Imprints of Ecological Footprints ...
A compilation of Ecologically Sensible Good Practices

IFHD
WASSAN
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Aug 2016

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Supported by : Indian Foundation for Humanistic Development, Bengaluru

Produced by : WASSAN (Watershed Support Services and Activities Network)
Produced for Leaders For Nature Program.
This program is collectively organized by CII; Hivos; IUCN; Wild Life Trust of India.
IFHD is anchoring the Leaders for Nature Program.

Published by: IFHD, Bengaluru
Acknowledgements

I am very happy to present "Imprints of Ecological Footprints .... A compilation of Ecologically Sensible Good Practices".

I take this opportunity to thank all organizations and individuals who contributed to the process of documenting these good practices. They were kind to frankly share with us their experiences, thoughts, challenges and achievements. They also shared relevant data to substantiate any critical point from their experiences. Some of them even prepared the first drafts of these case studies. They also revised them, based on our feedback. All the organizations/ individuals happily gave consent for publishing these case studies and using them for learning purposes under "Leaders for Nature" program of IFHD, IUCN, CII, Hivos and Wild Life Trust of India. The entire process of producing this compilation was an enriching and fruitful experience. It is also a humbling experience for us to learn several lessons from these interactions and visits to several villages/ sites. We genuinely believe that this compilation truly enriches the learning processes of "Leaders for Nature" program.

The Writeshop was one of the important events of this process. We got guidance and feedback on the '0' drafts from the participants of the writeshop. This was useful in refining the initial drafts. The participants of writeshop also made important suggestions on the presentation and utility of these case studies. From their busy schedules, they spared few days for refining these case studies, which is a very kind gesture. I thank everyone who participated in the writeshop. Their inputs are invaluable.

I thank Ms. Aruna Rangachar Pohl, IFHD for having faith in WASSAN and entrusting us the responsibility of compiling these case studies. She is an active team member at all critical stages of the project and guided us on choice of case studies, structure/ framework, presentation, etc. The partnership with IFHD is really cherished by all of us, at WASSAN.
I also thank the family of artists of Cheriyal - Shri D Vaikuntam, Mrs D Vanaja, Mr D Vinay and D Rakesh, who visualized these experiences in their own unique style.

My team - MB Vali, Anitha Vustela, Waseem Mohammad, Benita Mahanta, Radhashree who spent considerable time on this agenda. I also thank K Suresh for providing editorial inputs and support at various stages of this process.

MV Rama Chandrudu
WASSAN
Aug 2016
Foreword

It is almost three decades back, the threats to "Our Common Future" were formally identified and deliberations started gaining more steam and support from governments too... (Our Common Future, Gro Harlem Brundtland, 1987). Climate Change and its implications were also slowly getting recognized during this period. The need for "producing more with less" was also part of this thinking process, as a means to address the challenges of the future. Over a period of time, the world witnessed more economic distress, unemployment, political turmoil and ecological disasters across different countries and regions of world. Those early predictions seemed to be less threatening than the current reality. The global gloom got predictable companions - unscrupulous industrial growth, irresponsible urbanization, careless global politics, dishonest governments, self-centric citizenship, which tried to glorify the current trends as achievements and inevitable solutions.

In the middle of such despair and misery, there is a hope. "Imprints of Ecological Footprints - A Compilation of Ecologically Sensible Good Practices" is a compendium of good practices that brings the efforts made by relentless civil society organizations, citizens and community based organizations, to change the direction of this trend. These experiences bring cheer and hope in the lives of thousands of rural, tribal and urban citizens in India, who are part of these experiences. They were able to take a different path that is less travelled and troublesome. There were several challenges, at each step and milestone. But they continued their journey and proved that "producing more with less" is possible. They also ensured that the ecological and environmentally sustainable processes are feasible for improving economic standards and quality of life of poor communities.

These case studies give a hope and confidence that we can face the cruel world and transform the same into a comfortable place for all - including endangered species, poor and marginalized communities. While Corporate Social Responsibility is gaining more support
from governments, corporate agencies and development agencies, these experiences provide guidance and help them to think about alternatives. These experiences help the willing and discerning development agencies and investors in social change, to transcend the mundane "photo stories" of majority of current CSR interventions. They provide an array of options, strategies and ideas that proved themselves in different parts of the country.

