



International Expert Group Meeting on Sustainable Housing

15 – 16 December 2011

Meeting proceedings

Executive Summary

The convergence of rapid urbanisation occurring in many developing countries is placing enormous pressure on urban land and housing. In addition, the increasing global population, the need for poverty alleviation and the impacts of climate change require improving the sustainability of existing and new housing in developing countries. The production of thoughtfully designed, affordable and sustainable housing and settlements through improved knowledge, cooperation, and policies and programmes presents the world with a timely opportunity to ensure housing is environmentally, socially, culturally and economically positive for all.

The International Expert Group Meeting on Sustainable Housing was held at UN-HABITAT headquarters in Nairobi on 15th and 16th of December, 2011. The event introduced UN-HABITAT's new initiative, *i-HOUSE: Housing Sustainability*, which focuses on the sustainability of affordable housing in developing countries. *i-HOUSE* responds to the pressing need to develop knowledge, raise awareness, and improve the ability of housing sector stakeholders to develop new, and scale-up existing, sustainable housing practices.

The position paper on sustainable housing, *i-HOUSE*, recognises that 'sustainability' in developing countries must be approached more broadly than a exclusive focus on environmental dimensions, such as energy efficiency. It is, therefore, underpinned by a view of sustainability that has four pillars: environmental, economic, social and cultural, where environmental aspects are to be balanced by these other dimensions.

This international EGM had for objective to discuss the conceptual framework and programmatic proposals formulated in the *i-HOUSE* position paper on housing sustainability, by bringing together world leading experts and institutions working in the field of green buildings, housing design and housing sustainability with a specific focus on indigenous building materials and traditional building practices in the context of slum upgrading, affordable housing, and post-crisis housing.

As a main outcome, the EGM contributed to discuss and propose recommendations and way forward to implement the *i-HOUSE* proposal (1), formulating a roadmap for sustainable housing solutions worldwide. Overall, the recommendations are supporting the concept of sustainable housing as defined in the position paper and encourage UN-HABITAT to take the lead in constituting a Global Network of partner institutions to promote sustainable housing (2). The EGM also welcomed the proposal of developing an on-line platform for sharing knowledge and sustainable housing practices, *i-BUILD* (3), and the experts provided substantial inputs to the proposed draft 'Quick Policy Guide on Sustainable Housing' (4) produced by UN-HABITAT.

1. In particular, the experts reflected on the concept of sustainable housing and the priority areas formulated in the *i-HOUSE* position paper and identified the following niches and areas of interest:
 - The experts agree on the need to define the concept of sustainable housing in emergency and recovery contexts.
 - The experts note that concept of sustainability depends on the context and implies flexible and incremental housing solutions. *i-HOUSE* should advocate for permanent housing solutions in post-crisis context.
 - The experts consider *i-HOUSE* shall promote a paradigm shift in thinking of international community on post-crisis shelter/housing, through (i) early response, (ii) urban tools, (iii) post-disaster with a development perspective.
 - The experts encourage *i-HOUSE* to collect, identify and share best practices on concrete technologies and 'know-how' to illustrate sustainable and affordable housing solutions (practices including prototypes, policies and guides) and to identify the target groups and their needs.
 - *i-HOUSE* should contribute to define a common agreed language on sustainable housing and to develop a multilingual lexical.

- The experts welcome the participatory approach and process promoted by i-HOUSE as a key element to ensure the sustainability of housing projects, in particular by promoting traditional knowledge and bottom-up approach to tap the local knowledge from communities, slum dwellers and the most vulnerable.
 - The experts acknowledge that i-HOUSE should contribute to demonstrate the social utility of research and strengthen the linkage in-between field study, research and participation in the field of sustainable housing.
 - The experts encourage i-HOUSE to develop special tools and mechanisms to extract the best of the existing knowledge, by developing certification tools, standards and mechanisms of local knowledge for sustainable housing (to deliver awards and motivate implementation of sustainable housing practices), and by producing quick and easy adapted guides to evaluate the life cycle of traditional and low-income housing structures and buildings.
 - The experts note i-HOUSE should formulate and insert indicators in documented practices on i-BUILD.
 - The experts recommend modifying the project titles of the sustainable housing initiative (i-HOUSE) and the online knowledge platform (i-BUILD) and will formulate proposals to UN-HABITAT.
 - The experts welcome the cultural dimension of sustainable development promoted by i-HOUSE as an essential element of sustainable housing.
2. The EGM was also a unique opportunity to lay the foundations for a Global Network for Sustainable Housing (GNSH). It was proposed to constitute a Global Network for Sustainable Housing (GNSH) that will include leading institutions involved in sustainable housing practices and green housing projects worldwide. The EGM strongly supported the idea of constituting GNSH. It was envisaged that the GNSH will play a major role, and lead to global change particularly in the context of slum upgrading, affordable housing, and post-crisis housing. Participants working group discussions contributed to formulate the structure, scope and objectives of the GNSH, and to identify potential founding members of the Network. The following recommendations were made:
- The experts agree that the development of the Network should proceed, led by UN-HABITAT but in coordination with potential founding Network partners (organisations represented at the EGM).
 - The experts note that, along with detailed development of the Network project proposal, short term 'quick wins' can be initiated to begin the process of connecting partners and collaborating.
 - The experts request that a follow-up meeting should be scheduled for the World Urban Forum in September 2012. This meeting should allow time for managerial aspects of the Network as well as exchange and dialogue on substantive aspects of the work area, in particular reflection on the 'quick win' projects.
 - UN-HABITAT should consider how EGM organisations can contribute to the Quick Policy Guide to Sustainable Housing, to make this a joint effort that reflects and reinforces the Network.
 - All organisations' representatives recommended UN-HABITAT assumes the short-term leadership for further developing the Network.
3. The EGM also discussed and provided inputs to the proposed i-BUILD initiative, an online knowledge resource centre to share experiences and practices and to build a global community of practice for housing sustainability and knowledge sharing, hosted on the UN-HABITAT Urban Gateway in the field of sustainable housing worldwide. The experts identified the following gaps which i-BUILD should address:
- Information exists but is fragmented and not easily available for users and target groups, including end-users.
 - Need for increased Peer-to-Peer learning.
 - Lack of information about sustainable housing practices.
 - Fragmentation of sources of information.

- Need for on-line availability of ongoing projects and lessons learnt that can enable ‘twinning’ and match making.
 - Materials, techniques and technologies on particular contexts, such as hands on instructions, are not available.
 - Need for YouTube kind of videos and demonstrations.
 - Lack of information on limits of technologies applications.
 - Need for guidelines to provide reliable info about materials potentials and limitations.
 - No overview of the sector: conferences, books, reports, events and announcements.
 - i-BUILD can be a ‘market place’ where to look for expertise on building codes, norms and standards, etc.
 - i-BUILD shall provide profiles of organisations and experts.
4. Finally, Participants also reflected and commented on the draft ‘Quick Policy Guide on Sustainable Housing’ produced by UN-HABITAT. A special session provided time to reflect of the draft content and structure, to refine its scope and focus, and provide additional inputs, including case studies, references and field experiences.

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Part One: Background to the EGM

1. Background: Urbanisation, housing and environmental sustainability

The challenges of an urbanising world

The year 2007 marked an historic milestone: more than half of the global population lived in cities¹. This shift, however, from rural-based societies to urban societies has been ongoing for the last century, evidenced in the shift of people from smaller towns and villages to cities and urban areas that have expanded as a result of this population influx. While the process of urbanisation brings with it many positive benefits and opportunities, rapid and sustained urbanisation also places enormous pressure on adequate, affordable and sustainable shelter in urban areas.

Nowhere better is this pressure evidenced than in many developing countries today. In many cities in Asia, Africa, Latin America and Eastern Europe, urban growth is synonymous with slum and informal settlement growth, meaning, quite accurately, that urbanisation equals informal housing formation. Due to a combination of poor regulatory frameworks, low incomes, inefficient private real estate markets and a severe lack of flexible financial borrowing opportunities, the urban poor settle in slums and informal settlements, which they largely create outside of the formal sector and external to official regulatory controls.

The scale of this urban informality is immense with one out of every three urban dwellers in the developing world living in slum conditions². Although globally the percentage of slum dwellers is decreasing, the absolute number of slum dwellers is increasing and poses significant long-term challenges to the political stability, social cohesiveness and environmental sustainability of cities.

While over the last decade there have been a multiplicity of responses to addressing this housing challenge, environmental sustainability dimensions have seldom been considered. Slum upgrading programmes often improve public areas of informal slum areas through the provision of infrastructure and access to fuels and sanitation, yet seldom considered the environmental impact of such development. Likewise, government 'social' housing projects have focussed on producing large quantities of standardised affordable units without considering the environmental and social adequacy of such projects. Certainly there is a lack of knowledge, capacity and institutional and regulatory support for mainstreaming sustainability within affordable housing programmes in developing countries. Therefore, the *Shelter Initiative for Climate Change Mitigation and Adaptation* programme (i-HOUSE) aims to address this gap and improve the social, economic and environmental sustainability of housing in developing countries.

Environmental sustainability and climate change

Today there is a virtual consensus across the global scientific community that global warming and climate change is happening and that human activities (especially anthropogenic emissions of greenhouse gases) are having a significant affect in this. Recent studies demonstrate that in order to effectively reduce the likelihood of exceeding the dangerous threshold of a 2°C increase in global mean temperature, the global community must achieve a maximum peak in global emissions in the very near term (i.e. within the years 2015-2025) and manage a dramatic rate of emissions reductions thereafter,³ as dramatic as 6 to 9 per cent per year according to some calculations.⁴ This is a rate of emissions reduction never observed in history (since the industrial revolution) even during the greatest economic depressions and recessions.

¹ UN-HABITAT, 2003; 2009

² UN-HABITAT, 2003.

³ Stern, 2006; IPCC, 2007.

⁴ Anderson & Bows, 2008.

It is also often pointed out that humanity has already surpassed a safe atmospheric concentration of greenhouse gases, making ambitious policy initiatives urgently needed to remedy the problem.⁵ Furthermore, the latent inertia of the earth's climate system is such that existing greenhouse gas concentrations will not have physical impact in full proportion to their potential until sometime in the near future. That is to say, even if all greenhouse gas emissions were to cease today, the earth will continue to experience continued and increasing warming and other climate change impacts for several decades or centuries to come. This means that measures to adapt to the inevitable consequences of climate change are equally urgent to measures in reducing the culpable emissions. This knowledge sets the stage for careful consideration of the options and costs of both climate change mitigation (reducing greenhouse gases) and adaptation (preparing for the inevitable impacts).

Of all human activities, the consumption of energy within the building sector currently represents the greatest source of anthropogenic greenhouse gas emissions. Energy use in buildings and housing account for roughly 40 per cent of all energy consumption and greenhouse gas emissions around the world. While the specific percentage varies slightly from country to country, amongst both developed and developing countries it is generally consistent. For instance, in Indonesia about 40 per cent of total energy consumption and associated greenhouse gas emissions are due to energy consumption in residential buildings which is roughly the same percentage in highly developed countries such as the United States at 35 per cent total energy consumption from buildings.⁶

Although the building sector is a significant contributor to global emissions, it also represents the single largest source of achievable emissions reductions with current technology in the near term across the entire economy.⁷ According to the Intergovernmental Panel on Climate Change (IPCC), a 29 per cent reduction in energy consumption in buildings is technically attainable by the year 2020 at no cost to society.⁸ This means money can be saved and emissions reduced when buildings are designed and constructed with efficiency and sustainability in mind, even by using currently available technologies.⁹ These cost saving and attainable measures would avoid approximately 5 billion tons of greenhouse gas emissions over the next decade.¹⁰ This is more than double the reductions achievable from any other sector at the same cost.¹¹ This reality demonstrates the incredible importance that the building sector and housing have to play in a successful global strategy to mitigate climate change.

Environmental sustainability in developing countries

Although total energy consumption and greenhouse gas emissions attributable to the building sector vary dramatically between developed and developing countries (with developed countries generally contributing far more towards absolute global emissions and energy consumption than developing countries) building sector energy related emissions remain a substantial contributor in virtually every country. Therefore, even in developing countries the building sector offers important opportunities for cost effective emissions reductions. Importantly, the ever increasing need to alleviate poverty, provide adequate housing for disadvantaged peoples and provide alternatives to urban slums in developing

⁵ Hansen et al., 2008.

⁶ Utama & Gheewala, 2009.

⁷ Levine et al., 2007; McKinsey & Co., 2007; Urge-Vorsatz & Novikova, 2008.

⁸ IPCC, 2007.

⁹ Existing technology and current building design knowledge are sufficient to attain these levels of reduction. In the US residential building sector extensive studies have shown that existing technology and human resources can be successfully deployed today to create homes that are near net zero energy consumers, while remaining affordable (Parker, 2009). As well, in Europe growing knowledge and new policy measures are harnessing this potential through zero carbon housing mandates to be attained by 2016 in the UK and a broader energy efficiency target of a 20 per cent increase in efficiency by 2020 in the EU which focuses on energy efficiency labelling for buildings and other policies.

¹⁰ Urge-Vorsatz, et. al., 2007; Urge-Vorsatz & Novikova, 2008; IPCC, 2007.

¹¹ Urge-Vorsatz & Novikova, 2008; IPCC, 2007.

countries demonstrates a critical tension between the need to increase energy access to the world's poor and simultaneously reduce emissions on the global scale.

In developing countries the rate of growth in the construction and housing industries is rapidly increasing and for emerging countries the rate exceeds that of developed countries. Expected growth rates in China foretell the addition of newly constructed buildings equal in total floor space to the entirety of the current US building sector. In other words, China will be building new cities and towns in the near future equal to the existing size of all US cities and towns today. This level of new construction is expected to be accomplished as rapidly as by the end of the next decade. China is expected to produce one billion square meters of new construction annually for the next 15 years.¹² At this magnitude, if new buildings and housing in emerging economies fail to be the most energy efficient and sustainable as possible, the globe faces a multi-decade lock-in of dangerous energy consumption patterning which will certainly aggravate economic and environmental challenges.

These incredible rates of growth in emerging economies and the persistent need to alleviate poverty and provide pathways for sustainable development pose interesting challenges in light of the urgency of reducing greenhouse gas emissions related to energy consumption in housing and the building sector at large. The enormous need to increase the provision of adequate housing to millions of disadvantaged peoples in developing countries, and the incredible rates of growth emerging economies are experiencing today creates an urgency to provide tools, resources and expertise in sustainable development efforts which will improve peoples' access to basic energy and infrastructure and simultaneously address climate change in cost effective ways.

In order to achieve the fundamental shifts needed to adequately mitigate global climate change across the broader economy, the building sector, because of the affordable, achievable, time perishable and substantial quantity of emissions reductions associated with it, must be strategically targeted by policy makers and the business community in order to capture the maximum potential of affordable emissions reductions as quickly as possible. And every opportunity to achieve maximum emissions reduction possibilities must be capitalised upon. This is as true in the context of sustainable development and sustainable housing in developing countries, as it is in the developed world.

Housing and sustainability in developing countries

Housing in developing countries is an opportune setting to achieve the mutually beneficial goals of climate change mitigation, adaptation/resilience and sustainable development. While increasing energy access to the least advantaged sustainable development efforts must provide water and sanitation infrastructure, without increasing-and in fact, dramatically decreasing-the greenhouse gas footprint of the global building sector. Affordable sustainable housing policies and methods have been proven to provide multiple benefits across multiple aspects which support the improvement of peoples' lives, their livelihoods and the greater environment.

The focus needs to be on strategies which synergistically provide *reductions in greenhouse gas emissions* attributable to housing across their life cycle, *climate adaptive capacity* through durability and resilience to changing climatic impacts such as flooding, extreme storms and extreme heat, and simultaneously provide *social benefits and other co-benefits* in the form of improved quality of life, poverty alleviation, environmental protection and improved health and safety.

Sustainability dimensions of pro-poor housing have received very little attention to date. In order to address the problem of slums, some countries are focusing on the development of formal 'social' housing to replace slums with more permanent, serviced and durable housing. In other countries, in-situ slum upgrading is the norm (Figure 1).

¹² FGEE, 2003.

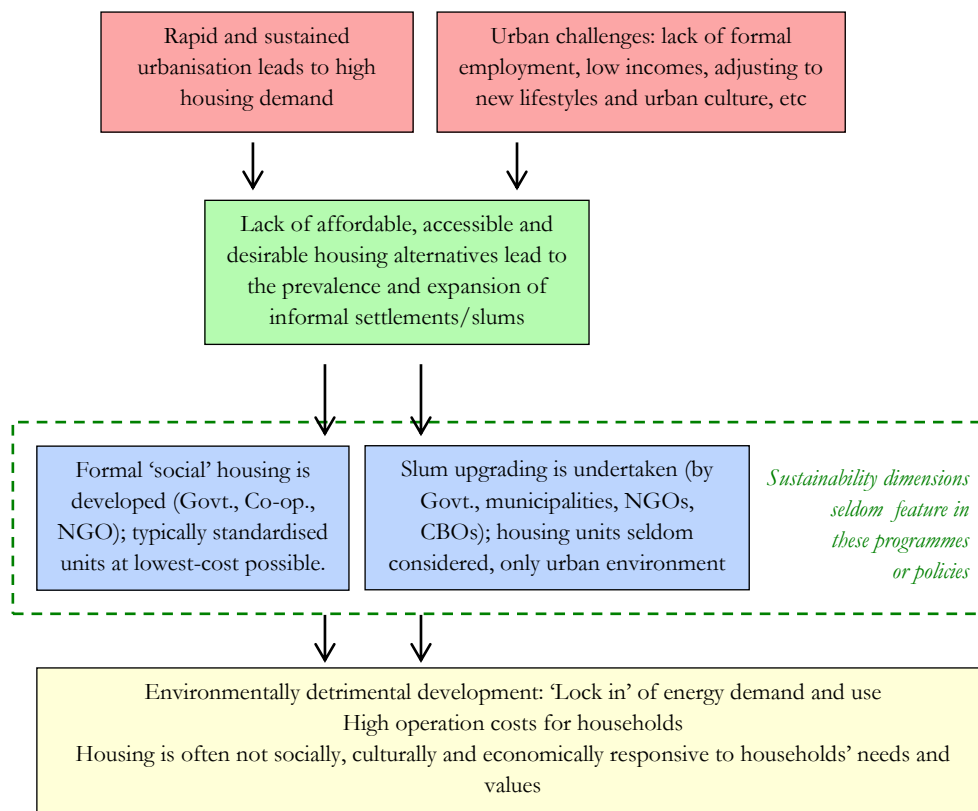


Figure 1: Situation analysis identifying the need to mainstream sustainability in low-cost housing development.

Embracing regional diversity

i-HOUSE aims to respond to the regional variation in situations, priorities, circumstances and needs. The opportunities and constraints for mainstreaming sustainability in low-income housing programmes in developing countries vary between regions. Regions and countries vary in terms of urbanisation rates, poverty levels, natural and built environment characteristics, and socio-cultural traditions. Common to all countries and regions, however, is the lack of consideration of sustainability dimensions in low-income housing programmes and policies.

In Africa, for example, the Ethiopia Integrated Housing Development programme is replacing inner-city slums with multi-storey condominium housing, with a focus on employment generation, enterprise, and poverty reduction. While the project is successful in many respects, the environmental and cultural sustainability of this housing programme has received little attention to date¹³. Condominium buildings are developed without consideration of such aspects as local ecosystems, micro-climatic conditions, embodied energy, operational energy use, as well as residents' cultural traditions, lifestyles and activities.

