

# Conference on Promoting Green Building Rating in Africa

*4-6 May 2010  
Nairobi, Kenya*



© Michelle Malanca

**UN-HABITAT**  
FOR A BETTER URBAN FUTURE

## DISCLAIMER

The designations employed and the presentation of material in this report do not imply any opinion whatsoever on the part of the Secretariat of the United Nations concerning legal status of any country, territory, city or area or its authorities, or concerning the delimitations of its frontiers or boundaries, or regarding its economic system or degree of development. The analysis, conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council.

Copyright © United Nations Human Settlements Programme (UN-HABITAT), 2010

Urban Environment and Planning Branch  
United Nations Human Settlements Programme (UN-HABITAT)  
PO Box 30030, Nairobi 00100, Kenya  
Tel: +254-20-7625404  
Fax: +254-20-7623715  
Email: [uepb@unhabitat.org](mailto:uepb@unhabitat.org)  
Website: [www.unhabitat.org/ccci](http://www.unhabitat.org/ccci)

Printing: UNON, Publishing Services Section, Nairobi, ISO 14001:2004-certified.

# Conference on Promoting Green Building Rating in Africa

4-6 May 2010

*Nairobi, Kenya*

**UN****HABITAT**  
FOR A BETTER URBAN FUTURE

# TABLE OF CONTENTS

1. Introduction .....	3
2. Declaration .....	5
3. Conference Proceedings .....	7
4. Background Paper .....	27
5. Annexes .....	47
<i>A - List of Participants</i> .....	47
<i>B - Programme</i> .....	50

# 1. INTRODUCTION

*The present document represents the Proceedings of a Conference on Promoting Green Building Rating in Africa, held at the United Nations compound in Nairobi, Kenya on 4-6 May 2010, and the Background Paper developed for that Conference. The objectives of that Conference were to help participants:*

**Objective 1:**

To make commitments, and develop the elements of strategies and roadmaps, for promoting green building and green building rating in participants' countries or sub-regions in Africa.

**Objective 2:**

To develop the outline for a proposed Africa-wide Network, in order to facilitate ongoing communications and exchanges between champions of green building in different parts of Africa.

**Objective 3:**

To provide recommendations to UN-Habitat and its partners and counterparts regarding future support to green building rating in Africa.

The Conference attracted more than 50 participants, plus a number of additional speakers, who represented 19 countries in Africa and several countries from outside the region. The participants were private professionals and public officials representing all aspects of the building and construction industry.

The Conference met its immediate objectives, and three months on (August 2010) appears to be yielding more sustainable results. The Conference engendered the Nairobi Declaration on Green Building for Africa (see below). This Declaration proposed the development of an African Network: "to assist emerging Green Building Councils in the Region". Accordingly, in post-Conference follow-up the World Green Building Council (GBC) has now established a page for the Africa Regional Network on its website ([www.worldgbc.org](http://www.worldgbc.org)), and the GBC of South Africa is organising an Africa GBC Day, to be held on 23 September 2010 in Cape Town. Furthermore, immediately after the Conference building professionals from several countries applied

to the World GBC to be recognised as Associated GBCs.

The Proceedings of this Conference, as well as the Background Paper presented at this meeting, the programme and the list of participants, are included below. Additional materials from this Conference can be found at: [www.unhabitat.org/categories.asp?catid=640](http://www.unhabitat.org/categories.asp?catid=640).

UN-Habitat organised the Conference on Promoting Green Building Rating in Africa as part of its Cities and Climate Change Initiative (CCCI); for further information, see [www.unhabitat.org/ccci](http://www.unhabitat.org/ccci), or email [uepb@unhabitat.org](mailto:uepb@unhabitat.org). In addition to promoting green building rating, UN-Habitat embraces several complementary approaches to encouraging green building practices in Africa and elsewhere, including via its Shelter Initiative for Climate Change Mitigation and Adaptation (SICCMA), and its Promoting Energy Efficiency in Developing Countries (East Africa) Programme, funded by the Global Environment Facility (GEF).



© UN-HABITAT



© UN-HABITAT



© UN-HABITAT

Opening ceremony of conference and subsequent press conference, with (L to R): Christine Auclair, Government of Kenya Permanent Secretary Tirop Kosgey, UN-HABITAT Deputy Executive Director Inga Bjork-Klevby, and Bruce Kerswill.



## 2. DECLARATION

### Nairobi Declaration on Green Building for Africa Conference on Green Building Rating Systems in Africa

*Nairobi, KENYA*

**W**e, experts, practitioners and decision makers from twenty countries in Africa, meeting at the Conference on Green Building Rating Systems for Africa, after three days of fruitful debates and discussions, declare our commitment to promoting and fostering green building practices in Africa.

We take note of the tremendous environmental challenges and threats currently being faced by the African Continent:

In a continent of rapid urbanization the volume of building operation continues to grow very rapidly and requires close monitoring in terms of its environmental impact.

Africa's intense development pressure, the resulting rapid urbanization and generally carbon intensive mediums of energy generation, leaves the built environment under particular pressure to thoroughly embrace the sustainability imperative.

Considering that building operations are estimated to be responsible for 56% of energy used in Sub-Saharan Africa, this is an urgent matter that can no longer be underestimated by decision makers, the building industry and building professionals.

We resolve that in order to reduce CO<sub>2</sub> emissions and help strengthen the ability of cities to adapt to climate change while improving the quality of the built environment, it is urgent to improve the environmental performance and energy efficiency in buildings.

We are committed to being the promoters of green practices, from planning, design, construction and operation of the built environment, as well as to the use of appropriate building materials, technologies, services and processes that minimize CO<sub>2</sub> emissions in our Continent.

We underline the importance of taking into account social and cultural specificities of Africa in particular:

Exploring traditional practices that have been proved to be environmentally beneficial while addressing the need for mass housing constructions in Africa, given the fact of rapidly increasing urban population growth;

Addressing the needs of populations at the bottom of the social and economic pyramid that require affordable housing and simple solutions to face economic challenges.

We emphasize the importance of:

- Sourcing building materials and appropriate technology that are locally available.
- Designing buildings taking into account climatic conditions on the continent and by so doing making use of naturally available energies that can be harnessed profitably.
- The role of urban design and planning in sustainable urban development.
- The use of renewable energy.
- The development and or use of a green building rating system.

We recommend that models of Green Building Councils and the associated green rating systems be developed and considered that cater for the different

country needs and specificities on a national and/or on a sub-regional basis while collaborating with different countries.

We further emphasize the importance of training professionals, and introducing green building practices in the education system, in order to increase public awareness and skills to spread green practices.

We call on the World Green Building Council and UN-Habitat to support this process through best practice exchanges in order for African countries to learn from various models available in the World.

We further call on the respective Governments to support the Green Building Councils of their respective Countries.

We further propose a road map for the next two years to engage African countries in a decisive process to:

- Set up National and/or sub-regional Green Building Councils.
- Set up an African network to foster exchange between experts, professionals, decision makers and the private sector and to assist emerging Green Building Councils in the Region.
- Advocate for policy and regulation to encourage the adoption and enforcement of the appropriate rating system and best practices in each country.

Finally, we re-iterate the need to set-up an African Platform that will promote and/or confederate the different green building initiatives in Africa.



# 3. CONFERENCE PROCEEDINGS

## Overview

*The Conference on Promoting Green Building Rating in Africa was held 4-6 May 2010 at UN-HABITAT headquarters in Nairobi, Kenya. The objectives of the conference were to help participants:*

**Objective 1:**

To make commitments, and develop the elements of strategies and roadmaps, for promoting green building and green building rating in participants' countries or sub-regions.

**Objective 2:**

To develop the outline for a proposed Africa-wide Network, in order to facilitate ongoing communications and exchanges between champions of green building in different parts of Africa.

**Objective 3:**

To provide recommendations to UN-HABITAT and its partners regarding future support to green building rating in Africa.

The conference was attended by more than 50 participants, plus a number of additional speakers, representing 19 countries in Africa and several countries from outside the region (see Annex A). The participants were private professionals and public officials representing all aspects of the building and construction industry. They ranged from designers, builders and planners to educators, lawyers and leaders of non-governmental organizations (NGOs).

It had two days of presentations and interactive discussions followed by a full day of workshops (for programme see Annex B). Organizers structured the first two days to ensure that the attendees had a solid foundation of understanding of the green building rating options for their countries, including Green Building Councils (GBCs) and GBC networks. Speakers from around Africa and the world were brought in to cover the various aspects of green buildings, Green Building Council development and operations, the functions of GBC networks, and green building rating systems. Speakers included representatives from established GBCs, such as those from South

Africa and India, as well as recently launched GBCs in Mauritius, Morocco and Egypt; all were able to share their experiences in starting up and running a council and implementing a green building rating system in a developing economy. Likewise the Executive Director of the World GBC (Jane Henley) participated remotely via a telecommunications connection, while the President and CEO of the United States GBC (Rick Fedrizzi) provided a previously videotaped message to participants. Other speakers included representatives of UN-HABITAT and the United Nations Environment Programme, who presented related initiatives designed to promote green building practices in developing countries.

The third day of the conference was made up of workshops, both in small groups and in plenary, which were designed to draw on the learning from the first two days. The specific objectives of the workshops mirrored the overarching objectives of the entire conference noted above.

By all accounts, the conference and workshops were successful in achieving planned objectives. Based

on a thorough understanding of the role of GBCs, participants from African countries generally came to the conclusion that the establishment of country-specific GBCs was the best way to proceed to promote green building practices in their countries. During the workshops, participants then identified specific steps for establishing GBCs, which then formed the basis for a roadmap for launching GBCs in specific countries.

By the end of the conference, participants were also enthusiastic about the development of an Africa-wide network of GBCs. Inspired by the strength and success of the Asia Pacific GBC network, participants committed to working together across borders and sharing knowledge and experience so that they might help each other to promote green building practices in their countries. Participants agreed that the GBC of South Africa, the only fully established GBC on the continent, could and should host a website for the Africa Network of GBCs, and more generally should mentor associated and emerging GBCs in other countries.

A key outcome of the conference was a Declaration of Commitments; this Declaration included the above resolutions to create Green Building Councils and an Africa-wide GBC network. It also included a recommendation for the World GBC and UN-HABITAT to support 'best practice exchanges' and knowledge transfer from countries around the world, so that those with less understanding about rating green buildings could benefit from those with more experience. Participants also noted that this type of conference was very useful as a forum for sharing knowledge and information, and could be repeated regularly to advance this endeavor.

Other key messages that emerged from the conference were: the importance of capitalizing on the work already done by other existing GBCs so as not to reinvent the wheel; the need to increase awareness and education about the issues and to increase capacity within the industry itself, beginning within academic programs; the desire for countries to reach out within their sub-regions to support each other and to bring in other countries who are farther behind in this arena.

## Proceedings

### Attendance

The Conference on Promoting Green Building Rating in Africa, organized by UN-HABITAT, was held in Nairobi, Kenya at the UN Complex. More than 50 participants, plus a number of additional speakers, attended the Conference; these persons represented 19 countries in Africa and several countries from outside the region (see Annex A).

The conference consisted of two days of plenary presentations and interactive discussions, followed by a full day of workshops and break-out sessions (for programme see Annex B). Presentations and conclusions are summarized below. All speaker presentations, as well as supplementary materials such as the conference background paper, are available on the UN-HABITAT website at [www.unhabitat.org/categories.asp?catid=640](http://www.unhabitat.org/categories.asp?catid=640)

#### Tuesday 4 May

### Opening Ceremony & Introduction to Conference

**Master of Ceremonies:** Christine Auclair, UN-HABITAT

**Speakers:** Inga Bjork-Klevby, Deputy Executive Director, UN-HABITAT; Tirop Kosgey, Permanent Secretary, Ministry of Housing, Government of Kenya; Robert Kehew, UN-HABITAT

#### ***Inga Bjork-Klevby, Deputy Executive Director, UN-HABITAT***

Ms. Bjork-Klevby highlighted the environmental impacts of cities, including the facts that 75% percent of commercial energy is consumed in urban and peri-urban areas, 80% of all waste is generated from cities, and up to 60% of carbon dioxide (CO<sub>2</sub>) emissions emanate from cities. Meanwhile, there is rapid urbanization in Sub-Saharan Africa. At the same time the slum population in Africa of around 200 million represents 61.7% of the continent's urban population – the highest proportion in the world.

These circumstances exist within the context of needing to reduce global carbon emissions by 80%. The Deputy Executive Director emphasized that the way we plan, manage, operate and consume energy

in our cities will have a critical role in our quest to reverse climate change and its impacts. Mrs. Bjork-Klevby stated that it was very clear that green buildings emit fewer greenhouse gases, consume less energy, use less water, and offer their occupants healthier environments than do typical buildings. With many of these improvements over and above conventional building practices being made at a minimal cost, it is also clear that the cost savings that can result over time from operating a green building means that many improvements can essentially pay for themselves.

Ms. Bjork-Klevby noted that while this conference offers the opportunity to take a close collective look at these and other challenges and possible solutions, UN-HABITAT can only play a supporting role in this effort. It is up to the conference participants – leading architects, developers, engineers, quantity surveyors, building owners, building materials suppliers, city and government representatives and other professionals – to come up with the ideas, organize, and lead efforts to promote green building that is appropriate for their home countries.

***Tirop Kosgey, Permanent Secretary, Ministry of Housing, Government of Kenya***

Mr. Kosgey noted that Africa contributes the least to global climate change and yet receives a disproportionate amount of its impacts, making it vitally important for Africa to take charge of its affairs and address the issue.

In 2004, the government of Kenya and stakeholders created a policy for sustainable human settlements; they are now promoting the use of appropriate building technologies and materials. The government of Kenya and its stakeholders support the creation and implementation of appropriate legal and institutional frameworks and investment to facilitate the development of green buildings. Several other African governments have made similar efforts. The present meeting offers an opportunity to move from advocacy to making green building a reality.

Mr. Kosgey closed by noting that the continued high rates of urbanization throughout the world require us to build better buildings that consume less and use more environmentally friendly practices.

***Robert Kehew, UN-HABITAT***

Mr. Kehew introduced the conference and its context. The population of Africa will grow by 706M between

2010 and 2050, resulting in substantial growth in the building sector. The focus on the reduction of greenhouse gas emissions in cities is important to UN-HABITAT and its Cities and Climate Change Initiative. Mr. Kehew explained the importance of green buildings and how the building sector represents “low-hanging fruit” in achieving reductions. As green building rating systems as promoted by Green Building Councils have been instrumental in promoting green buildings around the world, this conference aims to explore this approach in order to enable participants to mobilize their countries towards more sustainable built environments.

Mr. Kehew closed by stating the objectives of the Conference (see Overview above).

## **Introductions by participating countries**

**Moderator:** Cecilia Njenga, UN-HABITAT

One person from each country introduced their participants as well as their expectations and desired outcomes for the conference.

A sample of participant statements:

**Rwanda:** We would like to include green building in academic programs.

**Ghana:** We want to take a lot of information back to Ghana in order to affect policies and the private sector.

**Gambia:** We would like to become enlightened on the most important issues, to collaborate with colleagues, and reduce environmental hazards.

**Zambia:** We are interested in keeping abreast of global trends in green building, green building rating systems and technologies.

**Mauritius:** We would like to brainstorm a way forward for the region.

**UNOPS:** We are interested in basic infrastructure and development as they are starting from zero in Sudan – building roads, bridges, schools, clinics and prisons; interested in applying green building principles to these technologies.

**Nigeria:** We want to learn how establish a GBC and learn from other countries' experiences. Want to learn how to drive better building practices.

**Kenya:** We are in the process of forming a GBC and are hoping to link up with neighbours (and presumably has a regional chapter) and other organizations to reach critical mass. As a group, want to find one rating tool to adopt in Africa.

## Presentations

### (BY SESSION)

#### What are green buildings? Best practice examples from around Africa and the world

**Speakers:** Michelle Malanca, Michelle Malanca Sustainability Consulting; Jacob Kibwage, Project Leader, Kenya Tobacco-to-Bamboo Project, Maseno University, Kisumu, Kenya; Eric Noir, WSP Green by Design/Africa Union of Architects (AUA); Mark Palmer, RTKL/ARCADIS.

**Moderator:** Christophe Lalande, UN-HABITAT

#### **Michelle Malanca, Michelle Malanca Sustainability Consulting**

Ms. Malanca began by describing the global environmental impacts of buildings in terms of energy, water, waste and resource use. She then introduced the concept of green buildings and how they differ from standard buildings. Ms. Malanca presented the business case for green buildings, citing reduced building operating costs and figures for increased rental and sales prices. She gave examples of studies showing the opportunities for buildings to minimize global carbon emissions. She addressed the advent of new 'green cities' such as Masdar in the United Arab Emirates, and the importance of retrofitting existing buildings and cities to embrace green principles.

#### **Jacob Kibwage, Project Leader, Kenya Tobacco-to-Bamboo Project, Maseno University**

Mr. Kibwage gave a presentation on the use of bamboo as an environmentally friendly building material, for use in structural components, finishes, and construction methods. Bamboo is fast-growing, lightweight, has high elasticity and is very durable and highly resistant to rupture. It requires little capital

investment with rapid returns. He presented a number of examples illustrating its uses, including a number of houses in Kenya and Ethiopia and a restaurant and pedestrian bridge in Kenya. Mr. Kibwage advocated for the establishment of bamboo plantations in Africa, greater awareness internationally for the uses of bamboo, and the transfer of knowledge and technologies from Asia to Africa to expand the uses of bamboo in the built environment.

