RATING TOOLS FOR RESILIENCE

UNDRR and the World Green Building Council

Cristina Gamboa, CEO, WorldGBC
70 Member GBCs

Three Impact Areas

1. Climate Action
2. Health & Wellbeing
3. Resources &Circularity
The challenge of the built environment

<table>
<thead>
<tr>
<th>Climate action</th>
<th>Resources and Circularty</th>
<th>Health and Wellbeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Buildings are responsible for 38% of global carbon emissions</td>
<td>• Buildings are responsible for 50% of global material use</td>
<td>• 91% of people live where air pollution levels exceed World Health Organization limits</td>
</tr>
<tr>
<td>• Energy demand will increase by 50% by 2050</td>
<td>• 43Gt gigatons of materials consumed by global construction annually</td>
<td>• People are 40% more likely to have asthma due to living in a home with damp or mould</td>
</tr>
</tbody>
</table>

By 2050, global population will increase 26% to 9.7bn and global floor area will increase by 100% by 2060.

136 of 192 countries that submitted an NDC mention buildings, 53 mention building energy efficiency, and 38 specifically call out building energy codes. Only 73 countries currently have building energy codes.

Buildings are responsible for 38% of global carbon emissions. By 2050, energy demand is expected to increase by 50%.
WorldGBC Strategy 2020-22
Analysis of Sustainable Development Goals relevant to the built environment
Deep dive on rating tools

• Rating tools independently assess and recognise buildings, precincts, social infrastructure and communities which meet agreed requirements or standards

• Over half the GBCs in WorldGBC’s network operate a rating tool: worldgbc.org/rating-tools

• By the end of 2020, WorldGBC’s members had certified over 3.57 billion square metres of green building space

• The rapid growth in the last three years has been partially driven by China, with Asia Pacific the biggest market for green building in 2020 for the second year in a row
THANK YOU!

For more information on WorldGBC visit: worldgbc.org

For more information on rating tools visit: worldgbc.org/rating-tools

For information on Green Building Councils visit: worldgbc.org/our-green-building-councils
Introducing our speakers

Levan Ekhvaia  
Certification Manager  
DGNB

Davina Rooney  
CEO  
GBCA

Katherine Hammack  
Director Of Special Projects  
USGBC / GBCI

Lorena Pupo  
Technical Specialist  
CCCS
LEVAN EKHOVAIA
Manager for International Certification System
DGNB
Making sustainability happen:
Insights from the DGNB Certification System - for UNDRR
Sensitising the general public

Translating sustainability into practice

Pooling and sharing knowledge

- Founded 2007
- Non-profit association
- 1,300 members
- Europe’s biggest network for sustainable building

Certification system for sustainable buildings and districts
- > 7,200 awards in more than 29 countries worldwide

Central knowledge platform for sustainable building
- > 5,100 qualified experts in more than 40 countries

Training and CPD platform – DGNB Academy
- Global benchmark for sustainability

Non-profit association

Network

Knowledge

System

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Central knowledge platform for sustainable building
The DNA of the DGNB system

**Life cycle assessment**
All audits take the entire life cycle of a building project into account

**Holistic**
Equal emphasis on three core sustainability factors: environmental, economical and sociocultural

**Emphasis on performance**
The DGNB System assesses the overall performance of a development and not just individual measures
Sensitising the general public

Pooling and sharing knowledge

Training and CPD platform – DGNB Academy

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Global benchmark for sustainability

Translating sustainability into practice
Building Certification Systems: Overview

LEED
Environmental 68%
Economic 2%
Social 30%

Mjöbyggnad
Environmental 61%
Economic 3%
Social 36%

Active House
Environmental 61%
Economic 1%
Social 28%

BREEAM
Environmental 66%
Economic 5%
Social 29%

Nordic Swan
Environmental 63%
Economic 1%
Social 16%

WELL
Environmental 2%
Economic 1%
Social 97%

DGfB
Environmental 33%
Economic 30%
Social 37%

Green Star
Environmental 67%
Economic 1%
Social 32%

Sustainable dimensions
For further reading see the SDI report 51
- Environmental aspects
- Economic aspects
- Social aspects

Quelle: Guide to Sustainable Building Certifications
DGNB certification schemes for Buildings and Districts
The DGNB System new buildings

EU standards and legislations are the basis of the DGNB Certification System
Planning oriented
Internationally recognized and applied in more than 40 countries

