




ROMANIA
GREEN
BUILDING
COUNCIL



Cladiri verzi

Principii, evaluare si certificare, proiectare

Green buildings

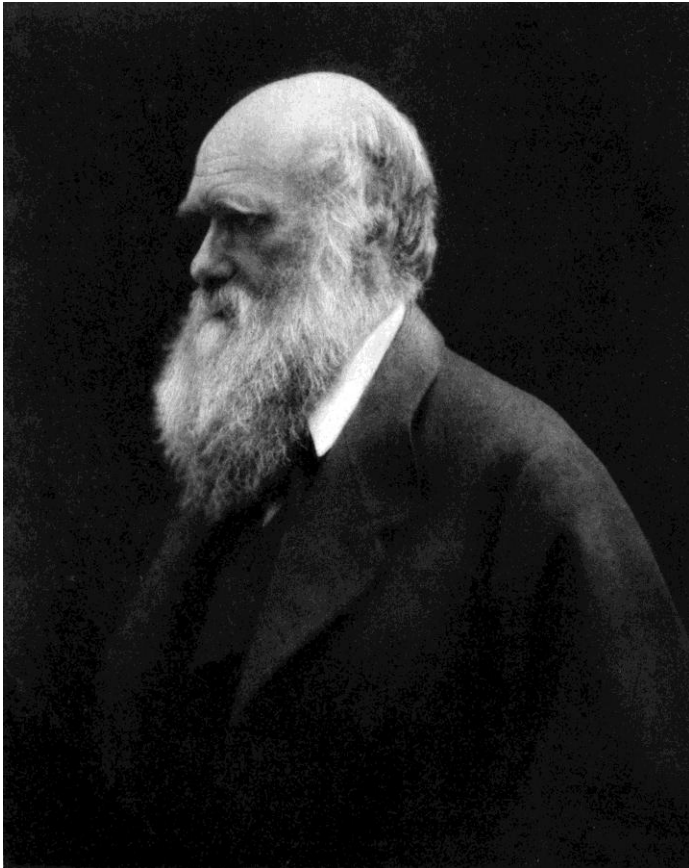
Principles, assessment and certification, design

Paul Rinder, RoGBC

- **Principii.** Principles
- **Evaluare & Certificare.** Assessment & certification
- **Proiectare.** Design
- **Beneficii.** Benefits

- **Cateva exemple.** A few examples

Principii Principles



“Nu specia mai puternica este cea care supravietuieste si nici cea mai inteligenta. Este cea care este cea mai adaptabila la schimbare.”

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”

Principii Principles



Principii Principles



Principii Principles



Principii Principles



Principii Principles



Principii Principles

O cladire care foloseste pe durata proiectarii, construirii si operarii strategii in vederea reducerii consumului de energie si a minimalizari sau eliminarii impactului negativ asupra planetei.

A building that employs strategies in its design, construction and operation to reduce energy use and minimize or eliminate negative impact on the planet.

Principii Principles

O cladire verde sau “sustenabila” raspunde nevoilor generatiei actuale fara sa compromita capacitatea generatiilor viitoare de raspunde propriilor nevoi.

A green or “sustainable” building “meets the needs of the present generation without compromising the ability of future generations to meet their own needs”.

- **Metodologii de certificare** Certification schemes
- **Procesul de evaluare** Assessment process
- **Inceputul evaluarii– cu cat mai repede cu atat mai bine** Early start – the sooner, the better