#### **Mark Palmer, RTKL/ARCADIS**

Mr. Palmer discussed work on a 'green' primary school in Washington, DC, as well as on the ongoing development of a community-based School Design Workshop in Machakos District, Kenya. He introduced the notion of 'responsible design', which includes not only the technical aspects of green building, but also social and cultural aspects as well. He emphasized that green buildings should include community engagement and that if a building is energy efficient but its occupants and neighbors don't know why it's efficient then it has only achieved part of its potential. He noted that green schools have the potential to be used as learning centers for green education as well.

#### **Eric Noir, WSP Green by Design/AUA**

Mr. Noir made the case for the need for more environmentally sustainable buildings, including the issues of population, food security, water, biodiversity loss and a throw-away society. He gave several examples of green buildings from South Africa, including the BP building in Cape Town and the Woolworths building and Nedbank Phase II in Johannesburg. He noted that the earlier you incorporate green design principles into the design process, the more you can do and the less it will cost.

Key points from the discussion with the audience:

- It was clarified that just by having a rainwater tank, a building is not 'green'. But, rather, a building can be more environmentally sustainable by including a host of simple measures which can include a rainwater tank.



## The role of Green Building Councils and the World Green Building Council

**Speakers/panelists:** Jason Buch, GBC of South Africa (GBCSA); Bruce Kerswill, GBCSA; Siham Omri, Morocco GBC

**Moderator:** Gulelat Kebede, UN-HABITAT

### Jason Buch, GBCSA

Mr. Buch discussed Green Building Councils (GBCs) and how they transform the building industry towards sustainability. He emphasized that the key to their success is to engage the entire building industry (developers, owners, designers, builders, materials suppliers, etc.) as they will be more supportive when they have a stake in the outcome and noted that governments can be engaged when they recognize that the GBC is working towards the same goals as they are. Green Building Councils also have a role in capacity building in the industry, primarily through professional accreditation programs, as well as to promote and implement a green building rating and certification scheme (which was to be addressed in more depth in a later session).

### Bruce Kerswill, GBCSA and World GBC Board Member

Mr. Kerswill gave an overview of the World Green Building Council (WGBC), the umbrella body to the Green Building Councils (GBCs). He described its history and range of members, including about 60 councils in various stages of development. The primary functions of the WGBC are to support new councils, to add value to existing member councils, and to act as a global spokesman in the area of green buildings. He noted that the process to becoming a full member council takes about 18 months, with the stages being: forming a core group, developing a business plan, forming a Board of Directors, acquiring funding, creating a constitution, incorporating as a non-profit, establishing operations, and maximizing the publicity benefits of the launch. Mr. Kerswill noted that being associated with the WGBC gives credibility as well as access to other GBCs (and information transfer from them), and strongly suggested that all new councils register with the WGBC in order to maximize their support opportunities.

As founder of the GBC South Africa (GBCSA), Mr.



© Jacob Kibwage

For green building in Africa, Jacob Kibwage stressed the virtues of bamboo as a traditional but very versatile building material. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)

Kerswill shared the story of its inception. When looking for information on how to develop a green building, the GBC Australia advised him that it was not about one building but about transforming the industry. He realized that the rating tool was the most important thing they could do as it defines what a green building is and all other GBC programs (e.g. education) hang off of it. He emphasized the importance of not reinventing the wheel, but rather to build a relationship with an existing council and get the information and documents from them.

#### ***Siham Omri, Morocco GBC***

Ms. Omri described the status and founding of the Morocco GBC (MGBC). The MGBC just reached 'prospective' status with the World GBC in February (these stages are explained below). They are currently working on drafting their by-laws and developing a business plan. Their current projects are: collaborating with Moroccan and US founding sponsors, potentially starting an office in the US to get Moroccans in the US involved, and green school prototypes. She encouraged all attendees to attend the Africa Future Energy Summit in Casablanca in 2011, which will focus on solar power and global collaboration.

#### ***Mr. S.C. Kumar of the India GBC (IGBC)***

Mr. Kumar was invited to describe how and when the IGBC got started. The Corporation of Indian Industry (CII), which is over 115 years old, helped to found the IGBC, an idea that was brought to India during a visit by then US president Bill Clinton. They gained a lot of momentum once they had a LEED-certified 'Platinum' building as it encouraged others to do the same. Currently, there are 570 LEED-registered projects in India, representing 370M square feet of development.

Key points from the discussion with participants:

- As to whether GBCs try to review or influence academic curricula, it was noted that the role of a GBC is to be transformative in society, so wherever it can do so is beneficial; it's important to play to your strengths.
- A typical budget for setting up a GBC needs to include one full-time person, marketing material and advocacy costs. With USD60,000 the GBCSA was able to get to the point where they established permanent income.
- The core group of founders should consist of people with access to leaders in society so as to influence others, such as green specialists, institutions, big names in development,

financial services, property developers, architects, quantity surveyors, and researchers.

- In order to get outside funders, it can be a hard sell at first so you have to be able to show them what you are doing, such as creating a website but also get a rating tool in use or under development, and having educational offerings.
- It's appropriate to contact the WGBC to get started once you have the core group together.
- One of the most powerful signals to the market is the government saying they want green buildings.
- One participant suggested that the WGBC waive its fee for GBCs in the first year so they can get started, especially in Africa.

### **Interactive Session: challenges for the building industry – promoting green building in Africa**

**Panel:** Akin Akindoyeni, Chairman, Council of Registered Builders of Nigeria; Elijah Agevi, Kenya Private Sector Alliance; Tony Lee Luen Len, Mauritius GBC; building professional from Tanzania

**Moderator:** Christine Auclair, UN-HABITAT

The panelists were all asked to respond to the same questions regarding the construction and real estate sectors in their countries and how the challenges in these industries can be overcome.

**Question 1:** According to you, what are the key challenges for Africa to consider in constructing green buildings?

**Akin Akindoyeni, Nigeria:** Planning of new cities has not taken into consideration the requirement for green buildings due to abject ignorance to start building green. Our challenge is to educate the people and educate government to begin policies to incorporate green buildings. The number of experts in this field is small, so we need the help of our friends.

**Elijah Agevi, Kenya:** Kibera is said to be the largest informal settlement, they need basic issues like water and shelter, how to remove waste. There are plenty of challenges to be dealt with, including socio-economic conditions, high poverty levels, the policy environment that needs to address green building and finance. Where will the money come from for green building?

**Tony Lee Luen Len, Mauritius:** The industry does not act unless there is a real need; they want to stick to conventional methods, and knowledge is limited. There is a Mauritius Sustainable Development Plan, an action plan at the ministry but nothing has been done for two years. Education, participation and sustainable development are needed as well as to have an organization that will put out the plan for green buildings and sustainable urbanization.

**Building professional from Tanzania:** The concept of green building is not new to Africans, who traditionally built from local materials, respected the environment and adapted to that place where they lived. The problem came with contact with the west through colonization and modernization; they left everything traditional and this is where Kibera [Nairobi] came from. It has been more than forty years since independence, yet there are no clear policies; the main problem is political leadership.

Key points from the audience discussion:

- People are concerned with basic existence. Ninety percent of buildings in Cameroon are put up by private people concerned about cost.
- The challenge for the government of Sudan is to have facilities to allow the systems to run, they don't care how green, they just need shelter, and the government has no capacity to push green building agenda. How can green building be introduced and supported by the government?
- In Ghana, the challenge is to link issues of poverty and affordability to green building.
- In low-income areas, people don't want to be associated with the use of certain building materials.
- In Zambia, there is a need for help with strategies for the most basic information to assist people in the building industry.

**Question:** What needs to change in terms of green standards?

**Akin Akindoyeni, Nigeria:** We need to attack the problem from its roots. We need to have curricula changed in universities. You can't get people to change voluntarily, you must change by force, i.e., through legal requirements: one can't get people to change what they don't understand. We need a body of facts and figures to take with us to government. We don't

need to reinvent the wheel, we need to take existing standards and change them to meet Nigeria's issues and then join with other countries in West Africa.

**Elijah Agevi, Kenya:** We need to change everything, starting with the mind. We need to mount an aggressive awareness and education campaign that targets stakeholders. We need carrots and sticks – new rules with strict enforcement. All solutions must remain sensitive to costs.

**Tony Lee Luen Len, Mauritius:** We don't have any green building codes and our existing codes are 80 years old. There are guidelines that can be used in planning, but which are not being used.

**Building professional from Tanzania:** We should acknowledge the past and look at our traditions, when our ancestors built green (e.g. orientation, window location, rainwater capture). Our governments should be proactive and use public service buildings as examples. Building properly will not cost extra money. We should set up a rule that all new buildings have to be green.

Key points from the audience discussion:

- Egypt: against the idea of forcing people as it leads to corruption.
- Poor people need tangible examples of how much operating costs are monthly so that a green building can be compared with conventional building.
- Uganda: With regard to the idea of requiring green standards, we already have regulations in Uganda, they are just not enforced. How much harder is it to enforce new regulations?

**Question:** What about the idea of obliging people to comply with green standards?

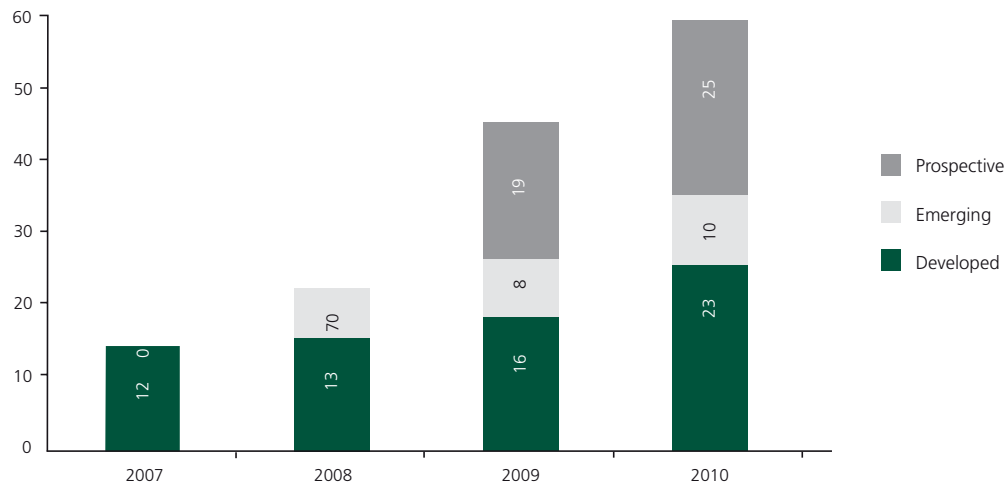
**Akin Akindoyeni, Nigeria:** Many people are illiterate and respect their government. The people who flout the laws are the elite (e.g. the police). We have to make laws; there is no time to waste.

**Elijah Agevi, Kenya:** Our problem is not a lack of regulations but implementation, compliance and enforcement.

**Tanzania:** Should think of mechanisms to ensure certain results (e.g., a certificate to operate is not issued without compliance with green codes). For



## Growth of Member Councils (2007-2010)



© World GBC

In her presentation (which was delivered remotely), Jane Henley, Chief Executive Officer of the World Green Building Council, discussed the growth over the past several years of Green Building Councils (GBCs) around the world. To date Africa has somewhat lagged in this trend. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)

incentives, people could be awarded for exceeding regulations.

**Tony Lee Luen Len, Mauritius:** Problem is implementation and enforcement. There is a problem with corruption and a lack of resources to enforce their codes.

Key point from audience:

- South Africa: Can't paint the same picture for the poorest of the poor as you do for commercial development.

**Question:** What are some quick wins for the region in terms of green building?

**Elijah Agevi, Kenya:** Awareness; engaging with institutes of higher learning to mainstream green concepts; carrying out an audit of current buildings; getting champions in the region.

**Tony Lee Luen Len, Mauritius:** Get a GBC setup and running quickly; pilot projects.

**Akin Akindoyeni, Nigeria:** Professionals in the built environment cooperating to establish the building blocks of a GBC; determine a set of ratings to use for

our own; in the next five years be able to point to one building that has been designed and built under this rating scheme.

**Tanzania:** Involve our financial institutions and get political institutions to guarantee the transactions to reduce the risk for the financial institutions; sensitize local government to the issues.

### Wednesday 5 May

#### World GBC networks

**Speakers:** Jane Henley, World GBC (telephone link); Rick Fedrizzi, President and CEO, United States GBC (pre-recorded video)

**Moderator:** Raf Tuts, UN-HABITAT

#### Jane Henley, World Green Building Council

So far, Green Building Councils from sixty-nine countries have expressed interest in joining the World Green Building Council. However there is not much participation from Africa and we look forward to changing that. As a global organization, we have a challenge to meet the different countries' needs and have people on the ground in the region to help

people. Then we can focus on how can the region work on a strategic level and have more activity in the region.

The main role of a GBC is to be a facilitator to the different people with momentum and to bring them together to have a country vision, and get everyone moving in the same direction so that everyone understands their role in the larger picture.

Your focus should be on aspiring to understand the priorities and needs happening in your own country and how can linking to a greater body can help. If the foundation in the country is strong, then it will increase the activity at the regional level and then the global level.

At the local level, it's extremely important to have a diverse and broad based group involved. And take as much time as needed to make sure that the right people are involved and not try to move too fast. Taking the time to do that is the biggest challenge. GBC is a model, not a solution or a way to tell a country how it should be done. It is a model of collaboration that has been successful in other countries. You can

use the model to solve the problems of your country; the group itself has to decide on practical solutions.

Key points from the discussion with participants:

- The environmental and social conditions are different in each country, and we need to embrace the differences and each country needs to find out what will best suit it and connect it to the global activity.
- The best way to spread green building activity to neighboring countries and through the sub-region, is to get your council going and to demonstrate successes; this is what happened when New Zealand followed the Australian example, and Canada followed the US once a system was in place.
- Successful strategies in emerging economies include getting influential leaders to be in the council, having government involvement, not reinventing the wheel by looking at what's needed in the country and using what has been done elsewhere, and using a slower approach that ensures resources are not wasted.



© Thomas Le Ngo

**Michelle Malanca introduced "Green building rating tools and how they work". Rating tools examine buildings from various perspectives, i.e., in terms of various categories. Categories may include "transport", "ecology" and "emissions". This transportation station in Springfield, Oregon (USA) uses a vegetated bioswale to filter and slow down rainwater. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)**

**Rick Fedrizzi, United States Green Building Council (USGBC) (prerecorded video message)**

Mr. Fedrizzi invited participants to the USGBC's Green Build conference Chicago, Illinois, in November 2010. The USGBC was founded 18 years ago and it has provided immediate and measurable solutions for tackling climate change in the US. The emergence of a local Green Building Council is crucial for the success of green building in the countries where they are formed. Currently some 117 countries are using the LEED system developed by the USGBC. He congratulated the participants for attending the conference, and wished them well in their efforts to promote green buildings in their countries.

**A closer look at the major green building rating tools in use around the world**

**Speakers:** S. C. Kumar, IGBC; Tony Lee, Mauritius GBC; Jason Buch, GBCSA.

**Moderator and Speaker:** Michelle Malanca

**Michelle Malanca, Michelle Malanca Sustainability Consulting**

Ms. Malanca provided an overview of green building rating tools, including their history and uptake around the world. Using the three most widely used tools (BREEAM, LEED and Green Star), she presented the types of issues commonly addressed (typical categories and credits in tools) and gave examples of strategies that projects often use to meet the performance criteria in the rating tools. Examples of typical issues addressed in rating tools include energy and water use, indoor environment, ecology, external pollution, transport impacts, and management of the design and construction process. She also provided an overview of the building certification process, highlighting the responsibilities of the project teams and the certification bodies. For GBCs looking to use rating tools, Ms. Malanca put forth the options for using existing rating tools and for creating new ones.

**S. C. Kumar, IGBC**

Mr. Kumar discussed how from a management perspective, there are two components of any endeavor, including efforts to promote green buildings – structure and substance. He advised participants not to worry about the structure but about the substance. He recommended that countries identify champions (has to be more than one person), choose the rating system and then go from there (no need to reinvent the wheel). The LEED system, which is used in India,

**Tool Development Process**

**Tool Development Structure:**

- Technical Working Group
- Consultants
- Sponsors

**Timeline:**

- Pilot tool development
- Pilot / feedback period
- Version 1 launch
- Future revisions

**Jason Buch of the Green Building Council of South Africa (GBCSA) walked participants through the steps involved in rating a building according to GBCSA procedures. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)**

addresses the quantification of performance. The rating systems in most parts of the world are design based, not performance based because design determines the operations.

**Jason Buch, GBCSA**

Mr. Buch described the Green Star SA rating system. He explained that all of the GBCs talk to each other and learn from each other and so all of the systems are similar and based on international principles. What makes Green Star unique is that it has tools for each sector (based on who has control – owner or tenant) and environmental weightings (to allow for variance between sectors and regions). The tool development process relies heavily on consultants to do the research and takes 10-12 months when customizing a tool (from Australia, which originated the system) or longer when creating own tools, with a pilot tool available for use in 4-5 months. All of the tools have sponsors, which is important for getting industry buy-in.

**Tony Lee Luen Len, Mauritius GBC**

Mr. Lee, a qualified BREEAM Assessor and BREEAM Accredited Professional, described the BREEAM rating system. There are over 500,000 BREEAM certified projects around the world. Individual assessors are assigned to each project and paid by each project; BRE does a quality check but does not check everything in the certification process. The BREEAM International Bespoke tool is for projects outside the UK and is

created on a project-by-project basis in about 20-24 weeks for about GBP 3-5,000. The certification is less expensive than other systems, but projects have to pay for a greater number of professionals. Once a country has enough Bespoke certified projects, BRE will look at creating a tool for that country.