I thank all the organizations and agencies who shared their stories - highs and lows of it, with us frankly and completely. I thank them for providing leadership on the chosen theme - promoting biodiversity; conservation and governance of natural resources; promoting ecologically sensitive production processes; enhancing livelihoods by developing environmentally harmonious economic models and several others. These experiences are invaluable and are certainly useful for provoking thoughts in the minds of participants of "Leaders for Nature" programs, which are jointly organized by IFHD, IUCN, CII, Wild Life Trust of India, HIVOS and other like-minded organizations. I thank WASSAN for producing this compilation of case studies and supporting us in this endeavor.

Aruna Rangachar Pohl
IFHD, Bengaluru
Aug 2016
New Paths in Cities...

Following Ecological Foot Prints...

Is biodiversity a fad? A new buzz word? Is this confined to endangered species, degraded forests, wild life and water bodies? Who is responsible for conserving and promoting biodiversity – children, rural folk, or ecologists? Do industrial groups; business houses; urban citizens; urban municipalities; educational institutions and likes have any role in promoting biodiversity and conservation? Can a normal building contribute to conservation? Can a campus (of academic institution/corporate office) promote biodiversity? What is the footprint of these campuses and urban dwellings – water footprint, energy footprint?

While the dilemmas and challenges to promote biodiversity are enormous, a recent trend is certainly heartening in cities of India. A new beginning is being made in different parts of the country, where committed individuals, industrial and corporate groups, NGOs, municipalities, citizen’s collectives are coming together to teach themselves a new lesson. Treading a new path that leads to conservation and biodiversity, they are establishing islands of peace and tranquillity amidst hustle and bustle of urban life...
Transforming wasted lands and working spaces into sources of inspiration, learning and commitment towards conservation and biodiversity, they are creating new paths in your neighbourhood. Measure their foot prints – ecological and economic.

Welcome to Green Buildings and Biodiversity Parks

Greening my work space....

Mr. John Willington, CEO of a Multi-National Company in Hi-tech city (Hyderabad) is worried about a new problem these days. It is not about increasing the turnover of his company and improve its balance sheet. It is about his building and campus. When the company, with 3000 employees, wanted to construct its own building in the newly acquired land, he could visualize the importance of an efficient and functional building. As he is aware of the expenditure on maintenance of the existing building (on electricity for lighting, air conditioning and other comforts; increasing amounts of water bills each year with depleting groundwater/limited supply from municipal corporation; disposal of waste generated from the building and other issues), he started wondering if this expenditure could be minimized, at least in the new campus of their company. His brief to architect is to find out ways and means of reducing capital expenditure (CapEx) and also operational costs (OpEx) for maintenance of the campus, without compromising the comfort and efficiency of the employees. Together with the architect, the CEO found a new solution to his challenge- Green Building. The source of inspiration came from CII- Sohrabji Godrej Green Business Centre, Hyderabad, India.

In 2001, people of Hyderabad were very exuberant as President of United States of America was coming to the city. During one of his speeches
in Hitech city, he mentioned about green buildings which started making waves in United States already.

Realizing the benefits of green buildings, Indian Green Building Council (IGBC), part of Confederation of Indian Industry (CII) took the lead in ushering in a green building movement in India.

CII with the support of Government of Andhra Pradesh, USAID and Pirojsha Godrej Foundation, took the plunge into green building concept in 2001. On a piece of land given by Government of Andhra Pradesh in Hi-tech City, Hyderabad, CII-Sohrabji Godrej Green Business Centre building was constructed in 2004.

CII-Sohrabji Godrej Green Business Centre is a green building and has the unique distinction of becoming India’s first Platinum rated green building and serves as an excellent demonstration.

This building is constructed on 4.5 acres of land with 1,858 sq mt built up area and 1,115 sq mt of total air conditioned area. This building is

**What is Green Building?**

Any building could become green building, if it can effectively

- Use material that is environmentally harmonious (reused, recycled, recyclable, or from renewable resources) in its construction
- Creates a healthy and comfortable built environment
- Located within functional landscape that requires less water (using indigenous greenery that thrives without additional watering)
- Optimizes energy and water usage
- Reduces operation and maintenance cost
- Reduces waste generation
a blend of India’s rich architectural splendour and modern technological innovations. Design, use of materials, provision of services (water, electricity, lighting, air conditioning), waste management (solid and liquid) options, thermal & visual comfort and indoor air quality inside the building – are in harmony with nature and there is science behind each element of the building. Optimal usag of energy and water are some of the key green features of CII-Sohrabji Godrej Green Business Centre building.

