

Green Building Workshop

Held on 15-16th March, 2013 in Gangtok, Sikkim at Namgyal Institute of Tibetology organised by SREDA(Sikkim Renewable Energy Development) and Architects of Sikkim to discuss Alternative Technologies for the hills.

Attended by Sherap N Bhutia, Computer Engineer, ENVIS centre Sikkim on Ecotourism

The world is moving towards building practices which consume less water, less electricity and generate less waste. In Sikkim, our buildings get designed, approved and constructed without considering their impact on the environment. We need to learn more about current global and national trends in sustainable and responsible practices, and their applications to our homes in the hills.

GBW or Green Building Workshop was a two day seminar on Green Buildings and Sustainable Architecture, with a special focus on mountainous regions.

There were seven resource persons invited with proven records to introduce ideas behind green buildings and sustainable architecture. They were from fields as diverse as bamboo architecture to global green rating systems.



The SPEAKERS



PRADEEP SACHDEVA
LANDSCAPE &
URBAN PLANNER



CHITRA K. VISHWANATH
ENGINEER &
ARCHITECT



S. VISHWANATH
ENGINEER &
URBAN WATER
SYSTEMS EXPERT



Regenerative Technologies Inc. 919 449



VIVEK GILANI
ENVIRONMENTAL
ENGINEER AND
GREEN RATINGS
AUDITOR



DIDI CONTRACTOR
ARTIST AND
ARCHITECT



RICHARD BELHO
ARCHITECT AND
BAMBOO SPECIALIST



APOORV VIJ
ARCHITECT AND
GREEN RATINGS
AUDITOR

Day 1 & 2

The workshop was initiated by Dr.Sandeep Tambe, Additional Secretary, Rural Management and Development Department, Government of Sikkim, and he contributed on some facts of Sikkim,

- Sikkim has 30% of protected areas which is the highest anywhere in India
- There is 100% sanitation in Sikkim
- The grazing of animals in the Forest has been banned, thus increasing the forest cover and propagating less shy animals like the endangered Blue Sheep
- Sikkim's annual 10 minutes to Earth has been a success here
- There should be more social networking of engineers and accreditation to green engineers should be initiated in the state along with green buildings in Gangtok

Vivek Gilani spoke about the no2co2 project;

- 'Carbon Footprint' is a measure of the total quantity of gaseous emissions of Green House gases emitted by an individual or entity in one year; directly(such as by burning fuel), or indirectly(through consumption of electrical energy, products or services).
- Indian Reality

INDIA AVERAGE	1.6 TONNES CO₂e PER PERSON PER ANNUM
WORLD AVERAGE	3.9 TONNES CO₂e PER PERSON PER ANNUM
USA AVERAGE	19.6 TONNES CO₂e PER PERSON PER ANNUM
Sustainable Footprint (by 2050)	1.7 TONNES CO₂e PER PERSON PER ANNUM

- No2co2 research findings:
No2co2's sampling of carbon footprints of upper middle class citizens in Indian cities through India's first scientifically approved carbon footprint calculator, has confirmed that footprints of most individuals who use AC's, drive to work, fly domestically and internationally are on par with those of Western European and North American citizens.

- Indian Reality: Context

India's stance:
"As most of the CO₂ currently in the atmosphere was generated due to the consumption habits of the citizens of the developed world, and as India's per capita emission is still much lower than the global average, it is not incumbent upon India to accept any binding emission reduction targets"

But the Indian Reality is:
Highlights from '**HIDING BEHIND THE POOR**', Published by Greenpeace India and supported by market research conducted by IMRS market intelligence agency, Bangalore, in 2007:

- The significant carbon footprint of a relatively small wealthy class (1% of the population) in the country, is camouflaged by the 823 million poor population of the country, who keep the overall per capita emissions below 2 tonnes CO₂ per annum.
- The carbon footprint of the 4 highest income classes earning > Rs 8,000 per month, representing 150 million people, already exceeds sustainable levels

- Indian reality: Proposed Action

INDIA & UNFCCC: Final document @15th Session of the Conference of Parties (COP-15) to UNFCCC at Copenhagen (Dec 2009): Mitigation proposal by India - 20% Reduction in GDP Intensity over 2005 levels by 2020. Consequent required mitigation per year (over 2005 levels) = **64 Million Tonnes CO₂e.**

**NAPCC stands for National Action Plan for Climate Change

Indian Reality: Proposed Action

Global GOAL

- Average global carbon footprint needs to be halved (50% reduction) by the year 2050 if temperature rise is to be restricted to 2°C (the maximum permissible safe temperature rise)

- **15 Billion Tonnes of CO₂e reduction per year**

Indian Commitment GOAL

- **64 million Tonnes of CO₂e reduction per year**

- *that's 21,333,333 homes with no electricity per year*

- *that's 250 million trees to be planted per year*

- *that's 1600 IPLs to be erased every year*

3rd reality check:

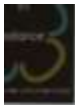
Economic

OR

Environmental

Development

(it's a *illusory* choice)