In most Latin American countries in-situ slum upgrading is the norm, yet sustainability dimensions, if they exist at all, are added on as 'extras' rather than mainstreamed within such programmes. Programmes focus on improving the spatial inclusion of informal settlement residents with the formal city, improving urban services and infrastructure, providing public space, land titling, and community facilities. The *Favela Barrio* programme in Brazil and Medellín's (Columbia) urban mobility strategy are two notable examples.

Asian countries employ a range of low-income housing strategies, ranging from complete slum replacement (for example, in China) to slum upgrading (for example, in many South East Asian

¹³ UN-HABITAT (2011) *Condominium housing in Ethiopia: the Integrated Housing Development Programme*. UN-HABITAT: Nairobi.

countries)¹⁴. China faces a similar challenge as Ethiopia in terms of improving the environmental sustainability of its publicly produced housing, which is especially important given the vast scale of construction. Likewise, slum upgrading approaches that are more participatory, such as the Baan Mankong programme in Thailand, more successfully address socio-cultural and economic sustainability dimensions, yet still have far to go to make their development environmentally sustainable.

In the UNECE region, progress is being made to upgrade the large stock of multi-storey post-war housing, which is in poor condition and requires urgent upgrading. Central for many upgrading schemes is improving the operational energy efficiency of housing through retrofitting buildings with innovative building technologies and materials. For example, two programmes in the Czech Republic aim to rehabilitate multi-storey panel housing blocks with a specific focus on energy efficiency retrofitting through the installation of insulation, better-quality windows and improving construction tightness¹⁵. Such physical housing improvements can reduce household expenditure on energy (for example for space heating), which is hugely beneficial for low-income households, as well as reduce energy dependence and demand, with positive knock-on effects for emissions reductions and national energy demand and security. The urgent challenge for UNECE countries, as well as the vast majority of developing countries, remains the need to mainstream sustainability within housing programmes and policy to ensure future housing development positively contributes to a more sustainable future.

a. Focus, aims, and objectives of i-HOUSE

Focus area:

The main focus of i-HOUSE is the sustainability (environmental, social, cultural and economic) of low-income housing in developing world.

Aim:

The overall aim of i-HOUSE is to **encourage the production of environmentally sustainable and affordable housing for slum upgrading and prevention programmes in developing countries**. i-HOUSE aims to promote the use of energy-efficient and low greenhouse gas emitting building materials, construction technologies and dwelling and neighbourhood design, in order to mitigate climate change and to contribute to the improvement of the living conditions of low-income households.

Objectives:

i-HOUSE has four principal objectives:

- 1. Strengthen the capacity of urban slum dwellers, identified vulnerable groups, private sector, policymakers and housing developers** to contribute to the adaptation to and mitigation of climate change, through developing and promoting alternative, energy-efficient and low greenhouse gas emitting energy sources, construction technologies, and housing design.
- 2. Support the development of field projects, policies and regulations** in selected pilot countries that mitigate climate change at national and local levels (Ministries of Housing and construction, Ministries of Environment and municipalities, etc), by providing guidelines, with a special focus on the urban poor and the most vulnerable groups, through action research and business partnerships.
- 3. Raise awareness** and improve the understanding of the impact of the domestic uses of energies, building materials and construction technologies on climate change.

¹⁴ UN-HABITAT (forthcoming) *Affordable land and housing in Asia. Regional Affordable land and housing series*. Vol 2. UN-HABITAT: Nairobi.

¹⁵ UN-HABITAT (forthcoming) *Affordable land and housing in UNECE countries. Regional Affordable land and housing series*. Vol 4. UN-HABITAT: Nairobi.

4. Inform policy processes on climate vulnerability adaptation and mitigation based on the lessons learned from pilot activities. This will include recommendations to encourage alternative sources of domestic energies, building materials and technologies and to explore possible instruments including carbon credits, taxation mechanisms, climate mitigation controls in the process of granting building permits etc.

b. Conceptual underpinnings guiding i-HOUSE

Sustainability

Sustainability is an often-overused word that has different meanings for different people. It is therefore important to define ‘sustainability’, sustainable development, as used, and which underpins i-HOUSE. To ‘sustain’ is defined by the Oxford English Dictionary as ‘to maintain, support, or endure’ and this is the basis of the most widely used definition of sustainable development from the Brundtland Commission of the United Nations, defined in 1987 as: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition reflects the general usage which concerns ecology and the carrying capacity of the earth, as noted in the IUCN/UNEP/WWF definition: “sustainability is improving the quality of human life while living within the carrying capacity of supporting eco-systems”.

i-HOUSE is underpinned by a common but broader conceptualization of sustainability, which refers to three main pillars: social, environmental and economic. Sustainability is where these pillars intersect (Figure 2).¹⁶ Furthermore, i-HOUSE recognises that cultural diversity is also important and is therefore considered the fourth pillar of sustainability, as promoted in *The Universal Declaration on Cultural Diversity* (UNESCO, 2001): “Cultural diversity is as necessary for humankind as biodiversity is for nature” It is important to be “one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence”.

Therefore rather than a narrow focus on only environmental sustainability, i-HOUSE focuses on the four pillars of sustainability: social, cultural, economic and environmental. Sustainable development is more than just ecologically sound development. Economic, social, and cultural sustainability are also fundamental and indeed these are particularly important for housing and human settlements that both manifest, and in turn configure, socio-cultural ideas, values, meanings and worldviews.

¹⁶ United Nations, (2005) World Summit.

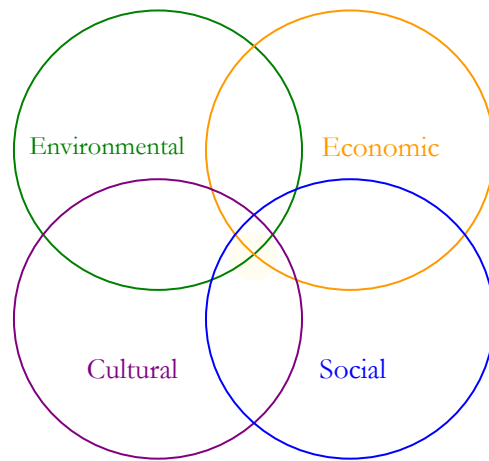


Figure 2: The four pillars of sustainability underpinning i-HOUSE.

A framework of sustainability for affordable shelter in developing countries

The i-HOUSE programme is guided by a conceptual framework that outlines key dimensions of sustainability for affordable shelter options in developing countries. The framework responds to the following question: What are the factors that shape the sustainability of affordable shelter in developing countries? It is not exhaustive but outlines the key components that underpin i-HOUSE, and it has been developed with a view to practice ‘on the ground’ rather than to be an abstract theoretical model in itself.

Housing is central to i-HOUSE and so our starting point for conceptualising housing is the multi-dimensional framework of Acioly (1994; 2003). A housing sector is comprised of five key elements: land, infrastructure, finance, labour and building materials. These components are configured by four external forces: strategies, policies, instruments (e.g. pricing, etc), and actions (activities, programmes, etc). These four forces are undertaken within institutional, and legal and regulatory frameworks. Therefore, the supply, demand and pricing of housing is configured by these inter-dependant components: the availability and price of the five elements and the institutional and regulatory setting.

Certainly at the macro-theoretical level the housing sector can be conceptualised this way, yet this model does not explicitly account for such things as socio-cultural aspects of housing (for example, differences in households’ preferences, needs, wants, etc), nor does it explicitly account for environmental sustainability of buildings, both in construction and in use (for example, embodied energy and the use of energy during habitation). In light of i-HOUSE’s focus of sustainability—rather than housing production and consumption per-se—a framework has been developed that specifically highlights the components of shelter production and use that affect the socio-cultural, economic and environmental sustainability of low-income housing.

The guiding framework of i-HOUSE

In light of the definition of sustainability outlined above, there are five threads to the i-HOUSE framework: the natural environment, the built environment, the socio-cultural environment, the economic environment, and the political and institutional environment (Figure 2). These five threads are operational at a range of scales: the micro (house and household), meso (neighbourhood/city and community), and macro (national and international). Within each thread and scale there are any number of elements that affect the sustainability of low-income shelter, for example, land, building design, building regulations, etc. Their presence and importance will vary between cities, countries and regions.

The framework presented in Figure 2 gives examples of elements at the three scales according to each thread. The framework is not exhaustive but aims to outline the focus areas of the i-HOUSE programme. It highlights that developing sustainable shelter must account for a wide range of elements operational over different threads and scales. For example, sustainable shelter is not just a matter of individual house design (the built environment thread at the micro scale) but also related to a wide range of other factors such as building regulations (the political and institutional environment at the meso and macro scales).

The framework provides a starting point for the i-HOUSE priority areas and work plan, in particular the pilot projects and development of a quick policy guide, which will be outlined later. For the pilot projects the framework gives clarity for investigating the elements that can be either opportunities (e.g. local resource material availability) or constraints (e.g. building codes and planning regulations) on the production of sustainable low-cost shelter. For the quick policy guide the framework gives a structure that can be refined and added to produce a normative view of the important dimensions to support policy development for sustainable and affordable shelter.

2. Aims and objectives

The Expert Group Meeting aimed to bring together world leading experts and institutions working in the field of green buildings, housing design and housing sustainability with a specific focus on indigenous building materials and traditional building practices in the context of slum upgrading, affordable housing, and post-crisis housing. The EGM had five principal objectives:

1) Introduce and refine the *i-HOUSE: Housing Sustainability* initiative

- The event introduced UN-HABITAT's new initiative, *i-HOUSE: Housing Sustainability*, which focuses on the sustainability of affordable housing in developing countries. *i-HOUSE* responds to the pressing need to develop knowledge, raise awareness, and improve the ability of housing sector stakeholders to develop new, and scale-up existing, sustainable housing practices. *i-HOUSE* has four principal objectives: Strengthen the capacity of urban slum dwellers, identified vulnerable groups, private sector, policymakers, and housing developers to promote and use alternative, energy-efficient and low greenhouse gas emitting energy sources, construction technologies, and housing designs;
- Support the development of field projects, policies and regulations;
- Raise awareness and improve the understanding of the impact of the domestic uses of energies, building materials and construction technologies on climate change;
- Inform policy processes and advocate for mainstreaming sustainability in affordable housing programmes and projects in developing countries and post-crisis context.

i-HOUSE recognises that 'sustainability' in developing countries must be approached more broadly than an exclusive focus on environmental dimensions, such as energy efficiency. It is, therefore, underpinned by a view of sustainability that has four pillars: environmental, economic, social and cultural, where environmental aspects are to be balanced by these other dimensions. The internal *i-HOUSE* Strategy Paper was circulated prior to the EGM.

2) Lay the foundations for a Global Network for Sustainable Housing (GNSH)

The EGM aimed to set the basis for constituting a Global Network for Sustainable Housing (GNSH) that will include leading institutions involved in sustainable housing practices and green housing projects worldwide. It is envisaged that the GNSH will play a major role, and lead to global change particularly in the context of slum upgrading, affordable housing, and post-crisis housing. It is anticipated that the structure, scope and objectives of the GNSH will be elaborated at the EGM, and that the institutions represented will consider being founding members of the Network. The GNSH concept note was circulated prior to the EGM

3) Introduce and refine *i-BUILD: an online knowledge resource centre*

The EGM aimed to contribute to formulate and endorse an on-line knowledge platform, *i-BUILD*, which will serve to build a global community of practice for housing sustainability and knowledge sharing, hosted on the UN-HABITAT Urban Gateway. The *i-BUILD* concept note was circulated prior to the EGM.

4) Reflect on and refine a draft 'Quick Policy Guide on Sustainable Housing'

UN-HABITAT has commissioned the production of a 'Quick Policy Guide on Sustainable Housing' and a draft will be presented at the EGM. A dedicated session will provide time to reflect of the draft content and structure, refine the scope and focus, and provide additional inputs, such as additional case studies, references and field experiences.

5) Networking and sharing experiences

The EGM aimed to strengthen partnerships of key institutions working in this field. The programme was structured to allow time for participants to present their institutions' experiences and expertise in the field of sustainable housing. Presentations were grouped thematically and each participant was requested to give a 15 minute presentation.

3. Organisations represented



First Name	Last Name	Organisation	Email
Diana	Urge-Vorsatz	3CSEP, CEU	vorsatzd@ceu.hu
Maria	Nystrom	Chalmers University	maria.nystrom@chalmers.se
Philippe	Garnier	CRAterre	craterre.pgarnier@club-internet.fr
Kurt	Rhyner	Eco Sur	sofonias@ecosur.org
Martin	Mulenga	IIED	martin.mulenga@iied.org
Oliver	Frith	INBAR	obfrith@inbar.int
Martin	Suvatne	Norwegian Refugee Council	martin@suvatne.com
David	Sanderson	Oxford Brookes	dsanderson@brookes.ac.uk
Saiad	Yahya	RICS	sya@nbi.ispkenya.com
Claudia	Schneider	SKAT	claudia.schneider@skat.ch
Skye	Dobson	Slum/Shack Dwellers International	skye@sdi.net.org
Pauline	Wangui	Slum/Shack Dwellers International	irenekaranja@gmail.com
Oleg	Golubchikov	University of Birmingham	o.golubchikov@bham.ac.uk
Michael	Ramage	University of Cambridge	mhr29@cam.ac.uk
Daniel	Irurah	University of the Witwatersrand	daniel.irurah@wits.ac.za
Maike	Christiansen	UNECE	Maike.Christiansen@unece.org
Curt	Garrigan	UNEP-SBCI	curt.garrigan@unep.org
Pekka	Huovila	VTT	Pekka.Huovila@vtt.fi
Carmen	Antuna	VTT	Ext-carmen.antuna@vtt.fi
Michelle	Malanca	World Green Building Council	mmalanca@worldgbc.org

4. Programme

DAY ONE – Thursday 15th December 2011

08:00 - 08:30	Registration
08:30 - 08:40	Welcome message <i>Axumite Gebre-Egziabher, Director, Global Division, UN-HABITAT</i>
08:40 - 09:00	i-HOUSE and an outline of the EGM – A brief Introduction. <i>Matthew French, Housing Policy Section, UN-HABITAT</i>
09:00 - 10:30	<p>Session 1: Green Buildings Practices for Housing Sustainability <i>Moderator: Christophe Lalande</i></p> <p><i>Panel: Oliver Frith, Philippe Garnier, David Sanderson, Martin Suvatne, Skye Dobson.</i></p> <ul style="list-style-type: none"> ▪ <i>Bamboo for Sustainable Housing: Experiences of the International Network for Bamboo and Rattan - Oliver Frith, Programme Coordinator, Global Bamboo Housing Programme, INBAR.</i> ▪ <i>The experience and approach of CRAterre towards housing sustainability (1979-2011) - Philippe Garnier, Head of the Habitat Programme, CRAterre-ENSAG, International Centre for Earth Construction.</i> ▪ <i>Shelter after disaster: process, focus and challenges - David Sanderson, Director, CENDEP, Oxford Brookes University</i> ▪ <i>Defining, Measuring and Verifying Sustainability in Humanitarian Shelter - Martin Suvatne, Adviser Shelter, Norwegian Refugee Council</i> ▪ <i>SDI: Towards systemic change: A community-driven sustainable housing agenda – Skye Dobson Research and Documentation Officer, Shack/ Slum Dwellers International</i> <p>Followed by open discussion/questions and answers for panel presenters.</p>
10:30 - 11:00	Coffee break
11:00 - 12:15	<p>Session 2: Tools and Methodologies in promoting Housing Sustainability <i>Moderator: Claudio Acioly</i></p> <p><i>Panel: Diana Urge-Vorsatz, Curt Garrigan, Daniel Iruha, Michelle Malanca.</i></p> <ul style="list-style-type: none"> ▪ <i>Title of presentation TBC, Diana Urge-Vorsatz, Director, 3CSEP, CEU</i> ▪ <i>Title of presentation TBC, Curt Garrigan, Coordinator UNEP-SBCI</i> ▪ <i>Innovating new business models in bridging academic versus practice divide in green buildings and sustainable housing in sub-Saharan Africa - Dr. Daniel K. Irurah, Senior Lecturer: Sustainability and the Built Environment, School of Architecture & Planning, University of the Witwatersrand</i>

	<ul style="list-style-type: none"> ▪ <i>World Green Building Council, Michelle Malanca, Vice President, WorldGBC</i> <p>Followed by open discussion/questions and answers for panel presenters.</p>
12:15 – 13:15	LUNCH
13:15 – 14:15	<p>Session 3: Knowledge and Policies for Sustainable Housing Moderator: <i>Matthew French</i></p> <p><i>Panel: Michael Ramage, Martin Mulenga, Maike Christiansen.</i></p> <ul style="list-style-type: none"> ▪ <i>Build Better: Cambridge Contributions to Sustainable Housing - Michael Ramage, Lecturer, Department of Architecture, University of Cambridge</i> ▪ <i>Constraints and Opportunities of Sustainable Housing in Low-income Urban Settings - Martin Mulenga, Senior Researcher, International Institute for Environment and Development (IIED)</i> ▪ <i>Greening Homes in the UNECE Region – Past and Future Activities - Maike Christiansen, Climate Neutrality and Energy Efficiency Officer, UNECE</i> <p>Followed by open discussion/questions and answers</p>
14:15 – 15:00	<p>Policy Guide for Sustainable Affordable Housing in Developing Countries</p> <ul style="list-style-type: none"> ▪ <i>Presentation of draft outline - Dr. Oleg Golubchikov, University of Birmingham</i> <p>Followed by open discussion/questions and answers</p>
15:00 – 15:30	Coffee break
15:30	<p>Session 4: UN-HABITAT and Sustainable Human Settlements Moderator: <i>Mohamed El Sioufi, Head, Shelter Branch, UN-HABITAT</i></p>
15:30 – 15:45	<p>UN-HABITAT, Housing, and Sustainability - A Brief Overview <i>Claudio Acioly, Chief, Housing Policy Section, UN-HABITAT</i></p>
15:45 – 16:00	<p>Sustainable Urban Planning <i>Raf Tuts, Chief, Urban Environment and Planning Branch, UN-HABITAT</i></p>
16:00 – 16:15	<p>Energy Efficiency in Residential Buildings <i>Vincent Kitio, Chief, Energy Efficiency Unit, UN-HABITAT</i></p>

16:15 – 16:45	Introduction to i-HOUSE and the Global Network for Sustainable Housing <i>Christophe Lalande, Housing Policy Section, UN-HABITAT</i>
16:45 – 17:30	Open discussion/questions and answers for panel presenters
17:30 – 18:00	Housing and Slum Upgrading: the Challenge of Sustainable Urban Development <i>Dr. Joan Clos, Executive Director, UN-HABITAT</i>
	Closing remarks <i>Mohamed El Sioufi, Head, Shelter Branch, UN-HABITAT</i>
18:30	Networking cocktail

