





SOLUTIONS



AIR



# WATER



# **GREEN** SPACES



## About TheCityFix Labs India Accelerating Nature-Based Solutions

#CityFixLabsIndia is a platform that brings together entrepreneurs, investors, technical experts and the public sector to implement nature-based solutions (NbS) on ground. The initiative seeks to identify nature-based solutions that address pressing challenges concerned with air, water and green spaces in cities. Enterprises that emerge from the Lab will have the opportunity to pilot their solution in Mumbai. They will also get the opportunity to refine their solutions and evolve business models, through mentorship and technical expertise, that enables private financing and scaling up.

TO KNOW MORE: https://bit.ly/TheCityFixLabs2022

PHOTO BY SATYAJEET MAZUMDAR/UNSPLASH













# 31 CITIES

AHMADABAD, AMRAVATI, AURANGABAD, BANGALORE, BHOPAL, CALICUT, CHENNAI, DELHI, EATONTOWN, EDINBURGH, ERODE, ESSEN, FARIDABAD, GHAZIABAD, GURGAON, HYDERABAD, INDORE, JAIPUR, JAMMU, JODHPUR, KHARGONE, KOELN, LILONGWE, MUMBAI, NAGPUR, NAVI MUMBAI, PUNE, RAJKOT, RANCHI, ROTTERDAM, VISHAKHAPATNAM

#### CATEGORIES

Air & Greenspace / Water / Nature-Based Solutions Monitoring & Others



Terracon Ecotech Pvt Ltd | DrainStar India | EcoSattva Lemnion Green Solutions Pvt Ltd | Living Greens Organics Pvt Ltd Jalsmruti Foundation | Cittamap | Absolute Water | Edible Routes Pvt Ltd Sponge Collaborative | Farmland Rainwater Harvesting Systems BlueDrop Enviro Pvt Ltd | Sustainable Water Technologies Pvt. Ltd.

## SHORTLISTED ORGANISATIONS





# Pitch. Pilot. Scale.

STEERING INDIA TOWARDS A RESILIENT FUTURE



# Terracon Ecotech Pvt Ltd.

CATEGORY: AIR & GREENSPACES LOCATION: Mumbai YEAR FOUNDED: December 2008 WEBSITE: **www.terraconindia.com** 

## SOLUTION

We are a strong advocate of nature-based solutions (NbS) for solving environmental and societal challenges with ecosystems-based approaches. It is of utmost importance to integrate nature with the grey infrastructure. Our solution, **Green Tunnel**, is a pergola like structure, created with bamboo frames with the use of native climbers, shrubs and herbs to reduce the heat flux over the road. This is a cost-effective, sustainable and energy-efficient solution. Green Tunnel will also act as a green corridor for existing biodiversity, enhance microclimatic conditions, and offer the additional benefits of improving human well-being.

## IMPACT

The construction of the Green Tunnel offers better air quality and cooling effects. TerraTrees can be added next to the infrastructures that will enhance the overall biodiversity of the area and have a positive impact on the microclimate. Cultivation of bamboo is one of the livelihoods alternatives that we are considering as it addresses one of the Sustainable Development Goals (SDGs) related to social through NbS. From collecting seed to growing and planting seedlings, managing projects and monitoring planting sites, the Green Tunnel creation will directly, and indirectly, generate jobs, and support local economies.



# **DrainStar India**



CATEGORY: WATER LOCATION: Mumbai YEAR FOUNDED: March 2022

## SOLUTION

Siphonic Surface Drainage is an inexpensive solution to the sinking city and urban flooding problem that is resource saving and well suited for built-up areas. It is eco-friendly and is a combination of well-known, well-established technologies that include absorbent wells, siphonic pipework and decentralized water treatment units.

**IMPACT** Siphonic Surface Drainage is one step towards dematerialization. It is resource saving and hence it promises CO2 reduction of the lifecycle of construction. It is a high impact solution, which ensures there is no adverse impact due to heavy rainfall – i.e No business will be affected due to heavy rainfall, no water logging in car parks and built-up areas etc.



