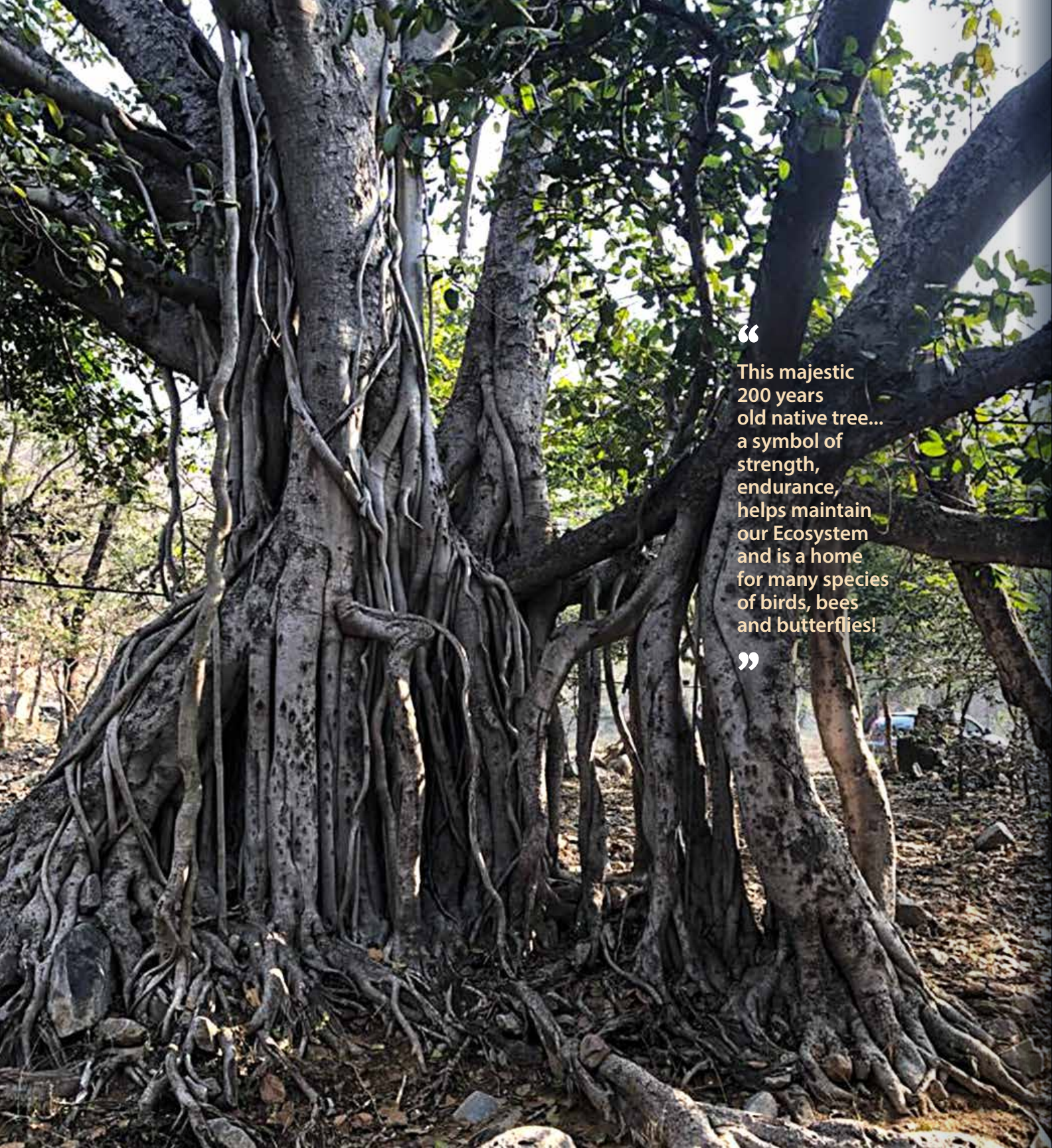


HANDBOOK FOR SUSTAINABLE REFORESTATION



VINAY & AJAY JAIN
FOUNDATION
ENVIRONMENT ■ EDUCATION ■ HEALTH CARE

CREATING
A GREENER WORLD
FOR OUR CHILDREN



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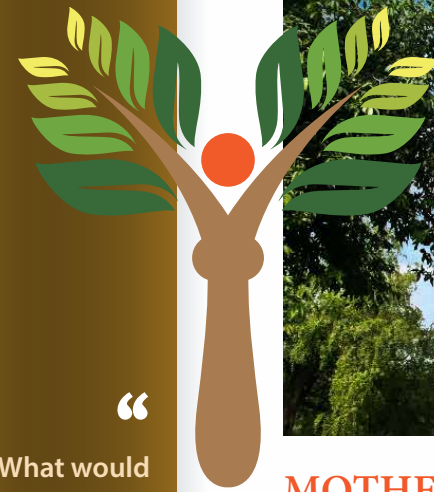
This majestic 200 years old native tree... a symbol of strength, endurance, helps maintain our Ecosystem and is a home for many species of birds, bees and butterflies!