Evaluare & certificare Assessment & certification

- **Metodologii de certificare** Certification schemes



breeam



DGNB

Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council

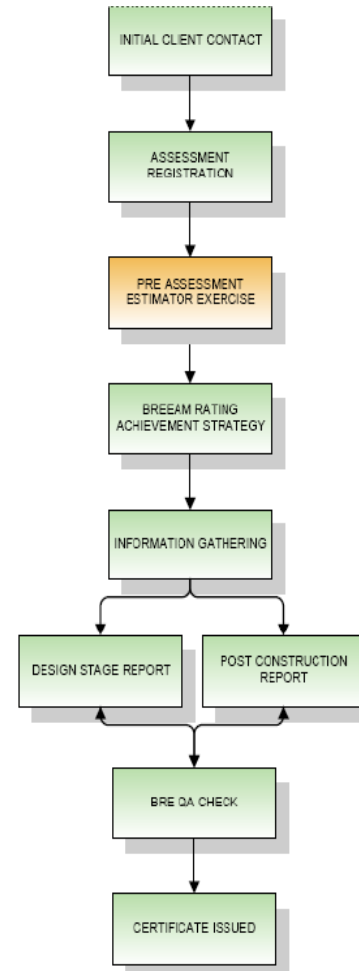


- **Metodologii de certificare** Certification schemes
 - recunoscute pe plan international in vederea certificarii cladirilor verzi internationally recognized that certifie green buildings
 - bazate pe identificarea clara a nevoilor Beneficiarului based on clear identification of Client needs
 - un ghid pentru jucatorii cheie de pe piata constructiilor a guide for key players from the construction industry

Evaluare & certificare Assessment & certification

- **Procesul de evaluare**

Assessment process



Evaluare & certificare Assessment & certification

- **Procesul de evaluare** Assessment process

Table 1 Summary of BREEAM categories and main issues

Management <ul style="list-style-type: none"> • Commissioning • Construction site impacts • Building User Guide 	Waste <ul style="list-style-type: none"> • Construction waste • Recycled aggregates • Recycling facilities
Health and Wellbeing <ul style="list-style-type: none"> • Daylight • Occupant thermal comfort • Acoustics • Indoor air and water quality • Lighting 	Pollution <ul style="list-style-type: none"> • Refrigerant use and leakage • Flood risk • NO_x emissions • Watercourse pollution • External light and noise pollution
Energy <ul style="list-style-type: none"> • CO₂ emissions • Low or zero carbon technologies • Energy sub metering • Energy efficient building systems 	Land Use and Ecology <ul style="list-style-type: none"> • Site selection • Protection of ecological features • Mitigation/enhancement of ecological value
Transport <ul style="list-style-type: none"> • Public transport network connectivity • Pedestrian and Cyclist facilities • Access to amenities • Travel plans and information 	Materials <ul style="list-style-type: none"> • Embodied life cycle impact of materials • Materials re-use • Responsible sourcing • Robustness
Water <ul style="list-style-type: none"> • Water consumption • Leak detection • Water re-use and recycling 	Innovation <ul style="list-style-type: none"> • Exemplary performance levels • Use of BREEAM Accredited Professionals

Evaluare & certificare Assessment & certification

- **Procesul de evaluare** Assessment process

Table 2 BREEAM 2009 rating benchmarks

BREEAM Rating	% score
UNCLASSIFIED	<30
PASS	≥30
GOOD	≥45
VERY GOOD	≥55
EXCELLENT	≥70
OUTSTANDING*	≥85

Evaluare & certificare Assessment & certification

- **Procesul de evaluare**
Assessment process

Table 4 Minimum BREEAM standards

BREEAM issue	BREEAM Rating / Minimum number of credits				
	PASS	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
Man 1 - Commissioning	-	-	-	1	2
Man 3 - Construction site impacts	-	-	-	1	2
Man 4 - Building user guide	-	1	1	1	1
Hea 4 - High frequency lighting	1	1	1	1	1
Ene 1 - Energy Efficiency	-	-	-	6	10
Ene 2 - Sub-metering of substantial energy uses	-	-	1	1	1
Ene 5 - Low or zero carbon technologies	-	-	-	1	1
Wat 1 - Water consumption	-	-	1	1	2
Wat 2 - Water meter	-	-	-	1	1
Wst 3 - Storage of recyclable waste	-	-	-	1	1
LE 4 - Impact on site ecology	-	-	-	2	2