## EcoSattva

CATEGORY: AIR & GREENSPACES LOCATION: Aurangabad YEAR FOUNDED: February 2017 WEBSITE: **www.carpeindia.org** 

## SOLUTION

We implement evidence-driven and partnerships-enabled systemic solutions to address pervasive civic challenges. **Green Aurangabad Mission** is one such attempt to strategically address degrading ecology and landscape in and around Aurangabad. The **Green Schools Mission** is born out of a need to scale the positive impacts of the Miyawaki Method through effective, equitable and efficient use of resources. The mission aims to create Miyawaki Method Native Dense Forests across 100 sites in schools and institutions in Aurangabad (rural) to build green lungs for the schools and villages.

## **IMPACT**

We have planted over 1,46,650 saplings belonging to 100 native species in over 3,73,969 sqm of land. With the Green Schools Mission, we have planted over 70,000 saplings from 54 native species in over 2,00,000 sq ft of land, accelerating carbon sequestration by greening of wide range of areas that cover over 100 Zilla Parishad schools. Our wetland system appeals to tourists and recreationists due to its biodiversity, wildlife habitats and ecological environment. With our proposed system, we can create a natural ecosystem around sewage treatment plant (STP) sites that looks like a garden and can attract stakeholders to its vicinity without even sensing it is an STP.



# Lemnion Green Solutions Pvt Ltd.



CATEGORY: WATER LOCATION: Pune YEAR FOUNDED: January 2018 WEBSITE: **www.lemnion.com** 

## SOLUTION

Our solutions provide an efficient way of **treating wastewater biologically**, at low cost with minimal maintenance, and improve the biodiversity of the area. We work on ecological rejuvenation of polluted or neglected public waterbodies like nallahs, ponds and rivers to restore their ecological functions. Rural and peri-urban areas with insufficient drainage infrastructure and lack of funds for conventional systems, benefit from our systems as they can be effectively implemented in a decentralized way. The systems can be tailor-made as per requirements.

## IMPACT

Our system uses minimal electricity for treatment, no operational energy for rejuvenation and boosts local economy as the systems are easy to operate and can use local. Locally available material is preferred and used. Major workforce in these systems are plants and microorganisms as plants help in sequestering carbon, regulating the temperature, and providing a habitat for biodiversity. Overall goals of our systems include used water treatment, resource recovery, nutrient balance, biodiversity improvement, and carbon sequestration. The treated water from our systems can be reused for landscaping, irrigation and other non-potable uses and is good enough to follow discharge norms by the Pollution Control Board.



# Living Greens Organics Pvt. Ltd.

CATEGORY: AIR & GREENSPACES LOCATION: Jaipur YEAR FOUNDED: March 2013 WEBSITE: **www.thelivinggreens.com** 

## SOLUTION

Our **Portable Farming Systems** enable building-owners to grow fresh organic vegetables on their rooftops, without using a single molecule of soil. Our **Organic Input Kit** helps them protect their plants from pests and diseases. We also offer real-time help to our clients through our online support system. The natural green cover thus created not only reduces the exposure of barren rooftops to the sweltering sun, but it also sequesters CO2 and absorbs noise pollution.

#### **IMPACT**

Converting barren rooftops into organic farms not only ensures a supply of fresh organic vegetables, with almost zero food mile delivery, but also creates the "green lungs" of the city, directly reducing the urban heat island effect. By using a fraction of the water (as compared to conventional farming) for growing organic vegetables, water is conserved. By converting the rooftops of large government and commercial buildings into organic farms, people from vulnerable communities can be trained to not only grow fresh organic vegetables but also deliver them to clients on a bicycle or e-rickshaw. It is also a very effective way of connecting children to nature and the food they consume.



# **Jalsmruti Foundation**



CATEGORY: NbS MONITORING & OTHERS LOCATION: Amravati YEAR FOUNDED: May 2021 WEBSITE: **www.jalsmruti.org** 

## SOLUTION

Implementation of **Water Positive Features** requires co-ordinated collective and collaborative efforts of relevant stakeholders. The **Jalsmruti Solution Platform** enables the much-needed coordination and collaboration that can result in a city becoming liveable by becoming flood-proof, drought-proof and resistant to heat.

**IMPACT** The Jalsmruti solution will make the pilot site water secure, drought proof, flood proof and resistant to the urban heat island effect. It also aims to empower urban residents



## Cittamap

CATEGORY: NbS MONITORING & OTHERS LOCATION: Rotterdam, Netherlands YEAR FOUNDED:July, 2018 WEBSITE: **www.cittamap.com** 

## SOLUTION

Cittamap provides services to drive climate resilience thinking, decision making and action. **Cittamap data insights** enable resilience building of spatially located assets by identifying risks and identifying suitable engineering processes and nature-based adaptation strategies.