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What would it be like if Mother Nature could talk to us? Would she say how much she is hurt?

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MOTHER EARTH

Our planet has thrived for millennia as Mother Nature has bestowed upon us her abundance. The Sun unflinchingly rises every day and provides light and warmth to all corners of the world. The rivers carry pristine water, the elixir of life, for all living beings to survive. The soil nurtures our food and the trees provide us with clean and fresh air to breathe. Like a true mother, Nature provides us selflessly, asking for nothing in return.

But, what has been our response to Mother Nature's benevolence? Over the past two centuries, we have been plundering her, polluting her rivers, filling the air with toxins, overusing her soil and damaging it with pesticides, chopping off her forests for wood and for building cities of brick and mortar.

The National Capital Region once took pride in its lush green cover. But rampant deforestation and rapid urbanization has taken it away, resulting in alarming levels of pollution. Smog and toxins are reaching

menacing proportions, leaving children and adults gasping for breath.

What would it be like if Mother Nature could talk to us? Would she say how much she is hurt? Or would she scream feeling betrayed? Most likely, she, just like a Mother, would continue to suffer in silence, as since the beginning of eternity, she provides us everything with no conditions applied.

With the visible ecological impact, it is evident that something has definitely gone wrong with our ecosystem. Is there a way to reverse the damage we have done? Can we return Mother Nature her original glory?

After years of research and ground experience, it has been found that in order to improve the quality of our air in a natural way, it is important to move towards massive sustainable reforestation. And the most effective way for this is to revive our natural forests and cover large open spaces by planting native tree species.



Native tree species are an original creation of Mother Nature, belonging to the same topography.

Why Native Tree Species?

To breathe life back into our natural forests, planting of native tree species is the most effective way. Native species are those that have been growing in the region, naturally, for decades and are an original creation of Mother Nature. As these particular species belong to the same topography, they are inherently capable of adapting to the soil and weather conditions due to which they do not require special care or maintenance to either grow or to survive. However, it is important that proper quality and methodology is used during their plantation to ensure their survival.



Properly planted saplings of native tree species become self-sustainable within two to three years, as subsequently, they develop their own ecosystem. With sustained efforts, it is only a matter of time before we can witness successful forestation of our regions and enjoy better quality of air to breathe.

When to plant?

Ideal time to plant native tree species is at the beginning of the monsoon season as the moisture in the atmosphere and moderate temperatures support their growth and survival. It is best to commence



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Native tree species selection depends upon the unique characteristics of the plantation site.

the plantation after 50 mls of rainfall, as rain water is ideal for plantation.

All the plantation work should be completed during the rainy season. The summer and the winter seasons are dry and have extreme temperatures, both of which are non-conducive to the survival of the saplings.

How to select the native tree species?

Proper selection of the native tree species plays a pivotal role in successful forestation. The selection depends upon the unique characteristics of the plantation site, such as - the temperatures, moisture levels, soil conditions, topography, etc. For reference, it is important to be on the look-out for trees that have been naturally growing in the region for decades. Plants similar in characteristics to these will be suitable for the region. A mix of different species, canopy types, heights and other character-

istics like fruiting, flowering or evergreen trees will ensure biodiversity at the plantation site and will attract birds, bees, etc. to create a natural habitat.

How to develop the saplings?

It is important to produce the saplings of native tree species in the same region as they are to be ultimately planted. This process acclimatizes the saplings to the different seasons and atmospheric conditions of the region during the process of their development.





It is ideal to plant saplings which are one year old as these have withstood the vagaries of nature.

- The seeds are to be sown in soil and coco peat in properly laid out beds. After the seeds sprout, they are to be transplanted into poly bags with a diameter of 150 mm and height of 200 mm. The soil is to be mixed in a 1:1 ratio with vermicompost manure for the robust and faster growth of the saplings.



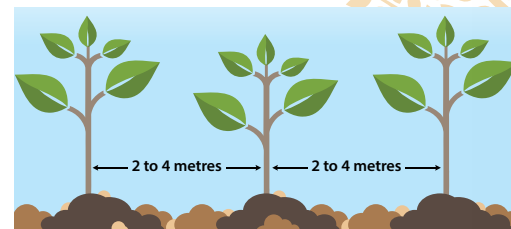
- It is ideal to plant saplings which are one year old as these have withstood the vagaries of nature. These should have a stem height of at least 600 mm, stem

thickness of 5 mm and should have dense roots.

