the your impressions carved in the deep recesses of mind...

Yours,

Rajwardhan Jadhav

# HOT SUMMER

## Maximum Temperatures recorded in some Indian cities:

☀️ Lucknow 47 degrees
☀️ Delhi 47 degrees
☀️ Agra 45 degrees
☀️ Nagpur 49 degrees
☀️ Kota 48 degrees
☀️ Hyderabad 45 degrees
☀️ Pune 42 degrees
☀️ Ahmedabad 46 degrees

Next years these cities will cross 50 degrees. We all are going to face unbearable summer heat!

Why is it so hot ???

In last 10 years over 10 crore trees were cut for widening roads and highways.

But not more than a lakh trees has been planted by govt. or public.

How to make India cool ???

\* Please do not wait for government to plant trees.

\* Sowing seeds or planting trees does not cost much.

\* Just collect seeds of Shatavari, Bel, Peepal, Tulsi, mango, Lemon, Jamun, Neem, Custard Apple, Jack fruit, etc.

\* Then dig two-three inch hole on open spaces, roadside, footpaths, highways, gardens, your society or bungalow.

\* Bury these seeds in each hole with soil and then water them every two days in summer.

\* No need to water them in rainy season.

\* In just 15 to 30 days small plants will emerge.

\* Please nurture them and ensure they grow big.

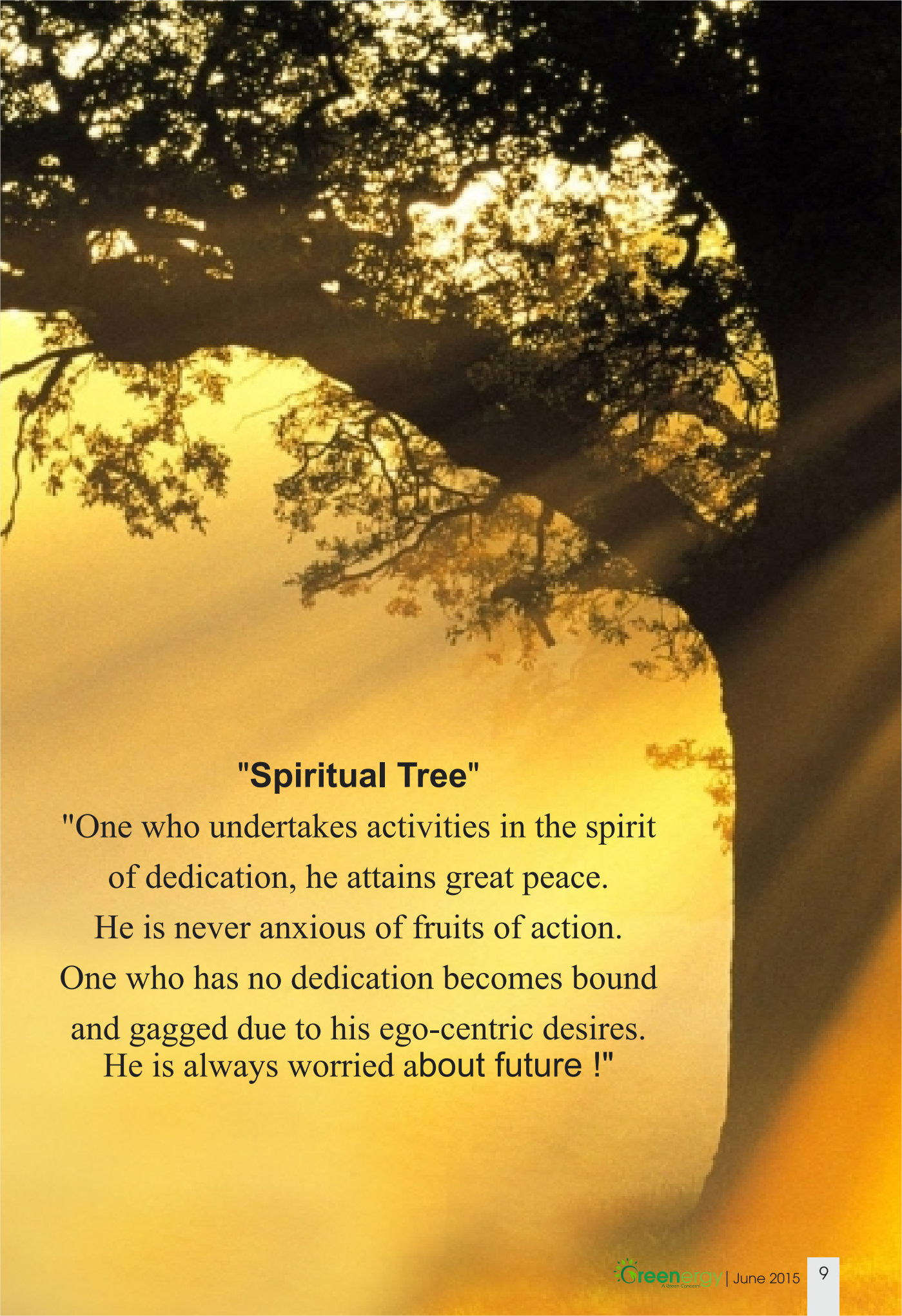
\* Let us make this a National movement and plant 10 crore trees all over India.

