

Workshop Working PAPER

Implementation opportunities and challenges of the Policy Guidelines for the development of a Green Building Code in Pakistan



SWITCH-Asia SCP Facility jointly implemented by:

Implementation opportunities and gaps for the development of Green Building Code in Pakistan

In 2018, the second phase of the SWITCH-Asia Sustainable Consumption and Production Facility (SCPF) was launched with EU-funding. The programme aims at providing a platform to promote sustainable consumption and production (SCP) policies and principles in Asia and enhance the awareness and dialogue of local stakeholders on the theme. To achieve these goals, the SCPF fosters exchange between key experts, entities and stakeholders who share the interest for impactful actions through relevant responsible consumption and production patterns and to discuss ideas and lessons learned and consequently, to identify and develop joint actions.

The overall aim of this multi-stakeholder workshop is to assess the gaps and challenges in the implementation of the country's green building code and gain further insights to improve the roadmap towards widespread acceptance and use of the GBC and facilitate the incorporation of potential SCP principles.

Workshop Agenda

TIME	ACTIVITY
10:00 - 10:55 am	Registration
10:55 - 11:00 am	Guests to be seated and Recitation
11:00 - 11:10 am	Welcome Address by Mr. Irfan Tariq Director General, Ministry of Climate Change
11:10 - 11:20 am	Remarks by Mr. Sven Ruesch, First Secretary, Team Leader Governance & Education
11:20 - 11:30 am	Remarks by Mr. Malik Amin Aslam, Special Assistant to PM on Climate Change, Ministry of Climate Change
11:30 - 11:45 am	Presentation on the Roadmap to Green Building Code by Mr. Jawed Ali Khan, Consultant, EU SWITCH-Asia Programme
11:45 - 12:05 pm	Group Photo and Tea Break
Technical Session I	
Chair: Dr. Sarosh Lodi, Vice-Chancellor NED University of Engineering & Technology	

12:05 - 01:05 pm	Panel Discussion <ul style="list-style-type: none"> 1. Sustainability and Affordable Low Cost Housing Green Building Materials by JPC Chair. Prof. Dr. Engr. Shuaib Ahmad, Centre for Affordable Housing and Sustainable Built Environment (CAHSBE), NED University, Karachi 2. Green Building Guidelines of AKDN by Mr. Nawab Ali Khan, CEO, Agha Khan Agency for Habitat 3. Incentives for Promotion of Green Buildings in Pakistan by Mr. Mohsin Sheikhani, Former Chairman ABAD 4. Towards a Zero Carbon Footprint in the Building Industry Responding to Pakistan's Ecological & Physical Diversity by Mr. Shahid Saeed, CEO Indus Earth
01:05 - 01:35 pm	Question / Answer Session
01:35 - 01:50 pm	Remarks by the Chair Technical Session I
01:45 - 02:30 pm	Lunch
Technical Session II	
Chair: Mr. Irfan Tariq, Director General, Ministry of Climate Change	
Co-Chair: Mr. Jawed Ali Khan, Consultant, EU SWITCH-Asia Programme	
02:30 - 03:30pm	Breakout groups discussion on gaps and opportunities for development of Green Building Code in Pakistan <ul style="list-style-type: none"> I. Professional Bodies (Architects, Town Planners & Academia) II. Builders and Developers III. Civil Society and NGOs IV. Government Agencies V. Corporate /Private Sector and Investors
03:30 - 04:20 pm	Presentations by Group Leaders
04:20 - 04:35 pm	Key Recommendations by the Co-Chair
04:35 - 04:50 pm	Concluding Remarks by Chair Technical Session II
04:50 - 05:30 pm	Coffee/tea break

Proposed roadmap

In order to achieve successful development, acceptance and implementation of a new Green Building Code (GBC) for Pakistan, a clear path must be established. Figure 1 (at the end of this section) visualises the proposed roadmap for the development of the GBC described in this chapter. As part of the current project, an analysis of the existing Policy Guidelines for a Green Building Code in Pakistan has already been carried out and further analysis of existing national and international codes and standards is underway. Representative prototypes and models based on literature review are being consolidated into a consultation document intended to guide the process and writing of the new GBC.