Key points from the discussion:

- There is some concern with the BREEAM assessment method where one assessor is assigned to the project and is paid by the project. This can raise concerns about corruption and conflict of interest.
- The GBCSA is open to discussing how to expand the use of the Green Star SA system to other countries with minor customization.
- The India GBC has two of its own tools for homes and industrial buildings (in addition to the LEED tools), customized specifically for their market. It took two years to develop a rating system for green homes, and one and a half years for the industrial tool (for factories).
- It costs money to have a building certified and GBCs usually don't make any money on that process. At the GBCSA, it is used to hire three independent assessors and staff to manage the process. To have something that costs nothing, the option is to have a non-rating system that is just a set of guidelines - otherwise it costs money to go through a rigorous certification process.
- It is possible for projects to cheat on their assessment documentation, but the systems try to make it as rigorous as possible. They also rely on the market to give feedback on whether the certified building meets the rating tool criteria.
- The rating tools are for the design and construction of new buildings as well as retrofits. In the LEED system, there is a separate tool for ongoing operations, with recertification required every 3-5 years for existing building operations and maintenance.
- It takes a long time for the first projects to put their assessment documentation together, but as the project teams get more experience, the timelines become shorter and costs are reduced.

## **Governance & finance aspects of operating a Green Building Council**

**Speakers:** Bruce Kerswill, GBCSA; S.C. Kumar, IGBC; Manal ElBatrian-Tolba, Egypt GBC (EGBC)

**Moderator:** Robert Kehew, UN-HABITAT

### ***Bruce Kerswill, GBC South Africa***

Mr. Kerswill gave an overview of the structure and finance of the GBC South Africa (GBCSA). He explained that they hired a CEO with experience running a business, not necessarily with green experience. Then they needed a technical manager and someone to do marketing and events. Their first goal when hiring the CEO was to have enough money to run the organization for two years. The challenge for any GBC is to get recurring income; most money is raised through membership, courses and their annual conference. Funding should be secured before starting projects such as a rating tool. He recommended getting representatives from organizations on the Board that will be able to help with funding. The main goal for every GBC should be to transform the market, and it is important not to get hung up on the model; whatever achieves transformation is the right model.

### ***Manal ElBatrian-Tolba, Egypt GBC***

Ms. ElBatrian-Tolba described the structure and operation of the Egypt GBC (EGBC). The EGBC is a government body and the Chair is the Minister of Housing. They are in the process of starting to discuss memberships. They have created a green rating tool, Green Pyramid, which is essentially a combination of BREEAM and LEED that has been adjusted to local needs. There is a misconception that rating tools are only for the rich, so their aim is to disseminate the idea that green buildings are for everyone.

### ***S.C. Kumar, IGBC***

Mr. Kumar explained that the Corporation of Indian Industry (CII) started the India GBC. There were originally four staff and 77 founding members. Currently, the IGBC has 845 member organizations with membership dues being determined by the number of people in the joining organization. Primary funding sources are from memberships, project certifications, training programs, events and the IGBC Accredited Professional exam. The IGBC's primary functional areas are rating tool development (IGBC tools), education and advocacy. The IGBC now has nine chapters with their own chairmen and each



chapter is looking to try to bring in people in each location.

buildings. They believe that forcing will lead to people bribing their way to certification.

Key points from the discussion with participants:

- If one system works in one country, it doesn't mean it will work in another; in Egypt the process has been public sector driven and government involvement was important to facilitate the process. The Egyptian government was convinced of the need because of water and energy conservation issues and subsequent cost reductions for users.
- In South Africa the private sector is very dominant. If the government created a rating system and tried to impose it on private sector, it would be rejected, but in other countries more government involvement might be more appropriate.
- In Egypt, to convince the urban poor of the benefits of green building, the idea is not to simply tell people to pay extra upfront costs for construction and later on they will see reduced monthly costs for energy and water, but rather to give examples such demonstration projects (e.g., PLEV eco-village in Egypt).
- In Egypt, they are thinking about incentives such as reducing property rates for green

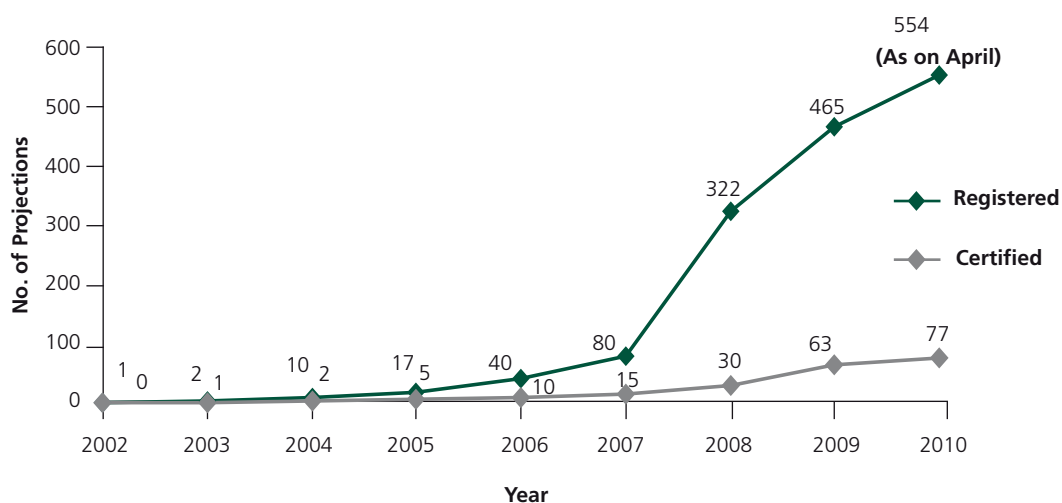
### What is appropriate for Africa? Alternatives to the country-specific GBC approach

**Speakers:** Robert Kehew, UN-HABITAT; Eric Noir, Africa Union of Architects AWSP; Bruce Kerswill, GBCSA; Jean-Pierre Ndortoum, Organisation internationale de la Francophonie (OIF)

**Moderator:** Vincent Kitio, UN-HABITAT

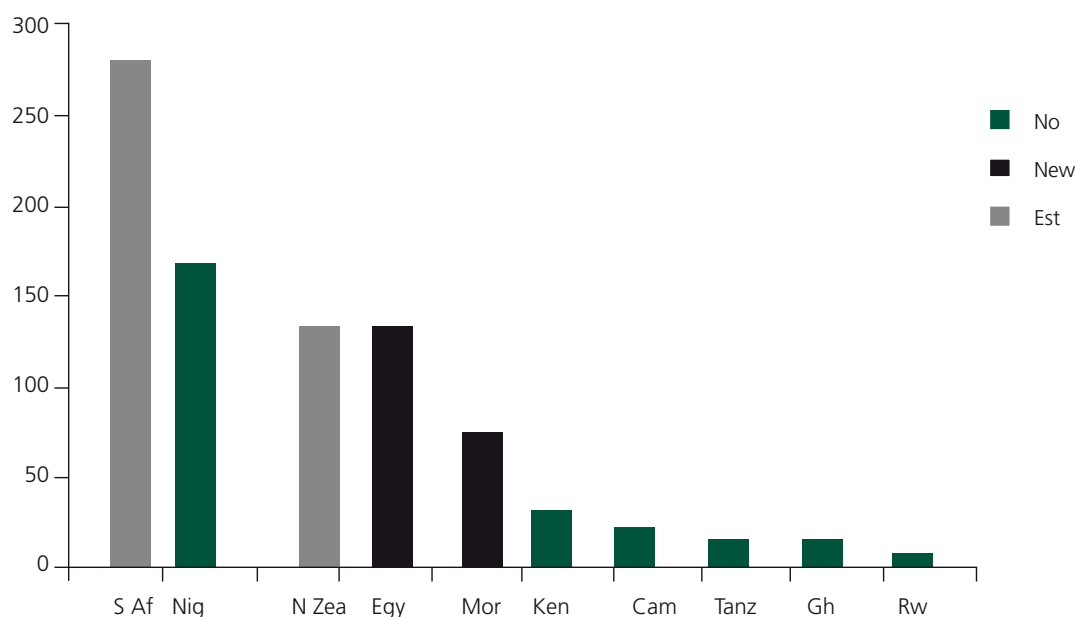
#### Robert Kehew, UN-HABITAT

The traditional Green Building Council relies on membership dues and services to building professionals, so the building sector has to be of a certain size to be able to support an autonomous council. Will a smaller country be able to support a GBC? There is some relationship between the size of an economy and the size of its building sector (e.g., according to UNEP, the building and construction sector is about 5-15% of the Gross Domestic Product (GDP) of a country); therefore GDP is a reasonable proxy for the size of the building sector. Looking at the size of national GDPs, it is uncharted territory to have a council in economies the size that most countries support in Sub Saharan Africa. (South Africa with its established GBC and Nigeria are the exceptions – their economies are roughly the size of other countries with



© Confederation of Indian Industry

S.J. Kumar discussed the growth in recent years in the number of buildings certified and registered as "green" in India by the Indian GBC. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)



© UN-Habitat / Robert Kehew

Robert Kehew presented the size of the economies of selected (mostly African) countries. The smallest economies that support established ("Est.") Green Building Councils (GBCs) are in South Africa and New Zealand. While it may be possible to establish full-blown GBCs in countries with even smaller economies, Kehew noted that such Councils would be "sailing into uncharted territory", and variations on this model also should be explored. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)

GBCs.) However this doesn't mean it's not possible to develop green building councils in a smaller economy – just that one should proceed with caution, and also take a close look at alternative models to the country-specific GBC.

This discussion will cover other options for promoting green building ratings besides the country-specific GBC model: Government-led initiatives (such as in Egypt and Abu Dhabi), sub-regional GBCs, Africa-wide GBC, affiliating with a larger GBC.

#### **Bruce Kerswill, GBCSA**

Mr. Kerswill described an innovative model for how the GBCSA might be able to assist other countries on the development of GBCs in their countries, while being clear that the GBCSA was not trying to set forth any particular model and is willing to help any council in Africa. He noted that the World GBC would prefer to see a council in each country as it has a transformative power in each market. For countries that can't support a full council, there are two options for how the GBCSA (for example) could support them: one option would be for the new GBC to have a full Board and contract out specific services (e.g., training). Another is for the GBC to have a full Board and the

GBCSA to play a hub role and do the trainings and the building assessments (the council would have to use Green Star). In the future, the GBCSA plans to explore a low-income housing module and bring in social and economic criteria into rating tools.

#### **Eric Noir, Africa Union of Architects/WSP Green by Design**

Mr. Noir explained that the Africa Union of Architects has given him a letter of mandate to create an Africa GBC and he has a tentative model for how that could work. He is interested in Africa developing its own rating systems so that the money and expertise stays in Africa and countries are able to empower themselves. This is a resource-scarce environment, so an Africa GBC could provide structure where there are no councils and offer network services where there are councils in place. Financing of the organization would be tricky as they would not be able to accept money that would otherwise go to local GBCs.<sup>1</sup>

<sup>1</sup> Later in the conference, during a workshop, Mr. Noir acknowledged that an Africa-wide GBC was not a viable model. The conference participants concurred with Mr. Noir and none are pursuing this strategy for the region.



Christophe Lalande introduced UN-HABITAT's Shelter Initiative for Climate Change Mitigation and Adaptation (SICCMA). Among other approaches SICCMA seeks to promote best practices in appropriate building technologies. The two buildings shown, a school in Ghana and a housing project in Ecuador, make effective use of bamboo. (For more information, see <http://www.unhabitat.org/list.asp?typeid=54&catid=640>.)

© International Network for Bamboo and Rattan (INBAR)

**Jean-Pierre Ndortoum, Organisation Internationale de la Francophonie (OIF)**

Mr. Ndortoum was not speaking on Green Building Councils but rather what his organization is doing in Francophone Africa. They have initiated the program for energy in cities, built on architecture formulated by a European NGO that considered many municipal functions that consume energy and buildings (e.g., the city as a consumer, public lighting and the problem of cars). In the initiative on climate change, they offered technical resources and training on negotiation in climate change agreements. For the past eight years, they have also offered training on environmental standards and energy efficiency.

Key points from the discussion with participants:

- The African Union of Architects has expressed the desire to create the GBC and is keen to network with other professional organizations; they have met with engineers, quantity surveyors and project managers and will continue networking. (However, later in the conference it was concluded that an Africa-wide GBC was not a viable strategy and will not be pursued).
- Some participants expressed a concern that there is a rush to implement an Africa GBC and that it is very important to take into consideration country specific approaches rather than sub regional. At the same time,

other participants tentatively endorsed a GBC for the whole of Africa with the idea of creating country chapters. (However participants revised this preliminary conclusion before the end of the conference; see discussion under Thursday 6 May below.)

- Participants suggested that the Francophonie organization develop a liaison with universities and other educational institutions in Africa. It was also suggested that it broaden its focus to include oil and nuclear energy.

**How national and local government policies and international programs can encourage and/or finance the construction of green buildings**

**Speakers:** Niclas Svenningsen, Head, Sustainable United Nations, United Nations Environment Programme (UNEP); Christophe Lalande, UN-HABITAT; Vincent Kitio, UN-HABITAT.

**Moderator:** Claudio Acioly, UN-HABITAT

**Niclas Svenningsen, UNEP Sustainable Buildings and Climate Initiative (SBCI)**

Mr. Svenningsen presented the work of the Sustainable Buildings and Climate Initiative (SBCI); he explained that it is not a funding agency but that there are other ways to get funding. He noted that SBCI is not technology focused as it believes the technologies are already there, but are just not being used by the



sector. SBCI tries to link the economic and social agenda to green building as policymakers are less interested in environmental factors. SBCI did a policy review and found that: regulatory measures are the most efficient; voluntary measures (including green building rating) are good but should be in conjunction with regulatory policies; and policies must be adapted to local levels. To encourage greater investment, Mr. Svennignsen suggested ways to move the savings from green buildings from the operational to the investment stage, including tax breaks for meeting green standards, and public-private partnerships with revolving funding mechanisms where the government pays the upfront costs.

**Christophe Lalande, UN-HABITAT**

Mr. Lalande gave an overview of UN-HABITAT's Shelter Initiative for Climate Change Mitigation and Adaptation (SICCMA) initiative, which addresses low-cost housing and low-cost building materials. He explained that the burden of adapting to climate change mostly falls on the urban poor, particularly slum dwellers. The massive use of brick in many dwellings is contributing to deforestation and high CO<sub>2</sub> emissions. The approach of SICCMA is to promote best practices through knowledge development, capacity building and awareness, and policy formation. Some of the efforts of this new initiative will include an index of local building materials, creating a shelter component of UN-HABITAT's Sustainable Urban Development Network (SUD-net), working with UNEP SBCI, collaborating with universities, and studying indigenous building methods.

**Vincent Kitio, UN-HABITAT**

Mr. Kitio described the Promoting Energy Efficiency in Developing Countries (East Africa) Programme (Global Environment Facility [GEF]), which looks at ways to promote sustainable building construction. The program focuses on energy efficiency because most countries are replacing traditional forms of energy with electricity and the demand outweighs the supply, resulting in energy rationing. About 50-60% of East Africa's electricity comes from hydropower, and the rest from fossil fuels; the solution is greater solar power. By involving all stakeholders in the building sector, the program aims to mainstream energy efficiency into policy, codes and practices. Initiatives include the collection of baseline data, creating awareness, developing energy efficiency guidelines (appropriate for each climate), and encouraging financial mechanisms.

Key points from discussion:

- Policies and interest at the local level are two of the most important ways or preconditions to scaling up the green building agenda.
- For promoting green housing, it is important to engage with civil society, grassroots organizations, students and academia, as they are most interested in seeing it happen and have the most knowledge.
- Work needs to go into educating decision-makers so they can understand the benefits of green building.
- Where there have been successful global movements, they do not create new systems; rather they add to existing ones.
- While in some countries there are a large percentage of people living in rural areas, the focus remains on cities because some cities have up to 75% of people living in slums.
- The SBCI Sustainable Social Housing Initiative (SUSHI) is taking on the solution to mass urban migration and slums. It is trying to integrate green elements into existing slum upgrade project (so far it is having mixed results).

**Thursday 6 May**

**Workshop on Promoting Green Building Rating in Africa**

The objectives for Day 3 are for participants, by the end of the day:

1. To make commitments, and develop the elements of a strategy and roadmap, for promoting green building and green building rating in their countries or sub-regions.
2. To develop the outline for a proposed Africa-wide Network, to facilitate ongoing communications and exchanges between champions of green building in different parts of Africa.
3. To provide recommendations to UN-Habitat and its partners regarding future support to green building rating in Africa.

## Introductory session and visioning exercise

**Presenter/facilitator:** Michelle Malanca

Ms. Malanca presented the proposed objectives for Day 3 of Conference (see list above) and asked participants if there were other desired outcomes from the workshop; no other objectives were cited.

Ms. Malanca then invited participants to write down their personal thoughts on the where they would like their country to be regarding green building and green building rating in the year 2015. She then asked selected participants to share these goals. The cumulative results (as grouped by the facilitator) are as follows:

As shown in this graphic, the vision for each country centered around 6 major areas:

- Establishing a GBC,
- Market changes,
- Changes to codes and regulations,
- The development of green building guidelines,
- Generating awareness with the public, the government and in school curricula, and
- Green building ratings.

