



## Promoting Sustainable Housing in Nepal

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### Editorial Message



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Effects of climate change are becoming more noticeable in the recent years. The ever growing urban population is demanding more for its basic requirements. The unabated flow of resources to the cities and the unprecedented generation of waste are the challenges to the urban planners and city managers. This is more obvious in Nepal with the urban growth rate perhaps highest (>8% pa) in Asia. In this context the initiative of Green Homes is much appreciated by the municipalities and decision makers in the government. However, the challenge is converting this goodwill gesture into municipal culture. Therefore, UN-Habitat and partners with the financial support of European Union is piloting the Sustainable Production and Consumption initiative to switch the conventional consumption pattern of urban population to more environment-friendly and sustainable consumption. Making the ground for this purpose the Green Homes initiative is educating the 'educated' through training of engineers and architects, exposing the good practices to policy makers and managers, and building scope for the SMEs to invest and work in the sector by addressing their bottle-necks of businesses through training the human resource, and convincing the customers to go green. At policy level policies and guidelines are being developed while the municipalities are convinced to subsidize the green products and services after realizing the long term benefit they gain.

The activities of second year of Green Homes, therefore is focused on adding the building blocks on the foundation laid by bringing the municipalities and government offices on board. The welcoming of the ideas by common people and the decision makers in the array of expositions and displays gives us strength and motivation of doing even better and wider in the days to come.

### COMPONENTS OF GREEN HOMES

#### GREEN CONSTRUCTION MATERIALS:

Construction materials that have less embodied energy and less carbon footprint will be promoted for housing purpose.



#### PASSIVE SOLAR DESIGN:

Utilizing natural light, heat and ventilation while wisely designing the houses using locational advantage helps to reduce energy conservation, create healthy environment.



#### ENERGY EFFICIENCY:

Utilizing solar and other alternative energy that are cleaner and selection of energy efficient equipments and appliances, and practicing energy saving practices.



#### WATER CONSERVATION:

Rain water harvesting, recharging ground and judicious use of water giving less stress to water sources.



#### WASTE MANAGEMENT:

3R for solid waste management, recycling and reusing of grey water and utilizing by-products of waste materials.



## ACHIEVEMENTS

### Green Building Code

Department of Urban Development and Building Construction (DUDBC) has included in their plan to prepare a "Green Building Code" with allocation of budget.

### Incentive Mechanism in Municipalities

All the three municipalities - Lalitpur Sub-Metropolitan City (LSMC), Pokhara Sub-Metropolitan City (PSMC) and Dharan Sub-Metropolitan City (DSMC) have incorporated sustainable housing components in their plans. The municipalities have also designed incentive mechanisms for sustainable housing promotion in these cities.

PSMC and DSMC declared to provide 10% and 50% reduction in building permit fee respectively. In addition, DSMC approved a provision to shorten the building permit process for green building and financial incentive for installation of rainwater harvesting and solar system. Likewise, LSMC announced acknowledgement by prize and certification for those house owners who incorporate Green building components.



### Pokhara Concrete Block Industries Association (PCBIA)

The Project in coordination with PSMC and Pokhara Chamber of Commerce and Industries (PCCI) facilitated to formalize PCBIA consisting of 35 Hollow Concrete Block (HCB) entrepreneurs from Pokhara.



# EVENTS

## National Industrial Trade Fair at Pokhara

On Nov 20-30, 2014, the project with local SMEs especially Pokhara Concrete Block Industries Association participated in Pokhara National Industrial Trade Fair organized by FNCCI and PCCI. Visitors were found in keen learning on sustainable housing services and technologies.



## Participation in Switch Asia Project Meeting

Mr. Padma Sunder Joshi, Team Leader, and Dr. Santosh Shrestha, Sustainable Housing Analyst of the project participated in SWITCH-Asia project partner meeting for "Cleaner Production for Liveable Cities" in Kunming, China on June 17-19, 2014. Mr. Joshi shared the learning of the project initiatives and its impact in Nepali society with the participants.



## Sharing Green Homes Initiation in Asian Institution Technology (AIT)

Dr. Santosh Shrestha, Sustainable Housing Analyst shared the Green Homes initiative in Nepal at a workshop on "Innovative and Cost-effective Solutions for Cleaner, Greener, and Safer Communities" organized by AIT on Nov. 27-28. Seventy participants from 30 organizations of eight countries participated in the program.



## Talk Program on Green Building Design



Dr. Vincent Kitio, Chief of Urban Energy Branch, UN-Habitat, Nairobi gave a talk on Green Building Design in Kathmandu on 14 August, 2014 and in Pokhara on 18 August 2014 respectively. Senior government officials, European Union representative, professors, local buildings designers, municipality engineers and students from academia and professionals participated in these programme. The program in Kathmandu hosted jointly by UN-Habitat and Department of Urban Development and Building Construction was chaired by Mr. Sunil Karna, Deputy Director General, DUDBC.

During talk program, Dr. Kitio highlighted the global urbanization trend, energy crisis and the importance of green building and green cities. Dr. Kitio also advocated UN-Habitat's agenda of planning compact and mixed cities which intend to control sprawl and use vertical space efficiently thereby bringing energy and resource efficiency.



## UN-Day Celebration Program

On the occasion of 69th UN-Day celebration, the project displayed the Green Homes Model on 30, October, 2014. During the program, the project provided information on sustainable housing services and technologies.

Guest of the programme, Vice Chairperson of Constitutions Assembly (CA), Honorable Ms. Onsari Garti, Former Finance Minister Mr. Barsaman Pun, senior government officers and general public visited the stalls and interacted with Green Homes team.





