



INTRODUCTION



Dear Colleagues,
Welcome to this 12th flyer in series with the topic of "Biodiversity". While we all are working together, we realize that we are from diverse backgrounds eg different religions, casts, education background, geography etc... However if we look around, we do not realize that we are using a huge natural diversity.

The term 'biodiversity' is indeed commonly used to describe the number, variety and variability of living organisms. Biodiversity is the life support system for our planet with a total of 6 Billion people living. We are entirely dependent on clean air, fresh water and healthy food for our survival.

We are currently using 25% more natural resources than the planet can sustain. As a result species, habitats and local communities are under pressure or direct threats (for example from loss of access to fresh water).

Main threats to Biodiversity include:

- Pollution
 - Climate change
- ⇒ Biodiversity has declined by more than a quarter in the last 35 years.
- ⇒ We have...picked, logged, plucked and hunted the animals, trees flowers and fish for medicine, souvenirs, status symbols, building materials and food.
- ⇒ And this over-exploitation (hunting, fishing, bycatch) is currently totally unsustainable.
- ⇒ The loss, degradation or fragmentation of ecosystems through

land conversion

These elements are consistent with the three objectives of the Convention on Biological Diversity: **Conservation, Sustainable use and equitable sharing of benefits**

There is no doubt that ecosystems, species and genes are being lost or damaged faster than ever before. Such a loss undermines the natural richness of our planet and threatens our future sustainability.

We have a responsibility to act as stewards of the planet, protecting nature for its own sake and ensuring our consumption levels are sustainable. We should protect nature on the basis of the present and potential use of elements of biodiversity as biological resources, and focus on maintaining the biosphere in a state which supports human life.

Scientists have been working on the development of clear and transparent ways of assigning a monetary value to some of the ecosystem functions on which we depend, such as the activity of bees and other pollinators, the treatment of water and purification of waste, or the carbon sequestration and climate regulation role of plants, in particular tropical rainforests etc...

As we all at MSSSPL look around, we are blessed by a very rich Biodiversity. This includes a wide variety of plants, trees, animals & microbial species. We conducted a study to find out the details of our biodiversity through a student from Symbiosis Institute of International Business. Along with highlights of her report, you will find many interesting topics in this flyer.

Enjoy reading.

Mr. R. S. Rane
Business Excellence Cell



WELCOME TO RICH BIODIVERSITY OF MSSSPL...

Mahindra Sanyo Special Steel Pvt. Ltd. (MSSSPL) is located at the base of Sahyadri Mountains in Khopoli, Maharashtra. The lush green campus of MSSSPL is surrounded by wide variety of plants, animals and microbial species. It forms the part of Western Ghats which is India's largest natural Carbon Sink & a biodiversity hotspot.

A wide range of animal species in the form of amphibian, birds, reptiles and mammals occur in the surroundings of Mahindra Sanyo's Campus like The Bronzed frog (*Hylarana temporalis*), Alice's wrinkled frog (*Nictibatrachus aliciae*). And one common yet beautiful non-venomous snake of the Western Ghats is the Green Vine Snake (*Ahaetulla nasuta*). The Western Ghats are also home to a wide range fauna. Caterpillars, Butterflies, Lizards and Spiders are just some of them.

A wide variety of flora species ranging from algae, fungi, herbs, shrubs and trees can be found in the campus of MSSSPL. Most commonly occurring trees in the campus include Mango, Jamun, Rain Tree, Ashok, Peepal, Karanj, Gulmohar, Nilgiri, Acacia, Babul, Jack-fruit, etc...

Apart from the wide variety of species growing in natural environment there are small patches of the garden within the entire campus that contains a number of plants which are grown and maintained by several gardeners. This includes plants such as Banana, Marigold, Shrubs,

and Bougainvillea, wild variety of plant species and many others plants of aesthetic value.

There are several small gardens outside the Blooming Mill where around 20 varieties of tree species are growing including herb, shrub and trees. A garden with a bunch of banana trees, rain trees and mango trees is growing to circulate fresh air within the premises. A small garden is located just outside the club house which contains shrubs of Thuja species which are known for providing aesthetic value.

Apart from varied shrubs and trees growing in the entire campus there are several variety of creepers growing alongside the walls and on trees as parasites. These are also known for improving the aesthetic beauty of surroundings.

Beside this, Survey was done in which all the trees with age more than 5 years were counted in the entire area covered by Mahindra Sanyo including the Staff colony and Worker's Colony. It accounted for around 1800 trees in the campus.

Thus MSSSPL is blessed with a very rich Biodiversity.