As shown, each of these six areas had related subtopics; several countries often citing the same subtopic as part of their vision. Furthermore there are a number of connections between these areas, showing how activity in one area can stimulate results in another. This synergy is what enables market transformation to take place.

The intent of this exercise was to show the connections between the various goals, and also to have a reference to go back to later once the roadmaps had been created.

## How do we get there? Strategies to achieve visions (breakout session No. 1)

**Overall facilitator:** Michelle Malanca.

**Facilitators for individual groups:** Christine Auclair and Robert Kehew.

Participants were broken out into two discussion groups to discuss the best strategies for each country to promote the green building agenda (individual country GBCs, subregional GBCs, Africa-wide GBC, etc.)

The breakout groups had the following composition:

Group 1	Group 2
Ethiopia	Burkina Faso
Eritrea	Cameroon
Kenya	Chad
Malawi	Egypt
Mozambique	Gambia
Mauritius	Ghana
Rwanda	Morocco
South Africa	Nigeria
Tanzania	Sierra Leone
Uganda	
Zambia	

Participants from countries not listed in these groups were able to select the group of their choosing.

Within each group, participants debated the various options available and came to their own conclusions about what was the best option for their country. Then back in plenary, one representative from each group briefly presented the results of each group's discussion and the route each country was interested in following. The results are as follows:

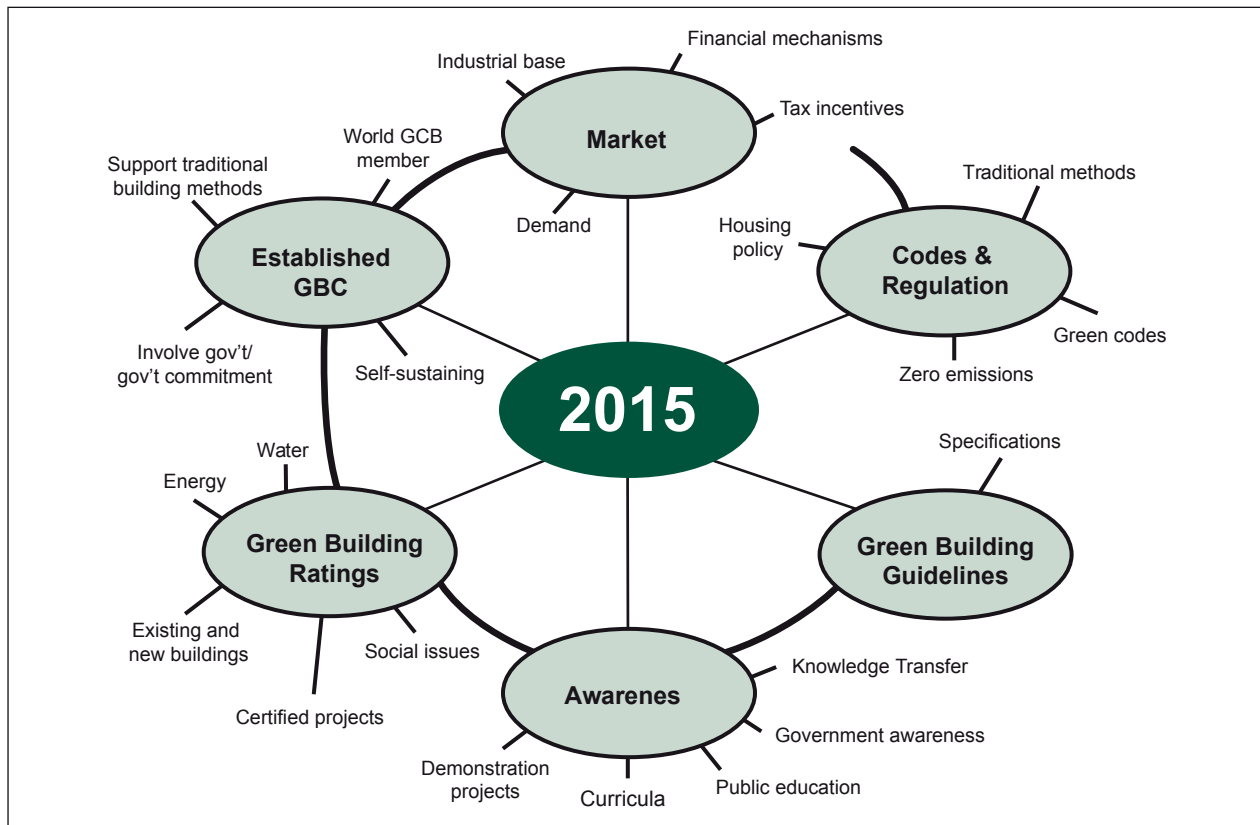
### Group 1

The group discussed the various benefits of having GBCs at the country, sub-regional and Africa-wide levels.

A GBC at the country level would be able to respond to each country's diversity – in economy, ecology, climates, building codes, etc – and would create a stronger local base. However, there was a question as to whether there could be the critical mass needed for a council in the smaller countries.

A GBC at the sub-regional level would benefit from the existing knowledge and support of neighboring partners. This structure could be particularly helpful for GBCs that are just getting started. It was noted, however, that while a network could provide this support, that would require an already functioning GBCs in the vicinity, meaning there could be a very slow start for GBCs relying on this model. It was agreed that there is no replacement for the on-the-ground work that must take place in a country to support a GBC.

## Green Building in 2015: Clustering of Goals



An Africa-wide GBC can provide some of the services of a GBC, but communication could be more difficult. While this structure would facilitate green building buy-in from multinationals, there would be less chance of it filtering down to the local level.

In the end, all of the countries in the group were interested in having their own national council, with the exception (for the moment) of one or two countries who still saw a benefit in belonging to a sub-regional GBC.

### Group 2

In this group, initially there was a lot of diversity as to what was desired by each country. A few countries felt that an Africa-wide GBC would provide a strong platform for the entire region.

Others, particularly in francophone West Africa, felt that a sub-regional network made the most sense. They felt that it could be modeled on existing regional network such as the Economic Community of West African States (ECOWAS). Several countries felt that it was best start with a national GBC then have a sub-regional or regional network.

By the end, all countries agreed that they should have a national council. Of them, only Ghana had already initiated a council, and the others felt that they would need two years to get one underway.

The group indicated a clear interest in continuing the network that was started at this conference. There was agreement that sub-regional networks based on common ecological or economic systems, or cultural commonalities, would be useful, and that an Africa-wide network would also be needed.

A speaker clarified that an organized green building council – whether on a national, sub-regional or regional scale - is distinguished from a GBC network in being a formal, legal entity and in meeting specific governance and financial qualifications in order to be recognized by the World GBC. A network, on the other hand, could have any degree of formality with little or no membership requirements, and would serve primarily as a means of communication and support between member organizations.

## **Break-out session No. 2: roadmaps for achieving visions and strategies**

**Overall facilitator:** Michelle Malanca

**Facilitators for individual groups:** Christine Auclair, Robert Kehew and Michelle Malanca

Participants were once again broken out into small groups to discuss the actions needed to achieve the strategies identified in the previous session. These actions form the roadmap to achieve the desired outcomes.

The group composition was primarily the same as the previous session (see table above), with participants not from African countries able to select their own groups. These two groups focused on how to start individual GBCs (for the one or two countries interested in sub-regional GBCs, it was decided that many of the actions needed would be the same). Changes to the group composition included the formation of a third group consisting of burgeoning GBCs that have already registered with the World GBC (Egypt, Morocco and Mauritius); they held a discussion focused on their specific stages of development. Also, participants from South Africa, which already has a fully established GBC, joined all three discussion groups.

All three groups then returned to plenary and shared the results of their discussion.

Group 1 came up with the following list of actions to work on prior to incorporating as a non-profit:

- Call a meeting to identify critical stakeholders.
- Contact potential stakeholders, including: professional associations (architects, quantity surveyors, landscape architects, planners, engineers, and consultants), local development committees/councils, government bodies, universities, construction industry members, materials suppliers and manufacturers, developers, NGOs, and private sector alliances.
- Visit a country with an existing GBC and see how it's done.
- Strike a mentorship relationship with an existing GBC to get information and documents.
- Consider the size and composition of the Board of Directors.

- Create a vision and mission statement.
- Create a business plan.
- Create a briefing note.
- Register as a non-profit entity.

Group 1 then proposed the following actions for the post-incorporation period:

- Draft agreement or constitution.
- Elect officers.
- Set up a bank account.
- Create a website and channels for general communication.
- Ensure the Board of Directors represents relevant interests from industry, government and NGOs.
- Generate interest through internet, TV, radio, mobile media and seminars.
- Provide value to members, through training and a connection to the global community.
- Capacity building programs.
- Implement rating tools and other strategies that create local value.

Group 2 presented their proposed roadmap, with the steps grouped in chronological order and with some milestones having specific timelines.

Within the first three months:

- Register with the World GBC
- The founding group, comprised of multi-disciplinary members, will hold a meeting to discuss the business plan, covering such topics as approaching partners, budget and the creation of a Board of Directors with influential people
- Establish the Board of Directors

Once the Board of Directors is established, then:

- Hold a public launch of the organization
- Secure funding, potentially through government and/or the private sector (industry groups, architects, multinationals, etc.)
- Determine the number of employees needed
- Become a legal entity (e.g. non-profit or a government-based body such as in Egypt and China)
- Establish operations

Once the organization is operating, the following actions can be taken:

- Training from other experienced GBCs (either a one-day session with the GBC Australia as the GBCSA did, or possibly a two-week event as the Asia Pacific network had).
- Choose a rating system
- Disseminate the idea through public courses in the rating system
- Develop/customize the rating tool

Group 2 proposed that their roadmap should take approximately two years to complete.

Group 3 focused on the intermediate challenges facing a GBC that is about to begin or is just beginning operations. The primary challenges facing the Mauritius GBC are political, with concerns that the government will set up its own GBC-style council, in opposition to their private sector initiative. As a result they have been working with government ministers to resolve the situation. The Egypt GBC faces very different issues to other councils as the Board is chaired by the Minister of the Housing Department. The Morocco GBC is in the process of educating major stakeholders.

### **Break-out session No. 3: a network, rating tools, commitments and recommendations**

**Overall facilitator:** Michelle Malanca

**Facilitators for individual groups:** Christine Auclair, Robert Kehew and Michelle Malanca

Participants broke out into three groups to discuss either the formation of a network of African GBCs, the creation of a declaration of commitments by the participants on future actions, and key issues to consider when deciding on which rating tools to use. After the individual discussions took place, the group returned to plenary and shared their conclusions.

#### **Group 1: Africa Network of GBCs**

**Facilitator:** Bob Kehew

This group discussed which type of network of GBCs would be most useful to the participants in the short term, an Africa-wide network or sub-regional networks. It was decided that an Africa-wide network was most appropriate in the short term and that existing sub-regional forums, such as the Economic

and Monetary Community of Central Africa (CEMAC) and ECOWAS, could include the GBC initiatives into their existing agendas to make all countries aware of what GBCs are and what they do.

The group recommended that an online forum be available for all GBCs in Africa. The intent would be to provide an arena for information sharing such as a directory of GBCs, examples of good practices, and information on programs, conferences, and ongoing projects of various GBCs.

There was further discussion regarding the management of the network, including the creation of a steering committee.

The GBC South Africa volunteered to host and moderate a webpage for the Africa GBC network on their website, in the interim before an official Africa GBC network website organized through the World GBC could be established. One purpose of this network would be leadership development training. There is an opportunity to request funding for this training from specific development organization(s); capacity-building would be focused on countries with a demonstrated interest in setting up a council.

In the very near term, for immediate conference follow-up, UN-HABITAT agreed to set up an e-dialogue forum to continue the discussions from this conference. This discussion forum is located at: [forum.unhabitat.org](http://forum.unhabitat.org) under a link entitled 'Green Building Rating in Africa'. Registration is required in order to participate. Any registration queries can be directed to [habwebteam@unhabitat.org](mailto:habwebteam@unhabitat.org).

#### **Group 2: Commitments by participants, and recommendations to UN-HABITAT and the UN system**

**Facilitator:** Christine Auclair

Group 2 presented a draft of a declaration of commitment for ongoing actions, as well as recommendations for UN-HABITAT, for review by the entire group in plenary. The text of the declaration was read aloud and a written version provided. All conference participants had the opportunity to comment on and make suggestions for the proposed declaration of commitments. (For final version agreed upon in plenary, see below.)

### Group 3: Green building rating tools

**Facilitator:** Michelle Malanca

This discussion focused on the key elements for consideration when selecting and developing a rating tool. A discussion of the major environmental issues facing each country (e.g. deforestation and vegetation loss, soil erosion, urban sanitation, potable water supply) demonstrated the need for the rating tool in a given country to address these specific issues. A rating tool should address such issues through the reward of initiatives. In developing the tool, there must be some recognition as to whether or not the given market could provide these solutions (in terms of materials and in terms of skills). While it useful to include 'stretch targets' (i.e., initiatives that may be very challenging for the industry to meet right away) in the tool to stimulate the market, the tool cannot be so difficult that it is unusable.

It was acknowledged that most existing rating tools do not include social criteria, and the group discussed what kinds of social criteria could be included, with the parameters that they be objective, measurable and verifiable. Potential criteria included:

- Percentage of low-cost housing in a development
- Recognition of cultural and religious requirements and socially appropriate design
- Generation of employment through selection of materials and methods
- Determining the number of people benefitting from the development

Finally, the key considerations during tool development were brainstormed, with the following results:

- Does the tool represent national or global best practice?

- Have the key environmental impacts been addressed? Does it result in positive environmental outcomes?
- Which types of buildings will be covered?
- Who is the tool aimed at (e.g. financial interests and developers, government, academic institutions)?
- Which standards and measurements does it use?
- Is it easy to use?
- Does it drive skills?
- Is it standardizing green buildings?

### Concluding remarks and next steps

**Panel:** Alioune Badiane, Christine Auclair, Vincent Kitio, Bob Kehew, UN-HABITAT

**Moderator:** Michelle Malanca

The panelists reviewed the activities of the past three days and thanked all of the team members and contributors who made it possible. There was acknowledgement that the conference participants are the leaders in this movement and that there is a unique opportunity to do better than other places at other times. It was also noted that there is a need for financial mechanisms to make many of the goals coming out of the conference a reality.

### Declaration of Commitments

Revisions to the declaration were made based on the comments and suggestions made in plenary. The revised final text was presented and all participants agreed upon changes made to the declaration.

The final text of the declaration is provided as front material in the present document.



## 4. BACKGROUND PAPER

*By Michelle Malanca*

### Table of Contents

1.	Executive Summary .....	28
	Green Building Councils.....	28
	Green Building Rating Tools .....	28
2.	Introduction .....	29
	What are green buildings?.....	29
	What are Green Building Councils?.....	30
	What are green building rating tools?.....	30
	How do green building rating tools work?.....	32
	Professional Accreditation .....	32
	An Alternative to the GBC Model: Government-led Rating Schemes .....	32
3.	Adapting the Green Building Council model to the African context: major institutional options .....	33
	World GBC membership and networks .....	34
	The single-country GBC model .....	35
	The potential for a regional or sub-regional GBCs .....	36
	Affiliation with a larger council .....	37
	Market sizes .....	37
4.	Using green building rating tools in Africa.....	40
	Deciding which rating tool path to take .....	41
	How rating systems can address low cost housing and low-cost materials .....	42
5.	Conclusions and next steps .....	45
6.	References and Resources .....	45

### List of Acronyms

AGBC .....	Africa GBC
BRE .....	British Research Establishment
BREEAM .....	British Research Establishment Environmental Assessment Method
CASBEE .....	Comprehensive Assessment System for Building Environmental Efficiency
GBC .....	Green Building Council
GBCSA .....	Green Building Council South Africa
IGBC .....	India Green Building Council
LEED .....	Leadership in Energy and Environmental Design
NZGBC .....	New Zealand Green Building Council
SBAT .....	Sustainable Building Assessment Tool
USGBC .....	United States Green Building Council



## **1. Executive Summary**

The Conference on Promoting Green Building Rating in Africa represents a unique opportunity for participants from some 20 countries around Africa to advance their understanding of green buildings and the options to promote the uptake of green building best practices on the continent.

The conference will explore in depth the notion of the development of Green Building Councils under the umbrella of the World Green Building Council. The conference will also investigate the opportunities available for developing and implementing green building rating tools, which have proven to be an effective means to improve the environmental performance of buildings in many parts of the developed world.

The purpose of this paper is to set forth the key issues that will be explored at the conference, highlighting how these institutional frameworks and market incentives can be adapted to the African context. In particular, it will investigate how these strategies can be used to address some of the most relevant issues for building in Africa, including the need for low-cost housing and the use of low-cost building materials.

### **Green Building Councils (GBCs)**

GBCs are non-profit, member-based organizations that seek to transform building industries towards sustainability by encouraging the adoption of green building best practices. Currently, there are some 60 GBCs in various stages of development around the world, with 20 being fully 'established'. While at present there is only one established GBC in Africa – in South Africa – this is slowly changing, with three new councils in their early stages of development in Morocco, Mauritius and Egypt.

The World Green Building Council is the umbrella organization and governing body for these GBCs. The World GBC is organized into regional networks: Asia Pacific, Europe, the Americas and Africa. As yet, only the Asia Pacific and Europe networks have held formal, in-person meetings. The Asia Pacific network is the most advanced, having held a two-week launch and training session in Australia in 2009, hosted by the GBC Australia and sponsored by AusAID, a development arm of the Australian government. This network structure facilitates the transfer of knowledge from more mature GBCs to newer ones, and builds beneficial relationships amongst all parties.