## IMPACT

Our solution to prescribe nature-based solutions at the urban and periurban level is focused on disaster risk reduction for floods and urban heat. The runoff retention capacity and cooling co-efficient can be quantified, up to 30m, as ecosystem services offered by the green and blue infrastructures in the urban setting. In the peri-urban and upstream areas, adaptation implementations on a larger scale can support carbon revenue streams and water quality related (sediment and nutrient retention) payment of ecosystem services schemes. Disaster resilience with number of lives and livelihoods saved is a primary metric in addition to number of green jobs created per acre of natural ecosystems created.



## Absolute Water Pvt. Ltd.



CATEGORY: WATER LOCATION: Delhi YEAR FOUNDED: January 2016 WEBSITE: **www.absolutewater.in** 

## SOLUTION

The **Absolute Water sewage treatment system** is low maintenance, works in extreme temperatures, and can be used anywhere in the world. The system does not require chemicals or reverse osmosis. It retains the natural vitamin and mineral content, making the system self-sustainable. Currently, treated water from 21 plants is being used for horticulture, construction, toilet flushes, bathing, laundry and river rejuvenation. Drinking water is being used for food manufacturing processes. This saves on 60% of freshwater usage in addition to saving on water bills for paid municipal usage.

#### IMPACT

Our system impacts 600,000+ people — giving them access to clean and safe water. Absolute Water maintains the mineral and vitamin levels of water in its natural state, which benefits flora and fauna. Currently, six million litres of sewage are being treated daily. Our civil-based units, where space is no constraint, can treat up to 2 million ltr/day. Modular units designed for space constraints treat up to 50,000 ltr/day. The Absolute Water system also saves on water usage and water bills and reduces water-borne diseases by ensuring pollutants do not leach into the groundwater. The system's ease of operations enables unskilled persons to be employed, benefitting local communities.



# Edible Routes Pvt. Ltd.

CATEGORY: AIR & GREENSPACES LOCATION: Delhi YEAR FOUNDED: August 2016 WEBSITE: **www.edibleroutes.com** 

## SOLUTION

Edible Routes follows the principles of permaculture, organic farming, natural farming and biodynamics. We integrate land, resources, people, and the environment through mutually beneficial synergies – imitating the no waste, self-sustaining closed loop systems seen in diverse natural systems. We counteract air pollution and heat by planting a curated list of air-purifying, multi-functional and layered species of plants, and minimize flooding and waterlogging by appropriate design of green spaces and creating water bodies. We also assess existing rainwater harvesting (RWH) structure for either recharging groundwater or making available safe drinking water.

## IMPACT

Our services will enable urban consumers to grow food closer to their homes, minimizing carbon footprint and increasing the nutritional value, quality, and freshness of the food that is consumed. Promoting health, livelihood generation, and building capacity of stakeholders are key social impacts envisaged. Our solutions lead to cleaner air, promoting of greener cities and reducing the heat island effect in cities. Better eating habits and lesser food wastage will be ensured through spreading knowledge on consciously growing and consuming food. We will also be partnering with natural food producers to promote chemical-free, natural farming methods to improve the soil quality and encourage sustainable food production.



# **Sponge Collaborative**

CATEGORY: AIR & GREENSPACES LOCATION: Chennai YEAR FOUNDED: August 2021 WEBSITE: **www.spongecollaborative.com** 

## SOLUTION

sponge

Imagine if we told you that it is possible to transform your roof, setback or courtyard overnight by creating a garden or an urban farm and all you would need to do is arrange a few boxes and ask a plumber to come by. And imagine if we told you that the entire assembly can fit any budget by adding or subtracting a few boxes. The **Urban Nature Box** does just that. It is a modular, scalable and incremental system for quickly incorporating blue-green infrastructure and biodiversity into small and large urban spaces. It can be reconfigured into hundreds of permutations and combinations to address critical issues in each of the identified pilot sites or to address any brief.