A critical primary step outside of this project is the formation of a national level Task Force for the development of the GBC by the Ministry of Climate Change. The Task Force should comprise of relevant experts from engineering sector, industry and academic, regulatory bodies, concerned ministries/lined departments, major stakeholders and international experts. As the GBC should be developed through a participatory process engaging all key stakeholders including, but not limited to the Pakistan Engineering Council, NEECA, Ministry of Housing and Works, UN Environment, EU SWITCH-Asia, UN-Habitat, and others. The Task Force should therefore additionally set up expert Technical Committees that will focus on various aspects of the GBC, for example, on the scope, green performance rating systems, removal of barriers, technology transfer, or incentives for market development, to name a few. Throughout the development of the GBC, expert consultation, stakeholder and practitioner interviews, and field visits should take place.

What other agencies could be included? What additional (Technical) Committees could be relevant?

Next, the definition of the aim, scope, writing process, and impact assessment should take place, and a *techno-legal framework* must be prepared for the GBC, along with its effective implementation mechanisms at federal and provincial levels. Some of the measures identified are:

- Accreditation, testing and calibration of electrical, mechanical and water supply equipment and systems;
- Definition of performance goals, including theoretical energy consumption ranges for proposed building systems;
- Parametric analysis and life cycle cost analysis;
- Adapting by construction industry of modernized green building architectural, structural, and energy systems designing through software technologies;
- Production of green construction materials and methods as per international standards and marked with Green Rating Stars;
- Capacity building for skilled and unskilled human resource for designing and construction of green buildings;
- Capacity building of Authorities Having Jurisdiction (AHJ);
- Preparing a Schedule of Works as per the GBC as well as standards and specifications for both existing and new buildings;
- Ensure compatibility of specified construction standards and specifications with IT software based applications for adoption of up-to-date construction practices; and
- Capacity building of architects, engineers, designers, skilled workforce (masons) and labour.

What other techno-legal considerations should be made?

To enhance knowledge and understanding of green building (GB), a comprehensive and integrated programme for *capacity building and skill development* must then be developed. Induction of GB concepts and innovative technologies could be introduced by the vocational training institutions, engineering and technical universities. These facilities may be developed through public private partnership and promote strong linkage with industry and academia for producing accredited professionals and creating a cadre of professionals for municipalities and building control authorities to support the GBC.

What further capacity building activities could be implemented?

To support acceptance and implementation, the government should additionally develop an *incentive programme* to attract builders, developers and investors to GB practices. While the enforcement of the programme should be voluntarily at least 5 years at the initial phase, after expiry of this period the compliance may be made mandatory. The public sector should take the lead for mandatory compliance along with starting awareness campaigns and provision of the appropriate knowledge to the community and end users. Some initial ideas for incentives that could be used to guide the implementation of include:

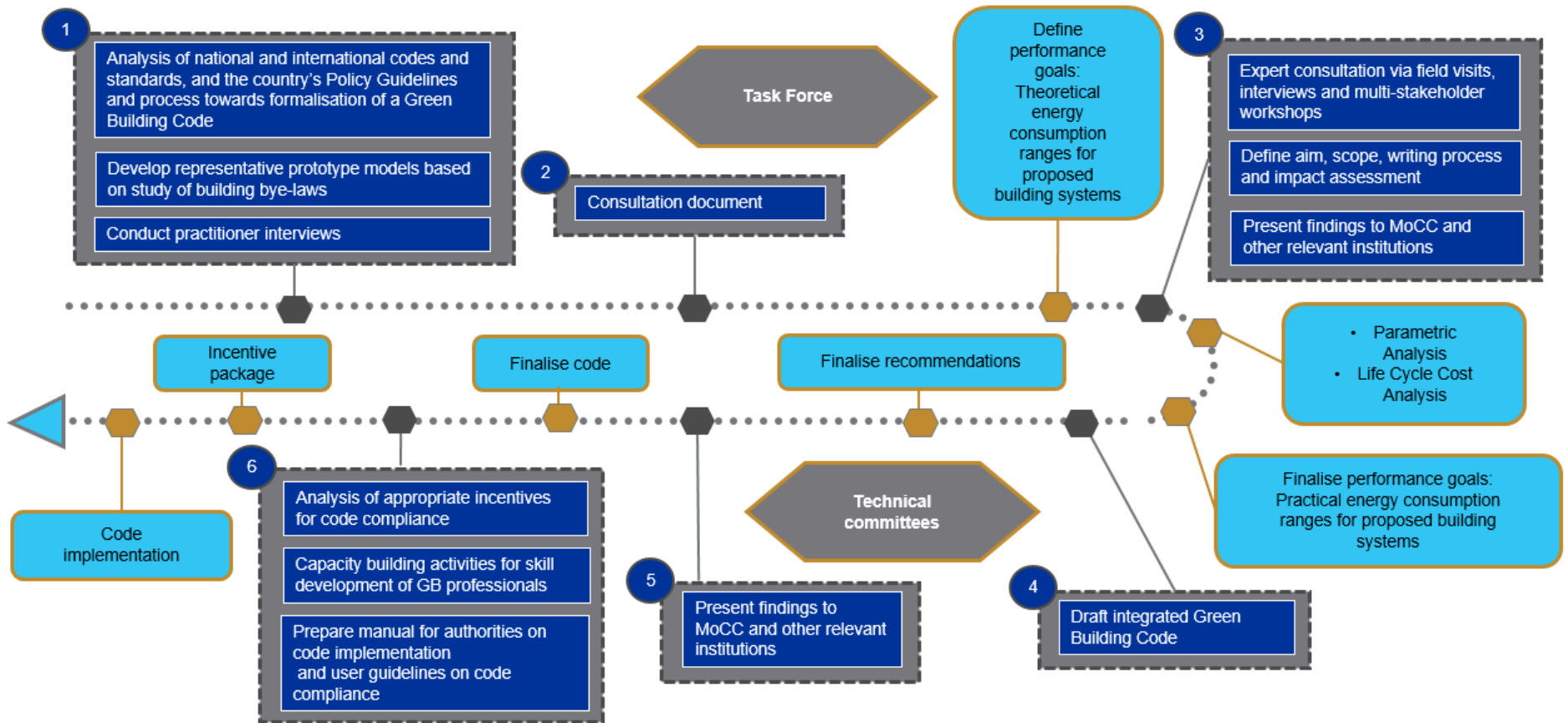
- Promoting GB practices adopted worldwide;
- Enforcement and compliance of the GBC through fiscal and financial measures such as:
 - Low or zero tax on certified sustainable materials
 - Low interest loans for those using green materials and methodologies
 - Green mortgages for those purchasing housing using GB materials and methodologies
 - Tax exemptions