DAY TWO - Friday 16th December 2011

08:20 - 08:30	Introduction to the day Christophe Lalande
08:30 – 10:30	Session 5: Knowledge exchange, Networks, and Advocacy to promote sustainable housing practices <i>Moderator: Matthew French</i> <i>Panel: Pekka Huovila, Kurt Rhyner, Maria Nystrom, Claudia Schneider, Saad Yahya</i> <ul style="list-style-type: none"> ▪ <i>Approaches towards sustainable housing - Pekka Huovila, Chief Research Scientist, VTT (Technical Research Centre of Finland)</i> ▪ <i>EcoSur, The network for the economical and ecological habitat - Kurt Rhyner, Coordinator of the network, EcoSur Network and Grupo Sofonias</i> ▪ <i>Designing Development - Future Homes for Future Cities - Prof. Maria Nyström, Professor, Chalmers University of Technology/ Design for Sustainable Development and Professor School of Design and Crafts (HDK)</i> ▪ <i>BASIN Network – a Retrospective and Potentials for the Future - Claudia Schneider, Sustainable Reconstruction and Settlement Development Specialist, Skat</i> ▪ <i>Affordable Housing Study – International Models for Delivery, Saad Yahya, RICS</i> Followed by open discussion/questions and answers for panel presenters.
10:30 - 11:00	Coffee break
11:00 - 12:15	Session 6: Discussing and elaborating i-HOUSE initiative and i-BUILD, an online knowledge sharing platform <i>Moderator: Maria Nyström</i> <i>Panel: Mohamed El Sioufi, Christophe Lalande, Asa Isacson, Bernhard Barth</i>
12:15 – 13:15	LUNCH
13:15 – 15:00	Session 7: Discussing and elaborating the Global Network for Sustainable Housing (GNSH) <i>Moderator: Claudia Schneider</i> <i>Panel: Claudio Acioly, Matthew French, Asa Jonsson, Nayoka Martinez-Backstrom, Dan Lewis</i>
15:00 – 15:30	Coffee break
15:30	Session 8: Recommendations to UN-HABITAT and its partners
15:30 – 15:45	Presentation of Working Groups <i>Matthew French, Housing Policy Section, UN-HABITAT</i>

15:45 – 16:45	<p>Working Group 1: Formulating recommendations to the i-HOUSE strategy paper and to the concept of housing sustainability (Facilitators: Mohamed El Sioufi, Christophe Lalande)</p> <p>Working Group 2: Formulating recommendations to i-BUILD to establish an online platform for knowledge sharing and community of practice (Facilitators: Claudio Acioly, Asa Isacson)</p> <p>Working Group 3: Formulating recommendations to establish a Global Network for Sustainable Housing (Facilitators: Nayoka Martinez-Backstrom, Matthew French)</p>
16:45 – 17:30	<p>Plenary session: Presenting and discussing recommendations formulated by working groups</p>
17:30 – 18:00	<p>Closing remarks <i>Axumite Gebre-Egziabher, Director, Global Division, UN-HABITAT</i></p>

Part Two: Session Summaries

Welcome message:

Axumite Gebre-Egziabher, Director Global Division, UN-HABITAT, welcomed the participants to the international Expert Group Meeting on Sustainable Housing. She stressed the fact that UN-HABITAT works towards improving living conditions and sustainability of towns and cities. All UN-HABITAT activities and programmes are designed and implemented to support sustainable urban development. The concept of urban sustainability according to Ms Gebre-Egziabher is not limited to the environmental, economic and social sustainability; it also includes a cultural dimension.

She highlighted that the future is urban with more than 50 per cent of the world population living in cities. Cities are also facing the urgent challenge of slums when one billion people are living in slums, in poor inadequate housing conditions.

Referring to sustainable housing, UN-HABITAT is not only looking at the building materials but also at housing and neighborhood design, from an urban planning perspective.

The Director of the Global Division also highlighted the need to create awareness on sustainable and green housing issues, in particular towards grassroots communities and slum dwellers. The planned community and the planned city are essential for addressing the issues of sustainability.

UN-HABITAT is proposing the idea of developing a network for sustainable housing to support development of public policies, tools and instruments and their implementation at local level.

5. Session One – Green building practices for housing sustainability

Bamboo for Sustainable Housing: Experiences of the International Network for Bamboo and Rattan

Oliver Frith, Programme Coordinator, Global Bamboo Housing Programme, INBAR.

The International Network for Bamboo and Rattan is implementing activities in a number of countries worldwide, promoting the use of bamboo in the construction phase and use of housing and buildings as part of its Global Bamboo Construction Programme.

INBAR's mission is to improve the well-being of the producers and users of bamboo and rattan within the context of a sustainable bamboo and rattan resource base

In its presentation, Oliver Frith described the key areas of activities implemented by INBAR to (i) consolidate, coordinate and support strategic and adaptive research and development; (ii) disseminate knowledge on how bamboo-based construction can be applied to poverty reduction and more resilient homes and communities; and (iii) to support the development of markets for bamboo-based construction.

The presentation highlighted some of the main challenges to mainstream the use of bamboo in the housing sector. One of them relates to the local perception of this building material in many countries of the world. Bamboo is often associated to poor and low-income housing, the work of INBAR and its partners contributes to demonstrate the comparative advantages of using bamboo as an elaborated building material. The work of INBAR is contributing to changing people's perception, showing by example and successful housing practices that bamboo is a sustainable building material which can contribute to deliver affordable housing at scale.

In its conclusion, Oliver Frith stressed that most countries lack integrated bamboo construction value chains, and that bamboo standardisation and building codes are generally still at an early stage, lacking policy support for creating mainstream markets. He stressed the need to adapt improved bamboo designs into existing architectural practices and to implement demonstration projects, which is crucial for changing local perception and acceptance.

The experience and approach of CRATERre towards housing sustainability (1979-2011)

Philippe Garnier, Head of the Habitat Programme, CRATERre-ENSAG, International Centre for Earth Construction.

Philippe Garnier presented the experience and approach of the International Centre for Earth Construction (CRAterre) towards housing sustainability since 1979. He presented the structure of CRAterre and its history from its creation as a NGO in 1979 to becoming world leading research lab in the field of earth construction in 1984.

The presentation highlighted the different construction technologies related to the use of soil in housing construction, and focus on the strong cultural and social component of CRAterre's approach in implementing earth construction projects and training around the world. Philippe Garnier insisted on the relevance of earth construction in particular in the context of hazard-risks environments, and the importance to better take into account the local contexts and construction knowledge when one third of the world population is living in earth constructions.

Shelter after disaster: process, focus and challenges

David Sanderson, Director, CENDEP, Oxford Brookes University

David Sanderson presented the activities of the Centre for Development and Emergency Practice (CENDEP) and reflected on the challenges of shelter response after disaster. He insisted on the importance to work in collaboration with affected populations and showed examples of unsustainable ready-made housing modules and prototypes implemented at large scale in post-crisis contexts around the world. He stressed the need to engage in a more long-term thinking, confronting the concepts of 'temporary shelter' to 'permanent housing'.

The presentation denounced the top-down and branding approach of many organisations implementing housing projects in post-crisis context. Housing projects should be design with and for the people. David Sanderson stressed the importance of the human dimension as a key element of the sustainability and durability of housing projects.

Defining, Measuring and Verifying Sustainability in Humanitarian Shelter

Martin Suvatne, Adviser Shelter, Norwegian Refugee Council

Martin Suvatne reflected on the importance of the dimension of adequate housing in defining the concept of sustainability humanitarian shelter. He shared the experience of the Norwegian Refugee Council in supporting the implementation of emergency shelter projects, detailing the complex interaction of actors, stakeholders and affected populations. He insisted on the importance to consider the social and cultural aspects of housing provision and design. NRC does not use the term "sustainable housing" but defines a normative framework to provide "appropriate and adequate" housing to address four main dimensions: (i) the environmental protection and adaptation; (ii) social balance; (iii) cultural appropriateness; and (iv) economic viability

NRC is providing 25,000 to 30,000 homes per year worldwide in post-crisis situations.

SDI: Towards systemic change: A community-driven sustainable housing agenda

Skye Dobson Research and Documentation Officer, Shack/Slum Dwellers International; Pauline Wangui, SDI

Slum Dwellers International presented its activities worldwide and efforts to promote a community-driven sustainable housing agenda. In order to forge a global, sustainable and affordable housing agenda that is relevant and responsive to the needs of slum dwellers in the Global South the process must be community driven. That means that for low-income housing interventions to move beyond pilot projects there must be an organised and sustained community movement to drive the process.

SDI activities are supporting a social movement, an international network of organised community federations that can drive this process in 34 countries, 400 cities, representing over a million slum dwellers and over half a million houses.

Although SDI is not directly involved in green building activities, Skye and Pauline shared SDI's message with the EGM's participants to keep the community at the center, supporting existing community efforts and remembering that affordability is crucial to sustainable and scalable housing solutions for the urban poor.

6. Session Two – Tools and methodologies in promoting housing sustainability

Fighting Climate Change in Buildings: The lock-in effect

Diana Ürge-Vorsatz, Centre for Climate Change and Sustainable Energy Policy Central European University

Buildings are not only the key in solving climate change, but addressing the challenges of climate through energy efficiency and renewable energy in the building sector will also contribute to other socio-economic and political agendas. The building sector accounts for 1/3 of energy related carbon dioxide emissions and 2/3 of halocarbon emissions. This is considerable and the impact of building construction and the use of buildings on climate change is crucial to address. There is a major risk of lock-in of unsustainable energy practices; preventing buildings from playing a large role and bearing the co-benefit fruits.

Knowledge has recently developed to the point where we can achieve 70-90 per cent energy and emissions savings in buildings compared with standard practice, and this is true in all climate zones (providing similar or increased service levels); most of these cost-effectively or even at lower first cost. However, the full applicability of these technologies to the low-income housing is still questionable.

Energy consumption is concentrated in cities: it accounts for 50% of total. And, the buildings sector offers the largest low-cost carbon reduction potential in all world regions by 2030. CEU is currently completing a study that highlights the relative proportion of emissions from different building typologies. The study finds that consumption in slums is minimal, but the challenge is how improve the quality of life and from a CC perspective

Lock-in effect is extremely important for the building sector. “There is no way no to go for the state of art” to avoid lock-in. Applying the state of art would reduce consumption in the building sector at an average 46%, while a suboptimal scenario would increase it at 30%. The costs for adaptation will be paid back through energy saving over time.

Key arguments for building adaptation, efficiency solutions:

- Architectural solutions reduce the energy consumption at the same time as they improve comfort and quality of life of residents;
- (Fuel) poverty reduction (households savings on energy expenses);
- Adapted architectural solutions can impact positively on health and productivity.

Addressing the lock-in effect in the building sector is not only a technological or political issue, but it entails opportunities to mitigate poverty and create socioeconomic development. This is the challenge for us in developing countries – to consider environmental issues alongside social and economic.

SBCI – UNEP’s work on sustainable buildings

Curt Garrigan, Coordinator, UNEP-SBCI

Sustainable Buildings and Climate Initiative (SBCI) is a membership network established in 2006. Partners include a diverse representation of the building sector coming together and having a common platform to act on producing information and moving on to policy development (National corporations, representatives of the construction industry, NGOs, World Green Council, professional associations - architects and engineers - Government Agencies). The goals of SBCI are:

- Establish a common language;
- Development of tools and methodologies;
- Support for policy;
- Pilot projects.

Members are currently working on the sustainable building index: what are the elements, the components and the language that make up sustainable buildings? What are the indicators that can inform this category? This reflects SBCI’s approach to developing the basis of knowledge and developing tools for

measuring sustainability. Tool development steps include: development and alignment - prove and refine - broadly promote. SBCI is working for the institutionalization of tools, so that they have international application.

Example of tools and methodologies:

- The common carbon metric CCM (in line with CCC): simple approach to get application in developed and developing countries;
- On-line tools that consider contextual information and produce policy packages that are tailored to the contexts.

SBCI has undertaken pilot projects:

- SUSHI – Sustainable Social Housing Initiative (pilots in Bangkok and São Paulo);
- SPOD – Sustainable Building Policy in Developing Countries (works with city jurisdictions, looking at the building codes and regulatory instruments);

Innovating new business models for sustainable housing practice

Dr. Daniel K. Irurab, Senior Lecturer: Sustainability and the Built Environment, School of Architecture & Planning, University of the Witwatersrand

In the present context there is a gap between knowledge and the action practices in the field of disciplines such as architecture, planning and engineering. Likewise, there is a pedagogical concern with regard to the mainstream practice of architecture, building and planning: How prepared engineers and architects are to tackle and produce response to the issues of sustainability in housing and urban planning?

The whole eco-system of sustainability is a complex and comprehensive chart, whereby sustainable building is only one element. Architects and engineers need to understand their role in the chart, identify the different scales with which they need to engage and dialogue with.

Several examples of practice highlight these issues and the challenges of negotiating the field of sustainable urbanization:

- Public mass transport systems in Curitiba, Brazil;
- The relation between architecture, agriculture and health in South Africa;
- Solutions for adaptation and energy saving in low income housing, such as solar water heaters, induction cooking stoves, induction geysers;
- Local knowledge and expertise development, such as re-use of materials in informal settlements.
- “Opportunities exist everywhere, but resources to implement and are scarce”.

It was highlighted that energy efficient cities need to think beyond buildings alone. An energy efficient cities is defined as: a “city which equitably support/facilitate the minimal/zero-carbon lifestyle-goals of its residents (human and organizations)”. It needs to consider the settlement scale (incl. transport and morphological form), the building scale (energy use in construction and operation), and the industrial scale.

World Green Building Council,

Michelle Malanca, Vice President, WorldGBC

The World Green Building Council (WGBC) is made up of approximately 35,000 companies all participating in this market transformation. It is membership based and works alongside governments. It seeks to facilitate the building sector to understand its impact and move towards a more sustainable model, and we can see the growth in this model over past 3 – 4 years. It was established in 1999 – the main growth in the number of councils happened in the last 5 years.

The green economy is one of the main topics of Rio+20, and the WGBC will continue to highlight how green building can help governments to meet their other socioeconomic priorities.

What the GB councils do:

- Create awareness and understanding in the markets to talk about what green buildings are;
- By defining what green buildings are, they start creating demand in the formal building sector pushing developers, owners and investors to start delivering green buildings. It leads to a transformation and clearness of the benefits for the people who occupy the buildings, for the developers that start selling more quickly;
- At the large scale, governments realize the benefits for policy.

Green building rating tools are very important to demonstrate, and make a ‘case’ for green building. Labels and certifications are typically adapted to different country contexts to measure and attest building efficiency. The goal is to produce a shift in the sector in the more mature markets where certifications are seen as signals of quality and legitimacy. In terms of housing, green building rating tools are focused on collective housing. Diffusion in the market is easier, quicker and more efficient.

Green building rating tools are not the only solutions to improve the performance of the building sector. Other councils’ strategies comprise betterment of building codes, for example in Colombia where the WorldGBC is working with the government to improve energy efficiency in the building codes.

Other potential solutions and examples include:

- NAMAS: Nationally Appropriate Mitigation Action (framework of financial support between developed and developing countries).
- Los Silos CDM in Mexico
- South Africa (“Healthy houses” in Kuyasa): low-income housing solutions to save energy consumption (solar panels) with significant improvement in the quality of life and health conditions;
- South Africa: Cato Macor (30 housing units renovated): developing pride and promoting development by providing better health conditions.

Questions, answers and discussions:

A question from the floor was raised: how can the tools that are being developed accommodate local and non-engineered building materials? Do you have some examples? UNEP responded that basically, their approach is not based on what construction is, but it simply measures energy consumption. The WGBC responded that green building rating tools address materials, but they are more focused in measuring performance and if the buildings were properly constructed to perform well.

A question for CEU on whether the oil peaks were taken into account in the scenarios? CEU responded that no, the scenarios are not economically based.

7. Session Three – Knowledge and policies for sustainable housing

Constraints and Opportunities of Sustainable Housing in Low-income Urban Settings

Martin Mulenga, Senior Researcher, IIED

Mr Mulenga presented on the many issues of developing sustainable housing, with a particular focus on the challenges, opportunities and ways forward. The presentation explained several main challenges for sustainable housing:

- Institutional:
 - Lack of knowledge and access to information;
 - Importance to produce knowledge and awareness at the local and community level;
 - Lack of expertise in local governments.
- Economic and financial:
 - Shortage of capital at the institutional level;

- Poverty is one of the major problems;
- Lack of housing financing mechanisms for the majority;
- High prices of building materials;
- Governments, pressured by the donors, are more interested in the number of houses than in sustainability issues;
- Legal and policy:
 - Tenure security is essential to engage people in improving their houses;
 - The building regulations and codes are not encouraging sustainable materials, for example in Zambia where the building code forbids the use of timber);
 - Housing policies neglect low income sectors;
- Social:
 - Community based organisations need to be reinforced;
 - Knowledge on alternative and affordable materials needs to be improved;
- Technical:
 - Lack of information on sustainable housing;
 - Examples are limited and externally driven;
 - Limited technological choices due to funding regulations;
 - The challenges of promoting affordable technologies in slums;
 - Sustainable housing technologies are unaffordable and the high standards can become means of exclusion;

The opportunities for improving housing sustainability lay in community empowerment and participation:

- To help communities to realize their potentials;
- To create mechanisms of housing financing;
- To provide access to land, knowledge on local materials and technical assistance on building techniques;

Greening Homes in the UNECE Region – Past and Future Activities

Ms Maike Christiansen - United Nations Economic Commission for Europe (UNECE)

UNECE is made of 66 member states; 8 committees supporting governments with policy recommendations. One UNECE activity and key product is the country profiles on the situation of the housing sector developed upon the request of member states. UNECE two major reports on energy efficiency presenting information on the situation of energy efficiency in the region, the key benefits, challenges and prospects for the region; outline the institutional changes and policy provide recommendations.

The main challenges in countries in economic transition in the UNECE region are:

- Significant privatization of the housing stock;
- Inadequate property rights systems;
- Deterioration of the housing stock;
- Rural-urban migration;
- Energy efficiency trap in transition countries: poor maintenance and conditions of housing stock, lack of knowledge, resources and capacities to

UNECE has recently established a working group to develop a framework convention on sustainable housing. It aims to introduce the topic in the political agenda through different channels, but mostly through the strengthening of institutional frameworks. Other goals include:

- Increase the importance of sustainable housing issues;
- Address the lack of sustainable housing policies in transition countries and the need of institutional reforms to cope with environmental and economic challenges.

The focus of this convention will be on informal settlements and the lack of affordable housing. Efficiency aspects will be addressed.

Questions and Answers and Discussions

How does each of these intersectional issues contribute to the whole chart of urban and housing sustainability? IIED responded that sustainable housing has to fulfill many more requests than the technical innovations. The lack of knowledge should be tackled and innovation should be produced through participation in the whole process and not only in the outcomes. This is how we can reach development. UNECE responded that we have to keep in mind that this is a long process. Take the example of transition countries where all the issues of land and property right systems need to be sorted out.

Policy Guide for Sustainable Affordable Housing in Developing Countries

Dr Oleg Golubchikov – University of Birmingham

On behalf of UN-HABITAT Dr Golubchikov presented the draft 'Policy Guide for Sustainable Affordable Housing in Developing Countries'. This guide aims to be an accessible practice-oriented resource for policy makers to help them to build capacity on the provision of pro-poor and sustainable housing alternatives. The guide should help to fill the gap between sustainability and affordability. Dr Golubchikov gave a brief background on energy efficiency in housing:

- Average 25% of total energy consumption is in building sector;
- Panorama of energy consumption differs around the world: higher in transition countries than in Europe;
- Co-relation between CO₂ emissions and energy consumption. Almost 40% of CO₂ emissions come from the residential sector.