The saplings are to be transported and stored systematically and with great care at the plantation site so that neither the saplings nor their roots get damaged. During their storage, the saplings should be kept moist and protected from extreme climatic conditions and vandalism.

What are things to remember during plantation?

- Plantation is to be done maintaining a distance of 2 or 3 or 4 metres between each sapling depending upon the characteristics of the tree species or the region's



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Manure provides the saplings with the initial nutrition till they reach a mature stage where they become self-sustainable.

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Remove weeds and invasive species near the plantation for healthy growth of saplings.

requirement. The pits for planting the saplings may be dug in a straight line or in a cross manner or as is suitable for the site.

- The soil surrounding the pit is not to be made porous as porosity leads to seepage of scarce water into the ground and it also damages the natural micro system of the soil around the plant.
- All weeds and invasive species near the plantation are to be removed as these consume the available nutrition and do not allow the saplings to either mature or to survive.



- For planting, dig a pit at least 300 mm wide and 400 mm deep or as is required by the native tree species. In case, a large number of pits are to be dug, a hand held or tractor mounted motorised augur machine should be used as it can dig a pit in one minute.





Good quality manure contains 60% Vermicompost.

Ideally, the pits are to be dug up at least one week before the actual plantation. The pit, soil and manure are to be exposed to the sun for at least two to three days to enable the soil to loosen up and be free from pests. Subsequently, the soil is to be mixed with the one to two kilograms of manure and returned into the pit. After this, the pit is to be watered to enable the soil and manure to settle down.

- Husk of various crops: 25%**
- Coco peat: 5%**
- Straws, twigs, etc.: 5%**
- Sand: 5%**

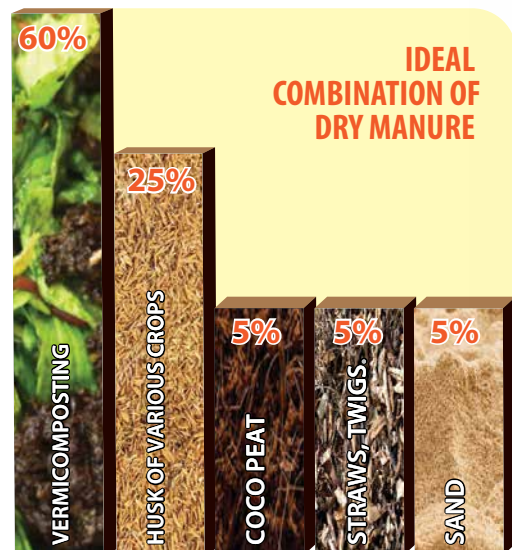
This variety of ingredients in the manure provides porosity to the roots for their faster movement and staggered nutrition to the saplings for two to three years.

How to prepare the manure?

Young saplings get their nourishment from good quality manure. It provides the saplings with the initial nutrition till they reach a mature stage where they become self-sustainable.

Good quality, dry manure should be a combination of:

Vermicomposting: 60%
(consisting of leaves, grass, farm refuse, dry excretion of animals, etc.)



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The variety of ingredients in the manure provides porosity to the root for faster growth.
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The sapling is to be placed at the centre and covered with 50 mm of soil.
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Do not water sapling two days prior to planting.

What are the different steps of the planting process?

- Secure the site from vandalism.
- Do not water the saplings for two days before commencing the plantation. (Wet soil weakens the binding of the roots with the soil causing stress to the saplings).



Cover the sapling with 50 mm of soil.



Make a hole in the centre of the pit.

- Make a hole in the centre of the pit which is larger than the size of the roots of the sapling. The sapling is to be placed at the centre and covered with 50 mm of soil.
- The soil is to be compacted around the sapling by hand or by foot so that all the air trapped inside the pit is released.
- The pit is to be watered.



Water the pit.



Keep sapling erect with the support of a bamboo stick.

The Staking

It is important to keep the sapling erect with the support of a bamboo stick.

The Shrubs, Ground Cover and Mulching

It is indispensable to plant a mix of native shrubs, as well as, native ground cover plants, in large numbers, at these sites.

After the planting, the soil around the saplings is to be covered with agricultural waste materials such as husk or straws or leaves. Upon decomposition, these materials become manure for the plants.

Both these activities prevent the evaporation of water, keep the soil temperatures moderate and give a boost to soil micro-organisms. They also help attract small birds, butterflies and bees to enhance biodiversity... thereby they create a natural forest like effect.