- Carbon credits
- Reduced taxes on green materials import

The principle of *Corporate Social Responsibility (CSR)* may additionally be used as a vehicle to promote and support programmes on innovation and local production of green building materials by the small and medium scale entrepreneurs to benefit the local societies. Leadership and commitment at the corporate level can help penetrate the GB concepts in the greater society. The GBC implementing authorities could potentially declare some mandatory sustainable measures for all corporations and industries, for example, mandatory implementation of certain sections of the new GBC or to invest 5% in green energy generation or to implement other sustainable features.

What other incentives could assist in the widespread acceptance and use of the new GBC?

Figure 1: Proposed roadmap for development of the Green Building Code



Preliminary findings and recommendations

During the summer months of 2020, interviews took place with key stakeholders in the realm of green building and construction. The questionnaire results reveal that the conventional construction practices in Pakistan are already undergoing somewhat of a paradigm shift due to exposure to green building construction technologies and practices worldwide. However, it was expressed that adoption of green building technologies and practices will remain a challenge in Pakistan until the government provides adequate support and creates an enabling environment, which is crucial for transformation and adoption of green building practices by the construction industry. Major issues identified by the respondents focus on the factors influencing the green building market and its readiness. Further key findings and recommendations received from the interviews are summarised in Table 1.

Table 1: Findings and recommendations from the key stakeholders survey

NO.	ISSUE	FINDINGS	RECOMMENDATIONS	ACTIONS TO BE TAKEN
1	Factors influencing GB market readiness	<ol style="list-style-type: none"> 1. No incentives for market to encourage supply of GB materials 2. Availability of green construction materials are limited 3. Market requires support from all stakeholders 	Provide incentives to encourage local manufacturing supply of GB materials	<ol style="list-style-type: none"> 1. Government should provide tax rebate and reduction on import duties for GB materials 2. Incentives should be provided to encourage local manufacturing
2	Market preparedness to adopt GBC	<ol style="list-style-type: none"> 1. The market is following a conventional approach 2. Developers and regulators are following inefficient methods and procedures 	<ol style="list-style-type: none"> 1. Research and innovation in GB needs to be supported 2. There needs to be support for importers and local manufacturers to import and produce GB materials and products 	Relevant institutions need to be identified and creating mandates for these functions in the GBC and roadmap
3	Measures required to promote GB practices and technologies	Training and capacity building for all stakeholders will be required	Relevant institutions should design and launch training and capacity building programmes	Relevant institutions need to be identified and creating mandates for these functions in the GBC and roadmap
4	Need for development of	1. There is a lack of GB policies, guidelines, manuals	1. There needs to be development of GB policies, guidelines, manuals and	1. Promulgation and enforcement of revised codes, laws, and