He noted that simple technologies can reduce consumptions drastically. As well, there are multiple benefits of improving the energy efficiency of housing. There can be positive impacts on the natural and built environments; energy saving; reduction of CO₂ emissions; social and economic development; political development in relation to sustainability, etc. He posed a key question: Are these multiple benefits of improving energy efficiency in housing sector at the centre of our delivery strategy or they have been used as justification for a very technocratic agenda, whose aim is basically to reduced energy consumption?

Housing policy and the building industry approaches are disintegrated: the first being traditionally focused on the social aspects of affordability and second focused on building standards and energy use. There is a need for articulation. There is a real risk that the comprehensiveness of housing will be neglected in the context of so much effort put on energy efficiency. The social dimension must also be considered, and not just from a technocratic approach. More developed countries have different social mechanisms that complement this technocratic agenda, such as social welfare tradition, which is often not present in transition and developing countries.

The spirit behind the UNECE Policy Action Plan was to move beyond the “brick and mortar” approach and to use energy efficiency for the benefit of housing policy, to provide consciousness more than just set technical targets. The focus was:

- Affordability
- Housing management
- Public housing
- Energy affordability
- Spatial planning
- Look at housing from a resident perspective;

The situation is much more challenging in the developing world due to several factors:

- urban population growth
- increasing demand of housing construction,
- increasing demand for energy (environmental footprint)
- need to improve living conditions in slums;

There is a lot of potential and to develop an alternative model of energy consumption with green architecture. Resilience is also part of sustainable development and should be considered in the Guide, as

well as the cultural aspects in sustainable housing. There are many potential synergies between the different sustainability pillars (economic prosperity; environmental protection and social justice). The presentation ended with questions for discussion: How can sustainability projects include the very poor? How can affordability match sustainability?

Questions, answers and discussions

Comments from the floor emphasised the importance of participation; the need to address sustainability at the level of community; the need for institutional reform; the involvement of a plural spectrum of stakeholders; and the cultural issues surrounding housing and housing processes.

8. Session Four – UN-HABITAT and sustainable human settlements

UN-HABITAT, Housing, and Sustainability - A Brief Overview

Claudio Acioly, Chief, Housing Policy Section, UN-HABITAT

Claudio Acioly presented the overall mandate, work and activities of UN-HABITAT in the field of housing policy and reform. He detailed the various components of the housing sector and the methodologies developed and implemented by UN-HABITAT to analyse existing gaps and bottlenecks of the housing public policies and instruments and formulate policy response considering the overall framework of the Global Housing Strategy to the year 2025 (GHS 2025).

He stressed the fact that the unprecedented multiplication of slums and informal housing solutions are the physical manifestations in cities and primarily the cause of a chronic lack of adequate and affordable housing and inadequate public policies. The adoption of neo-liberal economic policies has proven serious limitations, as documented in UN-HABITAT's 2003 Global Report on Human Settlements on the Challenge of Slums whose global survey revealed the remarkable increase of the population living in slums to nearly 1 billion people

He described how the GHS 2025 derives from an authoritative analysis of global housing trends, national housing policy reviews, situational analysis, and comparative global policy research contextualised to regional and national specificities. This new strategy will analyse the characteristics of the housing sector and consequently propose policy guidelines that – ultimately – is expected to lead to paradigm change in housing policy and practice. The new paradigm will seek to reverse the current trend of pervasive multiplication of slums and informal settlements by providing governments, civil society organisations, grassroots organisations and research institutions with the empirical case studies and global comparative knowledge necessary to inform a wide range of policy recommendations to formulate and implement sustainable city-wide solutions.

Sustainable Urban Planning

Raf Tuts, Chief, Urban Environment and Planning Branch, UN-HABITAT

Raf Tuts presented UN-HABITAT's reflections on new priorities from the perspective of urban planning and design. He presented an overview of the recent past activities of the organisation and its partners in the field of urban planning and the recent expansion of this portfolio. He detailed the implementation and outcomes of recent past programmes, such as LA21 (Localising Agenda 21), SCP (Sustainable Cities Programme) or PSUP (Participatory Slum Upgrading Programme); as well as field projects in more than 40 countries such as in Kosovo, Lake Victoria region, Haiti and Somalia.

Urban Planning has been at the core of UN-HABITAT normative work in particular since the Vancouver declaration (2006) on reinventing planning,

By increasing capacities and improving the tools and local processes, Urban Planning and Design, as a new priority area of UN-HABITAT, can contribute to address the most pressing urban challenges, such as:

- Urban sprawl – cities are already growing at decreasing density – consuming increasing quantity of land;
- Depletion of natural resources – pressure on fragile areas, increase of disaster risk, more displacement;
- Creation of new slums, increase of inequality;
- No increase of municipal revenue, collapse of city management;
- Urban inefficiency – congestion, pollution, wastages.

The presentation described the different urban planning patterns and trends and stressed the importance to plan in advance (30 years), at scale (numbers and scales), in phases of public investment. Meanwhile considering the urban diversity (social, functions), the need for urban density (footprint, FAR, public space) and the importance of the street and connectivity, from the perspective of the city-region.

Energy Efficiency in Residential Buildings

Vincent Kitio, Chief, Energy Efficiency Unit, UN-HABITAT

Vincent Kitio presented the work of UN-HABITAT in the field of energy efficiency in cities. His presentation made a specific emphasis on the critical issues of energy consumption and needs in residential buildings, in particular in developing countries and considering low-income housing and informal settlements.

He described the current activities and UN-HABITAT on-going projects in this field, and the current identified trends and technologies.

A clear linkage was established with the need to formulate sustainable and green housing solutions in developing countries and informal settlements.

Introduction to i-HOUSE and the Global Network for Sustainable Housing

Christophe Lalande, Housing Policy Section, UN-HABITAT

The presentation highlighted that while the process of urbanisation brings with it many positive benefits and opportunities, rapid and sustained urbanisation also places enormous pressure on the provision of adequate, affordable and sustainable shelter in urban areas.

It was described how in many cities in Asia, Africa, Latin America and Eastern Europe, urban growth is synonymous with slum and informal settlement growth, meaning, quite accurately, that urbanisation equals informal housing formation. While over the last decade there have been a multiplicity of responses to addressing this housing challenge, environmental sustainability dimensions have seldom been considered.

The presentation stressed the fact that challenge of producing housing that is environmentally sustainable is not limited to developing countries. Globally, there is a lack of capacity, willingness, knowledge-sharing and institutional and regulatory support for mainstreaming sustainability dimensions within housing projects, programmes, and private sector housing development.

Christophe Lalande introduced UN-HABITAT's new initiative, *i-HOUSE: Housing Sustainability* which focuses on the sustainability of affordable housing in developing countries.

i-HOUSE responds to the pressing need to develop knowledge, raise awareness, and improve the ability of housing sector stakeholders to develop new, and scale-up existing, sustainable housing practices.

The aim of this initiative is to encourage the production of environmentally sustainable and affordable housing for slum upgrading and prevention programmes in developing countries and in post-crisis context. The initiative has four principal objectives:

- Strengthen the capacity of urban slum dwellers, identified vulnerable groups, private sector, policymakers, and housing developers to promote and use alternative, energy-efficient and low greenhouse gas emitting energy sources, construction technologies, and housing designs
- Support the development of field projects, policies and regulations.
- Raise awareness and improve the understanding of the impact of the domestic uses of energies, building materials and construction technologies on climate change
- Inform policy processes and advocate for mainstreaming sustainability in affordable housing programmes and projects in developing countries and post-crisis context.

The presentation presented a graph illustrating the four pillars of sustainability which are underpinning *i-HOUSE*: environmental, economic, social and cultural.

Christophe Lalande also presented on UN-HABITAT's initiative to coordinate the development of a Global Sustainable Housing Network (GSHN).

Noting the wealth of knowledge on how to make housing environmentally sustainable, the presentation highlighted that yet this knowledge is fragmented, uncoordinated and often inaccessible to stakeholders who need it most. Likewise, the presentation highlighted the wealth of experience from developed countries on 'green building' policies, instruments, designs, and monitoring mechanisms, and the need to disseminate this experience to stakeholders working in the housing sectors of developing countries.

Furthermore, there is a lack of global knowledge exchange, partnership and collaboration, dialogue, and advocacy on the importance of developing sustainable housing, and the ways forward for achieving it.

Housing and Slum Upgrading: the Challenge of Sustainable Urban Development

Dr. Joan Clos, Executive Director, UN-HABITAT

The Executive Director of UN-HABITAT, Dr. Joan Clos, had a long and interactive discussion with the EGM participants, sharing his concerns regarding the new social, environmental and economic challenges facing cities worldwide and the need for formulating responses to promote sustainable urban development, urban density and better urban planning, as well as sustainable housing solutions.

He stressed the urgent need to share knowledge and practices to promote green and sustainable housing practices, and highlighted the pressing need for better coordinating international efforts in designing and implementing green buildings and sustainable building activities. He expressed his sincere hope that the expert contributions and dialogue during these two days EGM will serve to forge a new global movement for changing cities towards green, sustainable and adequate housing.

Closing remarks

Mohamed El Sioufi, Head, Shelter Branch, UN-HABITAT

Mohamed El Sioufi summarised the key points of the day's discussions and insisted on the importance and emergency to address the challenge of slums and to promote the realisation of the right to adequate housing for all towards sustainable urban development.

9. Session Five – Knowledge exchange, Networks and Advocacy to promote sustainable housing practices

Approaches towards sustainable housing

Pekka Huovila, VTT, Technical Research Centre of Finland

VTT works with a range of stakeholders, including industry, international companies, and Ministries. It has 3000 employees and is based in Helsinki. It undertakes international projects and brings its expertise in combining different areas of technology for sustainable environments.

VTT outlined several recent projects that demonstrate its eco concepts:

- UNEP and UN-HABITAT New Office building in Gigiri, Nairobi. The goal was an energy neutral building. Today, in fact, the building can produce more energy than it uses (105% of the usage). It has natural ventilation, natural lightning, solar panels. The payback time is 5-8 years- after that the building is free and can even serve neighboring buildings
- China, Miaoufeng, Ecocity: What is 'sustainability' in China meant starting with a feasibility study of the context. Now they are starting with the implementation of the project.
- EcoDrive Riihimäki, Peltosaari, Finland: Social housing - evaluation of the buildings which are divided in to different blocks. The project includes an analysis of the area structure, impacts, and a social analysis. 20 million Euros could be saved in the long term if the city would invest in energy saving methodologies.
- St Petersburg in Russia: Analysis of recycling, energy saving. Ecological city planning strategy analysis.
- Tanzania, EcoMwanza: Exchange of good practices with the city of Tampere in Finland. VTT held a workshop. A framework and a guidelines will be developed for the city authorities focusing on how the town planning could be supported and how citizens can be empowered, as well as building types, sustainable housing, and infrastructure.
- Cooking: wood gathering and use is bad for the ecosystem and also bad for the air. VTT is looking into solar cooking technologies.

Global networking by VTT: most notable the recent Helsinki world conference on sustainable building. One of the topics was on developing countries- VTT mobilised a network of 73 countries and 333 experts, - sustainable building from different continents, 7 scientific journals, 27 embassies in Finland, maintained an active website, and developed a partnership with the National Audiovisual Archive of Finland, African Star seminar, and held technical tours and self-guided tours

VTT held a SuvelaSurge student competition with over 60 ideas on sustainable housing submitted. And ARKKI, a children's network for architecture that seeks to activate children in sustainable building knowledge and education.

EcoSur, The network for economical and ecological habitat

Kurt Rhyner – Grupo Sofonias and coordinated of EcoSur

The network started in 1991, and was built up like a neighborhood system. Since 1996 it has been web-based. The Network aims to connect science with practice. It is comprised of NGOs and individuals. It is open source-based and focuses on South-South exchange (99% of the knowledge transfer is South-South). A central pillar of EcoSur's work is eco technologies such as adobe building techniques, etc., and training, educating, capacity building.

Half a million buildings have been built, using renewable energy. Three of the materials they have supported and/or developed are:

- Ferro cement panels to be used for walling, roofing, with the aim of trying to reduce the amount of concrete without decreasing the quality of the product.
- Lime-pozzolana cement which can provide a 30-50% saving in energy. Seven universities have been involved in this work.
- Micro concrete roofing have been developed and used, for example in Zimbabwe, trying to reduce the amount of concrete required for production without decreasing the quality of the product
- VSBK adapted for biomass fuel.

EcoSur believes, and has demonstrated that post-disaster reconstruction ‘architecture does not need to cost more’. EcoSur provided their example from Haiti - transitional shelter where half of the house was built initially, and the second half later when economic conditions improved. The first half therefore acts as a ‘emergency shelter’ (rather than tents, etc), but is of a higher quality and helps speed up the rebuilding process.

EcoSur has an exchange system of young architects for exchange of technological knowledge/project management aspects. This exchange is also for senior people too.

Designing development- Future Homes for Future Cities

Prof. Maria Nystrom, Chalmers University of Technology

Prof. Nystrom presented on the work that is being done at Chalmers University of Technology in the realm of university education and North-South and South-South exchange. The work is underpinned by trying not to think sectorally, but innovatively across disciplines. Several projects were presented:

- Chalmers’ ‘Homes for tomorrow project’ focuses on slums, disasters, unfamiliar places for research with the students.
- Micro vs Macro Vietnam: climate change and housing, full scale laboratories underpinned by 13 years of research. An institute in Hanoi: Research Centre for Architectural Indoor Climatology
- Reality studio at Master’s level: longer field studies with Swedish and Kenyan students, undertaken in Kenya, with interdisciplinary underpinnings.
- Innovative new products by recycling and using local materials
- East African Academy: Triple Helix Model-academy-industry-society which is being established in Kenya.
- HAB lab- a timely academy, connection to the society
- Pedagogic sustainable systems-green building: recycling, water collection etc.
- Mistra Urban Futures: Fair-Green-Dense
- Networking with other universities such as South Africa, Kenya, China,
- Knowledge class: marketplaces in Kisumu, KC: focusing on the food chain. Reality studio researching the complexity of market places and utilising hands-on prototyping and based on the micro-level, where the cultural component is important.

BASIN Network- A Retrospective and potentials for the future

Claudia Schneider, Sustainable Reconstruction and Settlement Development Specialist, Skat,

Skat: ‘Swiss Research Center and Consultancies for Development’ is an institution for development sustainable building, knowledge management, governance, networks, policies, strategy development, monitoring, implementation, training, research/publications, technical information and case studies; Internet products and a website.

Basin: 'Buildings Advisory Service and Information Network' was established in 1989, and was decentralized to Southern partners in 1996. It was a worldwide network. One focus was affordability and sustainability/energy efficiency/locality of the building sectors - to collect hands-on information and distribute it to the partners, building producers, building sector, architects, development sector and governments. Basin was a forum of information, linkages to other organizations and professionals, access know-how resources.

Several years ago Basin was put on hold. Barriers to its success were: insufficient funds, lack of quality control and coordination, partners' lack of time, lack of alignment of donors and the network, marketing, philosophies between partners, and co-operation and capacities of the Southern Partners was rather weak.

For any network a clear vision is needed. There must be a lead partner, and a coordinator and a strategy needs to be clear; funding, steering committee, and a communication strategy has to be in place. It must be clear who are the partners and members; newsletter and publications, capacity building activities are needed.

The wealth of resources Basin accumulated are on file with GIZ and could be utilized to start a new Network. These resources include databases of technical information on building materials, Basin news, publications, hands-on materials on technical materials: step 1-step 2 etc.

Affordable Housing Study – International Models for Delivery

Prof. Saad Yahya, Royal Insititue of Chartered Surveyors (RICS)

RICS is based in London but is a world-wide organization. Its members include surveyors, professionals of construction and land, GIS experts, land governance and economics experts. Much of their work focuses on supporting the development of profitable and environmentally sustainable buildings and settlements. RICS also tries to influence a poverty-sensitive ethic to professionals

In Kenya much of the land is administred under customary law. 60 per cent of the population lives in slums. RICS is currently trying to understand this market better to find the best ways to intervene and support its members.

RICS has a funding forum for its publications, and it has many publications. RICS has a flood risk-disaster management portal, and this can facilitate the deployment of professionals to the disaster areas to put together a framework for later action.

In the field of housing, RICS reviews policies of different countries in sustainable housing and creates templates to guide professionals, standards, and affordability. Prof Yahya explained how sustainably should be connected to disaster-resilience.

Questions, answers and discussion:

Several participants highlighted the importance to catch the information from the field and translate it to normative tools, guidelines, etc. These tools must be informed by the field experiences.

A global network is hard to manage, and local research centers should be involved, there is a gap between the reality in the field and the information in the network.

EcoSur explained how clay building in rural areas is as energy efficient as you can get –as you source the material on site and burn it with renewable local wood, which means almost 0% energy usage; Clay bricks: if you take them to the site with trucks they consumes a lot of energy. EcoSur suggested that cement is the most efficient/ good/easy to use material but it is used too much - we should use other materials as well and not rely on cement to the degree we currently do.

Basin should be seen as a process:

- Basin was a network at first. It was conceived as top-down, and everything was based on financing. This is complicated as sponsors/donors change their minds frequently.
- Basin was then expanded to southern countries.
- After that an important change was made: all the partners had to contribute some money but they could also get something out of the network in terms of contacts and projects.
- If Basin wants to become the major global network maybe employees are needed. People use the EcoSur network very frequently, so it could be good to have a global network as a base network that connects users to and in other networks.

Skat noted that when you have a network you need to double check the goals of every partner, regularly: are you still in the same track? You need to know your partners, their values and their agenda. You need common goals. A moderator would be good to this otherwise who has the money has the power. The network needs to be as transparent as possible.

There was a general discussion on low cost housing in informal settlements and how to connect the properties in the slums to the market? How to include them to the economy? One problem is that you cannot sell, rent etc. Several participants noted that it is important to include these properties in the market. In reality there are two markets: formal and the informal- lawyers and professionals together can help to minimize the effect of speculation and help in increasing the possibilities of people to sell and rent. In the slums, however, there is a different housing delivery model: community based. It is the same as in social housing – You cannot sell a unit of social housing either.

10. Session Six – Discussing and elaborating the i-HOUSE initiative and i-BUILD

i-BUILD - Online knowledge sharing platform

Christophe Lalande, UN-HABITAT

Christophe Lalande presented the *i-BUILD* on-line knowledge sharing platform for sustainable housing and slum upgrading. This platform is developed as part of the *i-HOUSE initiative* and will be hosted on the Urban Gateway. *i-BUILD* is underpinned by the fact that to achieve sustainable human settlements in developing countries, stronger networks and more accessible up-to-date knowledge on sustainable housing and slum upgrading is urgently required.

The presentation acknowledged the existing wealth of knowledge on how to make buildings that are environmentally sustainable. However, information is scattered, often inaccessible and therefore time-consuming to gather, analyse, and use in practice.

It was pointed out that, while developed countries have networks of knowledge exchange (professional networks, conferences and events, trade shows, etc), knowledge sharing mechanisms are currently very weak in developing countries. In particular, there are few networks and no up-to-date and accessible resource platform which are tailored to the specific challenges facing the built environment in developing countries, such as the need to increase the provision of new affordable housing and improve the living conditions of existing slums. This lack of up-to-date and accessible knowledge is a significant impediment to improving the environmental sustainability of the built environment in developing countries.