**Less Energy... More Comfort...**

The green building boasts of over 50% saving in overall energy consumption, each month (compared with any other normal building). Extensive energy simulation exercises were undertaken to orient the building in such a way that minimizes the heat ingress while allowing natural daylight to penetrate abundantly. To ensure daylight to every workstation, windows and glass panels are oriented to allow daylight from north into the building for maximum period of the day.

This enhances visual comfort significantly and reduces dependency on artificial lighting. All the lighting fixtures in the building are energy efficient as they use LED based lighting fixtures. This entire arrangement helps to reduce electricity consumption and bills, each month. The building also has a variety of energy smart appliances. As part of this energy planning, roof top solar photovoltaic systems and solar & wind hybrid systems were installed. This arrangement meets 20% of the building energy requirements. As the technology of solar energy is improving, the building is upgrading its systems.

Indoor environment quality is ensured by using several world-class energy and environment friendly features - including high performance...
glass and establishing aesthetic roof gardens. The complete roof top has green vegetation which addresses the heat island effect. The campus also has a passive cooling system such as wind towersthat pumps fresh air into the air-conditioned spaces. This reduces the power requirement, by allowing pre-cooled air for air-conditioning system. Indoor air quality is continuously monitored and fresh air is pumped into the air-conditioned spaces at all times. The use of low volatile organic compound (VOC) paints and coatings, adhesives, sealants, and carpets also helps to improve indoor air quality.

CII-Sohrabji Godrej Green Business Centreis designed as a zero water discharge building. Rainwater of the entire campus is harvested and re-used all of the wastewater (including grey and black water) generated in the building is treated within the campus through Phytoremediation (biological way of treating waste water). Further it is used for landscape gardening. The treated water meets the Central Pollution Control Board (CPCB) norms. Water use is minimized by installing water-less urinals in men’s restrooms. These urinals use liquids that float over urine (as the density of these liquids is lesser than density of urine) and prevent smelling. All plumbing fittings are ultra-modern that use efficient flushing/ supply systems (ultra-low and low-flow flush fixtures). This arrangement reduces water use to a great extent, without compromising in hygiene. Compared to other conventional buildings, CII-Godrej GBC Building ensures over 35% reduction in potable water consumption, while entire waste water is reused in the campus itself.

The natural terrain of the campus was retained to the extent possible. This is also home to variety of trees, all of which are native and adaptive to local climatic conditions. The building and its several courtyards (which is an important element of Indian architecture) blend into the landscape.
Each courtyard has an aesthetically impressive green garden. These courtyards offer space to employees, visitors and other learners to interact with each other and exchange thoughts.

The building design was conceived so as to have minimum disturbance to the surrounding ecological environment. The disturbance to the site was limited within 40 feet from the building footprint during the construction phase. This has preserved the existing flora and fauna and natural microbiological organism around the building. Extensive erosion and sedimentation control measures to prevent topsoil erosion have also been taken at the site during construction. Most of the construction material used post-consumer and industrial waste as raw material for manufacturing. Fly-ash based bricks, glass, aluminum, and ceramic tiles, which contain consumer and industrial waste, were used in constructing the building to encourage the usage of recycled content. Office furniture is made of bagasse based composite wood. More than 50% of the construction waste is recycled within the building or sent to other sites and diverted from landfills.

CII-Sohrabji Godrej Green Godrej Green Business Centre demonstrates the feasibility of a concept that science could be applied to reduce the energy footprint; water footprint and eventually reduce the harmful impacts of building construction itself, without compromising comfort of the occupants.

One of the important mandates of CII-Sohrabji Godrej Green Business Centre is to steer the process of spreading the concept and practices of green buildings in India. As part of this mandate, IGBC through a multi-pronged approach encourages builders, architects, engineers, corporates and industry (producers of building materials) to adopt the green building concepts.
CII-Sohrabji Godrej Green Business Centre with the support of all the stakeholders has facilitated in creating demand for new building materials/products that are efficient and are in harmony with environment. As an illustration, glass that is of high quality and reduces energy emissions was not available in markets during early 2000s. Now this product is easily available in all cities of India. If high performance glass is used, the energy consumption within the building would get reduced. There are several such products (plumbing material; colors/paints; bricks; electrical appliances; etc), which are available in markets now.

This “demand” is an indicator on the concerted efforts of IGBC in promoting the concept of green buildings. These materials are more efficient and environmentally more sensitive, in comparison to other conventional building materials. Through GreenPro Certification, IGBC is encouraging industry to produce ecologically superior and economically viable building materials.