We should stop temperature from crossing 50 degrees.....

Please plant maximum trees. Spread this message to everyone. Distribute saplings as return gifts during functions, birthdays instead of bouquets etc.

Each one can make a difference !!!!





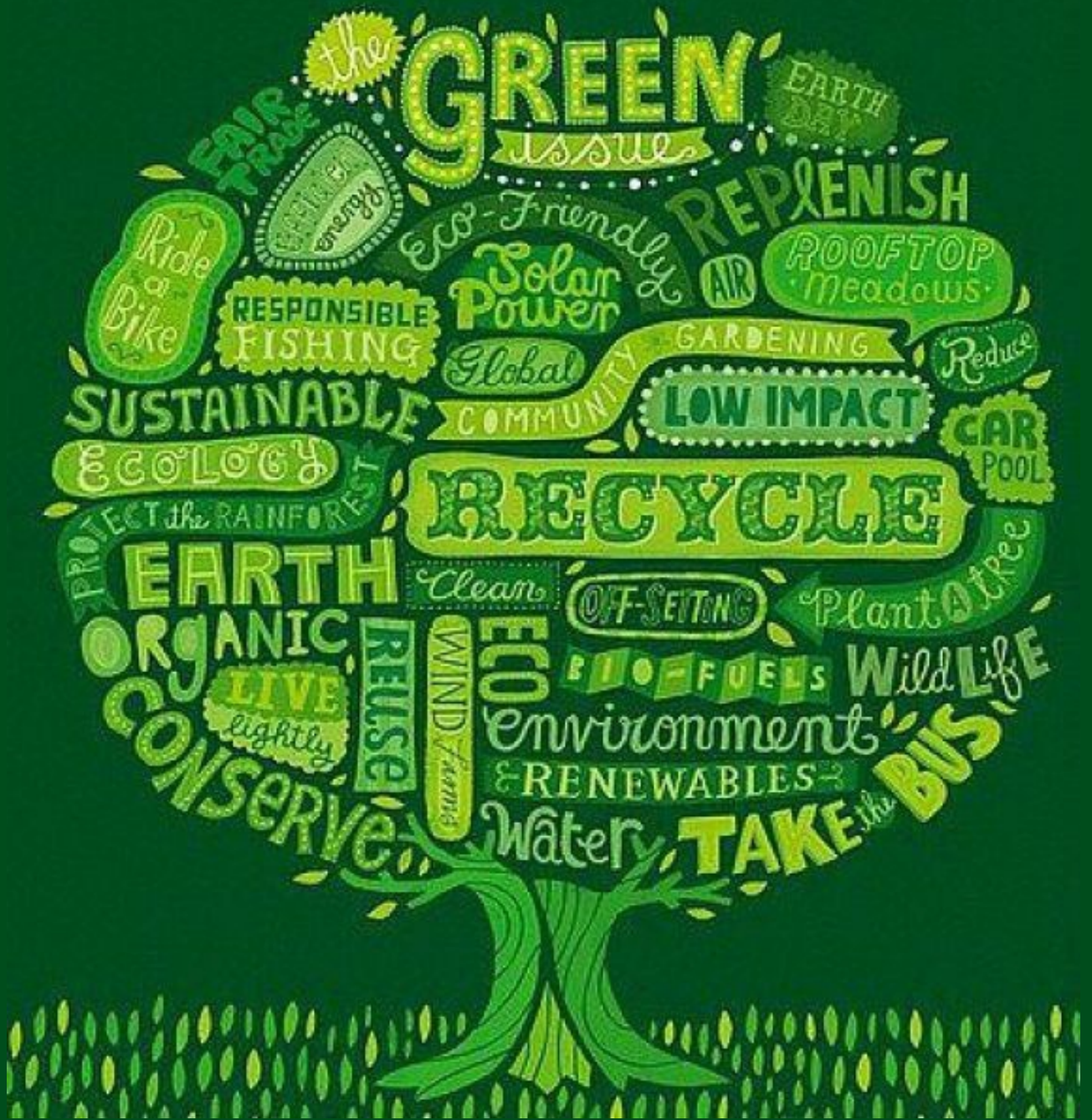
## **"Spiritual Tree"**

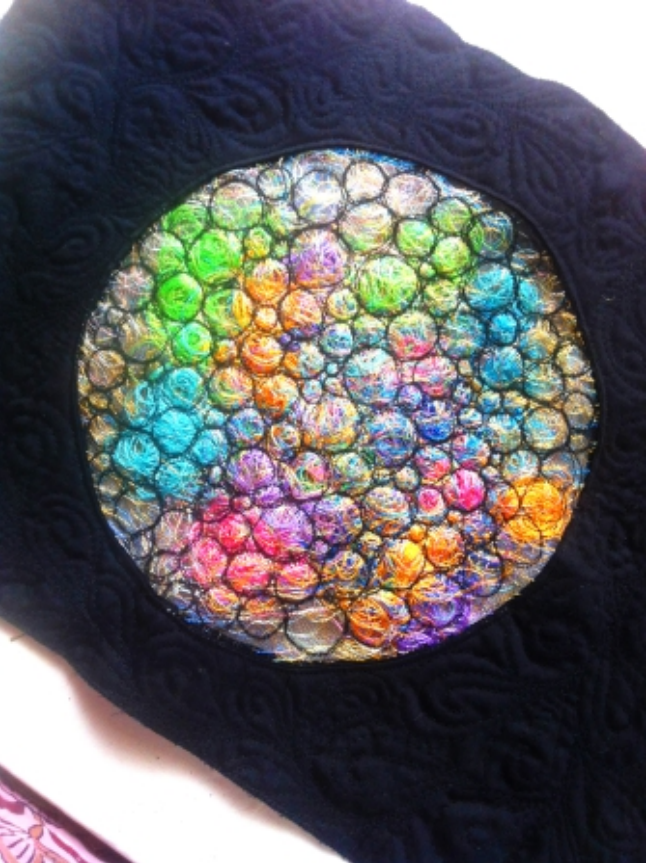
"One who undertakes activities in the spirit of dedication, he attains great peace.

He is never anxious of fruits of action.

One who has no dedication becomes bound and gagged due to his ego-centric desires.

He is always worried about future !"





# ARCHITECTURE IN STITCHES

Shruti Dandekar

**W**hen I started quilting, very few people around me knew what it was. Most of them raised their eyebrows when I decided to give up my career as an Architect to become a full time quilter. But soon, after seeing my work, they realized quilting was more than just pieces of fabrics stitched together. Quilts, the ones that I make, are more like art. There is a lot of planning, designing and structuring that goes into making quilts. I feel that it is an extension of my career as an architect – designing with different material at a different scale, but designing nevertheless. I started out as a modern quilter. I used a lot of old clothes in my work; I still do – though most of the fabric that I use is bought new. Gradually, as I explored the different realms of quilting, I found my path of expression – Modern Art Quilts.

The traditional quilting paraphernalia, until recently, was not available in India. So I had to improvise a lot when it came to material. But that taught me to be fearless. If I thought I could do something, I just went ahead and tried it. In the worst case, I would be a failure. But no one actually knew, or cared, what I did so it rarely mattered!