The Protection

To ensure the survival of the plants, the saplings are to be protected from vandalism, animals and other external threats.

The Watering

Timely watering of the saplings is crucial so as to ensure that the roots remain moist throughout the year for at least two to three years.

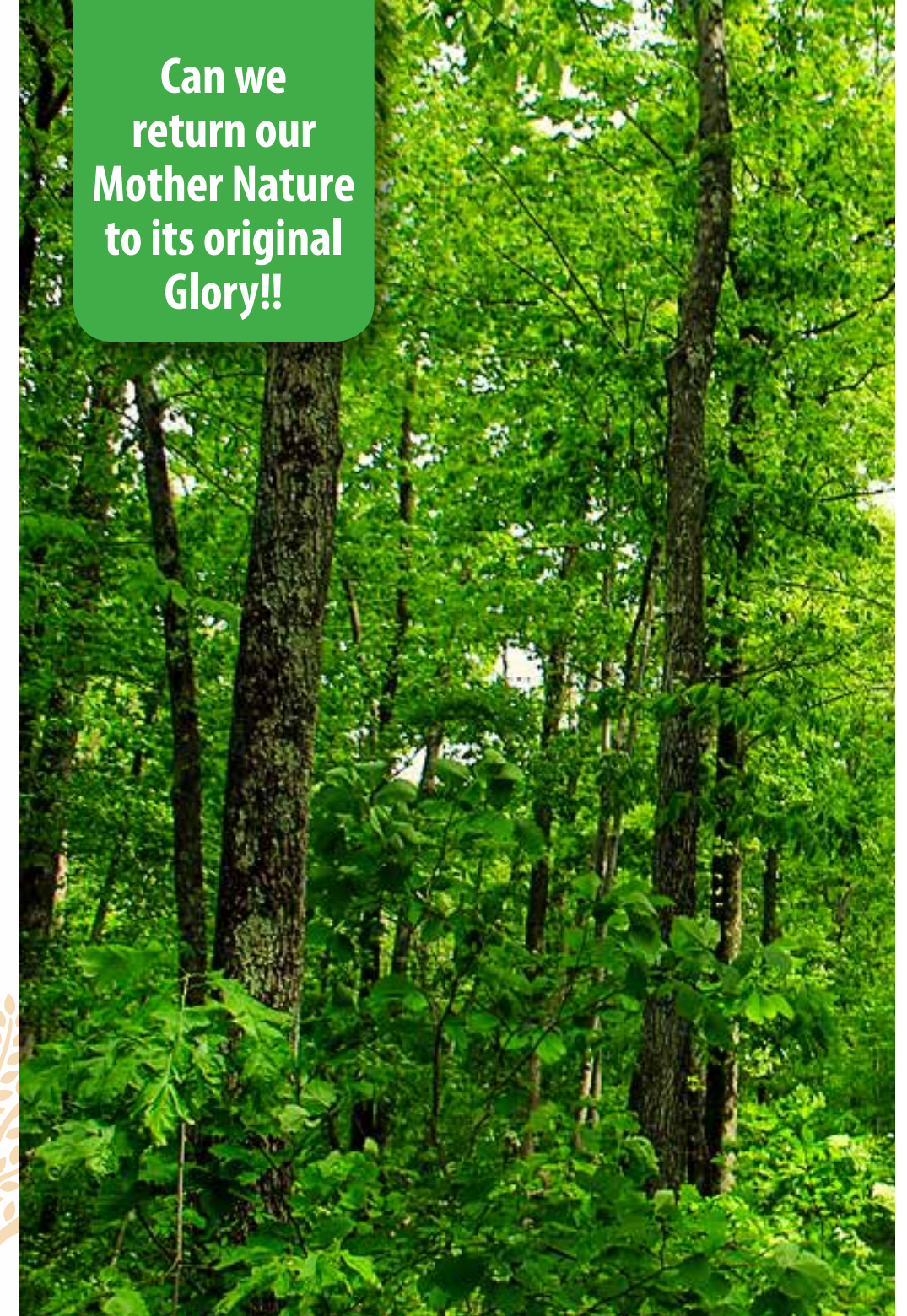


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Can we return our Mother Nature to its original Glory!!





About the initiative

Vinay & Ajay Jain Foundation

is a CSR initiative of PPAP Automotive Limited with a key focus on Sustainable Reforestation with Native Trees Species.

Armed with knowledge gained by extensive studies, hands on experience of 35 years and a passion to create healthy living spaces, the Vinay & Ajay Jain Foundation has taken the initiative towards raising awareness on **environment**, sharing knowledge for the **education** of the masses and providing resources for reviving our green cover with native trees species for our better **health**.

Be a part of the initiative, log on to...

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