There are a number of options for how the GBC model might be adopted to Africa. The traditional model used by all GBCs to date is where each GBC represents an individual country. However, with smaller markets some countries in Africa may find a sub-regional model more appropriate. There may also be other options for associating with a larger GBC or forming a sub-regional GBC. Going with any of these alternative strategies is uncharted territory and the advantages, disadvantages and practicalities of each of these options will have to be identified and explored by the conference participants.

### **Green Building Rating Tools**

One of the fundamental activities of most GBCs is the implementation of green building rating tools. These tools put forth a range of environmental performance criteria including, but not limited to energy, water and resource usage, ecological impacts, transportation, indoor environmental quality and construction processes. Each project submits documentation proving how they have achieved a given number of these criteria and are then assessed under the rules of the rating tool by a third party. How well they perform against the criteria determines their final rating. The third party, usually a GBC, awards their formal 'certification', which they can then use to market to potential tenants or buyers or to demonstrate their environmental leadership.

Most green building rating systems also have companion professional accreditation programmes, also usually run by GBCs. After completing a training course and passing an exam, a person becomes an Accredited Professional in that programme and can market themselves accordingly. Most rating tools reward projects for having an Accredited Professional working on it from the outset.

With a number of successful tools in use around the world, each GBC now has the option to adopt one of the existing tools with no or minimal changes, adapt one of the existing tools and customize it for the local context or create a new tool customized specifically for its market.

While most building rating tools are developed by member based organizations such as GBCs as

indicated above, there are also some examples of governments developing their own rating schemes. These public sector-developed tools often focus on operational energy usage rather than holistic building performance. These government-led approaches can be easy for building owners/managers to use and can have wide uptake, but require extensive data collection and resources to be implemented effectively.

As the existing rating tools have had the most uptake in developed countries, it is possible that the tools already in use may not be relevant to the context of countries with less mature markets. They may not address the most important issues in those countries, or may not have appropriate performance thresholds. Also, some observers believe that most existing green building rating schemes are not designed to adequately reward low-cost building technologies nor can they address the kind of low cost housing most needed in Africa.

While the current model for rating tools does present some challenges in addressing low-cost housing and low-cost materials, these can be overcome. Options to modify rating tools for these uses include the use of streamlined performance criteria, documentation requirements suited to the developing world, prescriptive measures that are easy to follow and require less documentation to prove and alternative assessment strategies such as onsite audits or inspections.

It remains to be seen if rating tools are the best methods to address these issues. Where government codes determine the minimum levels of building performance, rating tools set the highest thresholds. By rewarding market innovators, they stimulate competition and create market differentiation. In sectors where these would not be effective drivers, the use of other strategies such as design and construction guidelines with a prototype element could have more impact. Compliance with the guidelines could be used to confirm credibility with potential private investors and third parties such as aid organizations.

In order to be effective in Africa, rating tools may also have to address a wider range of sustainability issues, including social criteria. Existing rating tools have not included these criteria because, in developed

economies, they are generally already covered by existing regulations and the need for them to be addressed is not as great. Furthermore, environmental metrics lend themselves much more readily to the building design and construction context than social criteria, which can be challenging both to determine and to measure. However, with innovation and determination there are certain opportunities to adapt and improve rating tools to create positive transformation in the built environment in Africa.

## 2. Introduction

This paper seeks to set out some of the major issues to be explored at the Conference to Promote Green Building Rating in Africa, organized by UN-HABITAT, to be held in Nairobi, Kenya, from May 4 - 6 2010. The conference is focused on the institutional options available to those wanting to form an organization, specifically a Green Building Council, to promote the uptake of green building best practices in their country through capacity building, advocacy and the use of green building rating tools.

This paper surveys the specific issues related to the implementation of the Green Building Council model and green building rating tools – models developed initially for developed countries – in the African context. Further, it looks at how some of the most pressing building development needs in Africa – that of low-cost housing – can be encouraged and improved under this framework.

### What are green buildings?

Green buildings have an improved environmental performance over standard buildings through all phases of their lifecycle which begins with design and construction and moves through operations and to the end of life, including deconstruction and demolition. A green building will also have features that make it healthier for its occupants, such as increased daylight and fresh air and non-toxic materials. By reducing the amount of energy and water and other resources they use, green buildings are consistently less expensive to operate and become more valuable in the marketplace.

A green building achieves these outcomes by focusing on them from its conception and first stages of design, implementing them throughout construction, and by

continually monitoring and measuring its performance in operation. They minimize resource use, pollution and waste from the start.

In addition to tangible environmental benefits, green buildings have demonstrable social benefits and studies have indicated that the quality of the indoor environment in these buildings directly benefits the occupant. On average, students in green schools score higher on tests, workers in green buildings have lower absenteeism and are more productive while patients in green hospitals have faster healing times.

These human benefits have cost implications as well. The greatest expense for any business is employee payroll, so greater productivity directly impacts its bottom line. Similarly, patients who spend less time in the hospital recovering save money. Moreover, building owners not only save money in operational expenditures in a green building, but studies from the United States indicate that certified green office buildings have higher occupancies as well as attracting higher rents and sale prices.

### **What are Green Building Councils?**

Green Building Councils (GBCs) are not-for-profit, member-based organizations that seek to transform the building industry towards sustainability through encouraging the adoption of green building practices. Their primary methods to achieve their goals are the implementation of green building rating tools, education and advocacy. By engaging directly with stakeholders from throughout the lifecycle of buildings, GBCs can influence the choices made in each phase of the building's life, thereby dramatically improving their environmental performance.

David Gottfried formed the first GBC in the United States in 1993. The USGBC remains the largest and most successful council in terms of absolute numbers and industry influence. More than 130,000 people have been trained and accredited in using the USGBC's Leadership in Energy and Environmental Design (LEED green building rating system, with approximately 30,000 buildings registered and several thousand certified under this. GreenBuild, the USGBC's signature conference, attracts upwards of 30,000 attendees and thousands of exhibitors each year.

Gottfried later went on to found the World Green Building Council in 1999 (incorporated in 2002). In 2005 there were seven fully established GBCs, including those in the United States, Japan, Australia, Mexico and Canada, with a handful of other countries aiming to establish councils. As of March 2010, there were 20 fully established GBCs on six continents and over 40 burgeoning GBCs in varying stages of development (see Section 2 below). The World GBC now has regional networks of councils such as the Asia Pacific network and the European network to grow GBCs around the globe.

Each new GBC that starts finds its market acceptance faster than the last, through the growth and understanding around green buildings and green building rating tools in recent years, and due to the success of the first GBCs. This widespread establishment of GBCs and their mission has impacted government policy as well. It is becoming more common for national, subnational/provincial and local governments to require that buildings used for their own accommodation meet the standards set out by the GBCs, and some are beginning to require them for privately-owned buildings as well.

### **What are green building rating tools?**

These are voluntary mechanisms used to rate and certify the environmental performance of buildings. By rewarding exemplary building performance, rating tools provide an incentive for building owners to go above what is required by government building codes, which define the baseline level of performance to be a legal building. Owners can use the ratings to demonstrate the quality of their buildings to a variety of interested stakeholders, including occupants, investors and the public.

The British Research Establishment launched the first commercial green building rating tool in 1990, known as BREEAM (British Research Establishment Environmental Assessment Method). This was followed by LEED in the United States, CASBEE (Comprehensive Assessment System for Building Environmental Efficiency) in Japan, Green Star in Australia and several other country-specific tools in Asia and Europe.

With a number of successful tools in use around the world, each GBC now has the option to adopt one of the existing tools that allows its use in other countries with no or minimal changes, adapt one of the existing tools that allows its use in other countries with customization for the local context or create a new tool customized specifically for its market.

The existing green building rating tools that allow the use of their tools and/or customization of their tools in other countries are:

- BREEAM – The BRE will certify a building in any country by using their BREEAM Bespoke methodology, where a tool is custom made for a fee on a project-by-project basis. They also have legal and financial agreements with GBCs and other organizations in countries that want to adapt BREEAM for use in their markets. Once the local version of BREEAM is established, the adoptive countries take responsibility for building assessment and certification.
- LEED – A building in any country can register for LEED certification using the LEED rating tools, which are based on US standards and codes. The USGBC has legal and financial agreements with several GBCs to use LEED in their countries. Early adopters of LEED such as the India GBC and the Canada GBC were able to make slight changes to the system for their markets but these tools now instead have options for ‘regionalization’ where certain initiatives can be rewarded differently according to the location. The USGBC is considering revising its adoption framework in order to allow for other countries to have some ability to customize LEED. Wherever LEED is used, the USGBC handles all of the assessment and certification of the projects.
- Green Star - The GBC Australia developed the Green Star system and will not certify a building in another country as it was created specifically for their home nation. However, they do have legal and financial agreements with other GBCs allowing them to customize Green Star for use in their countries and, to date, two countries have done so. Once Green Star has been customized for that location, the adoptive GBC is responsible for assessment and certifications of the projects under their scheme.

Several GBCs, in Asia and Germany, have opted to create their own tools for their markets.

Nearly all tools look at similar environmental issues. The differences lie in how the impact issues are categorized within the tool, the performance benchmarks for each initiative, the type of documentation required to prove compliance with the rules of the tool and the methods by which the buildings are assessed under the scheme. Most systems look at the energy, water, indoor environmental quality, management of the construction process (including waste), ecological impacts, relationship of the building to its physical context, transportation impacts and building materials.

As a rule of thumb, most rating systems start out with tools for new buildings, which apply to new construction and major refurbishments; buildings with minor refurbishments could also use the tools but would have significant challenges in meeting the criteria. Some systems now have rating tools for existing buildings that rate how they perform.

GBCs have focused on new building design and construction because up to 85% of a building's lifecycle costs might already be determined once just 7% of its up-front costs are spent.<sup>1</sup> Also, owners of new buildings have had the most incentive to pursue certification in order to create a market differentiation for their building.

As some of the older rating systems have matured, they have created a range of rating tools for each building type; the tools are specific to the function and form of each particular type of building.

For example, a given suite may have tools covering offices, schools, shopping centers, homes and so on. This notion that one tool does not suit all types of buildings will play a role in considering how rating tools can be most useful in the African context, particularly low-cost housing.

<sup>1</sup> Joseph Romm, *Lean and Clean Management: How to Boost Profits and Productivity by Reducing Pollution* Kodansha Amer Inc., 1994

### **How do green building rating tools work?**

Green building rating tools put forward optional performance targets for a wide range of building initiatives. These performance targets are known as 'credits' and are organized into several environmental categories such as energy, water, materials and indoor environmental quality. Wherever possible, the credits use specific metrics and compliance with international standards to gauge performance and minimize subjectivity.

Each building project team chooses from this menu of credits and decides which are most appropriate for its particular building circumstances.. Buildings are not meant to achieve every credit and, in fact, it is impossible to achieve every credit in most tools. Projects receive points for each credit they can prove they have achieved. The aim is to achieve enough points to receive a rating.

As the building moves through the design and construction phases, project teams collect documentation (documentation criteria are clearly spelled out within the credits) which demonstrates how the project is meeting its selected credits. At the end of the project, this documentation is submitted to the third-party certification body administering the rating system, typically the Green Building Council that operates the rating tool.

There are variations in the ways that buildings get assessed under the rating systems. Both LEED and Green Star require project teams to collect documentation independently and submit it all at once, with little interaction with the GBC during that time except to respond to technical queries. Anonymous assessors hired by the GBC review the documentation, which requires several hours per assessor to complete. Under BREEAM, a project hires a BREEAM assessor to work with them throughout the project and this assessor submits the completed project documentation to BRE for quality assurance.

In all schemes, where the project is consistent with the rules set out by the body, they are awarded points for each credit achieved and are given a final score based on the project's total number of points. These points

translate to a tiered set of awards, which each rating system offering its own variation. For instance, Green Star awards 4, 5 or 6 Stars to high-performing projects; under BREEAM buildings rate as Pass, Good, Very Good, Excellent or Outstanding while buildings can receive Certified, Silver, Gold or Platinum under LEED. Once the project's performance has been certified, it is free to market itself as such, whereas projects that do not meet the lowest points thresholds are not certified and are not allowed to market themselves as a certified green building.

### **Professional Accreditation**

Most GBCs facilitate the use of their green building rating tools by offering a professional accreditation in their rating tool programme. Anyone interested in becoming an 'Accredited Professional' (AP) in the programme will take a training course offered by the GBC and then pass an exam (also created by the GBC) to demonstrate their proficiency in using the system. Those passing the exam go into a database on the GBC's website and can market themselves with this accreditation such as LEED AP or Green Star AP. Most of the rating tools themselves also have a credit within them for having an Accredited Professional on the project team from the beginning, as an additional incentive for people to become accredited.

This Accredited Professional training programme is a key part of any educational programme that a GBC offers and often provides a reliable revenue stream for the council while providing a valuable service to the industry.

### **An Alternative to the GBC Model: Government-led Rating Schemes**

In addition to rating tools developed by GBCs, some national governments have devised their own rating schemes. These systems primarily look at the ongoing operational impacts of buildings in terms of energy use such as Energy Star in the U.S. or NABERS in Australia. These ratings generally look only at energy use and therefore are not considered holistic green building ratings. However, the green building tools developed by GBCs can take advantage of the market acceptance of these energy ratings and use them within their own tools.



For example, Energy Star is an energy performance certification scheme of the US Department of Energy that offers certification for a range of products, from electrical appliances and computer equipment to buildings and industrial plants. The LEED for Existing Buildings Operations & Maintenance tool gives the option for projects to use the Energy Star Portfolio Manager tool to help meet the documentation requirements within certain credits in the LEED Energy category.

In Australia, the NABERS tool for energy has an option for new office buildings to model their predicted energy use with the NABERS proprietary modeling protocol. Buildings that have been in operation for a year or more use utility bills to demonstrate their performance under NABERS, which is its commonest use. Green Star in Australia has embedded this modeling protocol from NABERS in its Energy category as one of two modeling methodologies that can be used to demonstrate compliance with the energy performance requirement for new and refurbished office buildings.

The NABERS scheme has recently expanded to cover the operational impacts of water use, waste generation and indoor environmental quality in office buildings and with each module able to be rated separately but these modules have not had the same market uptake as the energy module.

These rating schemes are not mandatory building codes but are government-run programmes offering certification of voluntary performance above code. GBCs also have the option of developing their own operational, as opposed to design, energy performance component for use within their green building tools. However, governments are good candidates to create operational energy use performance benchmarks. To be technically robust, the benchmarks require large amounts of comparative building data and governments have access to this through the size of their property portfolio. These benchmarks can also take a significant amount of resources to develop and operate.

These schemes are not run by institutions such as a GBC, but typically operated by one unit within an

Energy or Environmental Department of a national or state government. In some instances they may offer training courses, but there is not the same model of industry engagement and transformation. Since they are for use once a building is in operation, rather than when it's in design, any significant improvements to the building's performance would be far more expensive than if they had been incorporated into the original design. That said, by focusing on energy, and by sometimes being as simple to use as collecting energy bills, there is often substantial uptake of these schemes.

A recent exception to this energy-specific focus by a government body is the Pearls Design System, which was formally launched in Abu Dhabi in April 2010 by the Abu Dhabi Urban Planning Council. It is a voluntary tool that includes a small number of requirements that are aligned with the new Abu Dhabi building code. While there are a number of LEED certified projects in the United Arab Emirates (UAE), and a BREEAM Gulf tool has been developed, no one tool has established dominance in the region prior to the launch of this tool. The Emirates GBC had previously been supporting the use of LEED. The Pearls Design System uses a BREEAM-style assessment method where one assessor is assigned to the project for the duration of design and construction. Temporary ratings are awarded at the design and construction stages, and permanent ratings are awarded once the project has been in operation for at least two years with 80% occupancy and its performance can be verified. As this system is so new, it remains to be seen if it will have the same market impact and credibility in implementation that GBC-run tools have had.

### **3. Adapting the Green Building Council model to the African context: Major institutional options**

Having introduced the Green Building Council model as well as the government-led alternative for developing green building rating tools, this section explores some of the major institutional options for adapting the GBC model to the African context.

As of March 2010, the GBC South Africa is the only established GBC in Sub-Saharan Africa, with three developing councils in the rest of Africa in Morocco,

Egypt and Mauritius. With challenges and market conditions that differ from much of the rest of the world, which are discussed below, the rise of green building rating systems may well take a different path in Africa. This section explores some of the major options for how GBCs in Africa could work within the World GBC framework, and which models for the development of GBCs and the implementation of rating systems might be best suited there.<sup>2</sup>

### **World GBC membership and networks**

The options for GBC development models are best understood in the context of World GBC protocols for council establishment and World GBC networks.

#### ***Becoming a member of the World Green Building Council***

The first step towards becoming a member of the World GBC is to file an Expression of Interest (EI), along with a one time payment of \$5,000. In order for the EI to be approved by the World GBC, the applicant organization must already have a 'core founding group' made up of leaders from across the building sector in that country or sub-region, which clearly indicates the group's ability to create and operate a GBC.

Prior to submitting an EI, a group that is in contact with the World GBC about starting a GBC is known as an 'Associated Group'. Once the EI has been submitted and approved, the group becomes a 'Prospective' council and is known to be working towards becoming an 'Emerging' Council.

Recognition as an Emerging council is important as no other group(s) will be able to register as a GBC from that country or sub-region once there is an Emerging Council.