CII-Sohrabji Godrej Green Business Centre as part of its outreach programme regularly conducts training programs/awareness programs for stakeholder’s including Government, corporate, nodal agencies, architects, designers, institutions, builders & developers, product manufacturers, suppliers, facility managers, etc.

Stakeholders have taken up the mandate of spreading the message across the country. Since 2004, there are several milestones that CII-Sohrabji Godrej Green Business Centre crossed. There has been a significant growth of Green Buildings over the last ten years. With a modest beginning of 20,000 sq.ft. green built-up area in the country in the year 2004, today more than 3,550 registered green building projects with a built-up area of one billion sq. ft are being constructed all over India.
Today, India with over 3.5 billion sq. ft is the second country in the world with the largest registered green building footprint. Various types of buildings- airports, banks, colleges, convention centres, factories, hospitals, hotels, institutions, existing buildings, IT Parks, offices, residential houses, schools, SEZs, townships.

One of the reasons why green buildings are widely adopted is the fact that ‘Green buildings make good business sense’. Though the incremental cost of a commercial green building would be about 3 to 5 %, this gets paid back within 2 to 3 years with substantial reduction in operational costs. This important proposition is enabling stakeholders go the Green way. IGBC aspires to facilitate 10 billion sq.ft of green buildings by 2022, when India celebrates its 75 years of Independence.

By constructing green buildings, individuals, builders and corporates are able to address ecological issues and concerns. This also has a positive impact on the use of natural resources and directly/ indirectly conserves the same. This is one of the important ways of urban dwellers to become more accountable towards nature conservation.

**Iamgurgaon- A Green Identity:**

Iamgurgaon is a people’s initiative in Gurgaon. With the support of Municipal Corporation of Gurgaon and 40 odd corporate houses, the citizens of Gurgaon could transform an abandoned mining land (350 acres) into a lush green forest – Aravali Biodiversity Park. This park now boasts of 158 species of plants and 180 species of birds. Some of the rare birds that can be spotted at the park are Asian paradise flycatcher, Indian eagle owl, white-eyed buzzard, sirkeer malkoha, yellow eyed babbler, purple sunbird, Eurasian cuckoo, blue rock thrush, Indian robin, Indian peafowl and jacobin cuckoo among others. Apart from the birds, wildlife watchers are also
delighted to see nilgais, monitor lizards, hares, jackals, civet cats, snakes, dragonflies and butterflies that have made the park their home. This park is dedicated to public since 2010.

Every day, 500 people visit this green oasis amidst concrete jungle for walking, cycling, watching birds and breathing fresh air…. It all began with planting trees in this locality by citizens in a campaign mode and the members of Iamgurgaon soon realized that this agenda requires professional input. They could rope in ecologist Vijay Dhasmana to look into the matter. With his guidance, Iamgurgaon created Anogeissus pendula (dhau) forest, boswellia serrata (salai) and albizia odorotissima (kala basa) bamboo forests and grasslands in this region over the years. Vijay recollects - “For this, we had to do an extensive document research on flora dating back to the 18th century. This led us to a list of about 200 species of trees, shrubs, climbers, herbs and grasses. Looking for those species, we visited several forests and commercial nurseries of northern and western India, but could not find more than 30 species. We then started an ambitious project to grow these plants on our own and came up with our own nurseries”. The ecologist informs that not only does the park provide a mini-forest like feel in the heart of the city, its existence has also helped in providing more tangible environmental services such as groundwater, regulating climate conditions, improving air quality, and maintaining soil fertility.

Aravali Biodiversity Park started inspiring urban dwellers to take up nature study and motivate them to support conservation. Many citizens who planted saplings as part of the campaign by Iamgurgaon are now happy to see the tall green trees in the forest. An amphitheatre, made from naturally available materials that also contributes to water recharge, hosts cultural shows. The Municipal Corporation of Gurgaon organises musical events thrice a year and various groups also hold their meetings
here regularly. To avoid any type of encroachment and other misuse of the forest lands, Iamgurgaon is motivating the Municipal Corporation, Gurgaon to fence the entire forest. Several corporate agencies are also part of this campaign and supported this regeneration of forest and biodiversity. Prominent agencies that support this process were - Genpact, KPMG, Sentiss, Coca-Cola.