Evaluare & certificare Assessment & certification

- **Procesul de evaluare**
Assessment process



Inceputul evaluarii– cu cat mai repede cu atat mai bine
Early start – the sooner, the better

Evaluare & certificare Assessment & certification

- Devreme, in faza de proiectare **Early start at pre-construction**
 - Masurile de construire sustenabila sunt introduse in tema de proiectare fiind pastrate si dezvoltate in fazele ulterioare de proiectare si autorizare *Green building measures implemented in the Client Brief at the Pre-construction stage and reflected into permitting and subsequent design stages*
 - Implementare masurilor verzi este negociata la semnarea contractelor de proiectare/construire *Additional green measures implementation work for Designer and Contractor is negotiated as a package*
 - Toate actiunile verzi pot fi optimizate *All green actions can be optimised*
 - Scorul potential este mai mare *Targeted green rating is higher*

Evaluare & certificare Assessment & certification

- Tarziu, in faza de construire Late start at post construction stage
 - Cladirea este deja proiectata si construita, implementarea masurilor verzi este mai costisitoare *Building is already designed and built, green measures implementation cost is higher*
 - Scorul potential este mai mic *The likely green rating is lower*

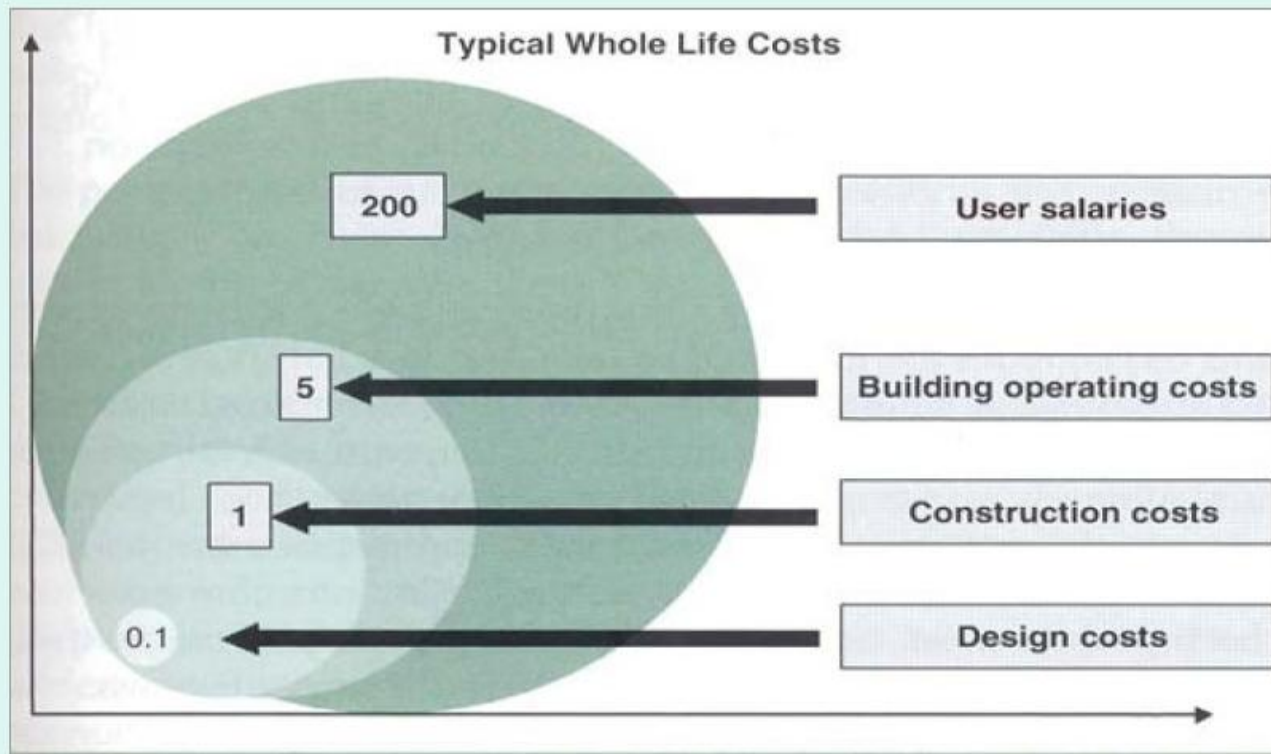
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- Confortul utilizatorilor – lumina naturala, iluminat, confortul termic, calitatea aerului *Health & Wellbeing – natural light, lighting, thermal comfort, air quality*
- Energie – eficienta energetica, contorizare, surse regenerabile *Energy – energy efficiency, low or zero carbon technologies*
- Consum de apa potabila – reciclare , detectare scurgeri, contorizare *Water consumption – recycling, leak detection, metering*