Profitability: low life cycle costs, flexibility and usability, commercial viability and long-term value retention
Investment oriented

Optimization tool: to increase real sustainability in buildings and districts

EU standards and legislations are the basis of the DGNB Certification System
Planning oriented
Internationally recognized and applied in more than 40 countries
Quality - Made in Germany
Resilience in the DGNB system

**Process**

**Environmental**
- ENV1.1 Building life cycle assessment
- ENV1.2 Local environmental impact
- ENV2.2 Potable water demand and waste water volume
- ENV2.4 Biodiversity at the site

**Economic**
- ECO2.1 Flexibility and adaptability
- ECO2.2 Commercial viability

**Social & Functional**
- SOC1.1 Thermal comfort
- SOC1.6 Quality of indoor and outdoor spaces
- SOC2.1 Design for all

**Technical**
- TEC1.3 Quality of the building envelope
- TEC1.6 Ease of recovery and recycling
- TEC3.1 Mobility infrastructure

**Site**
- SITE1.1 Local environment
- SITE1.2 Influence on the district
- SITE1.3 Transport access
- SITE1.4 Access to amenities

**PRO1.1 Comprehensive project brief**
- Sustainability aspects in tender phase

**PRO1.4**
- Comprehensive project brief

**PRO1.6 Urban planning and design procedure**
SITE 1.1 Local environment

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>BENEFITS</th>
<th>WEIGHTING FACTOR</th>
<th>SHARE OF TOTAL SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protect buildings and their users from the effects of negative environmental influences and extreme events and promote the resilience of buildings to possible influences at the microlocation.</td>
<td>Appropriate structural measures can help to reduce adverse effects on the health and well-being of users.</td>
<td>2</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Earthquake  
[Image of Earthquake]

Storm  
[Image of Storm]

Flood  
[Image of Flood]
The DGNB evaluates holistically and world wide, unique system adaptation features.
The Market for Sustainable Building
Sustainable Building in Germany – Market Trend

**Sustainable Investments grow faster than the Total Market**

Sustainable investments increase their importance and grow as dynamic as the total market.

Out of the approximate 35.1 billion €, which been invested in commercial single objects throughout Germany in 2016, nearly 7.6 billion € were accounted for certified Green Buildings.

**Nearly every fifth euro got invested in sustainable properties.**

The 2030 climate and energy framework

- **>32.5%**
  - Increase in energy efficiency
- **>32%**
  - Renewable energies
- **>50-55%**
  - Reduction of greenhouse gas emissions (to 1990)

Building and renovating

The European Green Deal

‘renovation wave’

Use and renovation of buildings require significant amounts of energy, such as sand, gravel and cement.
Sustainable finance taxonomy - Regulation (EU) 2020/852

Work of the European Commission

- Introduction of an EU classification system for sustainable economic activities („taxonomy“)
- Creation of benchmarks, which help investors to compare the CO₂ footprint of their investment
Sustainable finance taxonomy - Regulation

Climate change mitigation
Climate change adaptation
Sustainable and protection of water and marine resources;
Transition to a circular economy
Pollution prevention and control;
Protection and restoration of biodiversity and ecosystems.

DGNB Certification as the valid proof


Updated methodology & Updated Technical Screening Criteria
March 2020
Sustainability pays off – added value and quality
The Danish Experience

Ca. 17% of the population lives in social housing

The DGNB certification has been used as a standard planning and quality assurance tool

About half of residential certification for new build are social housing projects.

Big majority of the local social housing organizations, have made a political decision to certify all of their new build projects according to the DGNB certification system:
The Danish Experience

Lensmarken
Bygningstype: Etageejendom/rækkehus
Areal: 4.080 m²
Bygherre: DENMARK
Auditor: 
Arkitekt: ERIK arkitekter
Ingenier: Niels
Entreprenør: Hans Jørgensen & Søn
Årstal for præcertificering: 2017
Årstal for certificering: 2019

Æblelunden
Bygningstype: Etageejendom/rækkehus
Areal: 4110 m²
Bygherre: AAB Aarhus
Auditor: Ole Balslev-Olesen
Arkitekt: Gammelgården Arkitekter
Ingenier: Bambull
Entreprenør: Tomtoft & Mortensen
Årstal for certificering: 2018