	technical and legal instruments	and handbooks in Pakistan 2. Relevant codes, laws, and regulations are non-existent	handbooks specific to the Pakistani context 2. Review and drafting of relevant codes, laws, and regulations should take place	regulations should occur 2. Authorities Having Jurisdiction (AHJ) should be identified and declared
5	Dissemination of knowledge and information	There is a lack of knowledge and available information on GB concepts in Pakistan	Information on GB should be designed and launched along with a knowledge sharing and dissemination programme	1. Relevant government institutions should be made responsible for these tasks 2. Professional bodies and academic institutions should also become involved in the process 3. Local manufacturers, importers and private sector organisations need to be informed
6	Introduction of GB practices into Public Sector Development Programmes (PSDP) and Annual Development Plan (ADP) projects	The GBC compliance standards and specifications need to be introduced into the PSDP and ADP funded building projects	Project performance should be compliant with GB specifications and monitored after completion	1. Relevant government institutions should be made responsible for these tasks 2. Professional bodies and academic institutions should also become involved in the process 3. Local manufacturers, importers and private sector organisations need to be informed
7	Adoption of Life Cycle building approach	1. There is a need for the adoption of a life cycle building approach in order to improve Indoor Environmental Air Quality (IEQ) and productivity of occupants 2. Costs for a GB life cycle approach need to be reduced	1. The life cycle approach should be promoted and adopted 2. Incentives should be introduced to bring down the costs for a life cycle approach	1. Discussions with key stakeholders need to be initiated to build a consensus on the required processes 2. The GBC should include the development of the life cycle approach

8	Assessment of voluntary, optional, and mandatory codes	There are currently no relevant GB codes, laws, rules or regulations that prescribe the conditions required in a GBC	Conditions should be created to promote a GBC, with associated laws, rules and regulations	<ol style="list-style-type: none"> 1. Discussions with key stakeholders need to be initiated to build a consensus on the required processes 2. Provisions for voluntary, optional, and mandatory use of the code should be developed
9	Development/ adoption of a GB rating system	There is currently no law mandating adoption of a GB rating system in Pakistan	Conditions should be created to promote a GB rating system, with associated laws, rules and regulations	<ol style="list-style-type: none"> 1. Discussions with key stakeholders need to be initiated to build a consensus on the required processes 2. Provisions for voluntary, optional, and mandatory use of the code should be developed
10	Development of strategy for facilitation, promotion, and dissemination of GB practices in Pakistan	No Corporate Social Responsibility (CSR) strategies are common in Pakistan to assist with the promotion and dissemination of GB practices in Pakistan	CSR strategies should be developed in order to facilitate and promote the dissemination of GB practices in Pakistan	Discussions with key stakeholders need to be initiated to build a consensus on the required processes for the adoption of the necessary CSR strategies for facilitation, promotion and dissemination of GB practices in Pakistan
11	Identification of AHJ for GB implementation	Laws prescribing the AHJ for GB implementation are non-existent	Laws should be developed prescribing which authorities are responsible for the implementation of the GBC and associated roadmap	<ol style="list-style-type: none"> 1. Discussions with key stakeholders need to be initiated to build a consensus on the required processes 2. Provisions for prescribing the AHJ for GB implementation should be developed
12	Training and capacity building in GB	Presently, some professional bodies (such as the Pakistan Green Building Council)	1. Comprehensive training and capacity building programmes in GB that lead to certification and	1. Government and private sectors should collaborate with academic and professional institutions

		are voluntarily providing training and capacity building in the field of GB	diploma courses should be developed 2. Research needs to be conducted on GB technologies that are suitable to the Pakistani context	to initiate capacity building and accredited programmes
13	Development of financial incentives and removal of barriers for GB	There are currently no existing arrangements for the development of financial incentives or for the removal of barriers for GB	<p>Actions should be initiated to develop financial incentives with financial institutions for GB and to remove existing barriers (such as perceived higher risk / longer payback periods)</p> <p>2. Governments should develop special incentives such as zero taxation on certified GB materials and low mark-up rates on construction loans for compliant buildings</p> <p>3. Duty free import of green technologies should be considered</p> <p>4. One window operation should be encouraged</p> <p>5. Low interest mortgage loans should be encouraged</p>	<p>1. Discussions with key stakeholders should be initiated in order to build a consensus on drafting and adoption of laws, rules, and regulations for the granting of financial incentives and removal of barriers for GB</p> <p>2. The Government should discuss the provision of tax rebates, and reduction of import duties on GB materials</p>