**Study done by SIIB Summer Trainee
Ms. Perna Ameta**



TREES COUNT @ MSSSPL



S. No	Name	Count
1	Ashoka	258
2	Mango	219
3	Nilgiri	105
4	Jack Fruit/ Fanas	30
5	Jamun	45
6	Gulmohar	184
7	Rain Tree	270
8	Babul	60
9	Umbar/ Fig	28
10	Bakula	2

S. No.	Name	Count
11	Peepal	21
12	Guava	6
13	Kalam/ Kaim	22
14	Neem	11
15	Apta/Shengal	8
16	Rubber	1
17	Palm	16

S. No.	Name	Count
18	Imli/ Tamarind	18
19	Cashew Nut	4
20	Bhend	3
21	Khair/ Catechu	11
22	Daalchini/ Cin- namon	2
23	Banyan	86
24	Coconut	9

S. No.	Name	Count
25	Sitaphal	3
26	Ber/ Jujube	14
27	Karanj	62
28	Suru/ Cypress	34
29	Asna	9
30	Badam/ Al- mond	6
31	Amla	8
32	Chiku	5
33	Teak	114
34	Wild Species	139

A great accomplishment shouldn't be the end of the road, its just the starting point for the next leap forward...

GARDEN STAFF



Any regular visitor to our company notices the drastic improvement in greening and cleaning of our plant premises. If the visitor is coming after 2-3 years he comments that the company is quite unrecognizable. ***The foot soldiers in this effort in greening and cleaning our company has been our dedicated garden staff.***

You might notice this small band of men watering, weeding, caring and nurturing all over the company with little or no supervision. They also constantly ideate to provide many successful suggestions. They have suggested choice of species, and found ways to grow a variety of trees, scrubs and ornamental plants on land that has been essentially destroyed by slag, scale and FES dust.

Their contribution to the nursery is inspiring. They have successfully grown more than 50 species and all our requirements of saplings for plantation is met in house year after year. They have also inspired many employees to take saplings from here, and then plant and nurture on their land. If you visit the nursery, you will find it neat, organized and well kept.

It is because of their willingness to learn and take up new challenges that the same team grew 50,000 saplings last year and aspires to grow 100,000 saplings this year.

Mr. Rajib Basu
Personnel & General
Administration Department



BIODIVERSITY PRESERVATION AT MAHINDRA SANYO



The company has witnessed two incidents in past where it has undertaken best possible action to preserve the biodiversity of the region it is operating in.

Case Study 1: An injured barking deer was found in the area between JCMM school and Club in 2012 by a watchman. *The deer was taken to veterinarian and after first aid and examination was released in the same area as found on the same day evening.*

Case Study 2: The premises during the rains specially witness a large variety of snakes both venomous and non – venomous. The species found are Vine snake, Pythons, rat snake, Cobra, King Cobra,

Viper and on one occasion krait was also found in the premises.



The company has 04 - 05 trained snake catchers in security department, who respond to the urgent calls from the people in office and colony premises. These snakes after been caught are released in the vast empty land behind club or farther away.

Ms. Ambalika Gupta
Business Excellence Cell



ALOE VERA PLANTATION



On 12th January 2017, we have started planting one of the oldest medicinal plant ever known and the most applied medicinal plant worldwide.

Till date *we have planted 200 saplings of Aloe Vera near Blooming Mill, Oxygen Plant. It is a pilot project so that we can study the Aloe Vera Plant & its growth feasibility in this area, After Studying the feasibility of this plant next year we are planning to start Aloe Vera Farming.*

Aloe Vera is used for vigour, wellness and medicinal purposes since Rigveda times. Health benefits of aloe vera include its application in wound healing, treating burns, minimizing frost bite damage, protection against skin damage from x-rays, lung cancer, intestinal problems & etc.

Phyto-chemistry of aloe vera gel has revealed the presence of more than 200 bioactive chemicals. Aloe Vera gel is extracted from its leaves and appropriate processing techniques are needed for stabilization as well as preparation of the end products. Aloe Vera Gel contains important ingredients including 19 of the 20 amino acids needed by the human body and seven of the eight essential ones that just cannot be made. In industries Aloe Vera is also used to extract liver tonic.



Mr. Manoj Jagtap
Security Department

AFFORESTATION – MP PROJECT



To take care of various GHG emissions & other polluting gases, forestation is the best way of offsetting.

The idea of developing an in house nursery came from Mr. Dilip Pachpande . We took it up with earnest and

it developed its own momentum.