- Colectare deseuri – pe durata construirii si a functionarii cladirii
Waste recycling – during construction and operation of the building
- Impactul asupra mediului – protejarea elementelor naturale existente, selectionarea amplasamentului *Land Use and Ecology – protection of ecological features, site selection*
- Poluare – emisi NOx, detectare scurgeri agent frigorific, limitarea poluarii apelor, poluarii sonore si luminoase *Pollution – Nox emissions, detection of refrigerant leaks, limiting water, light and noise pollution*
- Materiale – reciclare, re folosire, fara emisii de substante nocive –
Materials – recycling, re-use, without VOC emissions

Beneficii Benefits





Cativa factori determinanti A few business drivers

- Dezvoltatorii si investitorii din piata imobiliara *Real estate developers and investors*
- Utilizatorii cladirilor *Buildings occupants*
- Cresterea preturilor in cazul resurselor si a materiilor prime, siguranta energetica *Higher energy prices and raw materials, energy security*
- Inundatii, schimbari climatice, media *Floods, weather changes , media*

Cateva exemple A few examples

- **Swan Office & Technology Park** 30 000 m² class A offices



Cateva exemple A few examples

- **Swan Office & Technology Park** 30 000 m² class A offices



BREEAM Very Good
PC



Cateva exemple A few examples

- **Ploiesti West Park** - industrial and SME Ploiesti



BREEAM Very
Good - DS

Cateva exemple A few examples

- **Floreasca 169**- class A office



LEED certified

“the Stone Age didn’t end because we ran out of stones”

Sheikh Yamani, former OPEC minister

“If you want to change the world go where the money is, deliver people a truly better bargain, not something that is cheaper but better”

Anthony Malkin,
Empire State Building Manager
Greening the Empire State Building

Romania Green Building Council

...este o asociatie non-profit formata din companii ce activeaza in sectorul constructiilor si care isi propune crearea condițiilor de piață, educaționale și legislative necesare pentru promovarea construcțiilor de înaltă performanță - atât sustenabile cât și profitabile.

...is a non-profit association of businesses encouraging the market, legislative, and educational conditions to promote high performance construction that is both sustainable and profitable



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Membru cu drepturi depline al...