The presentation highlighted the absence of a clear ‘starting point’ from which to search for sustainable housing options: information is scattered and uncoordinated. There is no concise, direct online platform that canvases the state of the field and provides a quick reference point for information. Furthermore, as the ‘People’s Process’ gains momentum and grassroots communities and organisations are placed at the centre of development, accessible, up to date information on options for sustainable affordable housing are crucial to support these bottom-up housing processes.

Finally, the presentation stressed the importance to address this essential task by improving the availability of, and disseminating knowledge on sustainable housing practices to contribute to environmentally, economically, socially, and culturally sustainable housing and settlements. *i-BUILD* aims to become the number one online resource and first point of contact for information on sustainable housing options.

The need for an online knowledge sharing platform: i-BUILD on the Urban Gateway

Asa Isacson, UN-HABITAT

Asa Isacson presented the technical features of the on-line knowledge sharing platform, i-BUILD. She recalled the 3 main objectives of this tool:

- To increase the accessibility, availability and dissemination up-to-date knowledge on sustainable housing.
- To act as a repository of knowledge that will remain in perpetuity and can be freely accessible by all.
- To complement a Global Network on Sustainable Housing that seeks to improve the sustainability of affordable housing in developing countries.

The platform will be hosted on the Urban Gateway, as an element under the Global Housing Sustainability Network page. The content of the platform will be uploaded by contributors at their discretion. Contributions will be either:

- (a) uploads of pre-published information (e.g. e-books, reports, powerpoints, audio files, etc), or links to them;
- (b) contributions made by completing a standard template, is pre-published/formatted information is not available. (See attached proposed template).

Contributions will be tagged according to several pre-defined thematic areas. Users will be able to search information according to these areas(s) (accessed through drop down menus).

As an element of the Global Sustainable Housing Network, the platform will function not only as a knowledge library but also as an interactive platform that could:

- Host design international and local competitions (students and professionals)
- Give news on events in this field of knowledge and practice
- Give professional network updates: upcoming conferences, etc.
- Give downloadable and/or streaming 'podcasts' of people speaking on field activities, product development, case studies, lectures, etc.

The Habitat Partner University Initiative

Bernhard Barth, UN-HABITAT

Bernhard Barth introduced the Habitat Partner University Initiative and focussed on the network functions and on possible linkages with i-BUILD.

The Habitat Partner University Initiative is UN-HABITAT's mechanism to coordinate the multitude of UN-HABITAT university partnerships. He described how UN-HABITAT is currently moving from a small club of a handful of universities to an extensive partnership with individual members (who can sign up on the website) and institutional members (universities and university networks). Whilst the platform will soon be working on the Urban Gateway, the network is currently run through a newsletter and the UN-HABITAT website.

The presentation also stressed that the HPUI is not only about the network but also about action, supporting curriculum development and teaching methodology (more practice oriented), and strengthening urban research.

The presentation highlighted key possible areas of collaboration with i-BUILD:

- Housing is one of the priorities as agreed by the Global Meeting of the HPUI earlier this year;
- Module Development on Housing for the cities and climate change academy – a key activity of the HPUI which focuses on strengthening climate change in urban education;
- Linking networks on the Urban Gateway – i-BUILD and HPUI should be linked for university research to feed into iBUILD and sustainable housing practice to contribute to HPUI;

- Strengthening education in Housing by mobilising both networks;
- Promoting a Education – Research – Practice nexus

11. Session Seven – Discussing and elaborating the Global Network for Sustainable Housing (GNSH)

Global Network for Sustainable Housing (GNSH)

Matthew French, UN-HABITAT

The presentation highlighted that there is a wealth of knowledge on how to make housing environmentally sustainable, yet this knowledge is fragmented, uncoordinated and often inaccessible to stakeholders who need it most. Likewise, there is a wealth of experience from developed countries on ‘green building’ policies, instruments, designs, and monitoring mechanisms, yet this experience is often not disseminated to stakeholders working in the housing sectors of developing countries. Furthermore, there is there is a lack of global knowledge exchange, partnership and collaboration, dialogue, and advocacy on the importance of developing sustainable housing, and the ways forward for achieving it.

The presentation outlined the broad aim of the Network - to contribute to the universal realisation of the right to adequate housing whilst adapting and mitigating the negative effects of climate change through supporting the development and implementation of sustainable affordable housing practices and programmes. The four primary objectives of the Network are: Knowledge exchange and networking, advocacy and policy direction, tool development, training, education, and capacity building. The UN-HABITAT-led Network will be composed of professional groups, multilateral and bilateral organisations, training institutions, academia, community-based organisations (CBOs), and grassroots organisations. It will advocate for the improved sustainability of housing and slum upgrading and create a forum for knowledge and experience exchange.

GLTN – Secure Land and Property Rights for All

Asa Jonsson, UN-HABITAT and Global Land Tool Network (GLTN)

Asa Jonsson, presented on the experience of GLTN in establishing a network, and their focus on ‘Secure Land and Property Rights for All’. The network was initiated to respond to several issues: Stakeholders realized lack of pro poor approaches, civil society was lobbying governments to deal with rural/urban poor land issues, Professionals identified technical tools needed for pro poor land administration approaches, 15 countries in Africa had developed pro poor policies and tenure types but there were very few “tools” to implement these.

A brief history of GLTN:

- GLTN idea conceived in early 2004
- Sida funded design and project proposal development
- Workshops -buy in from partners and consolidate agenda (Stockholm, Oslo)
- Upscaling of identification of partners and activities
- 2006 officially launched at WUF III
- 2006/7 first funding for projects (Norway)
- 2008-2011 4-year programme approved, basket funding (Sida/Norway)

Where GLTN is today:

- Expanding network - 45 partners
- increasing/up-scaling of activities
- GLTN Phase 2 (2012-2015) implementation

The GLTN 2009 mid-term review noted to date the GLTN has: “established a network that includes many of the most important actors in the land sector; it has a ‘brand’ and credibility in the international

land arena. Notable achievements have been made in the areas of advocacy, research and tool development”.

UN-HABITAT's experiences with Urban Development Networks

Nayoka Martinez-Backstrom, UN-HABITAT

The presentation focused on experiences with Urban Development Networks, and gave some reflections on the creation of the Global Network for Sustainable Housing.

Why UN-HABITAT works through and in Networks (and examples):

- Implement a program. E.g.: GLOBAL LAND TOOL NETWORK (GLTN)
- Institutionalize a program. E.g.: GLOBAL NETWORK ON SAFER CITIES (GNSC)
- Establish strategic (and operational) partnerships. E.g.: GLOBAL WATER OPERATORS' PARTNERSHIP ALLIANCE (GWOPA)
- Global advocacy. E.g.: 100 CITIES INITIATIVE, part of the World Urban Campaign
- Expand reach within a sector. E.g.: GLOBAL ENERGY NETWORK FOR URBAN SETTLEMENTS (GENUS)
- Reach various levels: local-national-regional-global. E.g.: SUSTAINABLE CITIES PROGRAM (SCP)
- Organize sharing and application of knowledge within a partner group. E.g.: HABITAT PARTNER UNIVERSITY INITIATIVE (HPUI)

UN-HABITAT's continued commitment to supporting Networks rests on the following key principles:

- To provide a **digital platform** for collaboration. E.g.: www.urbangateway.org
- To provide a **global forum** for dialogue and collaboration. E.g.: World Urban Forum (Naples, September 2012)
- To facilitate **access to resources**. E.g.: SUD-Net as a network support facility
- To create opportunity for **practical inter-network collaboration** through programs and projects. E.g.: multi-sector and multi-disciplinary themes, e.g., slum upgrading, rehabilitation of public spaces
- To develop and maintain a **global database** of partners and networks

Dan Lewis, Head of the Disaster and Post-Conflict Section of the Shelter Branch of UN-HABITAT gave a presentation outlining his Section's experiences on working with networks. He noted that the Section is taking part in three networks but does not have its own. A good network has to be greater than the sum of its parts and a leading question should be: What kind of change can we expect from a network (the partners have to provoke and be provoked). One good example is the 'post crises network' which is specifically not looking for consensus but rather for discussions and it supports partners to contribute their individual views

The publications of a Network and on a Network's portal/platform should be coherent and complementary, the validation of the material on the platform will automatically come from the peers as you can see which publications are viewed often and by the comments given.

The Section has had many good experiences with participation in such community of practices as this is the right forum for them to drive own initiatives, others use this platform too to drive their own initiatives like ISTR which is driving its risk reduction agenda to target 10,000 cities by 2016. Mr Lewis highlighted the need to have a broad range of actors to reflect the variety of the housing issues and that it should not be forgotten that the house is embedded into a wider urban system.

Key considerations and comments raised by participants during discussion regarding the proposed Network:

- Besides the thinking about partners for knowledge sharing there also needs to be thinking about other donors getting involved to address the current lack of funding, possible partners are DFID and ECHO.
- The difference between GLTN and i-HOUSE is the missing objective of the later, to keep it on an information sharing level is not enough, a joint goal has to be defined how issues can be addressed together, there needs to be a joint approach towards donors
- Some may argue that there is already an information overload, so the focus should be on practical issues.
- The focus of the network needs to be worked out still. It is not so clear right now, and the partners need to be involved in shaping the focus.
- It might be misleading to name it 'platform' as it looks like the approach wants to achieve more than this but still the exact purpose is missing, for example the Green Building Council in South Africa which is similar to GLTN and calls itself Network is really a platform.
- A network is in its definition more passive, so looking forward and considering the goals of the project it might need renaming to make it more active.
- Need to include private sector as they play a key role in implementation too, donors are rather not welcome in the operational side
- Money should come from the members as they will pay if they think it is valid to their work.
- The name should be changed and reflect the content, e.g. is it an action/crisis group?
- In the presentation the networking idea is clear but information is missing on the usage of the platform, it has to be made clear that activities will follow.
- It is crucial to have an early definition of the objectives.
- Some funding has to be committed from the beginning to kick-start the process, a resource mobilization strategy has to be defined in the early stages.
- The current advantage of the group (in this EGM) is that it is very diverse, which is not so common when looking at other networks, this needs to be emphasized and used as a strength of the proposed Network.
- But, the diverse group has to define common objective (a 'one pager').
- The involvement of donors needs to be carefully done as they always have to directly report back to their national citizens and have their own agenda.
- Good experiences were made with the EU (they underwent a policy change through the participation in a network) and Norway (they merged their foreign aid with the emergency funds through the participation in a network), with DFID mixed experiences were made.
- The knowledge platform should build on each other's strength to improve everyone's work.
- Favorite approach would be to first talk to partners and define what is relevant and then talk to donors - UN-HABITAT is approached by different private sector donors (e.g. google, Coca Cola, Middle East companies).
- UN-HABITAT highlighted that the exact objective of the is not yet laid out and clear as this would be done by a future interested group (of partners), which can start as soon as possible.
- If the objectives capture the existing gaps then the approach towards donors would be easier.
- Is welcoming the action orientated network ideas.
- GLTN noted that from their experience the diversity of the partners is also seen as strength, and personal meetings are necessary for better understanding amongst members of the group.
- GLTN also started with small funding and acquired later bigger funds as stakeholders saw relevance
- UN-HABITAT is generally much engaged in the operationalizing of networks but it needs initial objectives to start their engagement
- Even once the objectives are defined they need constant review and updating.
- At the beginning *realistic* objectives need to be defined.

12. Session Eight – Recommendations to UN-HABITAT and its partners

Working groups

Working groups were encouraged to brainstorm the three key areas: (1) i-HOUSE as the UN-HABITAT strategy paper, (2) i-BUILD, the online knowledge sharing platform, and (3) the Global Network for Sustainable Housing. It was suggested that during brainstorming participants consider where the gap (need) is, how these initiatives can make their work better, and what impact they wanted to see as a result of implementation. Working groups were requested to formulate key recommendations as well as specific action points.

GROUP ONE – i-HOUSE

The group reflected on the concept of Sustainable Housing and the priority areas formulated in the i-HOUSE position paper. Niches and identified the following niches and areas of interest:

- The experts agree on the need to define the concept of sustainable housing in emergency and recovery contexts.
- The experts note that concept of sustainability depends on the context and implies flexible and incremental housing solutions. i-HOUSE should advocate for permanent housing solutions in post-crisis context.
- The experts consider i-HOUSE shall promote a paradigm shift in thinking of international community on post-crisis shelter/housing, through (i) early response, (ii) urban tools, (iii) post-disaster with a development perspective.
- The experts encourage i-HOUSE to collect, identify and share best practices on concrete technologies and 'know-how' to illustrate sustainable and affordable housing solutions (practices including prototypes, policies and guides) and to identify the target groups and their needs.
- i-HOUSE should contribute to define a common agreed language on sustainable housing and to develop a multilingual lexical.
- The experts welcome the participatory approach and process promoted by i-HOUSE as a key element to ensure the sustainability of housing projects, in particular by promoting traditional knowledge and bottom-up approach to tap the local knowledge from communities, slum dwellers and the most vulnerable.
- The experts acknowledge that i-HOUSE should contribute to demonstrate the social utility of research and strengthen the linkage in-between field study, research and participation in the field of sustainable housing.
- The experts encourage i-HOUSE to develop special tools and mechanisms to extract the best of the existing knowledge, by developing certification tools, standards and mechanisms of local knowledge for sustainable housing (to deliver awards and motivate implementation of sustainable housing practices), and by producing quick and easy adapted guides to evaluate the life cycle of traditional and low-income housing structures and buildings.
- The experts note i-HOUSE should formulate and insert indicators in documented practices on i-BUILD.
- The experts recommend modifying the project titles of the sustainable housing initiative and will formulate proposals to UN-HABITAT.
- The experts welcome the cultural dimension of sustainable development promoted by i-HOUSE as an essential element of sustainable housing.

i-HOUSE identified key components:

- Advocacy
- Tool development
- Document best practices
- Database of information, research and practices for dissemination
- Policy and guides
- Common language
- Documenting processes

- Bottom-up approach
- Certification
- Measure and evaluate, developing criteria
- Education, training and curricula

Recommended action points:

- Identify tools to be developed by partners to be presented at WUF6 (LCA, for example)
- Knowledge focus on households energy
- Develop a zero-version of the best practices database
- Define concept and criteria for sustainable housing
- Share a follow-up questionnaire to identify i-HOUSE gaps
- Reach a scientific journal, or create i-HOUSE journal

GROUP TWO – i-BUILD

Gaps identified:

- Information exists but is fragmented and not easily available for users and target groups, including end-users
- Peer-to-Peer learning
- Lack of information about good practices
- Fragmentation of sources of information
- Need for on-line availability of ongoing projects and lessons learnt that can enable ‘twinning’ and match making
- Materials, techniques and technologies on particular contexts, such as hands on instructions, are not available
- Need for YouTube kind of videos and demonstrations
- Lack of information on limits of technologies applications
- Need for guidelines to provide reliable info about materials potentials and limitations
- No overview of the sector: conferences, books, reports, events and announcements
- i-BUILD can be a ‘market place’ where to look for expertise on building codes, norms and standards, etc.
- i-BUILD shall provide profiles of organizations and experts

What needs to be done for the platform to be on-line:

- Agenda: protocol and procedures: who is going to update and maintain the platform?
- Levels of commitment and common values
- Some kind of interactivity and quality control, with a moderator or board
- Library
- Founding partners, new partners and members: what are the rules of engagement, criteria, procedures and share-values
- Branding names should be revised and suggestions to be made by partners (i-HOUSE, i-BUILD)
- Copyrights disclaimers
- Authorization and regulation for upload and download, hyperlinks and open sources
- Template for institutions: name, mission, values, key words, expertise, website address, geographical location, publication (template to upload publication), logo, brief history and profile
- Feedback on-line – registration
- Language should be the responsibility of partners

Goals, outcomes and indicators:

- To be known by universities and professionals
- To get the concept of Sustainable Housing widespread, known and applied
- Number of partners joining and in X time

- Logframe to allocate resources and responsibilities
- Design workshop for lab live exercises

GROUP THREE - GSHN

Gaps identified:

- Massive housing shortfall, which is getting worse
- Failure of existing networks to address this gap at scale
- Knowledge (of which there are different types) is not translating to action
- There are communication gaps – for example translating technical knowledge to language that is understood by other audiences. Knowledge from the ‘ground up’ is not reaching the ‘top’ to inform policy dialogue, etc.
- Dearth of innovation
- Lack of coordination (of innovation and communication) between ‘top’ and ‘ground’.
- Systemic challenges (professionals)
- We are not capitalizing on what’s being done well
- Lack of memory
- Donor influence in practice and policy.

How can we (the network) improve the way we work?

- Play an interpreting role (We should consider if the Network will try and play a quantitative and/or qualitative role)
- Stakeholder identification and coordination
- Improve government capacity/involvement

Recommendations

- Information exists but is fragmented and not easily available for users and target groups, including end-users.
- Need for increased Peer-to-Peer learning.
- Lack of information about sustainable housing practices.
- Fragmentation of sources of information.
- Need for on-line availability of ongoing projects and lessons learnt that can enable ‘twinning’ and match making.
- Materials, techniques and technologies on particular contexts, such as hands on instructions, are not available.
- Need for YouTube kind of videos and demonstrations.
- Lack of information on limits of technologies applications.
- Need for guidelines to provide reliable info about materials potentials and limitations.
- No overview of the sector: conferences, books, reports, events and announcements.
- i-BUILD can be a ‘market place’ where to look for expertise on building codes, norms and standards, etc.
- i-BUILD shall provide profiles of organisations and experts.

Actions points:

- Each organisation should review the Network concept note circulated prior to the EGM – make comments and reflect on each organization’s contribution in light of the EGM experience and outcomes. In particular this should focus on identifying other stakeholders and networks. (Deadline: 1 Feb 2012)
- In coordination with other organisations, UN-HABITAT should lead the process of developing a project document for the Network (Deadline: prior to WUF6):
- Develop a ToR, criteria for partners and members, identify the leadership structure and develop the business model.

- Undertake a stakeholder identification/analysis (confirm there are no other global Networks already operating, and find out the stakeholders likely to be of relevance for the Network)
- Develop a funding strategy – short, medium and long term.
- Each organisation should identify at least one potential partner and joint project, with a view to undertaking a ‘quick win’ project/collaboration to initiate the process of collaboration. This might be a joint research document, support to existing field project, knowledge dissemination or capacity building activity, etc. (Deadline: prior to WUF6)
- UN-HABITAT should develop and coordinate the second meeting, scheduled for WUF 6 in September 2012 where the Network could be launched.

Part Three: Annex

13. EGM documentation – Concept note: i-BUILD: Online knowledge sharing platform

As part of *i-HOUSE*, a new initiative for housing sustainability, UN-HABITAT is launching an online knowledge sharing platform for sustainable housing and slum upgrading, *i-BUILD*, which will be hosted on the Urban Gateway. *i-BUILD* is underpinned by the fact that to achieve sustainable human settlements in developing countries, stronger networks and more accessible up-to-date knowledge on sustainable housing and slum upgrading is urgently required.

Given the vast magnitude of new construction that will take place in developing countries in the coming decades due to continued rapid urbanisation, and the need to upgrade existing slums and informal settlements, if new housing and upgraded slums fail to be the most energy efficient and sustainable as possible, the globe faces a multi-decade lock-in of dangerous energy consumption patterning which will certainly aggravate economic, social and environmental challenges. To address this an essential task is improving the availability of, and disseminating knowledge on sustainable housing practices to contribute to environmentally, economically, socially, and culturally sustainable housing and settlements.