We reused the milk sachets from canteen, compost from our food waste, soil extracted during excavation work in the plant, cuttings collected by our garden staff from in and around the plant, from their homes and villages went into creating a nursery with more than 50 species of trees, scrubs and ornamental plants. We are very proud to inform that in last 4-5 years most of our plantation activity has been from saplings sourced from our nursery.

We at MSSSPL decided to enter into an ambitious project of tree plantations with IORA Ecological Solutions Pvt Ltd, United States Agency for International Development USAID (Forest – Plus) and The Government of Madhya Pradesh.

The success of our nursery gave us the confidence to accept a commitment for providing 40,000 bamboo, teak and sheesham saplings under a collaborative program to 2

districts in MP, Harda and Hoshangabad in Jul 2016. In this project under the expert guidance of USAID we grew 40,000 saplings in our residential campus. In turn these grown saplings were transferred to MP Districts under the guidance of IORA. Our cost in this project of developing the saplings and delivering them to MP was hardly ₹60,000/- !

The success of this project resulted in district administration of both districts approaching us to supply 100,000 bamboo saplings this year. The saplings will be planted by the district administration through MNREGA along the banks of the Narmada.



Mr. Rajib Basu
Personnel & General
Administration Department



GREENERY INSIDE THE PREMISES



khair

Jamun



Jackfruit



Cashewnut

Quiz Time :

From the following which is Ramsar site in India

A. Sambhar Lake B. Mansarovar Lake C. Gulf of Mannar D. Western ghat

(Be the first one to SMS the answer with your name @ 7720091891 & get a prize for the same.)



PEER COMPANIES IN THE AREA OF BIODIVERSITY

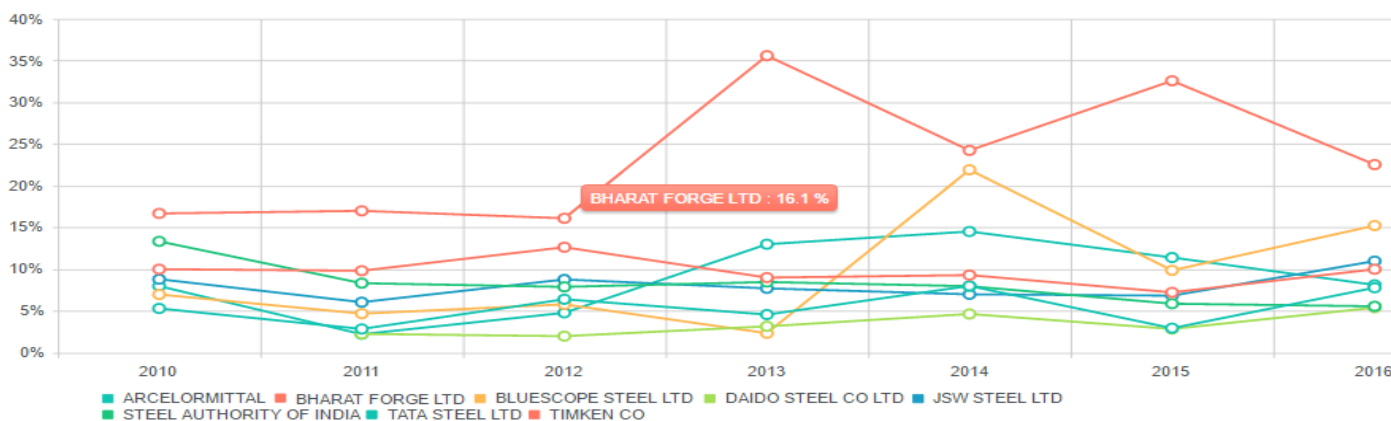
Our understanding about biodiversity has been restricted to that of a lesser material issue or CSR activity, but the changing trends throw light on the new role and understanding developing around the concept.

The below graph shows different levels of emphasis and reporting that has happened over the years on this aspect by companies that are our peers or competitors.

The graph is populated on the basis of the mentions and commitment that any selected company has made on the topic of biodiversity every year since 2010 in its Annual Financial Report / Sustainability Report.

Thus, this makes it entirely very important business case issue to have the management attention and needed funds.