<sup>2</sup> Note that the options presented below are not mutually exclusive. In particular a regional network of GBCs (the first option discussed) can support the development of single-country or sub-regional GBCs (options discussed subsequently). The advantages and disadvantages of each, as well as other options, will be further explored in the May 4-6 Conference. The conference organizers do not officially endorse any of these options, but encourage participants to make informed decisions among these and other institutional options.

While the EI is under review, the group can begin with some of the other steps required to become an Emerging council, including creating a business plan and mission statement, forming a Board of Directors, securing initial funding, creating a constitution or legal by-laws, incorporating as a non-profit organization, determining operational requirements and an official launching. These steps are all clearly described in the World GBC's Roadmap (available on the World GBC website: [www.worldgbc.org/files/pdf/roadmap%20-%20final.pdf](http://www.worldgbc.org/files/pdf/roadmap%20-%20final.pdf)). Once a group has their EI approved, it receives a toolkit with supportive documents to facilitate its ability to reach Emerging status.

When a group has Emerging status it has greater access to World GBC resources, including support from an Established GBC that becomes their 'Associate' GBC and serves as a mentor. It is ultimately this Associate GBC that will recommend to the World GBC Board whether the Emerging council should become an Established council. Established councils have enhanced credibility in their markets as well as membership benefits such as an opportunity to run for a position on the World GBC Board of Directors.

Emerging members have World GBC dues of USD5,000 annually, and Established members have sliding scale fees ranging from USD7,500 to USD50,000 depending on annual revenue (noted in the World GBC Membership Policy Document as 'Advanced Economy Membership Fees').

#### ***World GBC networks***

The World GBC has primarily served as an umbrella governing body and is moving into a phase of sustained growth with the opportunity to provide more support to member councils.

The World GBC has recently organized itself into regions with the goal of establishing formal networks in Europe, Asia Pacific, the Americas and Africa. As of April, only the Asia Pacific and Europe networks have held formal, in-person meetings; as of yet there have been no steps taken towards formalizing the Africa network.

With a rapidly growing number of established country-specific GBCs and an even greater number



of groups wanting to become established ones, the regional network structure enables GBCs with existing trade and cultural links to better support each other in their development, and to capitalize on the green building momentum and success that has already been accomplished in the region.

The Asia Pacific network has had significant traction since beginning in 2009, largely as a result of the support and organization of the GBC Australia (GBCA). AusAID, an overseas aid programme of the Australian government, contributed more than US\$300,000 in 2009 to the GBCA to organize a two-week network launch and training session, providing a major boost to this initiative.

Representatives from 12 GBCs, both Established and those in early development stages, attended this launch, including Malaysia, Singapore, Indonesia, China, Vietnam, the Philippines, Japan and New Zealand. Through numerous presentations and workshops, council representatives were able to learn from the more mature GBCs in the region (Japan, New Zealand, and Australia). Sessions were on such topics as the GBC business model, internal governance, and getting government buy-in to the GBC programme. In addition, these sessions allowed for one-on-one time to address the specific needs of a country.

Coming out of this launch, a steering committee for the network has been set up and there is regular communication within the network, both through a newsletter and official network meetings.

As other WGBC regional networks come into their potential, this kind of kick-off session focusing on capacity building can be instrumental in establishing the cohesion of the group and in providing the necessarily skills and knowledge for the start-up GBCs.

Both the Asia Pacific and Europe regions have a range of developed and developing economies and, while every network will have its own unique context and needs, both of these regions have one fundamental aim in common: the transfer of skills and knowledge from more mature markets to less mature markets. When the benefit of experience from established GBCs

and their successful rating tools is made available to the newer organizations, it creates efficiencies and momentum.

It should be noted that the power of the network model lies not only in its facilitation of skills transfer and information dissemination, but also that it gives new GBCs access to successful green building leaders in the region who can help to establish them as the voice of green building in the industry. Having these leaders come to their country and meet with industry and government lends significant credibility to the new GBC and demonstrates the international connectivity of the group.

As GBCs in Africa come into being, the establishment of an Africa GBC network will be essential. It can look to other networks for strategic examples of how to best nurture and promote its GBCs and provide for the region's interests.

### The single-country GBC model

As of April 2010, the World Green Building Council had 20 Established members and an additional 40 registered groups in various stages of evolution towards becoming Established members (see Table 1 below). To date, the institutional model for GBCs has been for individual countries to form their own councils; there have not been any regional or sub-regional groups seeking to become formal GBCs.

**Table 1:** World GBC membership composition, April 2010

Membership Status	Number of Members
Associated Group	14
Prospective	21
Emerging	5
Established	20

As is evident by the steps required to become a council (see description above), a Green Building Council requires a steady stream of revenue and a strong

business plan are to succeed. GBCs have had the most uptake among countries with relatively large building industries and subsequently, large membership bases (see further discussion on market size below). For countries with small building industries, particularly small formal building industries, this council development model and its resource requirements could potentially pose obstacles. On the other hand, this model has a successful track record and clear path to achievement and perhaps provides greater autonomy than a regional or sub-regional model would.

### **The potential for a regional or sub-regional GBCs**

With smaller markets and different challenges to other regions, there is an opportunity for GBCs in Africa to utilize different models for their organization than the single-country model with each GBC representing only one country. Some African countries may be better served by working together and forming a GBC that serves an entire sub-region or group of countries.

Under World GBC rules, there is nothing to prevent countries from working together to form a single GBC. The World GBC does not prescribe the model a GBC must use, but rather approves candidates for membership based on their adherence to certain principles. The GBC candidate must show it:

- sets priorities which are meeting the current needs of the market environment and the natural environment
- provides market-driven solutions
- works in partnership with governments, industry, and other non-governmental organizations
- possesses a Board of Directors that is highly influential, represents the entire value chain within the building industry and exemplifies good governance
- demonstrates openness and transparency and seeks to learn from and represent international best practice

According to Jane Henley, Chief Executive Officer of the World GBC, GBCs need to develop in the way that best meets the needs of their respective markets. "Their best strategy," says Henley, "is to learn from

the success of the GBC model, take the bits that will help them and tailor it for their own needs."

Sharing a common language, similarity in culture, and perhaps most importantly, strong trading relationships would be the first indicators of potential regional or sub-regional group. Also pertinent would be similar building codes and a desire to implement the same green building rating system, whether adapted or adopted from another country or whether created specifically for the region. The presence of significant transnational industry players and nongovernmental organizations operating within a specific group of countries could influence the formation of a regional or sub-regional council as well.

The concept of a sub-regionally or regionally based council can be taken all the way to an Africa-wide GBC. Since the beginning of 2010, the Africa Union of Architects (AUA) has been promoting the idea of an Africa GBC (AGBC) that would serve as vehicle to promote green buildings in many parts of Africa where fully-fledged GBCs are a distant reality by offering a supportive environment to incubate councils until they become large enough to be self-supporting.

The concept is for the AGBC to take on the traditional tasks of a GBC such as training, implementing a rating tool (whether this would be a new rating tool or one of the existing tools has not been determined), advocacy and network building while the nascent GBCs are growing and developing their own resources. Ultimately, the smaller GBCs would branch out on their own, either as a single-country GBC or as part of a sub-regional GBC.

The proponents of the Africa GBC envision it as serving both as a fully-fledged GBC itself and as a network to the GBCs that it supports. According to Eric Noir of WSP Green by Design, who has been tasked by the Africa Union of Architects with leading this initiative, "The AGBC...needs to be both a Council and a Network of Councils, with the ability to switch between the two functions rapidly over time and geographically." The specifics as well as the potential advantages and disadvantages of this approach will be explored in more depth at the conference.

### Affiliation with a larger council

Start-up councils in Africa have yet another option to look to for support. The GBC South Africa<sup>3</sup> has put itself forward as being able to serve as a hub for smaller GBCs to be affiliated with, as a means of offering support to councils that might not otherwise have the resources to fully fund themselves. A formal 'affiliation' model has not been enacted before within the World GBC context; a description of how this relationship might function is summarized below and the concept will be explored in more detail at the conference. It should be noted that the possibility for affiliation with other GBCs is a possibility, although to date no other Established GBCs have made this offer.

According to Bruce Kerswill, founder and chair of the GBCSA and World GBC board member, to start up a GBC typically needs at least one full-time person for organizing, outreach, fundraising and pursuing initiatives like rating systems. Once established, a GBC involves a similar level of management to a small business, and needs to move from reliance on initial grant funding to ongoing revenue from fees and events. World GBC documents recommend that staffing should be at five full-time employees after two years of operation, which may be when the council is still in the Emerging phase.

In the proposed affiliation model, many of the start-up and ongoing costs would be avoided, and the GBCSA would be able to provide support with regards to rating tools, training, assessments and so on. This model is similar to the Africa GBC proposal, but is intended for longer term, ongoing relationships.

The GBCSA uses the Green Star SA rating system and it would probably be necessary that any GBC seeking support from GBCSA does the same. Discussions are under way which would allow for the option of a limited customization of Green Star to respond to the needs of individual African countries and the approach of GBC Australia, which developed Green

Star and controls the license, is that the rating system should be responsive to the local context of countries.

In this model, new African GBCs could "piggyback" off the GBCSA with regard to resource-intensive activities such as operating a rating system, running training courses or training trainers and assessors, answering technical queries, conducting assessments and organizing a conference.

Additionally, the GBCSA has offered to serve as an informal mentor to assist any council in Africa with the process of establishment, with or without formal affiliation.

Kerswill believes that the choice of rating system by a given country will be the biggest determining factor in where it ultimately seeks support and will be oriented – toward the US if using LEED, towards the UK if using BREEAM, or towards South Africa (and, indirectly, Australia) if using Green Star.

### Market sizes

A significant challenge for potential GBCs in Africa, and one which makes alternative models for council organization more appealing, is the relatively small sizes of the overall markets and of the building industry in many African countries.

According to the McGraw Hill Construction's Global Green Building Trends report (2008), the construction industry constitutes 8-10% of the global GDP.<sup>4</sup>

Figure 1 illustrates the sizes of regional construction markets around the world. Please note that 'Africa' refers to part of Africa not included in the North Africa and South Africa figures.

<sup>3</sup> The GBC South Africa was founded in 2006 has been a full member of the WGBC since 2008. It has customized the Green Star rating tool to be applicable to the South African market (Green Star SA). )

<sup>4</sup> This proportion of course varies from country to country. Note that the construction industry is a subsector of the entire building industry, which also includes other aspects of the entire building lifecycle such as real estate and leasing.

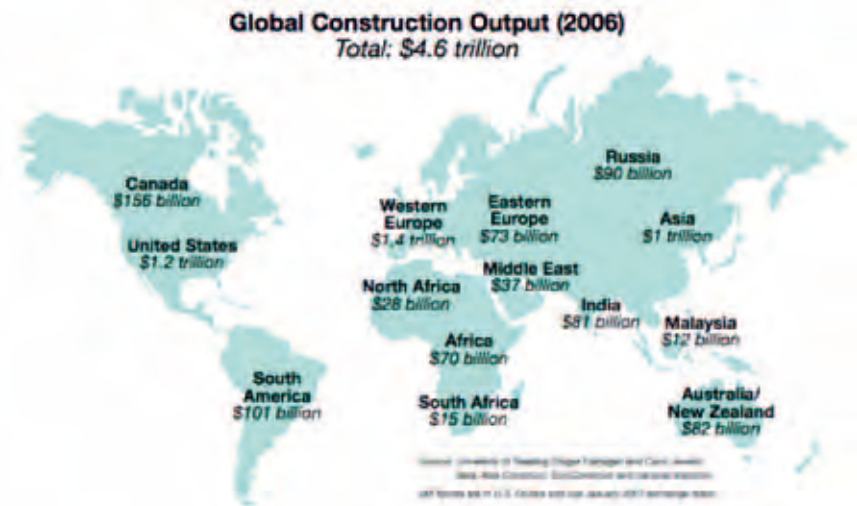
Table 2 below gives a sample of the sizes of the GDP, population, and per capita CO2 emissions of several countries with Established GBCs and several African countries in descending order of GDP. The table also gives the status of the GBC in each country where applicable and notes where a GBC is using a designated green building rating system.

**Table 2<sup>1</sup>** - Selected data from countries with Established GBCs and African countries

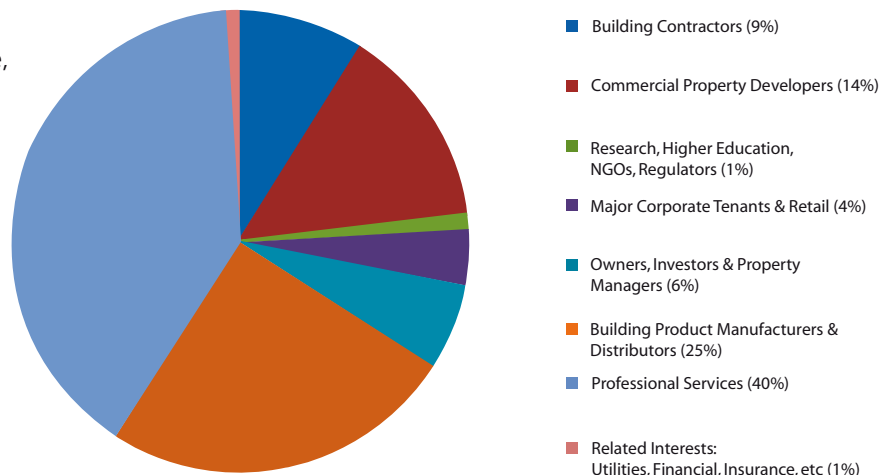
Country	2007 Gross Domestic Product (millions USD)	2007 Population (millions)	2004 CO2 emissions per capita (metric tons)	Green Building Council Status	Green Building Rating System(s)
United States	13,811,200	302	20.6	Established	LEED
Japan	4,376,705	128	9.8	Established	CASBEE
Germany	3,297,233	82	9.8	Established	DGNB
United Kingdom	2,727,806	61	9.8	Established	BREEAM
Canada	1,326,376	33	20	Established	LEED Canada
Brazil	1,314,170	192	1.8	Established	LEED
India	1,170,968	1123	1.2	Established	LEED India, IGBC Rating System
Australia	821,716	21	16.2	Established	Green Star
Netherlands	754,203	16	8.7	Established	BREEAM-NL
South Africa	277,581	48	9.4	Established	Green Star SA
Colombia	171,979	46	1.2	Established	LEED
Nigeria	165,690	148	0.8	-	-
New Zealand	129,372	4	7.7	Established	Green Star NZ
Egypt	128,095	75	2.2	Assoc. Group	Green Pyramid (in development)
Morocco	73,275	31	1.4	Prospective	LEED
Kenya	29,509	38	0.3	-	-
Cameroon	20,644	19	0.2	-	-
Cote d'Ivoire	19,570	19	0.3	-	-
Ethiopia	19,395	79	0.1	-	-
Tanzania	16,181	40	0.1	-	-
Ghana	15,246	23	0.3	-	-
Zambia	11,363	12	0.2	-	-
Uganda	11,214	31	0.1	-	-
Senegal	11,151	12	0.4	-	-
Dem. Rep. of Congo	8,955	62	0	-	-
Mozambique	7,752	21	0.1	-	-
Chad	7,085	11	0	-	-
Burkina-Faso	6,767	15	0.1	-	-
Malawi	3,552	14	0.1	-	-
Rwanda	3,320	10	0.1	-	-
Togo	2,493	7	0.4	-	-
Sierra Leone	1,672	6	0.2	-	-
Burundi	974	8	0	-	-
Liberia	725	4	0.1	-	-
Botswana	-	1.8	2.4	-	-
Gambia	-	1.7	0.2	-	-
Mauritius	-	1.2	2.6	Prospective	-
Namibia	-	2	1.2	-	-
Somalia	-	9	-	-	-

<sup>1</sup> Data from the World Bank Development Report for 2009 and the World Green Building Council.

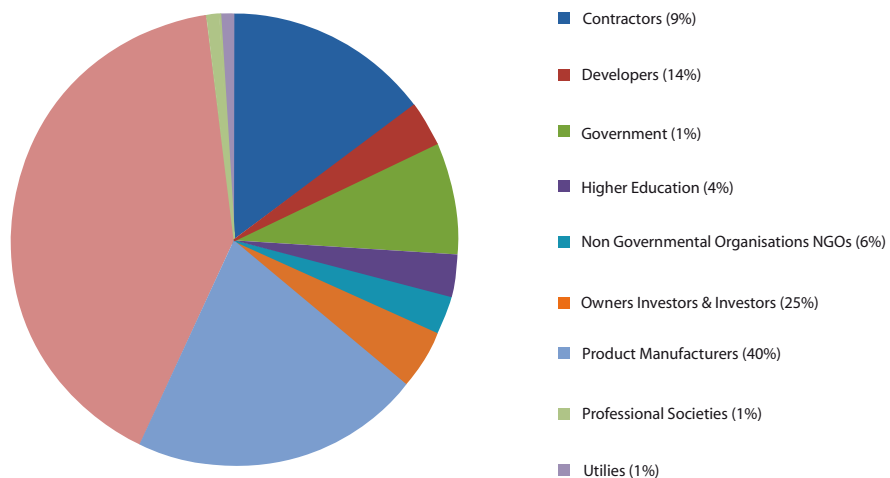
**Figure 1:** Regional Construction Market



**Figure 2:** GBC South Africa membership profile, March 2010



**Figure 3:** Green Building Council of Australia membership profile, 2008



<sup>1</sup> Global Green Building Trends; Market Growth and Perspectives from Around the World, McGraw Hill Construction, 2008



Building market size has a direct impact on GBCs as they are member-based organizations and rely on memberships and sponsorships from the entire building industry to achieve their aims and operate their business. The membership profile of most GBCs will often have large numbers of building industry professionals such as architects and engineers and consultants, with smaller amounts of builders, property owners and managers, governments and building product manufacturers. The membership profiles of the GBC South Africa and GBC Australia (Fig. 2 and Fig. 3 below) are similar to that of many GBCs, where the largest percentage of members is from the professional services industry.