Over a period of time, Iamgurgaon team stabilized the protocols of developing green cover. Each year, they plan well in advance about the plantation program. Earlier, Iamgurgaon was approaching several donors/corporates for financial support. Over a period of time, the situation changed. Now the donors/corporates approach Iamgurgaon and become supporters of the programs of Iamgurgaon, by providing financial assistance. The action plans developed by Iamgurgaon come handy for this collaboration. Both Iamgurgaon and corporates know where they could contribute. The project planning is meticulous and results are tangible. Each plantation project is at least for 3 years. A typical plant may require 650 Rs for the entire project period. This cost covers – plant material; labour costs for planting/watering/maintenance; watch & ward; replacement of plants. There are also special projects such as developing nurseries with specific trees; water supply systems (drips/sprinklers) and so on. As plantation is organized during the monsoon, several members form corporate agencies; citizens and other committed individuals are mobilized during this period. The volunteer days/hours are properly channelled to see that each volunteer’s time is productively used. This protocol gives tremendous satisfaction to the citizens and also members of corporates as they could productively contribute to the greening process in their own neighbourhood.

Iamgurgaon is also in the process of developing an action plan for conserving water resources of this block so that the entire block is rich in
all kinds of natural resources including water. The action plans aims at revitalizing the streams and water bodies within the forest. Iamgurgaon is synonymous with green cover and Aravali Biodiversity Park now....

It is interesting to see how urban dwellers are finding ways to improve their neighbourhoods by conserving nature and improving biodiversity. Web surveys and literature on websites indicate that several corporate agencies like Wipro, Infosys, Zensar and others have demonstrated new ways of corporate functioning by improved their own campuses on biodiversity. Employees, citizens, NGOs and Municipal Corporations joined this process and contributed to improve the biodiversity in unexpected urban localities...

Ms Anitha Reddy, M Waseem and MV Rama Chandrudu, WASSAN

Interactions with Ms Latika Thukral, Iamgurgaon, Gurgaon; and Mr Praveen Kumar Soma, Dr Shivraj Dhakal, GBC, Hyderabad.
About Cheriyal Paintings

Shri D Vaikuntam and his family members Mrs. D Vanaja (wife); D Vinay and D Rakesh (sons) are keeping the tradition of Cheriyal Paintings of Telangana state, for generations. All members of the family are engaged in protecting and conserving this rare art form, that is not likely to survive for long. This is the only family in the country that is still engaged in this traditional art form. The Cheriyal Art has a unique character - red color background; vivid presentation of figures (men, women, animals, flowers, plants and others) with unique strokes and style. This art form belongs to "nakashi" form of paintings in India. But Cheriyal paintings contextualized this nakashi format to local Telangana and improvised it, with their unique styles. Apart from paintings and scrolls, Cheriyal Masks are also very attractive and unique with their bright colors and large eyes. D Vaikuntam received several awards from Central/ State governments, for his unique contribution to Cheriyal Art.

D Vaikuntam and his family members agreed to present the key messages of these case studies. They spent time with us to understand the essence of each case study and presented it in their own style. These pictures further enriched the experiences, which are already exemplary in several ways. WASSAN thanks the family of artists of Cheriyal for their support in visualising these case studies.

Pictures of some of the paintings/ scrolls and masks could be seen on this blog:

http://vaikuntamnakash.blogspot.in/
".....In the middle of such despair and misery, there is a hope. "Imprints of Ecological Footprints - A Compilation of Ecologically Sensible Good Practices" is a compendium of good practices that brings the efforts made by relentless civil society organizations, citizens and community based organizations, to change the direction of the trend. These experiences brought cheer and hope in the lives of thousands of rural, tribal and urban citizens in India, who are part of these experiences. They took a different path that is less travelled and troublesome. There were several challenges, at each step and milestone. But they continued their journey and proved that "producing more with less" is possible. They also ensured that the ecological and environmentally sustainable processes are feasible for improving economic standards and quality of life of poor communities..."Aruna Rangachar Pohl, IFHD, Bangaluru.

"......these experiences are invaluable and are certainly useful for provoking thoughts in the minds of participants of "Leaders for Nature" programs, which is organized by IFHD, IUCN, CII, Wild Life Trust of India, HIVOS and other like-minded organizations. The entire process of producing this compilation was an enriching and fruitful experience. It is a humbling experience for us to learn lessons from the interactions and visits to their villages/ sites. We genuinely believe that this compilation truly enriches the learning processes of "Leaders for Nature" program" - MV Rama Chandrudu, WASSAN