Company	Country	Sector	Topic level
ARCELORMITTAL	Luxembourg	Mining and Metals	High
BHARAT FORGE LTD	India	Auto components and manufacturing	High
BLUESCOPE STEEL LTD	Australia	Mining and Metals	High
DAIDO STEEL CO LTD	Japan	Mining and Metals	Low
JSW STEEL LTD	India	Mining and Metals	High
STEEL AUTHORITY OF INDIA	India	Mining and Metals	High
TATA STEEL LTD	India	Mining and Metals	High
TIMKEN CO	United States	Industrial Machinery	High



Ms. Ambalika Gupta
Business Excellence Cell

THE ECONOMICS OF ECOSYSTEMS AND BIODIVERSITY



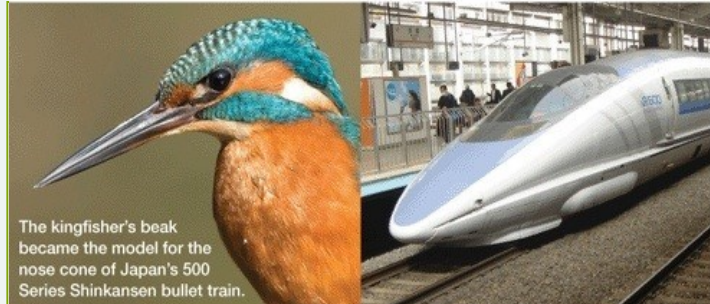
Most people have heard about climate change and the need to reduce greenhouse gas emissions and it is fast becoming part of normal business practice. Similarly, more people today are aware of the risks of biodiversity loss and the decline of ecosystem services. In short, the value of nature is changing, and business needs to change accordingly. There is increasing need for sustainable business models that conserve and restore ecosystems while meeting people's needs...

Biodiversity loss is increasingly recognized as a significant business liability, especially for companies characterized by direct impacts on ecosystems and biodiversity, e.g. mining, oil and gas, or infrastructure. Business man-

agers are becoming aware of their dependence on biodiversity and ecosystem services as essential inputs to production, e.g. in agriculture, fisheries, forestry, and biotechnology industries. In other cases, business impacts on biodiversity may be indirect, through supply chains or influence on investment, production, distribution and marketing, e.g. retail distribution, banking, asset management, insurance, or business services. More and more entrepreneurs are setting up firms dedicated to selling ecosystem services and biodiversity-related products, e.g. eco-tourism, eco-agriculture, certified timber or bio-carbon offsets.

Mr. Prasad Giri
Business Excellence Cell

BIOMIMICRY



The kingfisher's beak became the model for the nose cone of Japan's 500 Series Shinkansen bullet train.

Kingfisher-Inspired Bullet Train

Biomimetics or **biomimicry** is the imitation of the models, systems, and elements of nature for the purpose of solving complex human problems.

Living organisms have evolved well-adapted structures and materials over geological time through natural selection. Biomimetics has given rise to new technologies inspired by biological solutions at macro and nanoscales. *Humans have looked at nature for answers to problems throughout our existence. Nature has solved engineering problems such as self-healing abilities, environmental exposure tolerance and resistance, hydrophobicity, self-assembly, and harnessing solar energy.*

One of the early examples of biomimicry was the study of birds to enable human flight. Although never successful in creating a "flying machine", Leonardo da Vinci (1452–1519) was a keen observer of the anatomy and flight of birds, and made numerous notes and sketches on his observations as well as sketches of various "flying machines". The Wright Brothers, who finally did succeed in creating and flying the first airplane in 1903, also derived inspiration for their airplane from observations of pigeons in flight.

Otto Schmitt, an American academic and inventor, coined the term biomimetics to describe the transfer of ideas from biology to technology. The term biomimetics only entered the Webster's Dictionary in 1974 and is defined as "the study of the formation, structure, or function of biologically produced substances and materials (as enzymes or silk) and biological mechanisms and processes (as protein synthesis or photosynthesis) especially for the purpose of synthesizing similar products by artificial mechanisms which mimic natural ones.

Let us all now start learning from nature & apply to solve our day to day problems. Can we make Biomimicry as our DNA of Innovations !

Ms. Shradha Shetty
Business Excellence Cell

EVENTS OF LAST MONTH



Leadership Outbound Training

To understand the importance of leaders in the organization and various challenges faced by the leaders, we had a soft skill outbound training. There were 27 participants across the levels and departments who came together and tried to understand the various aspects of leadership. The trainer Mr. Anand Kumar gave insightful thoughts to tackle basic problems in day to day corporate life.

Every year we celebrate the Theme Based Month to sensitize our employees on various sustainability aspects. One of the important aspects is Resource Intensity & Recycled Inputs. The main purpose was to create awareness on Natural Resources Conservation at Shop floor & we have covered 300 employees under this awareness sessions.



Resource Intensity & Recycled Inputs



Disconnect to Reconnect

In order to improve work life balance, HR department arranged a get together for our employees and their families. Mr. Purandare briefed about importance of work life balance. It was followed by multiple games and activities for employee and their families to understand the importance of family.