The ability of a market to support a GBC is a critical factor to both its initial start up phase and its ongoing success. Prior to her role as CEO of the World GBC, Jane Henley served as CEO of the New Zealand GBC. New Zealand has a population that is about one-quarter the size of Australia, has closely connected markets with Australia, and also uses a customized version of Green Star (Green Star NZ). According to Henley, because of the size of its membership base, the NZGBC would not have been able to develop and maintain its own rating tool and their reliance on the improvements and research done by the GBC Australia to Green Star has been essential.

For countries with small markets, a reliable support structure will both help them get started and facilitate their ongoing success.

Ultimately, there will likely be a variety of support systems in use throughout the continent. Some Councils may prefer close affiliation with an Established GBC, others may want to be part of a regional or sub-regional council, and still others will have enough in-country support to launch on their own.

An important element for new GBCs to keep in mind is that there are no short cuts to generating industry and government buy-in to their initiatives. Even if working under the mentorship of a larger organization, decision-makers from all parts of industry, government, academia and NGOs will have to be engaged within its country or sub-region. A successful council has to be broad-based in its outreach in order to drive the change

towards sustainability; from a practical perspective it must do so in order to attract the required funding. These efforts take time and determination to achieve.

The formation of an Africa regional network could tie many of these efforts together. The success of the World GBC Asia Pacific network could be used as a model for the activities of a World GBC Africa network. Just as the Asia Pacific network had a jump start from AusAID that enabled its formal launch, seeking funding from a third-party could catalyze the growth of an African network. The means to forming this network and the necessary steps required will be explored in depth at the conference and workshop.

## **4. Using green building rating tools in Africa**

The use of voluntary green building rating tools has been one of the most powerful mechanisms to transform the building industry towards sustainability in developed countries. The implementation and promotion of these tools and the subsequent award of certified ratings for buildings are fundamental roles for most GBCs.

As noted above, new GBCs have the option to either use one of the existing tools in use around the world (see discussion in Section 1 above) or to create a rating system of their own. Their decision will be determined by a range of factors, including what tool (if any) is already in use in the market, how the existing tools relate to the country's current building codes, how applicable the tool is to the market and if the existing tools meet the environmental and other designated priorities of the country or sub-region it serves. GBCs in Africa have unique challenges regarding the use of green building rating tools. The performance thresholds put forward in most rating tools are based on some type of relevant precedent, such as a rating tool from a country with a similar market, existing green building guidelines already in use in the country, or successful case studies from local projects. With a shortage of these precedents, GBCs in Africa will have to embrace innovative approaches so as to encourage and implement green building best practices.

The green building rating tools that have been developed and used commercially do have credits related to indoor environmental quality that have

direct benefits to building occupants, which some would categorize as social criteria. However, these tools generally do not, by design, address social issues on the macro scale, with rare exceptions.<sup>5</sup> There are two components behind this: the social context and the tool development aspect.

The social context is that most of the tools have been developed by countries with more developed economies where the scale of social issues and lack of access to resources is simply not as great as in the developing world. Moreover, in the countries that have rating tools there often exist government regulations regarding many of the social impacts associated with the building industry, such as equitable access to housing, fair labor relations, and occupational health and safety – meaning there is no need to cover them in a rating tool.

From a tool development perspective, rating tools are at their most effective when they are evaluating objective criteria with specific measureable outcomes such as water use in liters/square meter, percentage of floor area receiving daylight or numbers of public transportation options within a 250 metres of a building. Environmental data lends itself to these kinds of metrics, whereas social metrics in relationship to green buildings can be harder to determine and to measure, particularly at the design and construction stages. In addition, rating tools are already sometimes perceived as overly comprehensive, and adding documentation to prove compliance with social criteria could increase the perceived burden on projects.

However, there can be performance metrics around social criteria such as numbers of affordable living units per development, numbers of apprentice employees being trained during construction, local sourcing of building materials or fair and equitable wages. Green building tools also have the opportunity to address cultural issues and historical heritage, such as the use of indigenous knowledge in building design and materials selection and community involvement in the

design and construction process. These outcomes can all be incorporated in some way into holistic green building rating tools but will require innovation by GBCs wishing to do so.

As more countries in less developed economies look to implement green building rating tools, the organizations supporting these tools will likely need to address to some degree the social and economic issues associated with sustainable development in order to make their tools as relevant to their market as possible. Depending on the context, some GBCs may also look to a hybrid option, where an established rating tool is used for commercial buildings needing to compete on an international market, and another more localized tool that can address residential or other low-cost buildings is used as a customized solution for their social and economic needs.

### **Deciding which rating tool path to take**

The first steps to deciding on which path to take include prioritizing the key environmental issues and, if applicable and desired, social issues, for the country, understanding the different tools and how they address these impacts, determining what local stakeholders want, and the level of understanding that already exists regarding tools. To decide which path to take, the GBC Board of Directors may go through an internal process or may also conduct a broader investigation with stakeholders from the entire industry in order to gain support for their decision.

For example, the New Zealand GBC chose to conduct a formal process to engage with industry interests from around the country around the selection of a rating tool. The process included several public workshops, the formation of a focused working group, research into the existing international and local rating tools, and interviews with tool designers. The process took several months and was managed by an outside consultant, with a final report documenting the process made available to the public (see References and Resources section). The entire effort was funded by the New Zealand Ministry for the Environment and was very successful in gathering industry support around their final decision.

---

<sup>5</sup> BREEAM tools do have credits for 'Considerate Constructors' and site and building security; CASBEE has credits for building safety and socially responsible/ethical procurement of goods and services. See UNEP-FI/SBCI's Financial & Sustainability Metrics Report, 2008, for further comparison and analysis.

The GBCSA took a less formal (and less expensive) approach to their decision-making process. They held one public workshop in Johannesburg with presentations on a variety of rating tools including Green Star, LEED and SBAT, a tool created in South Africa by the CSIR (Council of Scientific and Industrial Research). The GBCSA did their own research and traveled to Australia and the United States to go their respective GBC conferences. The GBCSA's main criteria were to have a tool that represented international best practice and that was customizable to be relevant to South Africa. Another priority was to choose a tool as quickly as possible to get the market using it right away and not to spend an excessive amount of time on making the decision.

Ultimately, both GBCs were satisfied with their process and their tool selection, and both were able to move forward with industry support.

### **How rating systems can address low cost housing and low-cost materials**

Perhaps the most pressing building development need in Africa is for low-cost housing. There is a tremendous opportunity for the uptake of green buildings to encompass the integration of green building best practices into this sector, including slum upgrading projects and emergency/post-disaster housing. While all of these areas are important, this section looks specifically at how green building rating tools could address low-cost housing projects and low-cost materials and whether there are other options better suited to moving this sector towards sustainability.

#### *The environmental case for promoting green housing in Africa*

Over half the world's population living is now living in cities and the reality of this mass urbanization is a dramatic shortfall in the amount of available housing, particularly in the developing world. For example, according to UN-HABITAT, Kenya only meets approximately one-third of its annual urban housing demand for 150,000 units and as much as 60% of Nairobi's population lives in informal settlements.<sup>6</sup> Building operations are estimated to be responsible for

25-40% of energy consumption in developed nations<sup>7</sup> and 56% of the energy used in sub-Saharan Africa is by residential buildings alone.<sup>8</sup> There is a direct correlation between this energy consumption and climate change: the UNEP Sustainable Buildings & Climate Initiative (UNEP-SBCI) indicates that 40% of global carbon dioxide (CO<sub>2</sub>) emissions come from the built environment.<sup>9</sup>

These human-generated CO<sub>2</sub> emissions contribute to global climate change with impacts which include increased severity of storm events, rising sea levels, increased levels of drought in many areas, flooding and sharp changes in seasonal temperatures. Many parts of Africa are likely to be severely affected by these changes, particularly with respect to fresh water and food shortages, higher sea levels in coastal areas and an increased spread in diseases and disease-carrying pests.<sup>10</sup>

Yet, the good news is that both the Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report, as well as a report by McKinsey, indicate that the building sector has the greatest opportunity to mitigate climate change with the lowest cost. Therefore, improving the environmental performance and energy efficiency of buildings, particularly homes, in Africa can make a significant contribution towards minimizing CO<sub>2</sub> emissions and the ability of cities to adapt to climate change, while at the same time improving the quality of greatly needed housing stock.

#### *Challenges and requirements for green building rating tools to address low-cost housing in Africa*

While green building rating tools have been effective in improving the performance of commercial and institutional buildings in many countries, to date they have had less traction in the housing market.

<sup>7</sup> Environmentally Sustainable Buildings: Challenges and Policies, OECD, July 2003

<sup>8</sup> Global Green Building Trends; Market Growth and Perspectives from Around the World, McGraw Hill Construction, 2008

<sup>9</sup> [www.unep.org/sbc](http://www.unep.org/sbc)i, United Nations Environment Programme Sustainable Buildings & Climate Initiative, April 2010

<sup>10</sup> Sustainable Building Practices for Low Cost Housing: Implications for Climate Change Mitigation and Adaptation in Developing Countries, Giorgetti and Lovell, January 2010 draft

<sup>6</sup> East African officials discuss affordable housing, [www.unhabitat.org](http://www.unhabitat.org), November 2005

Some systems do not address individual homes at all, although some inroads have been made in multi-unit residential developments.

There are a number of factors for this circumstance, including vast number of stakeholders in residential development (making it more challenging to educate and influence them) and the recognition by GBCs that any successful rating tool for housing must be customized for that sector and have a different certification model to account for the large number of individual units.

Both LEED and BREAAAM have developed rating tools specifically for the homebuilding sector in recent years. However, these tools were made specifically for their respective markets (the US and the UK) and are not intended for the type of low-cost housing that is most in demand in the developing world.

The India GBC has been using the LEED rating system for several years for most sectors, but has developed its own India GBC rating tools for homes and industrial buildings that are designed specifically for its own market; the India GBC now runs both systems concurrently. The IGBC tool for homes is meant to cover all types of housing in India, including low-cost housing.

The notion that a GBC might choose one rating scheme for most building types yet still have a need for a specific tool for housing, especially low-cost, is an important consideration for GBCs as they develop and implement their rating tool strategy. One size may not fit all, but that does not necessarily mean that an entire suite of rating tools needs to be created from scratch. At the same time, experience in some countries suggests that multiple rating schemes in one country can create market confusion. With market education being a key function of a GBC, this must also be taken into account from the outset.

Homes are built on a much different scale in terms of absolute numbers than commercial or institutional buildings. In order to have a market impact similar to what can be achieved with non-residential buildings, a rating system would have to certify a similar

percentage of the huge numbers of homes that are built each year. This means that a housing rating tool would do well to have both streamlined requirements compared to standard rating tools and a certification protocol very different to the comprehensive, desktop based assessment currently used by most rating schemes.

Current rating tools around the world require substantial documentation to demonstrate the compliance with the tool criteria in order to achieve certification. The rigorousness of the requirements is what makes these ratings credible and powerful in the market. However, due to the cost of producing the certification documentation, many smaller buildings and most low-cost buildings do not pursue formal certification.

One avenue that could streamline credit requirements and reduce documentation is the inclusion of prescriptive design and construction requirements rather than strictly performance-based requirements. Performance requirements provide the most flexibility for project teams to meet rating tool criteria, but are usually documented through modeling, which can be expensive. An example would be the reduction of a given percentage of energy use for the project, which would be determined by the creation of an energy model for the project. Prescriptive steps would have to be customized for the specific climate and even site conditions in order to result in the desired outcomes. However, they could reduce the cost burden to prove compliance, serve to educate the market (by acting as design guidelines), and facilitate building assessment and certification.

The standard building assessment process is a desktop-based review by a small, anonymous team of experts once the project is complete (or, in the case of BREAAAM, by one assessor who works with the project team the entire time), with each review taking several hours for each member of the review team. This model would be too labor intensive for both the applicant and the reviewer to be effective on the homebuilding scale.

In order to address this difficulty, the LEED for Homes rating tool has developed a new model where

'providers' are located in the 36 largest housing markets in the US, rather than based out of the USGBC headquarters, to inspect and verify the compliance of the homes with the tool criteria, which can be rated on the individual or development-wide scale. The LEED for Homes scheme is the only rating tool currently using an onsite assessment method. Anecdotally, this method has had mixed outcomes. However, an inspection-based or onsite auditing method may be the best solution or some situations.

### ***Low-cost building materials***

There is another practicality to be considered: the use and rating of low-cost building materials in low-cost housing.

The selection and use of building materials is addressed in every green building rating tool, and with good cause. Most experts estimate that the embodied energy in building materials (the amount of energy required in resource extraction, manufacture and transport of materials) accounts for 15-20% of a building's lifetime energy impact, assuming a 50-year lifespan. The production of building materials consume large amounts of other resources as well, including water, and can result in the release of harmful chemicals into the environment and into buildings themselves.

The approach to building materials by a rating tool can have a huge ripple effect on the market as the materials supply chain can stretch around the world for even a single building.

Most rating tools try to rely on third-party certification of building materials. For instance, a tool may reward projects for using sustainably-harvested timber. To verify compliance with this criterion, projects have to submit proof that a certain percentage of timber used on the project has been certified as sustainably harvested through an internationally recognized third-party such as the Forest Stewardship Council (FSC). Green Building Councils are not in the position to certify the vast range of available building materials so by relying on third-party standards they create efficiencies for their own efforts and simultaneously support the work of other organizations that are working towards sustainability.

Where there are no third parties certifying a given material, the rating tool will put forward a performance standard and the project will still be responsible for demonstrating compliance, typically in the form of statements or test results from the manufacturer or supplier.

The majority of low-cost building materials such as adobe bricks, compressed earth block, straw bales, bamboo and other biomass-based products are not certified under any third-party systems. In order to set performance criteria, the tool will have to look at the key impact of any material and set targets around that impact. Examples could include determining which types of bricks have the lowest embodied energy or rewarding projects for using materials that are sourced and manufactured locally rather than imported.

Another challenge with materials is how they will demonstrate that they meet the standards used in the tools. It's easier for large companies to do testing or provide standardized documentation to serve large number of projects seeking certification. Any documentation criteria devised by the rating tools addressing these materials will have to make sure they can be readily produced by a small, local operation at a low cost or be easily verified in the assessment process.

Rating tools used in Africa will also need to be conscious of developing credits that have solutions that are readily accessible and affordable in the given country or region, as some materials that are commonly used in green buildings in the developed world may not be affordable or available in developing countries.

### ***Other alternatives to promote low-cost green housing and materials***

Given the systemic challenges of rating low cost housing and low cost materials, it needs to be asked if rating tools are the right tools to improve the sustainability outcomes for low-cost housing. It is possible that design guidelines supported by prototypes (both design plan prototypes and full scale models) could create the desired outcomes.

Rating tools are meant to create market incentives but where the government is the primary builder or where there is no competition among private developers, then rating tools are unlikely to be successful. However, in



the absence of quality building codes or building code enforcement or good green building practices, design and construction guidelines developed by a credible third-party such as a GBC could potentially play a positive role. Compliance with the guidelines could be an incentive to private investors or development aid organizations to support the development of green, low-cost housing.

For whatever strategy is chosen, a producer of a rating tool or guidelines for low-cost, green housing will have to balance the need for rigor and credibility with the practicalities of cost and scalability considerations and the realities of what the market can provide at a reasonable cost.

## **5. Conclusions and next steps**

This paper has tried to introduce the topics and flag the key issues that can be explored in greater depth at the Conference to Promote Green Building Rating in Africa, to be held on from 4 to 6 May 2010. The References and Resources section below provides a select list of the most relevant articles, reports and websites on these issues.

