

Implementation Opportunities and Gaps for the Development of Green Building Code in Pakistan

WORKSHOP PROCEEDINGS

11 March 2021



SWITCH-Asia SCP Facility jointly implemented by:

BACKGROUND

This report summarises the most important contributions by distinguished participants of a “Workshop on Implementation Opportunities and Challenges of the Policy Guidelines for the development of a Green Building Code in Pakistan”. The workshop was convened on 11 March 2021, in Peral Continental Hotel, Rawalpindi to assess the gaps and challenges in the implementation of the country’s green building code and gain insights to improve the roadmap towards widespread acceptance and use of the Green Building Code (GBC) and facilitate the incorporation of potential Sustainable and Consumption Production (SCP) principles.

The workshop is part of an assignment carried out by the EU SWITCH-Asia SCP Facility in cooperation with the Government of the Islamic Republic of Pakistan. This is part of the SWITCH-Asia SCP Facility’s activities that aim at strengthening the implementation of SCP policies in Asia.

The Workshop comprised of three sessions titled (1) Inaugural Session (2) Technical Session I included Panel Discussion and; (3) Technical Session II comprised of five Breakout Groups namely 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.

The Workshop was attended by 46 participants representing diverse stakeholders from government, UN and multi donor agencies, civil society, builders and developers, architects, planners, corporate sector and academia.

INAUGURAL SESSION

The Inaugural Session commenced with recitation from the Holy Quran. The Director General (Environment & Climate Change), Ministry of Climate Change **Mr. Irfan Tariq** welcomed the delegates on behalf of the Ministry and thanked the European Union SWITCH-Asia Programme, for providing support since 2018 for initiating the work on Green Building Code for Pakistan. He explained that in the first phase the Ministry Developed the “Policy Guidelines for Green Building Code “and in 2020 the work on second phase was initiated to develop Roadmap for detailing out Green Building Code Development. He highlighted that building sector is responsible for a huge share of energy, electricity, water and consumption of materials and has the largest potential for significantly reducing greenhouse gas emissions compared to other major emitting sectors at little or no cost. He expected that the delegates will participate actively and give their valuable inputs in the workshop.



Mr. Sven Ruesch, First Secretary, Team Leader - Economic Cooperation European Union Delegation to Pakistan congratulated the Ministry of Climate Change and SWITCH-Asia for organizing the event under the EU funded Regional Program. He highlighted that the EU aims to lowering their respective ecological footprint while continuing advancing the Human Development Index and per capita economic growth. The year 2021 will be key for the EU to deliver on its green ambitions and show vision and leadership on the multilateral stage. He remarked that, it is indeed a privilege to address this multi-stakeholder workshop and hopes that the workshop may lead to an easy to understand Roadmap for a Green Building Code and for the Green Building Code to be implemented soon.



Mr. Jawed Ali Khan, Consultant, EU SWITCH-Asia, SCP Programme made a presentation on work done so far under the project on the Roadmap to Green Building Code. He explained that in follow up of the preparation of the National Action Plan for Sustainable Consumption and Production (SCP), for Pakistan for the Ministry of Climate Change with the support of SWITCH-Asia, a study was carried out on “Policy Guidelines for Development of Green Building Code” which was the first step towards the preparation of Green Building Code for Pakistan in 2018.



The Special Assistant to Prime Minister on Climate Change virtually addresses the participants and stated that in line with the commitment of the Government to pursue climate resilient and green development initiatives the Ministry of Climate Change is working on the development of the Green Building Code for greening the Building Construction Sector in Pakistan as well as introduction of Green Building practices in the Prime Minister’s Five Million Naya Pakistan Housing programme. He highlighted that the realization of Green Building Code would be crucial in creating a market demand and uptake of green building techniques and practices, focusing on the production and application of environmentally supportive construction materials and sustainable building elements. He expected that the experts in the workshop will review the work done so far and will draw up the roadmap for the development of a Green Building Code for Pakistan which takes into consideration our ecological diversity, extreme weather events and is resilient to climate change impacts triggered by increasing frequency and intensity of temperature and rainfall.

He highlighted that in 2020, the second step, was initiated to develop a Roadmap for preparing Green Building Code for Pakistan. In this respect a questionnaire survey was developed for the concerned stakeholders for their opinion towards developing a roadmap for sustainable building regulation. The key stakeholders included the Government Agencies, Builders/Developers/Contractors, Architects, Engineers, Civil Society NGOs, Academics and Professional bodies/Associations. The questionnaire result reveals that the conventional construction practices in Pakistan are already undergoing a paradigm shift due to exposure to green building construction technologies and practices.



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.