Today, I am going to show you all quilts that I have made using non-conventional material. First up is a small quilt I made using thread scraps. Like any other quilter I always have a lot of thread scraps. Now I throw it into my garden for the birds to pick up to make their nests. But back then, I wasn't aware of it. So I had just kept them 'just in case'. I was so glad to be able to use up even the tiniest of thread scraps.

Next, is a lovely quilt that not only says we must Reduce, Recycle and Reuse, but also applies the principle. The quilt is made with 'Selvedges' (the slightly stiffer edges of fabric that are usually cut away) from all my international designer fabrics. It has names of the designers on them as well as the name of the fabric design and the manufacturer.

The next one is made from scraps of tulle (or saree net) left over from another project. It was a different material than the one I normally use (cotton) but was absolutely fun to make. The next quilt is actually made by needle felting wool fibres. Fibres from old sweaters can be used to make felt. The last quilt is again made using thread and fabric scraps. The topic for this one was “In my garden” and I wanted to show the nests that the birds make using my threads.

I have always insisted that to create art, start looking at things around you. You will find a treasure waiting to be explored. Waiting to find the right supplies and then making something from readymade kits is fun, but making something from absolutely unimaginable objects is a lot more satisfactory. So look around you, pick up ONE thing that you are planning on throwing away and turn it into your own masterpiece!