## **6. References and Resources**

A Cost Curve for Greenhouse Gas Reduction, Per-Anders Enkvist, Tomas Naucner, and Jerker Rosander, McKinsey Quarterly 2007, Number 1

Assessment of Policy Instruments for Reducing GHG Emissions from Buildings, United Nations Environment Programme – Sustainable Buildings and Construction Initiative, 2007

Buildings and Climate Change: Status, challenges and opportunities, United Nations Environment Programme, 2007

Climate Change 2007: Synthesis Report (4th Assessment Report), Intergovernmental Panel on Climate Change, 2007

Doing Well by Doing Good? An analysis of the financial performance of green office buildings in the USA, RICS Research, Piet Eichholtz, Nils Kok and John Quigley, March 2009

Environmentally Sustainable Buildings: Challenges and policies, Organization for Economic Co-operation and Development, July 2003

Green Building Assessment Tool Research Project, New Zealand Green Building Council, 2006

Green Star and NABERS: Learning from the Australian experience with green building rating tools, Lily Mitchell, Baker & McKenzie, 2009

Global Green Building Trends; Market growth and perspectives from around the world, McGraw Hill Construction, 2008

Shelter Initiative for Climate Change Mitigation, UN-Habitat, July 2008

Sustainable Building Practices for Low Cost Housing: Implications for climate change mitigation and adaptation in developing countries, Giorgetti and Lovell, January 2010 draft

Transforming the Market: Energy efficiency in buildings, World Business Council on Sustainable Development, 2009

UNEP-FI/SBCI Financial and Sustainability Metrics Report; An international review of sustainable building performance indicators & benchmarks, UNEP-FI and UNEP-SBCI, 2008

Who Pays for Green Buildings? The economics of sustainable buildings, CB Richard Ellis and EMEA Research, 2009

World Green Building Council Roadmap - [www.worldgbc.org/files/pdf/roadmap%20-%20final.pdf](http://www.worldgbc.org/files/pdf/roadmap%20-%20final.pdf)

### **Useful websites**

BREEAM - [www.breeam.org](http://www.breeam.org)

Green Building Council of Australia - [www.gbca.org.au](http://www.gbca.org.au)

Green Building Council of South Africa - [www.gbcsa.org.za](http://www.gbcsa.org.za)

India Green Building Council - International Initiative for a Sustainable Built Environment - [www.iisbe.org](http://www.iisbe.org)

UN-Habitat - [www.unhabitat.org](http://www.unhabitat.org)

US Green Building Council - [www.usgbc.org](http://www.usgbc.org)

World Green Building Council - [www.worldgbc.org](http://www.worldgbc.org)

# 5.0 ANNEXES

## Annex A

### List of Participants

Name	Organization	Country	Email
Abraham Marrers	Architects and Quantity Surveyors Registration Board	Tanzania	info@acaitz.com
Akin Akindoyeni	Council of Registered Builders of Nigeria	Nigeria	akindoyeni_f@yahoo.co.uk
Albertino Almeida	Ecological Houses Project	Mozambique	grupo.bcs@grupobcs.co.mz
Alessandra Fidanza	Ministry for the Environment Land and Sea	Italy	fidanza.alessandra@minambiente.it
Alfred Wandera	UNOPS	Uganda	akamure2000@yahoo.co.uk, wanderaa@unops.org
Alioune Badiane	UN-HABITAT	Kenya	alioune.badiane@unhabitat.org
Amos Kalua	Board of Architects & Quantity Surveyors	Malawi	Kaluxie@yahoo.co.uk
Andrew Amadi	Renewable Energy Ventures	Kenya	aamadi@africarenewables.com
Andrew Gremley	Pharos Architects	USA / Kenya	andy@pharosarchitects.com
Angela Jagun	Burwood Contruction Limited	Nigeria	angelajagun@burwoodconstruction.com
Annamaria Ceci	Italian Cooperation	Italy	annamaria.ceci@esteri.it
Antony Mugo	Kenya	Kenya	anthony@pinnacleprojectsltd.com
Bala Bawa Kaoje	Godiya Miyeti	Nigeria	bbkacj@yahoo.com
Bruce Kerswill	GBCSA / World GBC	South Africa	bruce.kerswill@gbcsa.org.za
Cecilia Kinuthia-Njenga	UN-HABITAT	Kenya	cecilia.njenga@unhabitat.org
Charles Sikuku	Ministry of Housing	Kenya	sikuwafula@yahoo.com
Christine Auclair	UN-HABITAT	Kenya	christine.auclair@unhabitat.org
Christophe Lalande	UN-HABITAT	Kenya	christophe.lalande@unhabitat.org
Claudio Acioły	UN-HABITAT	Kenya	claudio.acioly@unhabitat.org
Daniela Merkenich	University of Applied Sciences Frankfurt	Ethiopia / Germany	D.Merkenich@gmx.de
Delali Adiamah Yao	Office of parliament of Ghana	Ghana	adiahmah.dela@yahoo.com
Edith Bosire	Ecotourism Kenya	Kenya	ceo@ecotourismkenya.org
Elaine Alowo-o	Shonubi, Musoke & Co Advocates	Uganda	ealowo@shonubimuso.ke.co.ug
Elijah Agevi	Kenya Private Sector Alliance	Kenya	info@kespa.or.ke
Eric Noir	WSP Green By Design/AUA	South Africa	Eric.Noir@WSPGroup.co.za
Esther Osunga-Wanjala	UN-HABITAT	Kenya	esther.osunga@unhabitat.org
Francois Laville	DPLG	Rwanda	laville.archi@free.fr
Frederic Vagenheim	KIST	France / Rwanda	frederic.vagenheim@gmail.com
Frederick Apeakorang Asamoah	UNHABITAT - Youth and Partners	Kenya	fkapea@gmail.com
Frederick Wireko Manu	Council for Scientific Industries	Ghana	fwirekomanu@yahoo.co.uk
Gulelat Kebede	UN-HABITAT	Kenya	gulelat.kebede@unhabitat.org
Inga Bjork-Klevby	UN-HABITAT	Kenya	inga.klevby@unhabitat.org
Isaac Hayford	Housing The Masses	Ghana	isaachays@hotmail.com
Jackson Kago	Italian Cooperation	Kenya	jackson.kago@kiddp.org

Name	Organization	Country	Email
Jacob Kibwage	South Eastern University College	Kenya	jkibwage@yahoo.com
Jane Henley	World Green Building Council (WGBC)	New Zealand	jhenley@worldgbc.org
Jane Mwangi	Diplomat East Africa	Kenya	jmwangi07@gmail.com
Jason Buch	Green Building Council	South Africa	jason.buch@gbcsa.org.za
Jean-Pierre Ndoutoum	IEPF, Canada	Canada	jp.ndoutoum@iepf.org
Johnstone Kiamba	Kenya Institute of Planners	Kenya	kiambajm@yahoo.co.uk
John R. Wille	International Finance Cooperation	Kenya	JWille@ifc.org
Joseph Mukeku	EDC/AAK	Kenya	jomukeku@yahoo.co.uk
Kabiru Bala	Ahmadu Bello University	Nigeria	balakabir@yahoo.com
Kamugisha A.W. Byabato	Ardhi University	Tanzania	byabato@googlemail.com
Kiama Gitahi	Wangari Maathai Institute for Peace and Envi. Studies	Kenya	kiama123@yahoo.com, kgitahi@uonbi.ac.ke
Manal El Batran-Tolba	Egyptian Green Building Council	Egypt	m_elbatran@hotmail.com
Maria Santos	Ministry of Housing and Public Works	Mozambique	msofia_santos@hotmail.com
Mark Olweny	Uganda Martyrs University	Uganda	mroo17@yahoo.ca
Mark Palmer	RTKL/ARCADIS	USA	mpalmer@rtkl.com
Melokuhe Mnelisi Phewa	Ethekwini Municipality	South Africa	Phewal@durban.gov.za
Michelle Malanca	Michelle Malanca Sustainability Consulting	USA	michelle@michellemalancaconsulting.com
Mukesh Patil	Safal Mitek Ltd	Kenya	mukeshp@mabati.com
Nick Gardner	UNOPS	Sudan	NickG@unops.org
Niclas Svenningsen	SBCI/UNEP	France	Niclas.Svenningsen@unep.org
Njokikang Faustinus	Ste. BUNS s.a.r.l	Cameroon	iaotechnologies@yahoo.fr
Paul Juma	Daily Nation	Kenya	pjuma@ke.nationmedia.com
Paul Mumo Kirai	International Finance Cooperation	Kenya	PKirai@ifc.org
Peter Kuroshi	Covenant University	Nigeria	drkuroshi@gmail.com
Peter Miriti Bundi	Ministry of Metropolitan Development	Kenya	
Peter Njue	University of Nairobi	Kenya	peter.njue@cantab.net
Raf Tuts	UN-HABITAT	Kenya	raf.tuts@unhabitat.org
Raphaele Vignol	UN-HABITAT	Kenya	raphaele.vignol@unhabitat.org
Richard Holgate	Ethekwini Municipality	South Africa	holgate@durban.gov.za
Richard Mbithi	Rombo Contruction Supplies Ltd	Kenya	nyamaimbithi@gmail.com
Robert Kehew	UN-HABITAT	Kenya	robert.kehew@unhabitat.org
S.C Kumar	India GBC	India	s.c.kumar@cii.in
Sabir Kharrifene	Chad	Chad	cabadat@yahoo.fr

Name	Organization	Country	Email
Salhou Cherno Mbye	Social Security & Housing Finance Corporation	Gambia	raynjal@hotmail.com
Sam Lloyd	Dream Homes and Construction Ltd	UK / Ghana	sjn.lloyd1@googlemail.com
Sharif Ahmed	UN-HABITAT	Kenya	sharif.ahmed@unhabitat.org
Sierra Bainbridge	KIST	Rwanda	s.bainbridge@kist.ac.rw
Siham Omri	Morocco Green Building Council	USA / Morocco	siham.omri@moroccogbc.org
Steven Oundo	Architectural Association of Kenya	Kenya	aak@aaak.or.ke
Thomas Mesfin	Individual	Eritrea	mesfin.thomas@gmail.com
Tirop Kosgey	Ministry of Housing	Kenya	ps@housing.go.ke
Tony Lee Luen Len	Mauritius Green Building Council	Mauritius	tonylee@spritzltd.net
Vincent Kitio	UN-HABITAT	Kenya	vincent.kitio@unhabitat.org
Walaga William Mudde	Ministry of Lands, Housing and Urban Development	UAE / Uganda	wwalaga@yahoo.co.uk
Wanjiku Nyolke	UN-HABITAT	Kenya	UNHABITAT.intem116@unhabitat.org
Yacouba Traore	Municipalite de Ouagadougou	Burkina Faso	trayac@hotmail.com
Yaki Chiyokoma	Kitwe City Council	Zambia	yaki_chiyokoma@yahoo.com



## Annex B

### Programme

#### Tuesday 4 May

**Registration opens at 8:00am**

#### **Opening Ceremony**

**9:00 to 9:30 a.m.**

Master of ceremonies: Christine Auclair, UN-Habitat  
Inga Bjork-Klevby, Deputy Executive Director, UN-Habitat  
Tirop Kosgey, Permanent Secretary, Ministry of Housing, Government of Kenya

#### **Introduction to Conference**

**9:30 to 9:45 a.m.**

Robert Kehew, UN-Habitat

#### **Introductions by participants, by country**

**9:45 to 10:50 a.m.**

Moderator: Cecilia Njenga, UN-Habitat

#### **Morning tea**

**10:50 to 11:15 a.m.**

#### **What are green buildings? Best practice examples from around Africa and the world**

**11:15 a.m. to 12:45 p.m.**

Moderator: Christophe Lalande, UN-Habitat  
Michelle Malanca, Michelle Malanca Sustainability Consulting  
Jacob Kibwage, Project Leader, Kenya Tobacco-to-Bamboo Project, Maseno University  
Eric Noir, WSP Green by Design  
Mark Palmer, RTKL/ARCADIS  
*What are 'green' buildings, with innovative examples from Africa and other countries*

#### **Lunch**

**12:45 to 1:45 p.m.**

#### **The role of Green Building Councils and the World Green Building Council**

**1:45 to 3:20 p.m.**

Moderator: Gulelat Kebede, UN-Habitat  
Jason Buch, Green Building Council (GBC) South Africa (SA)  
Bruce Kerswill, GBCSA and World GBC Board Member  
Siham Omri, Morocco GBC  
*An introduction to Green Building Councils and how they transform building industries towards sustainability*

**Afternoon tea**  
**3:20 – 3:45 p.m.**

**Interactive Session: challenges for the building industry – promoting green building in Africa**  
**3:45 to 5:15 p.m.**

Moderator: Christine Auclair, UN-Habitat

Panel: Akin Akindoyeni, Chairman, Council of Registered Builders of Nigeria

Tony Lee Luen Len, Mauritius GBC

Elijah Agevi, Kenya Private Sector Alliance

*A quick tour around Africa, to sample the challenges faced by the building industry in different countries in promoting green building*

**Wrap-up and looking ahead**

**5:30 – 5:40 p.m.**

Host: Michelle Malanca

**Reception**  
**6:30 – 8:30 p.m.**

*Caz Creole ("old cafeteria" pavilion), UN-Gigiri*

**Wednesday 5 May**

**Doors open 8:00am**

**World GBC networks**

**8:45 to 9:30 a.m.**

Moderator: Raf Tuts, UN-Habitat

Jane Henley, Executive Director, World GBC (remote)

Rick Fedrizzi, President and CEO, United States GBC (pre-recorded video)

*The system of regional networks that the World GBC is starting to develop*

**A closer look at the major green building rating tools in use around the world**

**9:30 – 11:20 a.m.**

Moderator and Speaker: Michelle Malanca

S. C. Kumar, India GBC

Jason Buch, GBC South Africa

Tony Lee Luen Len, Mauritius GBC

*The challenges faced by GBCs in developing tools to rate the environmental performance of buildings*

**Morning tea**  
**11:20 – 11:45 a.m.**

**Governance & finance aspects of operating a Green Building Council**

**11:45 a.m. – 1:00 p.m.**

Moderator: Robert Kehew, UN-Habitat

Bruce Kerswill, GBCSA

S.C. Kumar, India GBC (IGBC)

Manal ElBatran-Tolba, Egypt GBC (10 minutes)

*The nuts and bolts of operating a self-sustaining Green Building Council*

**Lunch**  
**1:00 - 2:00 p.m.**

**What is appropriate for Africa? Alternatives to the country-specific GBC approach**

**2:00 – 3:30 p.m.**

Moderator: Vincent Kitio, UN-Habitat

Robert Kehew, UN-Habitat

Eric Noir, WSP Green by Design

Bruce Kerswill, GBCSA

Koffi Tossa Kwassi, Secretary General, Ministry of Housing, Togo

*The range of alternative institutional arrangements for promoting green building*

**Afternoon tea**  
**3:25 – 3:45 p.m.**

**How national and local government policies and international programs can encourage and/or finance the construction of green buildings**

**3:45 to 5:30 p.m.**

Moderator: Claudio Acioly, UN-Habitat

Niclas Svenningsen, UNEP Sustainable Buildings and Climate Initiative (SBCI)

Christophe Lalande, UN-Habitat, Shelter Initiative for Climate Change Mitigation and Adaptation

Vincent Kitio, UN-Habitat, Promoting Energy Efficiency in Buildings in East Africa Programme

*Ways that governments can interact with green building rating systems, as well as relevant international programmes*

**Wrap-up and looking ahead**

**5:30 – 5:40 p.m.**

Host: Michelle Malanca

**Thursday 6 May**

The **objectives** for Day 3 are for participants, by the end of the day:

1. To make **commitments**, and develop the elements of a **strategy** and **roadmap**, for promoting green building in their countries or sub-regions.
2. To develop the outline for a proposed Africa-wide **Network**, to facilitate ongoing communications and exchanges between champions of green building in different parts of Africa.
3. To provide **recommendations** to UN-Habitat and the UN System regarding future support to green building rating in Africa.

**Doors open 8:00 a.m.**

**Introduction to Day 3 of Conference**

**8:50 – 9:10 a.m.**

Presenter/facilitator: Michelle Malanca

**Individual visioning exercise (in plenary)**

**9:10 – 9:40 a.m.**

Facilitator: Michelle Malanca

*By 2015, where would you like your country to be regarding green building and green building rating?*

### **How do we get there? Strategies to achieve visions**

**9:40 – 10:30 a.m.**

*Facilitated small group discussion of strategic approaches*

### **Presentations of strategies**

**10:30 – 11:00 a.m.**

Moderator: Michelle Malanca

*Presentations by each group in plenary*

**Morning tea**  
**11:00 to 11:30 a.m.**

### **Morning break-out session: roadmaps for achieving visions and strategies**

**11:30 a.m. – 12:45 p.m.**

*Facilitated break-out groups develop roadmaps that follow strategies so as to achieve the vision*

**Lunch**  
**12:45 – 1:45 p.m.**

### **Presentation of roadmaps**

**1:45 – 2:30 p.m.**

Moderator: Michelle Malanca

*Brief presentations in plenary of results of the morning break-out session on roadmaps*

### **Afternoon break-out sessions: a network, rating tools, commitments and recommendations**

**2:30 – 4:00 p.m.**

*Small groups with designated facilitators on the following topics:*

- *Africa-wide network support to green building*
- *Commitments by participants, and recommendations to UN-Habitat and the UN system*
- *Green building rating tools*

**Afternoon tea**  
**Beginning at 3:00 p.m.**

### **Presentation of results of afternoon breakout sessions**

**4:00 – 4:45 p.m.**

Moderator: Michelle Malanca

Panel: Alioune Badiane, Christine Auclair, Vincent Kitio, Christophe Lalande, Bob Kehew, UN-Habitat

*Presentations in plenary by representatives of afternoon breakout groups, on topics noted above*

### **Concluding remarks and next steps**

**4:45 – 5:00 p.m.**

Moderator: Michelle Malanca

Panel: Alioune Badiane, Christine Auclair, Vincent Kitio, Christophe Lalande, Bob Kehew, UN-Habitat

*Brief remarks offered by panel, with moderator*

### **Ceremonial signing of general Statement of Commitment by participants interested in promoting green building practices**

**5:00 to 5:15 p.m.**

*Signing of Statement by interested parties, and group photograph in courtyard*







© UN-HABITAT



© GLH Architects

**UN**  **HABITAT**

For further information, contact:

Cities and Climate Change Initiative  
Sustainable Urban Development Network (SUD-Net)  
Urban Environment and Planning Branch

**UN-HABITAT**

P.O. Box 30030, 00100 Nairobi, Kenya  
Tel: 254-020-7625404, Fax: 254-020-7623715

Email: [uepb@unhabitat.org](mailto:uepb@unhabitat.org)

Website: [www.unhabitat.org/ccci](http://www.unhabitat.org/ccci)