Additional recommendations for the new GBC include:

- Gradual adoption of green building technologies with coordinated efforts by all the relevant stakeholders
- Benefit analysis communicated to educate and develop a potential market
- Refinancing scheme offer from the State Bank of for renewable energy offering
- International Green Building Rating Systems and Certification be tailored to local conditions
- Additional support to link industry and academia

- Mechanisms need to be set up for development, distribution and availability of green materials
- A dedicated programme for bringing on board Green Building Construction and Performance Rating Professionals
- Customised training programmes for different tiers should also be developed by PEC, NEECA, etc. together with the Provincial Designated Agencies, SDMA, Municipal Committees, and Development Authorities, NESPAK, HVACR Society and Public Sector Universities, etc.
- Training and capacity building of professional cadre including the officers of C&W; LGRDD; Irrigation, Public Health, WSSP; and P&D Departments
- Updating and revision of existing codes
- Link the GB Code with local building and planning control, and permissions/ approvals processes
- Implementation of mandatory vs. optional features of the GBC along timelines with an initial 5 years' grace-period
- The Government should undertake green building initiatives in all legislative and regulatory frameworks
- Priority should be given to green building while implementing the National Housing Policy, Naya Pakistan Housing Schemes, and concerned Sectors National Plans
- Life Cycle Assessment of green buildings should be undertaken to improve IEQ; health and productivity of occupants, based on regular data- monitoring of carbon footprint in various steps of building life cycle, including pre- and post-construction operations
- GBC should be based on efficient resource-use and environment friendly construction practices, in accordance with the updated scientific data as per international benchmarks and specifications compatible with the IT software based applications
- A rebates or credit programme would help the owners of building/house to opt for green building, instead of conventional construction methodology
- Other incentive instruments to be considered on-merit, are institutional incentives, subsidy and rebate programme, tax incentives schemes, low interest mortgage loan, voluntary certification system and technology assistance

What other gaps and opportunities do you recognise as necessary for the GBC? Do you have further recommendations for the new GBC?

Breakout sessions

The breakout sessions of the workshop will provide further insights into the critical areas for inputs. Five (5) separate breakout groups with about 5-7 participants each will be organised per stakeholder category. The groups will have 2 hours to discuss their topics and brainstorm answers to the questions provided.

Overarching discussion points that should be addressed by all groups:

Roadmap presented for Pakistan's Green Building Code (GBC)

- What else could be included in the roadmap?
- What general feedback does the group have on the presented roadmap?
- What are the gaps in the roadmap?
- What are the foreseen challenges for the roadmap?
- What further opportunities are absent from the roadmap?
- What are the pros and cons of a mandatory versus voluntary implementation?
- What parties/agencies should be involved in the implementation of the GBC?
- How can stakeholders be involved throughout the process of implementing the GBC?
- The SCP perspective should additionally be considered by all groups.

Notes:

Breakout Group 1 – Professional bodies, Practitioners (including architects and town planners), and Academia

Focus: Planning, Design & Technology

This group will focus on the design stage of the building. The decisions made during this phase have major impacts on all other life cycle stages. The design requirements will be established by green building codes and they determine the architecture of the building, which materials and technologies can be used, how the building is constructed and how it will be used; it can even plan for how the materials will eventually be recycled.

Guiding questions:

- How can sustainable production and consumption be integrated in the planning of building projects?
- What is the status and role of BIM and 3D model-based planning in Pakistan?
- How can cultural or vernacular architecture be incorporated into the GBC?
- What is the role of technologies and local architecture practices in achieving implementation of the GBC?
- What technologies and trends exist in the sector to support the GBC?
- What technology/knowledge gaps exist in Pakistan?
- What new methods and materials can be promoted?
- What other existing codes in Pakistan need to be considered?
- What international codes can serve as guidance for Pakistan’s GBC?
- What is the role of green building certifications and rating systems in the GBC?
- What other elements of planning, design and technology should be included in the scope of the GBC?

Notes:

Breakout Group 2 – Builders and Developers

Focus: Construction

This group will focus on activities developed from the beginning of the construction until the completion of the building. This plays a large role, accounting for many of the major environmental impacts of buildings such as water and energy use.