The need for an online knowledge sharing platform:

A wealth of knowledge exists on how to make buildings that are environmentally sustainable. However, information is scattered, often inaccessible and therefore time-consuming to gather, analyse, and use in practice.

While developed countries have networks of knowledge exchange (professional networks, conferences and events, trade shows, etc), knowledge sharing mechanisms are currently very weak in developing countries. In particular, there are few networks and no up-to-date and accessible resource platform which are tailored to the specific challenges facing the built environment in developing countries, such as the need to increase the provision of new affordable housing and improve the living conditions of existing slums. This lack of up-to-date and accessible knowledge is a significant impediment to improving the environmental sustainability of the built environment in developing countries.

There are many sustainable building materials and technologies—both traditional and new—but the knowledge of these often does not reach the actors who develop housing and upgrading informal settlements, such as local government, planners, designers, etc. There is no clear ‘starting point’ from which to search for sustainable housing options: information is scattered and uncoordinated. There is no concise, direct online platform that canvases the state of the field and provides a quick reference point for information. Furthermore, as the ‘People’s Process’ gains momentum and grassroots communities and organisations are placed at the centre of development, accessible, up to date information on options for sustainable affordable housing are crucial to support these bottom-up housing processes.

The vision:

To be the number one online resource and first point of contact for information on sustainable housing options.

The aim:

The online platform has three aims:

- To increase the accessibility, availability and dissemination up-to-date knowledge on sustainable housing.
- To act as a repository of knowledge that will remain in perpetuity and can be freely accessible by all.
- To complement a Global Network on Sustainable Housing that seeks to improve the sustainability of affordable housing in developing countries.

Proposed content and structure:

The platform will be hosted on the Urban Gateway, as an element under the Global Housing Sustainability Network page. The content of the platform will be uploaded by contributors at their discretion. Contributions will be either:

- (a) uploads of pre-published information (e.g. e-books, reports, powerpoints, audio files, etc), or links to them;
- (b) contributions made by completing a standard template, is pre-published/formatted information is not available. (See attached proposed template).

Contributions will be tagged according to several pre-defined thematic areas. Users will be able to search information according to these areas(s) (accessed through drop down menus):

- (a) Context: <Slum upgrading>, <new build>, <retrofitting>, <post disaster/conflict>,
- (b) Building element: <Foundations>, <floor>, <walls>, <windows and doors>, <services and infrastructure>, <roof>, <landscape elements>.
- (c) Building typology: <detached house>, <terrace/row housing>, <condominium>.
- (d) Services and infrastructure: <energy sources (renewable)>, <waste disposal (water, human waste)>, <streets and transportation>.
- (e) Location: <Region>, <Country>, <City>
- (f) Climate: <Climatic zone X>, <Climatic zone Y>, <Climatic zone Z>, <etc>.
- (g) Passive building design strategies: <thermal storage>, <solar orientation>, <etc>.
- (h) Technologies: <Cooking appliances>, <lighting>, <space heating and cooling>, <rainwater collection>,
- (i) Economic: <International financial instruments>, <housing finance>,
- (j) Regulation and codes and sustainability assessments: <Building codes>, <Design guidelines>, <building sustainability assessment methods>
- (k) Training and capacity building: <e-courses>, <workshops>, <methodologies>

As an element of the Global Sustainable Housing Network, the platform will function not only as a knowledge library but also as an interactive platform that could:

- Host design international and local competitions (students and professionals).
- Give news on events in this field of knowledge and practice
- Give professional network updates: upcoming conferences, etc.
- Give downloadable and/or streaming 'podcasts' of people speaking on field activities, product development, case studies, lectures, etc.

Operational considerations of the platform:

The following are operational considerations that require further consideration:

- Language(s)?
- Quality control?
- Ease of use for those in developing countries (internet speed/connectivity/etc)?
- Will the platform be abused by private developers, through a focus on self-promotion of their products and services?
- A set of rules and guidelines for the platform need to be developed (i.e: a-political, existing as a knowledge library (encyclopedia), content is free, etc).
- Copyright issues with patented materials/products/systems?

Proposed Template (examples of contents given below each heading)

1. Broad overview/brief description

Approximately 100 words that summarises the whole page.

2. Background/origins

When it started?

Who started it?

Why it was started: what did it respond to?

3. Description/explanation of system/building material/product/strategy

Where to use it: possible applications

How to use it: construction process, types of use

How to make it (construction elements, etc)
Considerations for where or how not to use it

4. Environmental strengths and weaknesses

Embodied energy
Baseline data: CO₂ per unit (m²/m³), etc.
Lifecycle assessment (LCA) of environmental impact
Climatic considerations: climate, natural hazards

5. Economic strengths and weaknesses

Capital/start-up cost requirements
Per unit cost, cost per m²/m³
Cost savings/comparisons over/with other similar products
Lifecycle costs
Economies of scale

6. Social and cultural strengths and weaknesses

Occupant health,
Employment generation,
Training and education,
Responsiveness to gender, indigenous groups, youth needs.

7. Institutional aspects

Necessary institutional and regulatory frameworks for implementation
Building code requirements/changes/considerations.

8. Technical specifications/data/characteristics

Element size, weight, material composition, etc.
Building material production information
Quality control in production and installation
Performance criteria: durability, life expectancy, maintenance requirements, etc

9. Case studies of application

Location
Date/year
Context/background
Helpful conditions
Challenges faced during implementation and how they were overcome

10. Current work/application/use

Current application: location and effect

11. Further information:

Downloads (product information sheets, fact sheets, technical specifications, case study reports)
Web links: video(youtube, online), media documentation (newspaper articles, etc), product suppliers, company website.

11. References (from this online article)

14. EGM documentation – Concept note: Global Network for Sustainable Housing (GNSH)

Continued urbanisation, increasing shelter demand, and the challenge of environmental sustainability

The year 2007 marked an historic milestone: more than half of the global population lived in cities.¹⁷ While the process of urbanisation brings with it many positive benefits and opportunities, rapid and sustained urbanisation also places enormous pressure on the provision of adequate, affordable and sustainable shelter in urban areas.

Nowhere better is this pressure evidenced than in many developing countries today. In many cities in Asia, Africa, Latin America and Eastern Europe, urban growth is synonymous with slum and informal settlement growth, meaning, quite accurately, that urbanisation equals informal housing formation. While over the last decade there have been a multiplicity of responses to addressing this housing challenge, environmental sustainability dimensions have seldom been considered.

The challenge of producing housing that is environmentally sustainable is not limited to developing countries. Globally, there is a lack of capacity, willingness, knowledge-sharing and institutional and regulatory support for mainstreaming sustainability dimensions within housing projects, programmes, and private sector housing development.

This is alarming considering the virtual consensus across the global scientific community that global warming and climate change is happening and that human activities (especially anthropogenic emissions of greenhouse gases) are having a significant affect in this. Particularly relevant is the fact that of all human activities, the consumption of energy within the building sector currently represents the greatest source of anthropogenic greenhouse gas emissions: roughly 40 per cent of all energy consumption and greenhouse gas emissions around the world.

Even in developing countries the building sector offers important opportunities for cost effective emissions reductions. Importantly, the ever increasing need to alleviate poverty, provide adequate housing for disadvantaged peoples and provide alternatives to urban slums in developing countries demonstrates a critical tension between the need to increase energy access to the world's poor and simultaneously reduce emissions on the global scale.

The Global Network for Sustainable Housing

It is within this context of continued urbanisation, increasing urban housing demand, and the need to mitigate the negative environmental effects of housing construction and use that UN-HABITAT is coordinating the development of a Global Network for Sustainable Housing (GNSH).

There is a wealth of knowledge on how to make housing environmentally sustainable, yet this knowledge is fragmented, uncoordinated and often inaccessible to stakeholders who need it most. Likewise, there is a wealth of experience from developed countries on 'green building' policies, instruments, designs, and monitoring mechanisms, yet this experience is often not disseminated to stakeholders working in the housing sectors of developing countries.

Furthermore, there is there is a lack of global knowledge exchange, partnership and collaboration, dialogue, and advocacy on the importance of developing sustainable housing, and the ways forward for achieving it.

Aim, objectives and scope of the Network

The broad aim of the GNSH is to contribute to the universal realisation of the right to adequate housing whilst adapting and mitigating the negative effects of climate change through supporting the development and implementation of sustainable affordable housing practices and programmes.

The four primary objectives of the Network are:

¹⁷ UN-HABITAT, 2003; 2009

1. *Knowledge exchange and networking*: To support the global coordination and knowledge dissemination of sustainable housing alternatives.
2. *Advocacy and policy direction*: raise awareness and promote sustainable housing alternatives (materials, designs, etc) and contribute to policy dialogue and development that can facilitate mainstreaming sustainability in national housing policies and regulations.
3. *Tool development*: facilitate the development of pro-poor tools and methodologies for designing, constructing and monitoring sustainable housing alternatives.
4. *Training, education, and capacity building*: strengthen the capacity of housing sector stakeholders – such as slum dwellers, the private sector, policymakers and housing developers – to produce sustainable and affordable housing.

Although the Network is global in scope it will have a strong focus is on developing countries. The Network seeks to have an equal balance of partners, members, and input from both developed and developing countries. Whilst globally there is large variation in housing sectors, capacities, designs, etc, the intention is to connect partners and share lessons and experiences between countries and regions.

The UN-HABITAT-led Network will be composed of professional groups, multilateral and bilateral organisations, training institutions, academia, community-based organisations (CBOs), and grassroots organisations. It will advocate for the improved sustainability of housing and slum upgrading and create a forum for knowledge and experience exchange.

Proposed organisational structure and partners

The proposed organisational structure will include: GNSH Secretariat, which will coordinate the network (possibly to be based at UN-HABITAT in the Shelter Branch); an International Advisory Board, which will meet bi-annually to formulate and monitor the strategic direction of the network and guide programme implementation; a Steering Committee, comprised of members of UN-HABITAT; GNSH partner organisations of professional groups, multilateral and bilateral organisations, training institutions, academia, community-based organisations (CBOs), and grassroots organisations; and GNSH members, those individuals and organisations registered as members on the website (Figure 1).

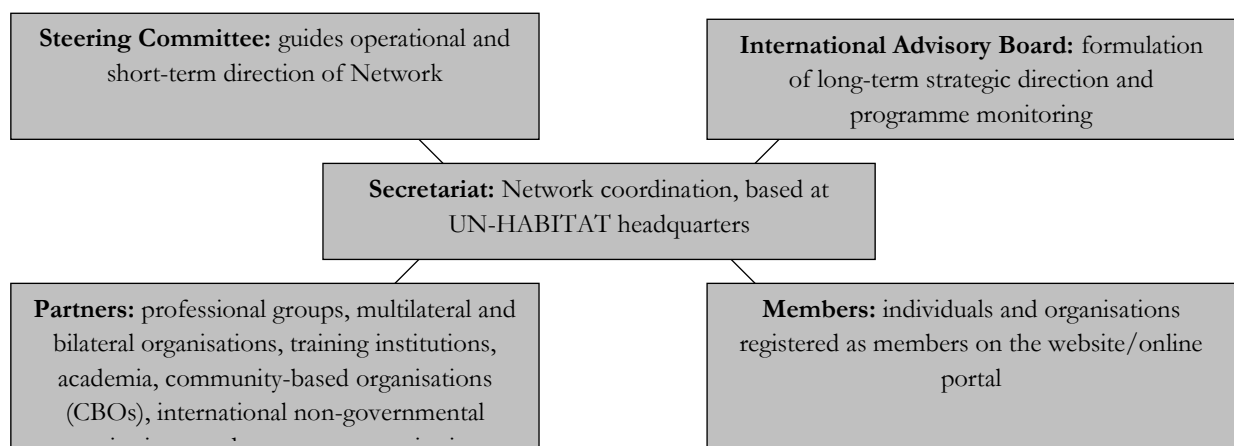


Figure 1: Proposed organisational structure

The criteria for partners to join are:

1. Commitment to the development of pro-poor sustainable housing knowledge, solutions, and practices
2. Contribute funding and/or knowledge
3. Represent organisations working at a regional or international scale
4. Engage with the Network for non-commercial purposes only.

Proposed activities and next steps:


The following are proposed as the core operational activities of the Network:

- The maintenance of online knowledge sharing platform. The primary outlet of the network will be a website, *i-BUILD*, hosted on the Urban Gateway. It will have several functions, although primarily it will act as a library for knowledge on sustainable housing and post news, events, and listings of relevance to Network members (see the Concept Note for more information).
- Hosting an bi-annual international conference. This will provide a forum for network partners and members to share experiences and new building technologies and designs, and network and develop stronger partnerships for future collaborative work. There could also be an exhibition to showcase innovative sustainable housing products and cutting-edge housing sustainable programmes and projects as well as a student/‘young professionals’ forum to encourage research and knowledge dissemination to a young practitioners and researchers.
- Hold dedicated side-events, special sessions, and/or roundtables on this thematic area at relevant conferences held by partner organisations.

To initiate the Network UN-HABITAT will lead the following proposed primary activities:

- Hold a two-day Expert Group Meeting (EGM) in December 2011 with 10-12 participants representing key organisations that should shape the network (for example, academia, NGOs and CBOs, ‘green building’ rating and monitoring organisations, and ‘appropriate technology’ organisations working in the field).
- Develop a core group of founding partners, ‘champions’, to constitute a Working Group that will define, shape and initiate the Network.
- Hold a second meeting at the World Urban Forum in September 2012 where the Network will be officially launched.

15. Organisation and participant profiles

	<p>Center for Climate Change and Sustainable Energy Policy (3CSEP), Central European University</p> <p>3CSEP contributes to the governance of international decision-making processes related to climate change and sustainable energy, including the role that buildings play and the development of energy efficiency technologies and policies. Some of the key projects involve participating with the following organizations:</p> <ul style="list-style-type: none"> • Intergovernmental Panel on Climate Change (IPCC) • Global Energy Assessment (GEA) • Global Building Performance Network (GBPN) • United Nations Scientific Expert Group on Climate Change (UN SEG) • United Nations expert group on energy-efficiency “Bringing Energy Efficiency to Scale” • United Nations Sustainable Building and Climate Initiative (UNEP SBCI) • Research projects under the EU’s Intelligent Energy - Europe and Framework Programs, as well as European Parliament <p><i>Organisation type:</i> Research institution</p> <p><i>Geographic focus:</i> Regional focus on Central Eastern Europe and Global</p> <p><i>Thematic focus area(s):</i> Building retrofits, building materials and technologies, energy efficiency in buildings, lighting and appliances, policy approaches</p> <p><i>Key departments and people working on sustainable buildings:</i> Diana Urge-Vorsatz, Director, Director of 3CSEP</p>
	<p>Diana Urge-Vorsatz</p> <p><i>Director of 3CSEP</i></p>
	<p>Presentation: TBC</p> <p>TBC</p>



CRATerre-ENSAG, International Centre for Earth Construction

Since its establishment in 1979, the main areas of work and achievements are:

Social and low-cost housing (since 1979):

- Mayotte Social Housing Programme (1981-2011), over 25,000 CEB buildings
- Domaine de la terre social housing project in Villefontaine, France (1983-1985)

Capacity building covering one or all the CRATerre thematic area at national scale (since 1988):

- Support to Nigeria NCMM to develop its Center for Earth Construction (1988-1995)
- Support to Burkina Faso Locomat National Agency (1990-2000), Housing ministry and UNDP
- Support to RDC PARSE national school construction programme financed by the World Bank (2011)

Environmental impact reduction (since 1990):

- Mayahi rural housing project in Niger as component of a FAO programme to fight desertification and poverty (1994-1997)

Qualification and income generating activities (since 1997):

- High Return Housing Project in South Africa supported by the Dutch Foundation Van der Leij Habitat (1997-2001), Department of Housing 2002 National Award as the most innovative housing project

Cultural Heritage and local development (since 1988):

- Africa 2009 programme on Cultural Heritage of Subsaharian African countries with National Authorities, UNESCO and ICCROM (1999-2009)

Post-disaster reconstruction and Disaster Risk Reduction (since 1995)

- Contribution to the Cultural Landscape of Bam, Iran (2004-2007)
- Towards community based natural disaster risk reduction in Ardakan, Iran (2009-)
- Haiti reconstruction projects (2010-)
- Other reconstruction projects after disaster and disaster risk management projects (Pakistan, El Salvador, etc.)

Standards and professional building codes (since 1990):

- CEB standards (1999) and professionals code of practices for earthen architecture (under progress)

University embedment (since 1984):

- Post graduate course on earthen architecture at the National School of Architecture, Grenoble France (1984-)
- Makerere University, Curricula development and pedagogical tools, GTZ and European Union project (1996-1999)
- UNESCO Chair "Earthen Architecture: Building Cultures and Sustainable Development" (1998-)

Researches on the thematic areas:

- Solar Decathlon eco-housing competition, Madrid 2010
- One of the 100 French selected "Excellence Research Laboratory": LABEX AE&CC (2011-)
- Grands Ateliers (Great Workshop) facilities in Villefontaine where full scale model can be built and tested and where innovative pedagogy can be implemented with joint trainings and researches with Engineering and Architecture (2002-) with an international Festival dedicated to the new technological development on earth construction organized every year

Publications and exhibitions (since 1979):

- Key publications (building with earth, earth primer, traité de construction en terre, CEB toolkit, "batir en terre", etc.)

Contribution to two majors exhibitions ("Down by earth" and "batir en terre" with the CCI and Cité de la Villette in Paris)

Organisation type: Research and education institution with a strong field expertise and application component

Geographic focus: Global

Thematic focus area(s): Materials – Cultural Heritage – Habitat: Building Cultures, Earthen Architecture, Building materials and technologies, Housing and building design, Sustainable housing and building construction, Knowledge and technology transfer, Project methodology, Access to decent housing to disadvantaged communities and low-income groups, Community empowerment, Support to artisans, entrepreneurs and SMes, Production of building material, Analysis and evaluation and correction of raw material, Laboratory procurement and installation, Standard and professional building codes, Disaster Risk management and reconstruction, Vulnerability assessment, Building retrofitting, Evaluation, Publication, Training, education and Research.

Key departments and people working on sustainable buildings: Eng. Dr. Romain Anger, Materials Department
Arch. Thierry Joffroy, Cultural Heritage Department
Arch. Philippe Garnier, Habitat Department
Prof. (Arch.) H. Guillaud, Head of the AE&CC research unit
Prof. (Arch.) P. Doat, Head of the research laboratory



Arch. Philippe GARNIER

Head of the Habitat Programme

Philippe Garnier, 48 years, is graduated from the National School of Architecture of Grenoble. He is and working for the International Centre for Earth Construction (CRAterre-ENSAG) for 20 years, where he is in charge of the Habitat Research programme and teaches "Human Settlements" within the post-graduate course "Earthen Architecture: building cultures and sustainable development". He is in charge of several projects and has developed a specific expertise on seismic issues after Bam Earthquake and other post-disaster operations (Morocco, Indonesia, Peru, Haiti, etc.). He has also directed the publication "Aléas naturels, catastrophes et développement local" (Natural Hazards, disasters and local development).