Environmental Economics provocative thoughts

- Gamcha vs. Luxury Towels: Both are economic activities
- Price of water in a bottle of Aquafina – Green Accounting
- Fallacy of payback period paradigm: what is the payback period of a electric geyser
- Green Greed – Hummer vs. REVA, Jaguar Fittings vs. Low Flow Faucets

4th reality check: the **Carbon Neutral** Myth

Other points and facts by the speaker Vivek Gilani

- 17% pesticides is designed for cotton, hence cotton is much less greener than polyster, if we were to coinsider if using polyster is not green
- Carbon Footprint is the metric for measuring green, and its unit is CO₂E (where E stands for methane 'CH₄')
- Climate Change is a humanitarian issue, not just an environmental issue

Pradeep Sachdeva (Landscape & Urban Planner)

- The use of para-transport (auto rikshaw, shared taxis) has to be encouraged
- 'right of way'
- He was critical of the expensive pedestrian overbridge, doesn't work for elderly people
- High ceilinged toilets for aeration
- [PSDA studio]

S Vishwanath (Engineer & Urban water systems expert)

- Sikkim is one of the most water rich places in the world, water is an asset here
- Harvest rain water for the toilets
- Water Check can be done using H₂S strip test for the bacteria - e.coli. Using the H₂S strip, if water is brown then its safe, if black then it contains e.coli.

Richard Belho: (Bamboo expert & Architect)

- Create, connect and sustain
- Distribution of money among the stake holders
- Bamboo can be used for making wedding pavilion,etc

Apoorv Vij ☺ (Architect and Green ratings Auditor)

- We can ape the west, but should it be done?
Well firstly, the population here is too large(i.e. per square meter) to ape the west
- The unit for Environmental Performance Index (EPI) is kWh/sq.m/year
- Gurgaon touted as the Millenium City is not living upto it, its choking electricity for instance
- What is green building?
Simplest answer can be 'minimal impact on site and surrounding'
- Maharashtra drought : conflict between agriculture and urbanisation (building consuming agriculture water)
- 'What gets measured gets managed'
- Green buildings for hills should have heat retention, insulation for windows, insulation for floors
- There should be no windows in the North/East side but on the South/West.
- For medium sized buildings rating is done through SVA GRIHA

GRIHA-Green Rating for Integrated Habitat Assessment

Tool to facilitate design, construction, operation of a green building ,and in turnmeasure “greenness” of a building in India



GRIHA



सत्यमेव जयते

What gets measured gets managed

- GRIHA is a versatile rating system



- GRIHALD(Griha Large Developed)

<p>Set of 34 criteria focusing on:</p> <ul style="list-style-type: none"> • Site Planning • Building Design • Energy Efficiency • Water and waste management • Sustainable Building Materials • Occupant Health and comfort 	<p>100 (+4 innovation points) point system with differential weightage on various criteria</p> <table border="0" style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> 51 - 60</td> <td>★</td> </tr> <tr> <td><input type="checkbox"/> 61 - 70</td> <td>★ ★</td> </tr> <tr> <td><input type="checkbox"/> 71 - 80</td> <td>★ ★ ★</td> </tr> <tr> <td><input type="checkbox"/> 81 - 90</td> <td>★ ★ ★ ★</td> </tr> <tr> <td><input type="checkbox"/> 91 - 100</td> <td>★ ★ ★ ★ ★</td> </tr> </table>	<input type="checkbox"/> 51 - 60	★	<input type="checkbox"/> 61 - 70	★ ★	<input type="checkbox"/> 71 - 80	★ ★ ★	<input type="checkbox"/> 81 - 90	★ ★ ★ ★	<input type="checkbox"/> 91 - 100	★ ★ ★ ★ ★
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- GRIHA lays emphasis on 'cost effective strategies' for making green buildings- through INTEGRATED DESIGN APPROACH & good architectural design
- Take into account the site and then decide what it needs or should be done about
- Human comfort should be the top priority
- Website for GRIHA ratings being launched later
- For more information check grihaindia.org

Didi Contractor (Artist and architect)

- When constructing keep things local and to the site
- Use things such that you have control of those things

Contacts:

www.facebook.com/groups/architectsofsikkim

email: architectsofsikkim@yahoo.com

blog: architectsofsikkim.tumblr.com

resource persons:

Apoorv Vij: apoorv.vij@grihaindia.org, vijapoorv@gmail.com

Didi contractor: didi2maa@gmail.com

Pradeep Sachdeva: pradeep@ayanagar.com

Richard Belho: richardbelho@gmail.com

Vivek Gilani: vivek@cbalance.in

Chitra Vishwanathan: chitra@biome-solutions.com

S. Vishwanath: zenrainman2@gmail.com

Check out:

- Ecosan- eco-toilet

- Dailydump.com
- sikkimsprings.org
- #BILTEC, #ECOTEL, #AAC bricks, #corporate tax, #the ugly indian, #green jersey award
- architect in Sikkim: Chetan, paryaran Dixit, Sonam(NID)
- Eco-bricks in Sikkim: maato.sikkim@gmail.com, Praneel Pradhan



#Interactive session in the workshop with resource persons