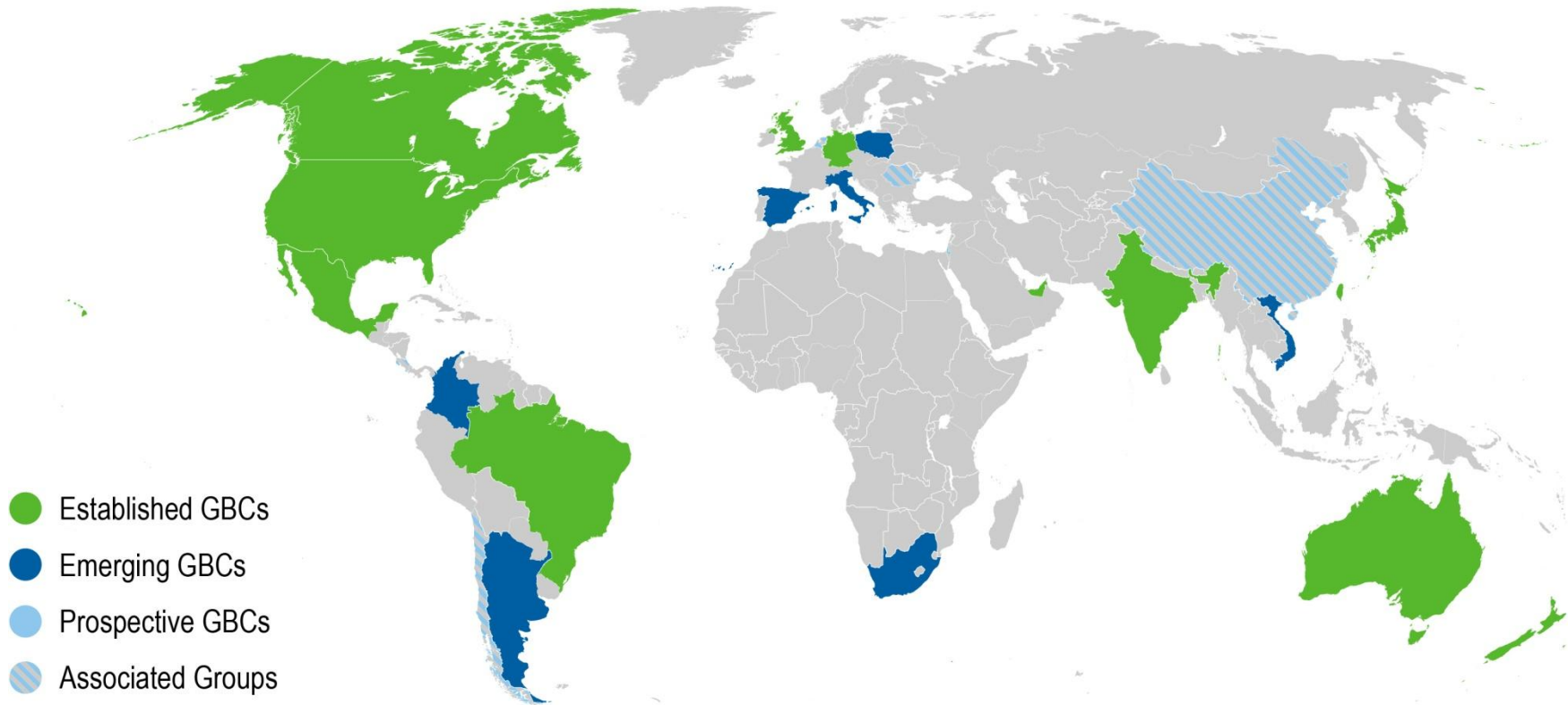
An “Established member” of the...