भारती हॉस्पिटल

# TREATMENT OF SEWAGE THROUGH NATURAL AND SUSTAINABLE SIBF SYSTEM

## Introduction:

India has about 18% of the world population but only 4% of the world's renewable water resources. The following table shows how the per capita water availability is decreasing year by year.

### Per capita water availability in India

Year	Population (Million)	Per capita water Availability (m <sup>3</sup> /year)
1951	361	5177
1955	395	4732
1991	846	2209
2001	1027	1820
2025	1394	1341
2050	1640	1140

Source: Government of India, 2009.

The situation (based on the average requirement of water for various purposes) is considered as water stress condition when the per capita water availability ranges from 1000 to 1700 m<sup>3</sup> per year and it is considered water scarcity when the availability reduces to 1000 m<sup>3</sup> per year. By 2020, most of the Indian States will have reached the water stress condition and water scarcity condition by 2025. This implies that water which is a basic necessity for living is a scarce natural resource that has to be conserved.

Wastewater treatment and reuse on a larger scale can alleviate the water scarcity problem along with rain water harvesting. In India, the scenario with reference to water pollution is pathetic. The main source of water pollution is the untreated sewage which is discharged from cities, towns and villages across all over the country. Out of about 38000 million liter per day of sewage generated, the treatment capacity exists for only about 12000 million liter per day i.e., about 30% only. Thus, there is a huge gap between sewage generation and sewage treatment. Also, as per CPCB survey report, nearly 39% of the treatment plants do not conform to the general standards prescribed under the Environmental (Protection) Rules for discharge into streams since the operation and maintenance of existing plants is not satisfactory. Since the sewage is let untreated into the water bodies, it also results in loss of nutrients which could have been utilized in agriculture. It is estimated that irrigation with sewage or sewage mixed with industrial effluents results in saving of 25 to 50 per cent of N and P fertilizer and leads to 15-27% higher crop productivity, over the normal waters.

Hence, considering the above scenario, there is an urgent need for efficient water resource management through better **water use efficiency** and **waste water recycling**. Generally, the sewage is transported to one end of the city and then treated. Thus, there is more expenditure required for the sewerage system along with sewage pumping stations. The ideal treatment can be done in a decentralized way. The treatment facilities should be set-up close to the sites of sewage generation. The treated water can be reused for non-potable uses in the same or nearby area where the sewage is generated. Hence, proper and planned wastewater treatment not only makes ecological sense but also economical one as the treated water can be reused.

### Wastewater treatment options:

For municipal sewage, the most commonly adopted treatment technology in Class I cities is the Activated sludge process (ASP) covering 59.5% of total installed capacity. The conventional methods in use like the ASP, SAFF, MBBR, FAB, etc., are energy intensive. These systems have high capital costs and are expensive to operate.

There are many upcoming technologies like decentralized wastewater treatment system (DEWATS), up-flow anaerobic sludge blanket reactor (UASB), rotating biological contactors (RBC), waste stabilization ponds, soil biotechnology (SBT), Phytoid, etc., being tried for treating the sewage. Apart from these, a proven, effective and natural wastewater treatment system which can be implemented in a de-centralised way is the **Solid Immobilised Bio-Filter (SIBF) system**. A note about the SIBF system along with few case studies has been given in the following pages.

## About SIBF system:

SIBF system is a natural method of wastewater treatment based on ecological engineering. The treatment is achieved through the ecosystem developed for the specific requirement. This system has many advantages over the conventional treatment systems.

## Salient features of the SIBF system:

- **Ecofriendly treatment system** - Eliminates drawbacks of conventional STP
- **Landscaping** - The total STP looks like a beautiful garden, thus adds to landscaping.
- **Capital cost**- Less than conventional treatment systems
- **Tax benefit - 100% depreciation benefit**
- **Energy conserving** - Saves 80 - 90% of energy costs over conventional treatment methods
- **Easy to operate** - Requires very low operating skill
- **Very low operating cost** –Attributed to low energy and low skill requirement
- **Provides value-addition** – Re-usable treated water at very low operational cost, hence, a practicable approach towards groundwater recharge by using the treated water for gardening / irrigation throughout the year.