FBAB Lisbjerg
Bygningstype: Etageejendom/rækkehus
Areal: 3.981 m²
Bygherre: Alzoning
Auditor: Maria Helmes Weng
Arkitekt: Tegnestuen Vandersly
Ingenier: MGE
Årstal for præcertificering: 2011
Årstal for certificering: 2019
Foto: Helene Højyer Mikkelsen

https://www.dk-gbc.dk/dgnb/certificerede-projekter/lensmarken/

https://www.dk-gbc.dk/dgnb/certificerede-projekter/%C3%A6blelunden/

https://www.dk-gbc.dk/dgnb/certificerede-projekter/ffab-lisbjerg/
Sustainable social housing creates a win-win situation

1. **For users**: Affordable, high quality, healthy environment, integrative residential communities, barrier-free access even on the district level, green courtyards, savings on the running costs e.g. energy etc.

2. **For Investors**: secure values, lower risks and financial support opportunities through various programs like German - BEG and in the future EU Taxonomy;

3. **Municipalities**: subsidized housing pools
Shape the future with the DGNB!

Join us in making sustainability the new normal!
What does the Green Building Council of Australia do?

We lead the sustainable transformation of the built environment

We rate

We advocate

We educate

We collaborate
Our Strategy: drive sector impact

1. Net zero emissions
2. Climate resilience
3. Nature
4. Circular economy
5. Embodied materials
6. Water cycle
7. Health and wellbeing
8. People and equity
9. Community resilience
THE PRELIMINARY ROUND

CLIMATE CHANGE

Kal
Market trends – investor
<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Impact</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme weather events</td>
<td>Weapons of mass destruction</td>
<td>Economic</td>
</tr>
<tr>
<td>Natural disasters</td>
<td>Extreme weather events</td>
<td>Environmental</td>
</tr>
<tr>
<td>Cyberattacks</td>
<td>Natural disasters</td>
<td>Geopolitical</td>
</tr>
<tr>
<td>Data fraud or theft</td>
<td>Failure of climate-change mitigation and adaptation</td>
<td>Societal</td>
</tr>
<tr>
<td>Failure of climate-change mitigation and adaptation</td>
<td>Water crises</td>
<td>Technological</td>
</tr>
<tr>
<td>Large-scale involuntary migration</td>
<td>Cyberattacks</td>
<td></td>
</tr>
<tr>
<td>Man-made environmental disasters</td>
<td>Food crises</td>
<td></td>
</tr>
<tr>
<td>Terrorist attacks</td>
<td>Biodiversity loss and ecosystem collapse</td>
<td></td>
</tr>
<tr>
<td>Illicit trade</td>
<td>Large-scale involuntary migration</td>
<td></td>
</tr>
<tr>
<td>Asset bubbles in a major economy</td>
<td>Spread of infectious diseases</td>
<td></td>
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Taskforce on Climate related Financial Disclosures

- Strong investor concern that corporations are underestimating financial risks from climate change
- TCFD provides a framework for investors to demand consistent and transparent
Taskforce on Climate related Financial Disclosures

• The Task Force was established as part of the G20 Financial Stability Board to enhance organisational consideration and reporting of financial risks related to climate change
• The TCFD recommendations are designed to solicit consistent, decision-useful, forward-looking information on the material financial impacts of climate-related risks and opportunities, including those related to the global transition to a lower-carbon economy. They are adoptable by all organizations with public debt or equity in G20 jurisdictions for use in mainstream financial filings.
• Published recommendations for climate-related financial disclosures, including typology of ‘transition’ and ‘physical’ risks and opportunities
• Recommends integrated of climate-related disclosures into mainstream financial reporting
Risk : Understanding physical risk

Often early reviews focus on the climate resilience of its portfolio using a framework that scores assets based on exposure to climate effects and capacity to adapt.

- Focuses on physical risk
- Focuses action on individual assets
Climate-Related Risks, Opportunities, and Financial Impact

- **Transition Risks**
  - Policy and Legal
  - Technology
  - Market
  - Reputation

- **Physical Risks**
  - Acute
  - Chronic

- **Opportunities**
  - Resource Efficiency
  - Energy Source
  - Products/Services
  - Markets
  - Resilience

- **Strategic Planning Risk Management**

- **Financial Impact**
  - Revenues
  - Expenditures
  - Income Statement
  - Cash Flow Statement
  - Balance Sheet
  - Assets & Liabilities
  - Capital & Financing
Case Study: Implementation through rating tools

Green Star rated buildings targeting the resilience credit over time

- Climate change resilience
- Operation resilience
- Community resilience
- Heat resilience
- Grid resilience
Market Trends in Property – Green Finance

MAXIMISING YOUR INVESTMENT

Using rating tools to attract sustainable finance for real estate
KATHERINE HAMMACK
Director of Special Projects
GBCI
The Resilience Gap

The degree to which a community is unprepared for damaging climate-related events.