WORLD GREEN BUILDING COUNCIL



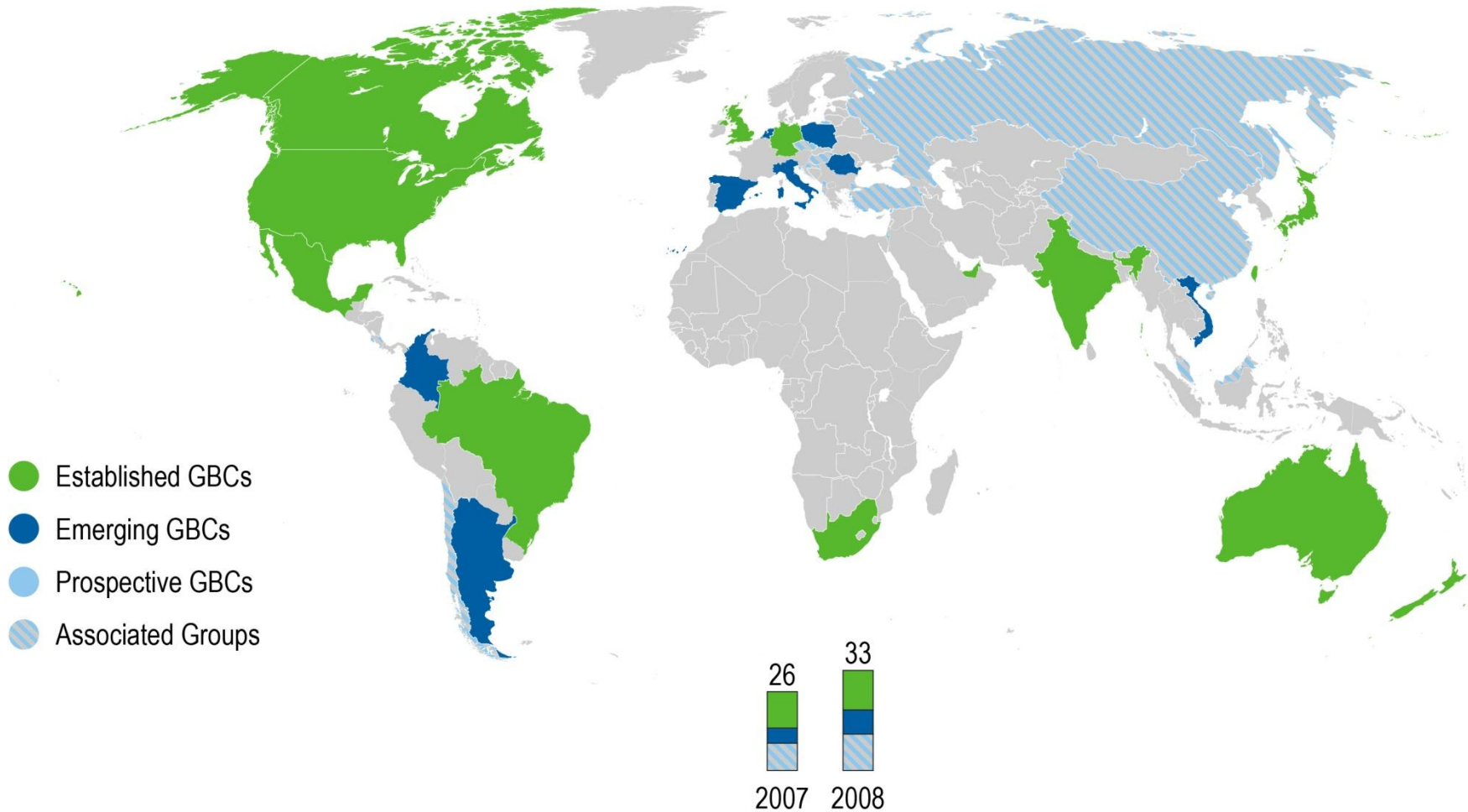
A Growing Network...