Guiding questions:

- What are current construction trends in Pakistan?
- What policies already exist for construction in Pakistan and can contribute to the new GBC?
- What types of buildings should be covered by the GBC?
- What other elements of construction should be included in the scope of the GBC?
- What materials allow cleaner, faster, and less resource-consuming on-site processes? How can the use of these materials be built into the GBC?
- What technologies and trends exist in the sector to support the GBC?
- What technology gaps exist in Pakistan?
- How can sustainable new methods and materials can be promoted within the GBC?
- What traditional materials and methods can be promoted in the GBC?

Notes:

Breakout Group 3 – Civil society and NGOs

Focus: Use of building

This group will focus on the daily operation and maintenance processes, which involve energy and water consumption, in addition to waste generation. This also relates to repair and replacement of building components. This is typically the longest stage for a building with many problems associated to it, especially in a changing climate.

Guiding questions:

- How can the GBC support digitalization help to mainstream sustainable energy use in buildings?
- What are current trends in the usage stage of a building in Pakistan (increased cooling activities, etc)?
- What technologies and trends exist in the sector to support the GBC?
- What technology gaps exist in Pakistan?
- How can the GBC plan for buildings to adapt to new environments in a changing climate?
- How can the GBC support monitoring and reduction of natural resources (energy, water, etc.)?
- How can the energy performance of appliances be guaranteed within the GBC?
- What communication activities can ensure that citizens are aware of conserving water and energy resources?
- What other elements of building use should be included in the scope of the GBC?

Notes:

Breakout group 4 – Government agencies

Focus: Nurturing an environment for a GBC

This group will focus on the linkages and synergies of policies, the SDGs and NDCs with a green building code. Pakistan’s [National Action Plan on SDG 12](#) (NAP-SCP) can act as a tool for this group to incorporate the SCP principles into the roadmap and implementation of the GBC. The United Nations SDGs comprise 17 different goals with 169 targets aimed at addressing complex global challenges and envisioning a global sustainable future. Given the significance of the construction sector, it is also important to consider the built environment for the long-term goals established by the Paris Agreement and NDCs.

Guiding questions:

- What is the role of national policies, legislations and national initiatives for the GBC?
- What kind of policy is needed (regulatory, advisory, financial, etc.) to support the GBC?
- How to make the GBC more practical as to reach scale?
- How can the GBC help achieve commitments under the Paris Agreement and the SDGs?
- How can the GBC help in localizing the SDGs?
- How can the social and cultural dimensions of sustainable buildings be encouraged (quality of life, communities, safety, etc.) by the GBC?
- How can the GBC promote the different SDGs, including: Ending poverty (SDG 1); access to affordable, clean energy (SDG 7); safe, resilient and sustainable human settlements (SDG 11); and sustainable consumption and production (SDG 12)?

Notes:

Breakout group 5 – Corporate/private sector and Investors

Focus: Financing environment

This group will focus on contemplating the possibilities of financial support for the implementation of measures within the value chain. Financing green building design and energy efficiency measures in construction still represent a major challenge. Different concerns revolve around lack of awareness of financiers, perceived risk exposure, or long payback time. Therefore, these barriers should be addressed to stimulate the market for green buildings in Pakistan.

Guiding questions:

- What kind of finance is needed for a broad uptake of the GBC in the case it is implemented on a voluntary basis?
- How can a business case for green buildings be communicated to planners, builders and developers?
- What schemes have been successful for fostering previous building codes?
- Which financial incentives are able to encourage the implementation of the GBC?
- How can financiers be involved in the implementation process and roadmap?
- How do we achieve sustainability in the building sector?
- Are there sufficient financing opportunities?
- What are suitable financing models for green buildings?

Notes:

Wrap up and next steps

This multi-stakeholder workshop has been developed to assess the gaps and challenges in the implementation of the country's GBC. The insights gained during this session will be used to improve the roadmap towards widespread acceptance and use of the GBC. In this context, the Government of Pakistan is strongly urged to integrate the actions and recommendations made during this workshop to further develop the GBC in order to mitigate further the existing and forthcoming impacts of climate change and to meet construction needs in a sustainable manner.

Currently, the GB concept is new for local markets and more effort is needed to develop its value in the market, as well as in the community. There remains a gap in market awareness regarding the carbon emissions and certain steps would be required to help reduce it. Pakistan's GB market is, however, gradually developing. Therefore, next steps would include gaining support from all stakeholders for the development and subsequent adoption of GBC. The public sector needs to be sensitized and necessary amendments need to be included in building bye-laws, regulations, standards and specifications, both in public and private sectors.