Presentation: The experience and approach of CRAterre towards housing sustainability (1979-2011)

For over 30 years, CRAterre has been working in the field of earthen architecture and local building materials with the vision of contributing to meet the Habitat needs of the majority based on the idea that each territories and communities have resources that can be use. Through projects, restoring dignity and confidence often lead communities to reinterpret its own building cultures and identify potential solutions from them that may need to be upgraded for the benefit of all (e.g. better opportunities and access to housing, qualification and income generating activities) and towards communities sustainability and resilience.

Chalmers University of Technology

30 years experiences in building climatology, energy, cookstoves, kitchens (research and education); 20 years Swahili towns (sustainable planning). Ongoing projects/building up knowledge: Design for Extremes, Homes for Tomorrow, East African Urban Academy in cooperation with regional universities, developing sustainable design education (including crafts), Reality Studio, marketplace project in Kisumu (MISTRA urban Futures), CUMULUS/DESIS (social innovation)

<i>Organisation type:</i>	<i>Education and research</i>
<i>Geographic focus:</i>	<i>Global, regional- East Africa</i>
<i>Thematic focus area(s):</i>	<i>Home, housing, stoves, kitchens, building climatology, marketplaces, tools: systems design, fieldstudies, prototyping, trans disciplinary, extremes, capacity building- east African urban academy, trippel helix, culture</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>Maria Nyström, professor, Depart. Architecture, chalmers and School of Design and Crafts, Univ of Göteborg, Chalmers/ Architecture: Krystyna Pietrzyk, Barbara Rubino, Björn Malbert, Ingerlise Syversen, Chalmers/ Water Environment Technology: Greg Morrison, Building Physics: Carl Eric Hagentoft Nina Ryd, Director Built Environment</i>

Prof. Maria Nyström

Professor Chalmers University of Technology/ Design for Sustainable Development and Professor School of Design and Crafts (HDK) in charge of design research (art based design)
 Maria Nyström is a docent and professor at Chalmers University of Technology and at the School of Design and Crafts, University of Gothenburg. She is in charge for research in the subject design and design for sustainable development. She received her PhD in Building Science 1994 focusing on building climatology stove, kitchen and building design. Through her carrier she has been working as an industrial designer mainly in South East Asia and Eastern Africa. She is a lead in establishing the East African Urban Academy now running Reality studio and marketplaces. She was a Cullinan professor at Rice University in Houston, 2001.

Presentation: Designing Development - Future Homes for Future Cities

Contemporary challenges to deal with the built environment calls for new *modes* of knowledge production, management and dissemination. Trans- disciplinary and boundary spanning collaboration between academia, industry, and society is encouraged as means to favor mutual learning and development. How can a design approach take a central role? The *daily life* is in focus. We need to understand the relations between micro and macro level; from a cook stove to deforestation and climate change. The East African Urban Academy is a timely academy based on *knowledge clusters* such as food chain, living in extreme environments and new participatory planning tools. Focus is on design for social innovation. The “Hab lab” is a test-bed for prototyping. New networks are coming up as MISTRA Urban Futures a centre acting locally and globally.



EcoSur Network and Grupo Sofonias

Grupo Sofonias grew out of earthquake reconstruction in Guatemala 1976, and EcoSur began in 1991 and formalized as a network in 1996 in Ecuador.

Some 600 micro enterprises created in Latin America, Africa and Asia (mainly micro concrete tiles with capacity to produce some 30,000 roofs yearly), thousands of houses and hundreds of schools built in Nicaragua, Ecuador, Honduras, Guatemala, Salvador, Cuba, Namibia. Post disaster reconstruction in several countries, actually in Haiti. Investigations in different materials and technologies, specifically micro concrete tiles, groundbreaking research in ferrocement panels, lime-pozolana cement and meta-kaolin cement additions.

Organisation type: EcoSur network is a flexible network of loosely connected entities managed by Grupo Sofonias (NGO)

Geographic focus: Global, but our main strength is Latin America

Thematic focus area(s): EcoMaterials (Economy and Ecology), investigation, production, teaching, design, construction, capacity building, micro-enterprise creation

Emphasis on decentralization, small units.

Housing design and project management

Disaster reconstruction (incl durable quick shelters)

*Key departments and people working on sustainable buildings: Kurt Rhyner (Arch. PhD, Prof. Swiss) Coordinator
Fernando Martirena (Eng. Dr Sc. Prof. Cuban) Coordinator
Paul Moreno (Chemist, PhD. Ecuadorian) Communications*

Marcos Macanche, (Architect, Nicaraguan)

Bernardo Rhyner, (Architect, Canadian)

work team of 15 engineers, architects, builders



Kurt Rhyner (Architect, PhD, Professor)

Coordinator of the network

Director of the managing organization (Grupo Sofonias)

Born 1948 in Switzerland, architectural studies and practice in Switzerland; since 1976 active in development work in southern hemisphere, mainly Latin America.

PhD in technical sciences, professor, investigator and consultant for EcoTechnologies, disaster mitigation and reconstruction, small scale production of EcoMaterials

Formerly resident project director in Guatemala, Nicaragua, Namibia.

Developing Grupo Sofonias from a small work team into a mini-multinational organization with active bases in Nicaragua, Ecuador, Haiti and Switzerland, and affiliated organizations in Namibia and Cuba

Building up EcoSouth Network for an Ecological and Economical Habitat, into a dynamic information exchange with a south-south focus and impact.

Presentation: EcoSur, The network for the economical and ecological habitat

EcoSur is an network of loosely connected organizations, universities, firms and individuals dedicated to solving the housing deficit. It connects science with practice. The “open source” bi-lingual website www.ecosur.org unites thousands of users and is the reference point for EcoMaterials. The strategy of networking is

the base of an international South-South movement of twenty years that contributes to resolving problems of the Habitat. Its cybernetic center is in Ecuador.

Over two decades of patient investment in time and energy has resulted in the development, characterization and dissemination of ecological and economical construction materials, which can be locally-produced, are affordable and can resist natural disasters. Networking among the entities through connecting science with practice and post-disaster reconstruction has facilitated development of human resources and a new generation now carries the torch. Currently young professionals from Nicaragua, Ecuador and Cuba, both male and female, engineers, architects, masons and administrators are participating in post-earthquake reconstruction in Haiti, thereby further cultivating the work of the past two decades in technology transfer in a direction toward sustainability.



International Institute for Environment and Development

As an independent international research organisation, we are specialists in linking local to global. In Africa, Asia, the Caribbean, Central and South America, the Middle East and the Pacific, we work with some of the world's most vulnerable people to ensure they have a say in the policy arenas that most closely affect them — from village councils to international conventions.

Through close collaboration with partners at the grassroots, we make our research and advocacy relevant to their needs and alive to their realities.

Partnerships are key to the way we work at IIED: they keep our approach fresh and dynamic round the world. By forging alliances with individuals and organisations ranging from urban slum dwellers to global institutions, IIED ensures that national and international policy reflects the agendas of marginalised people.

IIED was launched in 1971 by renowned economist and policy advisor Barbara Ward, making it one of the very first organisations to link environment with development.

The institute has played key roles in the Stockholm Conference of 1972, the Brundtland Commission of 1987, the 1992 Earth Summit and the 2002 World Summit on Sustainable Development, and is now helping to shape the global debate on climate change.

Organisation type: Research institution
Geographic focus: Africa, Latin America, and South and South East Asia
Thematic focus area(s): Vulnerable groups, Advocacy
Key departments and people working on sustainable buildings: The department at IIED that deals with Housing issues is the Human Settlements Group. Key members of staff are Gordon McGranahan, David Satterthwaite, Diana Mitlin and Martin Mulenga.



Dr. Martin Mulenga

Senior Researcher, Human Settlements Group
Martin Mulenga (Ph.D) is a senior researcher at the International Institute for Environment and Development (IIED), a research and policy organization based in London. Dr. Mulenga primarily works on urban poverty and environmental issues in low-income settlements in Africa, Latin America and Asia. He has a PhD in Civil and Environmental Engineering from the University of Southampton in the UK and a Post Graduate Diploma in Architecture from the University of KwaZulu-Natal in South Africa.

Presentation: Constraints and Opportunities of Sustainable Housing in Low-income Urban Settings

This presentation will look at the challenges individual households and communities face in the delivery of sustainable housing in low-income urban settings. These challenges include affordability, legislation, lack of information, and people's attitudes towards sustainable housing. The presentation will also highlight the potential of sustainable housing in low-income urban settings and will make recommendations to key stakeholders on how best to address the

barriers which can be a stumbling block.



International Network for Bamboo and Rattan (INBAR)

INBAR, the world's only intergovernmental organization with a focused mandate on the sustainable development of bamboo and rattan, was set up in 1997. Since 2001, INBAR has had a dedicated global Bamboo Housing Programme. To date, key INBAR achievements in the field of bamboo housing and construction include: Development of 2 ISO standards for bamboo structural design and mechanical and properties testing; Facilitating the development of a national bamboo building code in Peru; development of safer double skinned bamboo scaffolding in HK; training of over 250 technicians and architects from 12 member countries in construction with bamboo; construction of demonstration bamboo housing in Asia, Africa and Latin America; and Development of engineered bamboo lamination technology in China, which is now being transferred to Ethiopia & Nepal.

<i>Organisation type:</i>	<i>Intergovernmental</i>
<i>Geographic focus:</i>	<i>Global</i>
<i>Thematic focus area(s):</i>	<i>Bamboo building materials and technologies; Bamboo housing design and building codes; Training and capacity building on bamboo construction and value chain development; Bamboo construction technology transfer; Networking and advocacy for bamboo housing and construction</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>INBAR Global Bamboo Housing Programme: Mr. Oliver Frith, Programme Coordinator; Ms. Liu Kewei, Engineer and Programme Officer Mr. Nripal Adhikary, Architect and Programme Research Associate. INBAR Latin American Regional Office: Mr. Alvaro Cabrera, Regional Coordinator; Lorena Nolte, Peru Project Coordinator</i>

Mr. Oliver Frith, MSc (Oxon), MA (Cantab)

Programme Coordinator, Global Bamboo Housing Programme

Mr. Frith has an MSc in Environmental Change and Management from Oxford University and an MA in Natural Sciences from Cambridge. He has worked at INBAR's Beijing Headquarters for four and half years, managing bamboo-based livelihood development projects in Asia and East Africa. As the coordinator for INBAR's Global Bamboo Housing Programme, Mr. Frith's current main interests and responsibilities are supporting the development of pro-poor, bamboo construction value chains in INBAR member countries and coordinating work on standardization and building codes for bamboo.

Presentation: Bamboo for Sustainable Housing: Experiences of the International Network for Bamboo and Rattan

Although, due to its highly renewable nature, lightweight, pliability, steel-like strength, and relative low-cost, bamboo has been successfully used in construction for millennia, the promotion of modern materials, such as cement and steel, has resulted in a shift away from bamboo. In recent years, interest in building with bamboo has revived, but many challenges remain to mainstreaming its use as a sustainable building material. These include addressing knowledge gaps on how to employ bamboo in construction projects, overcoming policy barriers that prevent legally building with bamboo, and changing perceptions of bamboo from that of a traditional, temporary construction material into that of a modern, renewable and long-lasting one. This presentation will highlight the

existing challenges faced for mainstreaming bamboo-based construction, using examples from the INBAR's own global experiences in implementing housing projects and related research. From the presentation, participants will gain a better understanding of how bamboo technologies can be practically incorporated into making more resilient, sustainable homes and communities.



NORWEGIAN
REFUGEE COUNCIL

Norwegian Refugee Council (NRC)

The Norwegian Refugee Council (NRC) was established in 1946 under the name Aid to Europe, to assist refugees in Europe after World War II. Today NRC is an independent, humanitarian non-governmental organisation which provides assistance, protection and durable solutions to refugees and internally displaced persons worldwide.

Organisation type: NGO

Geographic focus: Global -
NRC has projects in around 20 countries in Africa, Asia, America, the Middle East and Europe as well as offices in Oslo, Brussels and Geneva.

Thematic focus area(s): NRC is build on **3 pillars:**

1. Programme Activities: providing humanitarian assistance to refugees, internally displaced persons (IDPs) and returnees. Activities are concentrated on five core activities:

- Building of homes and schools (Shelter)
- WASH
- Distribution of food and non-food relief items
- Information, counseling and legal assistance (ICLA)
- Camp management
- Education

2. Advocacy: NRC is an independent and courageous spokesperson for refugee and IDP rights in the countries where we work and in international forums. The Internal Displacement Monitoring Centre (IDMC) in Geneva monitors and provides up-to date information on all situations of conflict-induced internal displacement worldwide. The IDMC also conducts trainings on the protection of internally displaced persons.

3. Emergency Standby Forces: NRC has some 850 men and women in its Emergency Standby Forces. On 72 hours notice they can deploy anywhere in the world to support the UN and other international organisations with humanitarian aid and emergency relief operations.

Within its Core Activity SHELTER, NRC focuses on adequate building materials, design and technologies as well as green building design and materials. All this is applied to the entire range of temporary, transitional and durable buildings. NRC shelter programs are supporting durable solutions with long term perspective (from emergency phase onwards). Thereby the sustainability of the entire context is important and actively supported by other NRC Core Activities, especially Housing, Land and Property issues including security of tenure through NRC ICLA.

Key departments and people working on sustainable buildings:

Technical Support Section within the International Program Department at the Head Office in Oslo.

Shelter Advisers: Oyvind Nordlie, Martin Svadne and Jake Zarins (contact: firstname.lastname@nrc.no)



Mr. Martin Suvatne

Adviser Shelter in the Technical Support Section, NRC HO Oslo

- Diploma Engineer degree in Architecture and Urban Design Technical University Karlsruhe (TH), Germany. - Studies at the National University Singapore (NUS) and master thesis at the Indian Institute of Technology (IIT).
- Architect for MV in Beijing, ASTOC in Cologne and BB22 in Frankfurt.
- Lecturer at the Christian University Indonesia (UKI) and Technical University Karlsruhe (TH).
- Junior Professional at GTZ HQ (DRR and contingency planning)
- Technical Adviser for GTZ at the Ministry of Home Affairs Indonesia (reconstruction, planning, governance and DRR)
- Shelter Adviser NRC

Presentation: Defining, Measuring and Verifying Sustainability in Humanitarian Shelter

- NRC at a glance
- NRC shelter - relevant policy aspects and extracts from handbooks and guidelines
- Key NRC shelter projects defining milestones in defining sustainability for NRC
- NRC Core Activity Database Indicators for all project reporting on and measuring off sustainability criteria
- NRC's initiative of adjusting international recognized environmental assessment methods for buildings to humanitarian shelter needs - towards environmental accountability
- NRC's wish to develop international recognized indicators for environmental impact.

**Centre for Development and Emergency Practice (CENDEP),
Oxford Brookes University**

CENDEP has been active in areas of chronic poverty and acute emergency since 1985, with past work undertaken in particular by Professor Ian Davis (shelter after disaster) and Professor Nabeel Hamdi (housing). CENDEP's activities today include human rights (Richard Carver), conflict in urban spaces (Dr Brigitte Piquard) and urban risk/shelter after disaster (Professor David Sanderson).

Recent activity in shelter after disaster (research, conferences and teaching) since 2008 has involved training with NGOs including CARE and Save the Children, conferences with Oxfam, CARE and IFRC, and research in Gujarat (post disaster permanent housing) and Haiti (post disaster temporary housing in urban settlements).

<i>Organisation type:</i>	<i>Education and research</i>
<i>Geographic focus:</i>	<i>Global</i>
<i>Thematic focus area(s):</i>	<i>Shelter after disaster (interim/transitional and permanent)</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>David Sanderson, Director, CENDEP (shelter after disaster) Emeritus Professor Nabeel Hamdi (housing) Emeritus Professor Ian Davis (shelter after disaster) Dr Brigitte Piquard (conflict and urban space)</i>



Professor David Sanderson

Director, CENDEP (shelter after disaster)
David has 20 years experience in development and emergency practice in over 30 countries. He has held senior posts in the NGO and academic sectors, leading teams and programmes, developing strategies and undertaking training, research and consultancy. David has experience of all stages of project management and has carried out work for a variety of agencies.

He is currently Director of a University Centre that focuses on development and emergencies where he leads a taught Masters degree, undertakes consultancy and develops initiatives. David is a member of several NGO advisory boards, a Visiting Professor at Université Paris-Est Créteil, France and has published articles and papers concerning urban livelihoods and disaster risk reduction.

Presentation: Shelter after disaster: process, focus and challenges

The presentation will outline lessons from CENDEP's recent work in shelter after disaster, namely research, training and conferences. The presentation will focus on two underpinning aspects/challenges of shelter after disaster: the need for better processes, and the need to focus on people as the centre of engagement, rather than on the housing 'product'. The presentation will share current issues/challenges relating to post disaster recovery in urban areas concerning shelter delivery.



Royal Institution of Chartered Surveyors

RICS is over a hundred years old and has established itself as the premier organization for land and built environment professionals. It has special experience and strengths in real estate, housing and environmental economics; construction/ infrastructure procurement and project management; geospatial and land information systems.

<i>Organisation type:</i>	<i>Professional institution</i>
<i>Geographic focus:</i>	<i>World. Over 120,000 members worldwide.</i>
<i>Thematic focus area(s):</i>	<i>Land, property and construction economics and management; training and research; urban development standards and regulatory regimes; disaster prevention, risk assessment and reconstruction; sustainability indicators</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>John Tracey-White, International Sustainable Development Adviser; together with Ursula Hertenberger, Saad Yahya, Nathalie Bellanger and Tony Mulball</i>

Prof. Saad Yahya

Advisor for Africa

Dr. Saad Yahya is a RICS Fellow and member of the RICS Disasters Management Commission. He is also Visiting Research Professor at the London School of Economics. As a former Dean of the School of Built Environment, University of Nairobi he taught for many years and developed new academic programmes at undergraduate and postgraduate levels in real estate, housing, construction and planning. He chaired the Housing Research Advisory Board, a joint University/Government initiative. He has also served as Director of Operations and CEO for the continental development bank known as Shelter Afrique, initiating in the process innovative housing projects in 40 African countries.

Saad now spends most of his time at Saad Yahya and Associates, a consultancy firm established in 1973 in housing and specializing in infrastructure development, community planning, property asset management and appraisal and institutional development. Clients include governments, corporate organisations, aid agencies, international NGOs and UN agencies.

He has published several books and dozens of scientific papers in peer reviewed journals and conference proceedings.

Presentation: Affordable Housing Study: International Models for Delivery

The presentation commences with the origins and structure of RICS and its efforts to service its global membership of more than 120,000 spread in about 100 countries. International sustainability work is built on partnerships with international organisations, governments and local NGOs, with research, participatory approaches and training playing a major role. Central to the approach is the necessity for professionals to recognize diversity in terms of culture, economics and geography.

Cooperation with UK and international universities aims at developing models, templates and standards which could help not only practitioners but also

administrators and policy makers. Affordability should be seen as the core of the housing sustainability debate, although it is difficult to define.



Shack/Slum Dwellers International

SDI was founded in 1996. It now operates in 388 cities and has assisted urban poor federations to construct over 58,000 houses and secure over 1,000ha of land. SDI has a tremendous capacity to facilitate knowledge exchange and networking through tried and tested community-to-community exchange programs. It also has the ability to develop tools that are relevant, affordable, and sustainable in urban poor communities.