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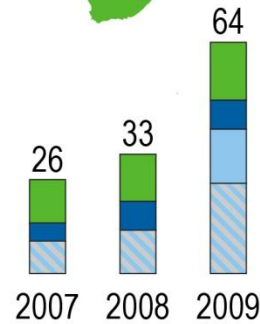
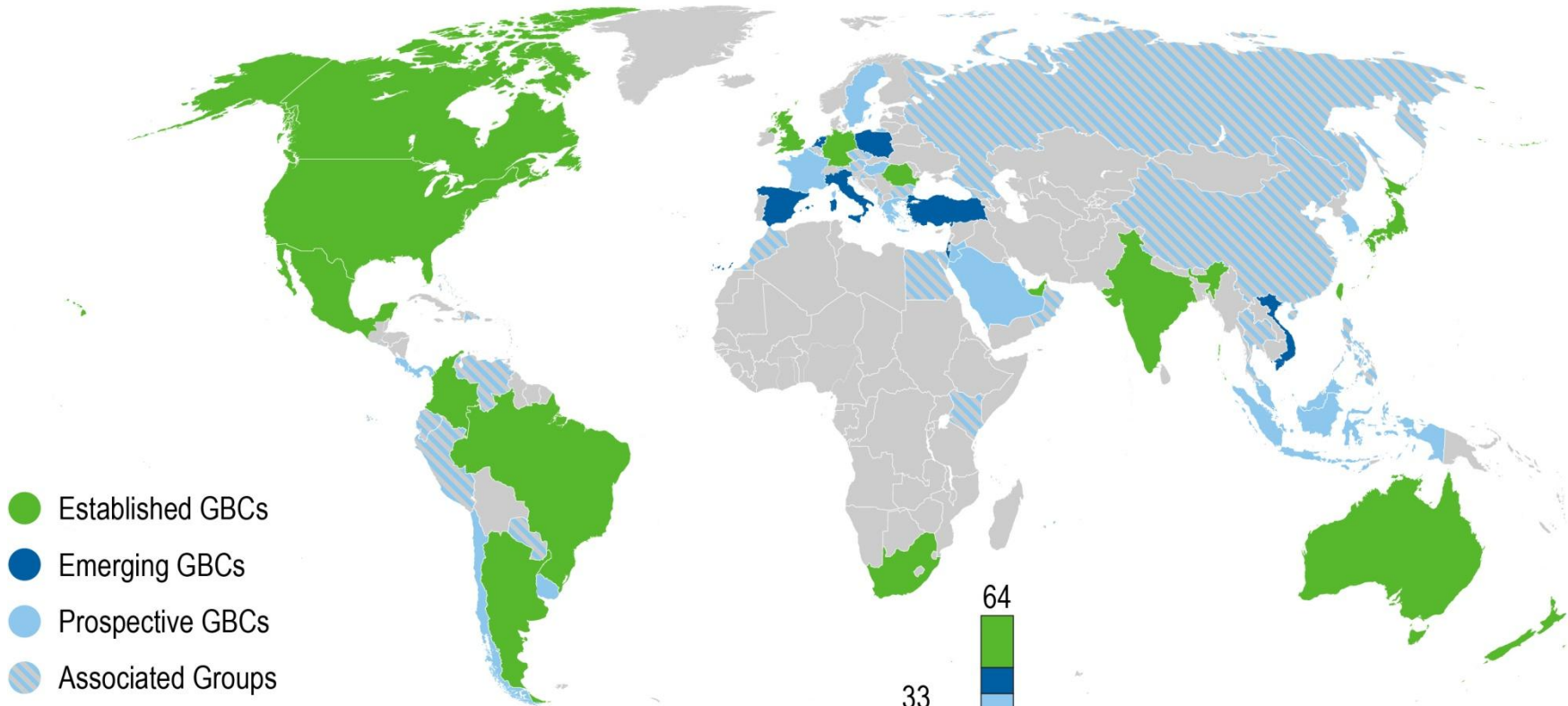


A Growing Network...