Adaptation

Resilience gap 2050

Mitigation

Resilience gap 2025
Step up climate change adaptation or face serious human and economic damage – UN report
LEED v4.1 & Adaptation

- **Integrative Process**
  - Added Site Selection to list of areas to analyze

- **Rainwater Management**
  - New Exemplary Performance threshold which takes future precipitation rates into account

- **Protect or Restore Habitat**
  - New requirements for pollinator gardens
Resilience Pilot Credits

309 projects
participating in LEED’s series of resilient design pilot credits that ensure project teams are aware of and are addressing vulnerabilities.
Resilient Design for a Changing World
San Diego Wildfire Hazard Map

Fire Hazard Severity Zones:
- Very High
- High
- Moderate
- No Designation

Source: https://www.readyandsdiego.org/wildfire-hazard-map/
LEED

Sustainable Site

Materials and Resources

Indoor Environmental Quality

Location and Transport

Energy and Atmosphere

Water Efficiency

Facilities
How can I improve my power quality?

How is my power generated?

How can I reduce my power costs?

How reliable is my power?

What happens if I lose power?

What are my power supply options?
Performance Excellence in Electricity Renewal™
The 6 credit categories of PEER are:

- Reliability and Resiliency
- Energy Efficiency and Environment
- Operations, Management & Safety
- Grid Services
- Regional Priority
- Innovation & Exemplary Performance
LORENA PUPO
Technical Specialist
CCCS
Lorena Pupo
Technical Specialist Colombia GBC
lpupo@cccs.org.co

NDRR & WorldGBC Global Network Webinar
Using rating tools to enhance building and city resilience
En general, todos los municipios operan bajo riesgos por cambios climáticos, en Colombia se identifican cuatro tipos de riesgos marcados en regiones de alto riesgo en la Amazonía y el sur de la Cuenca del Magdalena, y en regiones de bajo riesgo en la Cuenca de la Guajira y la Cuenca del Magdalena. Sin embargo, por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad de la región es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipios, la vulnerabilidad del territorio es generada por la interacción múltiple e intensa de cambios climáticos, la vulnerabilidad del territorio y la gestión de la adaptación. Identificados en 119 municipio...
CASA serves as an independent third-party verifier and auditor. It offers preferential green credit line for CASA projects. CASA is included as one of the tools that allow access to the following benefits:

- Recognized in its green credit line
- Access to green loan credit line
- Access to climate financing
- Recognized as a key enabler to obtaining tax incentives

CASA joins the bank’s certifications to access the green loan credit line.

In the process of recognition to access climate financing, CASA is recognized as a key enabler to obtaining tax incentives.

First CASA Social Housing 5 Star project

CASA/CCCS part of triangular cooperation project: Germany, Paraguay, and Colombia

Included in the National Circular Economy Strategy of the Ministry of Environment and Sustainable Development.

The CCCS officially establishes CASA based on the guidelines from the World Green Building Council and international references.
Multi-attribute Performance-based system

Integral sustainability perspective

Quantitative metrics

Aligned with the SDGs & WorldGBC's Health & Wellbeing Framework

Centered on the END USER
Project name: El Paraíso
Developer: SYMA Constructores y Consultores
Location: Valparaíso, Antioquia
No. of Units: 150 Apartments
Type of project: VIS Housing

5 STARS CERTIFIED - March 2020

✔ ENERGY PERFORMANCE: Savings in energy consumption of 35%.
✔ WATER MANAGEMENT AND LANDSCAPE: Savings in water consumption of 20%.
✔ MATERIALS AND MATERIALS HANDLING: Regional material procurement representing 62% of material purchasing costs
✔ INDOOR ENVIRONMENT AND ENVIRONMENT: Exceeds ASHRAE 62.1 minimum requirements for indoor air renewal in homes and their common areas by 20%.

✔ Customers:
  • 83% have incomes below 2 minimum wages.
  • 90% is their first home
  • 87% have access to subsidies and mortgage loans.

More information: https://www.cccs.org.co/wp/estudios-de-caso-2/
THANK YOU!

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