Organisation type: Secretariat for an international network of slum dweller federations
Geographic focus: Africa, Asia, Latin America
Thematic focus area(s): Capacity building, slum upgrading, community mobilization, incremental upgrading, community-driven development
Key departments and people working on sustainable buildings: The Secretariat and coordinators of SDI are all heavily involved in supporting the housing projects of member Federations. To be directed to the appropriate person please contact the Director of the Secretariat, Joel Bolnick, joel@sdinet.org

Miss Skye Dobson

Research and Documentation Officer

Skye Dobson is a Research and Documentation Officer with Shack/Slum Dwellers International. She is currently based in Kampala, Uganda. Skye is an honorary board member at African Children's Haven and former Director of the Wembly Fund. She holds an MA in International Affairs from the New School University, New York.

Pauline Wangui

TBC

Presentation: Towards systemic change: A community-driven sustainable housing agenda

It is quite clear there exists systemic failure when it comes to the provision of affordable housing – green, sustainable, or otherwise. SDI works to address institutionalized exclusion of the urban poor by supporting federations of slum dwellers to collectively overcome the seemingly intractable barriers to affordable housing and forge a new path, one routed in authentic community participation, genuine partnership with local authorities, and the capacity for protracted and dynamic mass action.

Federation savings mobilize not only financial resources, but the trust and organizational capacity essential for community managed shelter solutions; federation labor reduces unit costs and clearly demonstrates community commitment; the ability to federate serves as collateral for collectively secured external finance, while Federation enumerations collect information essential for efficiently targeting subsidies and determining city-wide slum upgrading processes. These strategies provide federations of the urban poor the authority to

demand and generate a more responsive housing agenda.

Over 1 million federation members are presently instituting such systemic changes in 388 cities, united by daily savings and a shared commitment to community-driven development. To date they have constructed over 58,000 houses and are setting precedents for sustainable and scalable housing solutions in the Global South.

Skat – Swiss Resource Centre and Consultancies for Development

30 years of experience. Wide and thorough expertise in sustainable housing, reconstruction, settlement development; M&E, indicators' development, training, advisory services, contacts

<i>Organisation type:</i>	<i>Private consultancy company / Foundation</i>
<i>Geographic focus:</i>	<i>Global</i>
<i>Thematic focus area(s):</i>	<i>Sustainable reconstruction; housing; building materials and technologies; resettlement planning and implementation; slum upgrading; urban development;</i> <i>Advisory services; M&E; planning & implementation; Training & capacity building</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>Claudia Schneider: Sustainable Reconstruction and Settlement Development Specialist</i> <i>Daniel Schwitter: Senior Architect</i> <i>Daniel Wyss: Sustainable Building and Settlement Development Specialist</i>



Mrs. Claudia Schneider

Sustainable Reconstruction and Settlement Development Specialist

Claudia Schneider's professional background is in sustainable building, settlement and institutional development. She holds a MSc in Urban Development Planning from the Development Planning Unit (DPU), University College London, UK. In addition, she is an Architect (Dipl.-Ing. TU) from the Technical University Munich, Germany.

She has 15 years of working experience as a project manager, team leader and consultant in the areas of urban and settlement planning, housing, sustainable building and disaster risk reduction, energy efficiency and environment, decentralisation and governance, poverty reduction, participatory processes, institutional and community development in Kenya, Indonesia, Ukraine, Kosovo, Sri Lanka, India, Nepal, Afghanistan, Brazil, Egypt, Poland, Czech Republic, Slovakia, Lithuania, Portugal, Germany and Austria.

She has worked with UN agencies (UNDP, UNEP, UN-HABITAT, UNV), the bilateral development cooperation (GTZ, SDC), NGOs (IFRC, Swiss Caritas, SRC, Practical Action), and internationally in the private sector.

Her strengths are in planning, developing concepts, strategic planning, backstopping and quality control, project appraisals, project management and implementation, capacity building, policy development, drafting of toolkits, manuals and guidelines, as well as impact monitoring and evaluation. She organised and facilitated a number of workshops and study tours.

Presentation: BASIN Network – a Retrospective and Potentials for the Future



basin - Building Advisory Service and Information Network. The Building Advisory Service and Information Network, basin, was set up in 1988 to provide information and advice on appropriate building technology and to create links to know-how resources for all those in need of relevant information: government

officers, financiers, builders and developers, architects and planners and building material producers - anybody in need of up-to-date information and advice on the manufacture, performance and availability of sustainable building technology from around the world.

There were nine active members aiming to provide clients with access to building technology and advice. These advisory services were provided via the half-yearly newsletter "basinNews", internet-based information services such as databases, international seminars and conferences and Q&A services. The network partners also met periodically to discuss and presented new issues and trends in sustainable building technology. basin was a leading international network for knowledge sharing on building construction and habitat issues.

The presentation focuses on the lessons-learnt of the past, and presents potentials for the future.



University of Birmingham - School of Geography, Earth and Environmental Sciences

The School of Geography, Earth and Environmental Sciences has a renowned history for international excellence in research and teaching. Geology at Birmingham dates back to 1881 and Geography began here in 1924. We are proud of our long history and build on our successes through our research and teaching to address the challenges of the 21st Century such as climate change, oil exploration, renewable energy and resilience.

Organisation type: Academic

Geographic focus: Global

Thematic focus

area(s):

Key departments and people working on sustainable buildings:



Dr Oleg Golubchikov

Lecturer in Urban Resilience

Dr Golubchikov's research focuses on the relationships between urbanisation and radical societal transformations such as particularly linked to: (a) post-socialist transitions and (b) post-carbon transitions. Much of this research has been grounded in urban political economy, as well as informed by international policy work at the intersection of energy and sustainable urbanism.

Presentation: Draft Policy Guide to Sustainable Housing

Dr Golubchikov will present the draft structure of the Policy Guide to Sustainable Housing with a view to initiating discussion on its content, structure and additions that can strengthen the Guide prior to its publication.

University of Cambridge, UK

The Department of Architecture has been involved in energy efficiency in the built environment for decades. The environmental performance of buildings lies at the heart of our research work. The group addresses issues related to the modelling, design, construction, monitoring and use of buildings, both in the UK and internationally, developing innovative technologies, methodologies and tools for sustainable design.

We also focus on the design, construction and assessment of real buildings. Sustainable low-energy design strategies are developed incorporating natural ventilation, passive cooling, daylighting, sustainable construction and renewable energy technologies. We deliver working prototypes and buildings to test these strategies, which are then closely monitored against performance predictions and in terms of user perception and behaviour.

We work closely with the Centre for Sustainable Development in the Department of Engineering, and other groups in Cambridge, the UK and around the world. We have expertise on policies that drive sustainable social housing, construction methods (craft and mass), materials for low-carbon buildings, tools and teaching for the developing world, informal urban settlements, recovery monitoring and mapping. Current research projects include: retrofitting social housing for better energy performance; policies that drive sustainable construction; informal settlements in cities; engineered timber and bamboo for large scale construction; earth structures in seismic regions; The Ecohouse Initiative for transitional and permanent housing; Satellite monitoring for recovery and reconstruction

Organisation type: Academic
Geographic focus: Global
Thematic focus area(s): Building materials, construction technology and methods, housing design, housing policy, urban settlements, energy efficiency, building retrofit, slum upgrade, domestic use of energy etc
Key departments and people working on sustainable buildings: Department of Architecture: Michael Ramage, Minna Sunikka-Blank, Felipe Hernandez, Koen Steemers
 Department of Engineering: Peter Guthrie, Heather Cruikshank, Allan McRobie


Mr. Michael Ramage

University Lecturer

Michael is an architectural engineer in the Department of Architecture and a fellow of Sidney Sussex College. His current research is focused on developing low-energy structural materials and systems in masonry, better housing in the developing world, and improved engineered timber. He teaches, researches and designs buildings. He has a degree in architecture from MIT. Prior to studying architecture, he had a Fulbright Fellowship to Turkey to study geology and archaeology. He is one of the designers of the masonry vaulting for the Mapungubwe Interpretive Centre in South Africa which won the World Building of the Year award in 2009.

Presentation: Build Better: Cambridge Contributions to Sustainable Housing

The Department of Architecture at Cambridge University has a number of ongoing research initiatives in the area of improving the performance of buildings: socially, culturally, environmentally and financially. This presentation will outline some of our current work



UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

United Nations Economic Commission for Europe (UNECE) – Housing and Land Management Unit

UNECE works on housing related issues since its foundation in 1947. The Committee on Housing and Land Management (CHLM) coordinates this work. A flagship product is the Country Profiles on the Housing Sector series. 15 studies of countries with economies in transition have been prepared since 1996. In addition, the CHLM produces tools and policy guidelines to improve housing stock management. Guidelines cover a range of different areas on housing and land administration, such as Fraud and Land Administration, Sustainable Real Estate Markets, Informal Settlements, Spatial Planning, Social Housing, Condominium Ownership

Organisation type: International Organization

Geographic focus: Regional: 56 member States from North America (USA, Canada), Western and Eastern Europe as well as CIS countries in South Eastern Europe, Caucasus and Central Asia

Thematic focus area(s): Assistance with policy formulation and implementation on housing and land management sectors to national governments; Assessment of a country’s housing, planning and land administration systems; Advisory services and capacity-building activities as well as promotion of exchange of experience.; Thematic focus areas include modernization of housing stock, energy-efficient housing, social housing, land management, property registration, and new housing codes

Key departments and people working on sustainable buildings: UNECE/Trade and Sustainable Land Management Division/Trade and Timer Section/Housing and Land Management Unit

- Ms. Paola Deda, Chief of Section;
- Ms. Gulnara Roll, Head of Unit;
- Ms. Maike Christiansen, Climate Neutrality and Energy Efficiency Officer



Ms Maike CHRISTIANSEN

Climate Neutrality and Energy Efficiency Officer

Maike Christiansen acts as Climate Neutrality and Energy Efficiency Officer in the UNECE Housing and Land Management Unit. Her work focuses on energy-efficient housing and climate neutral urban development in the region. Moreover, she is involved in preparing Country Profiles on the Housing Sector of countries with economies in transition.

Prior to joining UNECE, Maike has worked on issues related to urban environmental planning and climate change in cities for UN-HABITAT and UNEP. She studied Geography in Berlin and Toronto. She also holds a Master of Arts in Interdisciplinary European Studies from the College of Europe in Warsaw.

Presentation: Greening Homes in the UNECE Region – Past and Future Activities

The presentation introduces UNECE and its Committee on Housing and Land Management (CHLM). It provides an overview of the CHLM’s work and expertise in the area of housing and land management, in particular in countries with economies in transition. It presents the CHLM flagship report series

“Country Profiles on the Housing Sector” and the Committee’s work on “Green Homes” and energy efficiency in housing in the UNECE Region. The presentation concludes with an outlook on planned activities in 2012-2013.



UNEP – SBCI

UNEP-SBCI works to promote sustainable building practices worldwide. This is a joint effort with key stakeholders in this sector (industry, business, governments, local authorities, research institutions, academia, experts and NGOs.)

<i>Organisation type:</i>	<i>International agency</i>
<i>Geographic focus:</i>	<i>Global</i>
<i>Thematic focus area(s):</i>	<i>Sustainable building policies and practices: Common platform for stakeholders in building sector Capacity building of national and local authorities in sustainable building policies</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>Curt Garrigan, Coordinator- UNEP-SBCI Arab Hobaoab, Branch Head, Sustainable Consumption and Production, UNEP Soraya Smaoun, Acting Head, Built Environment Unit, UNEP-DTIE</i>

Mr. Curt Garrigan

UNEP-SBCI Coordinator

Prior to joining UNEP, Curt Garrigan served in a number of capacities for the city government in Nashville, Tennessee including Deputy Mayor, where he coordinated municipal policies and initiatives and assisted in developing the city's \$1.5 billion budget. For the city's Parks Department, he had served as Interim Director, and Assistant Director, leading the development and implementation of a ten-year \$260 million master plan, including buildings, parks and greenways. He previously had been Assistant Director of the city's Historical Commission. Following Nashville's historic flood, he was appointed by the city's Mayor to coordinate planning and infrastructure for the city's post-disaster Recovery Team.

Mr. Garrigan grew up in New Jersey USA and earned a Bachelor of Science in Architecture in 1985 from Temple University in Philadelphia, Pennsylvania. He has also earned a Certificate of Advanced Studies in Environmental Diplomacy from the University of Geneva.

Presentation: UNEP- Sustainable Buildings and Climate Initiative

Overview of UNEP-SBCI work and activities



University of the Witwatersrand , School of Architecture & Planning

50-years in architecture and planning Higher Education/Tertiary qualifications (including indigenous architecture), Building performance assessment and green architecture courses

25-years in sustainability and built environment: Sustainable housing course and research

10-years in collaborative work on adaptation and mitigation issues

Sustainable Housing Strategy: City of Johannesburg – 2000 - 2005

Holcim Awards for sustainable Construction (2004 – Present)

Promoting Renewable Energy Africa (PREA) (2006 – 2009)

Membership: Green Building Council of South Africa (GBCSA) (2010 –

ongoing); Membership: International Solar Energy Society (ISES) (2009 – ongoing)

LEAN-CC: Linking European, Asian and African Networks of Climate Change (2011 – ongoing)

Several conference and academic journal papers; Several postgraduate thesis and dissertations supervised

Organisation type: Academic/Research institution

Geographic focus: Global south, and especially sub-Saharan Africa

Thematic focus area(s): Green architecture: design, construction and green-building rating systems; Green-building retrofitting; Green cities (including green infrastructure); Green-economy; Sustainable housing and settlements; Resilient cities: mitigation and adaptation; Life-cycle analysis in the built environment; Academic and Continuing Professional Development training (CPD); Advocacy for inclusive cities

Key departments and people working on sustainable buildings: Architecture & Planning (Daniel Irurah, Marie Huchzermeyer, Ken Stucke, Gerald Chungu, Philip Harrison)

Global Change and Sustainability Institute (inter-disciplinary learning/ teaching and research: Mary Scholes) Gauteng City Region Observatory (GCRO) (David Evarett)



Dr. Daniel K. Irurah

Senior Lecturer: Sustainability and the Built Environment, School of Architecture & Planning,

Daniel is a Kenyan architect and urban environmental policy planner with specialisation in sustainability and the built environment. With research and consultancy interests focused on developing countries, Daniel’s core interest is the understanding and applied resolution to the dilemma of achieving socio-economic development for the majority within the tightening eco-limits of our planet. Although his main area of interest is energy efficiency and renewable energy in buildings and cities, he is also intensely engaged in the field of industrial ecology for the construction industry, and especially the cradle-to-grave-and-cradle cycle of construction materials. Daniel’s key interests in these fields is the coupling of green innovations to socio-economic development priorities such as jobs/skills and eco-entrepreneurship.

Presentation: Innovating new business models in bridging academic versus practice divide in green buildings and sustainable housing in sub-Saharan Africa

Prevailing business and practice models in the built environment sector is one of the key barriers in transiting to sustainable housing and cities practice in sub-

Saharan Africa. My presentation will be arguing for innovative models which allows for faster transition and better spread of benefits in inclusiveness and positive socio-economic impacts



VTT Technical Research Centre of Finland

VTT has done research on different aspects of sustainable building since decades. There's a continuous stream of international research projects related with sustainability metrics and building performance, indoor climate and energy efficiency, product development, sustainability assessment and decision support tools. The focus is increasingly stretched towards sustainable neighbourhoods covering also infrastructure and economic and social assessment.

<i>Organisation type:</i>	<i>Public Research Organization (non-profit). VTT is a part of the Finnish innovation system under the domain of the Ministry of Employment and Economy.</i>
<i>Geographic focus:</i>	<i>Globally networked multi-technological contract research organization. The biggest in Northern Europe.</i>
<i>Thematic focus area(s):</i>	<i>Services by customer sector: Real estate and construction, Energy, Process industry and environment, Services and logistics, ICT, Forest industry, Machines and vehicles, Electronics, Biotechnology, pharmaceutical and food industries.</i>
<i>Key departments and people working on sustainable buildings:</i>	<i>VTT has 50 to 100 experts doing research on sustainable buildings. The number is bigger if the areas of waste management, transport, energy etc. are also counted.</i>

Ms. Carmen Antuña Rozado

Research Scientist, MSc (Arch)

Carmen Antuña, Research Scientist, MSc(Arch), has been working for VTT since 2010 when she joined the Life Cycle Management Team. Before working for VTT, she combined research (Technical University of Madrid) and teaching (SEK University/IE University). Her research field is related to Sustainability Indicators for the Built Environment. She is also a visiting tutor at Aalto University (International Wood Programme). MSc (Arch), Specialty: Urban Planning and Design. Member of the Spanish HABITAT Committee (Ministry of Housing) since 2008

Mr. Pekka Huovila

Chief Research Scientist, MSc (Tech)

Pekka Huovila has practical experience from building design and construction in Europe and in developing countries. During the past 20 years he has actively contributed to leading international research in the domain of sustainable built environment. Pekka has done at VTT several European Commission funded sustainable building related research and development projects. His international clientele consists also of organizations like UNEP, IEA, CIB, GTZ or OECD, and public and private clients, such as Beijing district local administration in China. He acts also as a Visiting Professor in University of Salford in UK.

Presentation: Approaches towards sustainable housing

Examples of VTT's sustainable neighbourhood projects are given from Kenya, China, Finland, Russia and Tanzania.



WORLD GREEN BUILDING COUNCIL

World Green Building Council

Founded in 1999, the WorldGBC is dedicated exclusively to sustainable building. We have 89 member GBCs around the world also working on sustainable building in their countries. We have a range of programs, activities and publications that support this mission.

Organisation type: NGO
Geographic focus: Global
Thematic focus area(s): Green building and green cities and communities
Key departments and people working on sustainable buildings: Jane Henley, CEO
Michelle Malanca, Vice President
Rick Fedrizzi, Chair-elect (and CEO and President of the USGBC)



Ms. Michelle Malanca

Vice President
Michelle Malanca is Vice President of the World Green Building Council, overseeing the organization's policy and communications initiatives and its five Green Building Council Regional Networks. She has fifteen years of experience in the field of green building and environmentally sustainable development, from policy and strategy through to implementation and construction.
She was previously the Technical Director at the Green Building Council of Australia, where she chaired working groups in the development of green building rating tools for several building sectors.

Presentation: World Green Building Council

The WorldGBC is a coalition of 89 Green Building Councils (GBCs) around the world. Green Building Councils use market dynamics to transform the building industry towards sustainability as well as advocate for government policies that support the development of more sustainable buildings.

Many GBCs use green building rating tools to push markets and ultimately building standards towards better environmental performance. While the focus of these tools has primarily been commercial and institutional construction, in recent years inroads have been made in the housing industry.

While there are examples of building certification models gaining traction in developed economies, the numbers of stakeholders, the scale of the problem and different economic factors make these less applicable to the developing world.

The WorldGBC sees parts of the solution coming from a number of areas, including the integration of social and economic criteria in to green building rating tools, streamlining of CDM processes, NAMAs, better building codes (and enforcement) and urban design requirements – all in addition to methods currently being employed by GBCs such as demand creation, capacity building, market incentives and advocacy. At a fundamental level, we have to help governments understand how green buildings can help them meet their social and economic goals.

16. Link to online videos of participants interviews

Videos are available by searching “i HOUSE EGM” on the following stable web link:

<http://www.youtube.com/user/epitunhabitat>