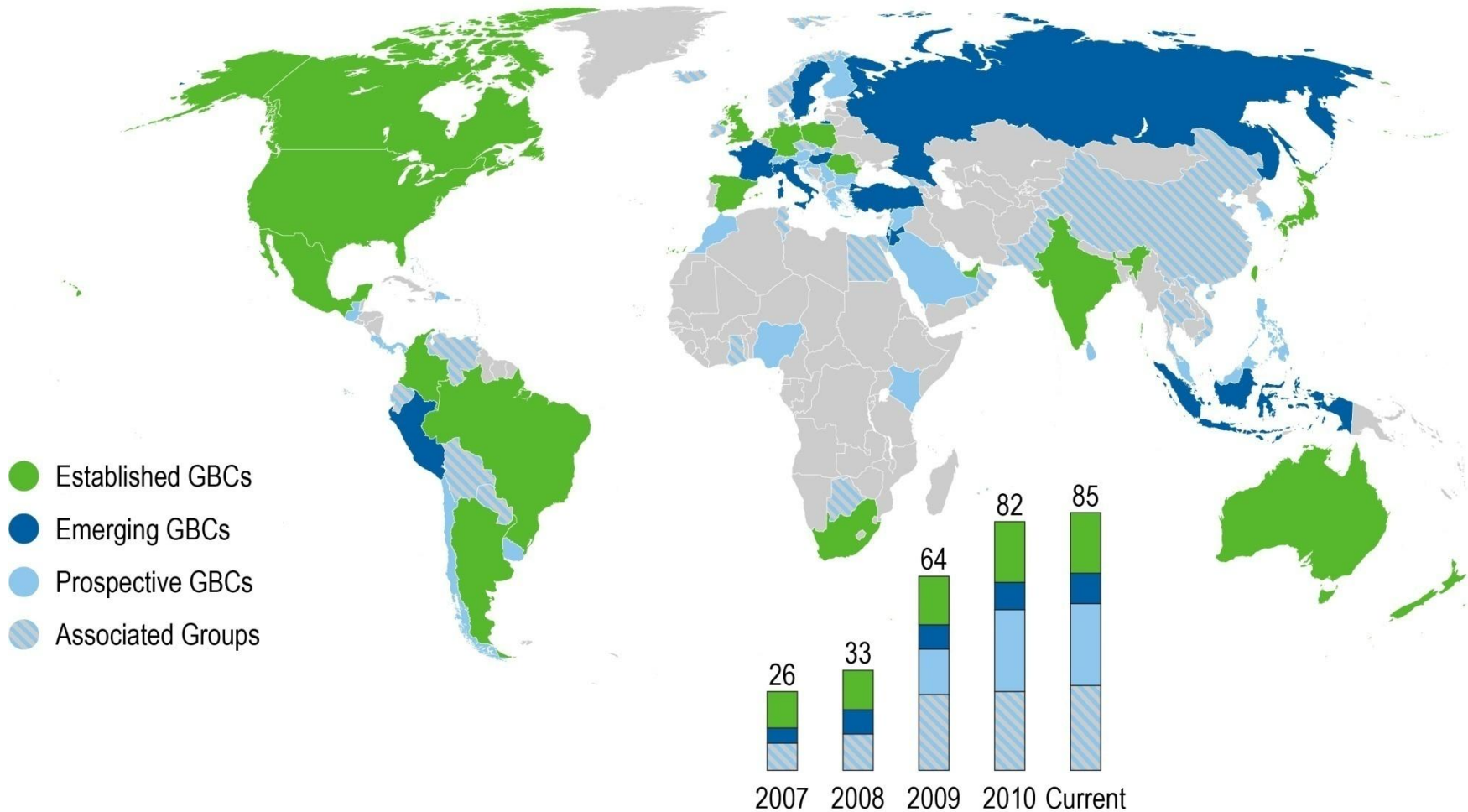


A Growing Network...





A Growing Network...



Activități RoGBC / RoGBC activities

- **Evenimente, instruire, training / Events, education, training**



Green Café



- **Proiecte pilot / Pilot projects**



Greening our Workspace



Platforma clădirilor sustenabile

- **Demersuri legislative /**

Legislative outreach



Romania Green Building Professional

- **Cursuri de pregatire accesibile/**
Affordable training courses;
- **Informatii generale despre cladiri verzi, 10 cursuri /**
Core Skills, Ten Courses
- **Program de certificare si training sustenabil /**
Certification & Training Program
- **Recunoastere internationala /** International recognition



ROMANIA
GREEN
BUILDING
PROFESSIONAL

- **Lighting Design and Smart Buildings**
- **Sustainable Materials and Resources**
- **Creating and Managing Greener Workspaces**
- **Building Envelope of Green Buildings**
- **Landscape and Exterior Design**
- **Water Efficiency**



ROMANIA
GREEN
BUILDING
PROFESSIONAL

- **Legal Requirements and Voluntary Certification for Green Buildings**
- **Green Design Principles**
- **The Financial Valuation of Green Buildings**
- **Managing Green Building Projects**
- **Sustainable Site Selection and Management**



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www.RoGBC.org