## Case Study I – SIBF For Hospital Wastewater

**Capacity:** 4,00,000 litres per day

SIBF system has been set up at Bharati Hospital and Medical College, Sangli. The campus is spread over 67 acres of land and has a big 750 bedded hospital along with allopathic, dental and nursing colleges and hostels. The total wastewater generation from the campus is estimated to be 400m<sup>3</sup>/day. Presently in phase I, an STP of 400m<sup>3</sup>/day capacity has been set up. Through the SIBF system, not only is the problem of pollution solved, but in addition, treated water is available for gardening and toilet-flushing throughout the year. The treatment cost works out to Rs. 3/- per 1,000 litres of wastewater treated. There is 95% recovery of the wastewater. Since the treated water is being used, there is a saving in the drinking quality water. The pay-back period works out to 2-3yrs.



**SIBF system at Bharati Hospital and Medical College, Sangli**



**Treated water being reused in the hospital campus at Sangli**



## Case Study II – SIBF For School Wastewater

**Capacity:** 10,000 litres per day

**GREENERGY SCHOOL** is a newly established school in Sangli city. The wastewater is generated from the toilets and washrooms in the school. The school management was interested in implementing green concepts in the premises which shall serve as working models for the children. The treatment helps in keeping the environment pollution free and also the treated water is available for gardening in the school premises.



### SIBF system at Greenergy School, Sangli

#### **Conclusion:**

There is a water crisis situation in our country which shall worsen if effective action is not taken immediately. Wastewater, if let out untreated into water bodies, causes, pollution and health hazard for human and animal life. **Hence, wastewater treatment serves the dual benefit of pollution abatement as well as recovery of valuable resource i.e., water.** The treated water can be reused for various non-potable purposes, thereby, saving on drinking quality water requirements.

It will be more economical in setting up **decentralized treatment plants** rather than transporting sewage over long distances. Also, reuse of the treated water can help in recharging the ground water which is being highly exploited in the country. All the new townships and big housing schemes in the country should have their own STP and should be encouraged to reuse the treated water in their own premises.

SIBF system is a proven and eco-friendly method of wastewater treatment. The annual O & M cost is very low and also skilled labour is not required for the operation of the SIBF system. The system gives good quality treated water consistently which conforms to the pollution control board norms. Thus, **SIBF system is a reliable, natural and sustainable method for keeping our rivers clean and making the environment green.**

#### **About the Author:**



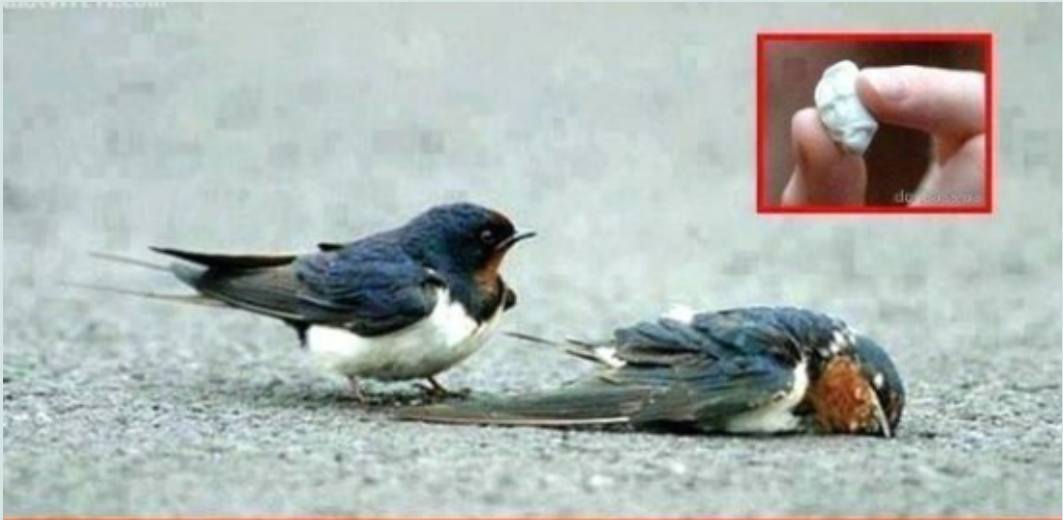
**Rahul Babar**  
Director,  
Energy Tech Solutions Pvt. Ltd., Pune

**Rahul Babar** holds a Masters degree in Environmental Engineering from VJTI, Mumbai University. He is working as Director - Operations in the firm **Energy Tech Solutions Pvt. Ltd.**, based in Pune. The company offers consultancy in waste management and pollution control since the past 18 years. The company has been instrumental in setting up the natural & sustainable wastewater treatment system - SIBF system.

# Green Toon



Architect  
**Pramod Chaugule**  
Editor, Greenenergy



## Did You Know That ??

**Gum thrown on the ground looks like bread to birds, which try to eat it. It fouls their entire systems and prevents them ingesting any real nourishment or water. So they die slowly. Share this and be responsible with your trash.**



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