#### IMPACT

URBAN NATURE BOX is an urban greening tool that can also create awareness about nature based solutions in schools and communities while delivering multiple co-benefits such as: (1) Mitigating heat stress in dense urban areas surrounded by hardscape (2) Attracting biodiversity (3) Building resilience to floods and droughts (4) Enhancing food security and circular economies by promoting urban farming (5) Creating cohesive communities (6) Activating public spaces through tactical urbanism as an immediate solution to improving women's safety and creating inclusive public spaces (7) Improving sanitation through the incorporation of solid waste management modules



# **Farmland Rainwater Harvesting Systems**

CATEGORY: WATER LOCATION: Bangalore YEAR FOUNDED: January 2002 WEBSITE: **www.rainyfilters.com** 

## SOLUTION

We are a team with over 20+ years of experience in the rainwater harvest (RWH) industry, and with a state-of-the-art R&D facility for continuous innovation and ongoing training. Our demos are deployed all over the country to spread awareness on the need for water conservation. **Rainy Filters** and **V-Wire Injection Well Technology** indirectly reduces power consumed through pumping and checks overexploitation of groundwater by establishing water neutrality. It reduces hardness and salinity in groundwater sources and reduces dependency on pumping of water from distant places, extraction of water from deeper depths, need for tankers etc.

## IMPACT

Water is directly linked to the health of the people. Rainwater harvesting enhances limited resources, significantly reduces water removal from rivers during summer months and reduces surface runoff and loss of topsoil. All materials used are eco-friendly and recyclable. Installing the V- Wire Injection Well in severely drought prone areas in Karnataka has significantly improved the groundwater table. Over hundreds of bore wells in the area, which had water tables more than 1000 feet below ground level, were recharged to half their levels (450 to 500 feet). Farmland Rainwater Harvesting Systems stored rainwater in our research plant and provided the water tto irrigate over 50 acres of land for free. The droughtprone land is now sustainable, with farmers growing vegetables and food crops to sustain their income. Apart from this, we have been supplying free drinking water to water stressed villages.



# **BlueDrop Enviro Pvt Ltd.**



CATEGORY: WATER LOCATION: Hyderabad YEAR FOUNDED: November 2014 WEBSITE: **www.bluedropwetlands.com** 

## SOLUTION

"Giving water a second life" reflects our commitment towards sustainability and water use. Bluedrop has worked extensively on **aerated wetland systems.** We treat 1 kilo litres of wastewater per day in less than a 1 sq. meter area in many instances. We do not use any chemicals during the operational phase and instead treat wastewater naturally. We have also partnered with firms who have been working on advanced aerated wetlands techniques, bringing in more efficiency and wider possibilities to treat complex wastewater streams.

**IMPACT** Wetlands are considered the most productive ecosystem, when compared to forest and land ecosystems, in mitigating global climate change through carbon sequestration. The ability to sequester atmospheric carbon dioxide plays a vital role in reducing greenhouse gases. Our proposed system also serves as an aesthetic sewage treatment plant that functions as a garden —enhancing biodiversity and serving as an open community space — indirectly benefiting human well-being.

## Sustainable Water Technologies Pvt. Ltd.

🙆 Clean Water

CATEGORY: WATER LOCATION: Indore YEAR FOUNDED: March 2017 WEBSITE: **www.clean-water.co.in** 

## SOLUTION

Sustainable Water Technologies works on **restoring & beautification** of water bodies through a Sustainable Scalable Product called **Floating** Islands (Artificial Floating Wetlands).

Floating Islands are platforms bioengineered and installed with Wetland species on all types of water-bodies across the Globe. Ultra-Low maintenance tool requiring no additional space around the water-bodies.

#### **IMPACT** Floating Islands provide the following benefits:

1. Clean the Water: Floating Islands remove nutrients, heavy metals and other pollutants from the water. They increase Oxygen level, and reduce growth and remove algae, hyacinth and other invasive species from the water.

2. Ecological Restoration: Provide habitat to restore ecology and biodiversity. All kinds of birds, fishes, insects, reptiles, invertebrates, etc swarm to the Islands

3. Beautification: Provides an Aesthetic Facelift to the Surroundings and beautifies the water-body and landscape.

Other Benefits Include: (I) Increase in Fish Yield in the Water-Body impacting Fishermen's Livelihood, (II) Reduction in Carbon Emissions, (III) Reduction in Evaporation, etc, (IV) Reduction in Mosquitoes & Prevention of Water-Borne Diseases and Deaths and (V) Purification of Water for Groundwater Recharge.





1ST FLOOR, GODREJ & BOYCE PREMISES, GASWORKS LANE, LALBAUG, PAREL MUMBAI - 400012, INDIA +91 22 2471 3591 WWW.WRI-INDIA.ORG