# ACTIVITIES

## Designers Training on Sustainable Housing

With the aim of capacity building and to promote sustainable housing approach, the project in association with Ministry of Federal Affairs and Local Development (MoFALD), PSMC and DSMC organized Designers Trainings on Sustainable Housing in Pokhara and Dharan.

**Dharan :** Thirty participants from local engineering consultancies, municipal engineers from Dharan, Itahari and Dhankuta, Purbanchal Engineering campus and local freelancer building designers participated on Oct. 14-18, 2014. The 5-days programme was included all the components of Green Homes – passive solar design, sustainable construction materials, energy efficiency, water conservation and waste management as well as green labeling system. On the last day, a field visit was organized to observe green school building, which built by compressed stabilized earth block (CSEB) and a waste water treatment system.

**Pokhara :** Twenty-seven participants from local engineering consultancy firms, Nepal Engineers' Association Pokhara Chapter and municipal engineers from PSMC and Lekhnath Municipality participated in the three days residential programme at Bandipur Tanahu on Dec 8-10, 2014. The training programme was focused on two components of green homes – passive solar design and sustainable construction materials. A field visit was organized to observe a green construction materials production especially CSEB and HCB and a housing with cost effective technologies.



## Green Jobs Training

To create green jobs for local people focusing on urban youth and women, the project organized trainings on green homes components in coordination with municipalities and local stakeholders.

### Dharan:

#### Training on Water Management and Solar Installation at Household level

A five-day hands-on training on solar fitting, rain water harvesting and waste water treatment at household level was conducted in association with DSMC in Dharan. Twenty four electricians, twenty plumber and ten masons participated in the training program. The training was divided into two different sessions. First three days was focused on solar installation for electricians and last two days dedicated to rainwater harvesting, waste water treatment systems at house-hold for plumbers and masons.

### Lalitpur

#### Training on Water and Waste Management through Rooftop Farming

A training on water and waste management at household through roof top farming was conducted in association with LSMC on July 23-26 2014. Forty participants from informal settlements of Lalitpur including thirty women participated. The training has helped to provide hands on skills and knowledge on roof top farming techniques along with water and wastewater management at household level.

#### Training on Energy Efficiency and Solar Installation at Household level

A training on household level energy efficiency and solar fittings was conducted with LSMC on Dec., 4-7, 2014. Twenty participants including six women participated in the training. During training, participants were educated on solar fittings and basic electrical parameters for household level solar installation.

### Pokhara

#### Entrepreneurship Training on Hollow Concrete Block

The project along with PSMC and with the technical support from Sustainable Construction Practice (SCP) organized two day entrepreneurship training on hollow concrete block. Twenty-six participants from 19 HCB entrepreneurs participated from Pokhara.

The training helped participants acquire skills on production of HCB by maintaining concrete mix ratio, water content, selection of appropriate materials and required lab testing to check strength of HCB.



## Orientation Training Program for Journalist

Orientation programmes on sustainable housing for journalists were conducted in Pokhara with PSMC on Nov. 19, 2014 and in Dharan with DSMC and Sunsari Federation of Nepali Journalists on Dec. 16, 2014. Forty-seven journalists from Pokhara and thirty-six senior journalists from Sunsari Districts were participated in these programmes. The main objectives of these programs were to orient the local journalists on project goals, its activities and approaches as well as to explore role of media to promote green homes in Nepal especially in Pokhara and Dharan.



# ACTIVITIES

## Orientation Programme for SMEs

**Pokhara:** On July 25, 2014 in coordination with PSMC, Federation of Chamber of Commerce and Industries and PCCI, an orientation programme for SMEs was organized. The main objectives of the programme was to orient local SMEs on Green Homes projects goal and its activities, and to discuss on problems, challenges and opportunities of HCB business in Pokhara.

**Dharan:** On Dec. 17, 2014, an orientation for SMEs was organized with DSMC, FNCCI, Sunsari Chamber of Commerce and Industries to orient project goals, its activities, and DSMC's plan and incentive mechanism to promote sustainable housing in Dharan. Thirty-nine SMEs from Sunsari District participated to discuss on opportunities and challenges of green business in Nepal.



## Municipal Planning Workshop

**Lalitpur:** On June 24, 2014, the project along with LSMC and implementing partners organized one day municipal planning workshop. Sixty-one participants including municipal staffs, representative from NGOs, professional organizations took part in the program. The program was organized to discuss and develop activities and possible incentive mechanism to promote green homes at municipality level.



## Research on Sustainable Housing

Researches on "Quality and Construction Techniques of alternative sustainable building materials especially HCB and CSEB" as well as Energy Auditing in Household Level are ongoing in coordination with DUDBC and Institute of Engineering (IoE).

The main objective of these researches is to provide necessary supporting data to improve performance and quality of Green Homes components and ultimately assist in developing green building design guidelines. These researches outcomes are expected to provide essential base to standardization HCB production and its use in building construction. Similarly, the findings of energy auditing will provide techniques to improve energy efficiency at household level. These researches will support to complete four different Masters level theses.



# MEDIA HIGHLIGHTS

National and local medias of Nepal highlighted Green Homes project activities through electronic/ print forms. The media has shown their great cooperation and solidarity to promote of sustainable housing in Nepal. Several news articles, talk programs in national and local TV and Radio on sustainable housing were conducted in coordination with various national and local media partners. These media coverage are supporting to aware municipal population on sustainable housing.

### News24 Television



Exclusive Talk show with Mr. Padma Sunder Joshi, HPM, UN-Habitat on News24 Television.  
Theme: "Sustainable Housing in Nepal"

### Pokhara UN Habitat gaining popularity: Stakeholders



### Kantipur FM 96.1



Radio talk program with Dr. Santosh Shrestha, Sustainable Housing Analyst, on Kantipur FM  
Theme: "Sustainable Housing in Nepal"

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