Mr. Khan deliberated that the inputs received from key stakeholders survey were further deliberated in this multi-stakeholder workshop to identify regulations and standards for green buildings site selection, planning, design, efficient use of resources and material, construction, occupancy, operation and maintenance throughout the buildings life-cycle, without significant increase in cost. The final report will lay down the Roadmap for the development of Green Building Code for Pakistan based on the recommendations of the workshop.



Group Photo at the Inaugural Session

TECHNICAL SESSION I

The Technical Session I constituted of Panel Discussion and was chaired by Dr. Sarosh Hashmat Lodi, the Vice-Chancellor, NED University of Engineering & Technology since March 2017. As an elected member of Governing Body of Pakistan Engineering Council for two consecutive terms and contributed in developing in five different Building Codes under PEC umbrella. He was also elected member of the Central Council of the Institution of Engineers, Pakistan and was awarded fellowship of Institution of Engineering Pakistan in 2015.

The Panellists included:

- 1. Prof. Dr. Engr. Shuaib Ahmad**, JPC Chair for Centre for Affordable Housing and Sustainable Built Environment (CAHSBE), NED University, Karachi. He is Distinguished Alumnus of University of Illinois, USA is a world recognized professional civil and environmental engineer with over 40 years of experience in Academia, Code Writing Bodies, and Industry. He has authored over 175 publications and number of books and has received number of Awards for his contribution to the profession.
- 2. Mr. Nawab Ali Khan**, CEO, Agha Khan Agency for Habitat (AKAH), is a development professional and brings over 20 years of experience of grass roots level community centric built environment programmes. The agency implements a range of housing improvement programmes adopting climate sensitive green approaches. It has recently helped the Agha Khan Development Network to come up with its own green building guidelines that is being adopted by all AKDN agencies in over 30 countries of the world. Recently under his leadership the agency was awarded the World Habitat's Gold Award for its unique approach of blending indigenous knowledge with modern science to help address Natural Disaster Risks at community level.
- 3. Mr. Shahid Saeed**, is the Founder and CEO of Indus Earth Trust (NGO) since last 20 years. He is a renowned architect and has worked in many countries for more than 27 years. He is specialized in alternative energy, water, livelihoods and low cost building techniques.

PANELLIST PRESENTATIONS

1. Sustainability and Affordable Low Cost Housing Green Building Materials

JPC Chair Prof. Dr. Engr. Shuaib Ahmad, Centre for Affordable Housing and Sustainable Built Environment (CAHSBE), NED University, Karachi presented on Sustainability and Affordable Low Cost Housing Green Building Materials.

He briefed that sustainability means the utilization of resources in a manner which allows the fulfilment of needs of the current generation while preserving natural resources for the future. He explained key components of a green building which includes energy efficiency and the use of renewable energy; water efficiency; use of environmentally friendly building materials; waste and toxic reduction; smart and

sustainable growth; and enhancement of air quality. He described different construction materials e.g. adobe, cob and rammed earth, wool brick, sustainable concrete, using bamboo replacing the steel bars, structured insulated panels, insulated concrete foams, solar tiles, triple glazed windows, straw bale, cordwood, etc.

He also explained concerns for the green building construction including:

- Initial building cost maybe higher than conventional building cost
- Difficult to secure funding since the technologies are relatively new
- Green Building Materials not readily available
- Finding service providers for green building is difficult
- The buildings are complex, expensive and time consuming to execute
- Require locations with adequate sunlight

2. Green Building Guidelines of Agha Khan Development Network (AKDN)

Mr. Nawab Ali Khan, CEO, Agha Khan Agency for Habitat Agha Khan Development Network (AKDN) presented key highlights of the Green Building Guidelines.

AKDN has over 4000 buildings in Asia and Africa and they have developed Green Building guidelines which is built on four principles:

- **Build nothing** - Challenge the need for new assets. Explore alternative approaches to achieve the desired outcome, e.g. can we re-purpose existing structures.
- **Build less** - Minimize new construction required through maximizing use of existing assets. Optimized use of space. Efficient use of assets for multiple purposes to achieve desired outcomes with less.
- **Build clever** - Use low-carbon materials. Streamline delivery and construction process to create efficiencies. Minimize material usage. Adopt new technologies and good practice to optimize use of energy, water and materials during construction and operation.
- **Build efficiently** - Eliminate waste. Utilize efficient and new construction and operation technologies.

AKDN have built structurally safe and resilient structures in remote areas of Pakistan well adapted to local settings.

The key takeaways from his presentation are:

- Whole-life approach is key for a green building
- Reducing operational energy and cost
- Use of local knowledge and materials, coupled with modern techniques to maximise benefits from green design

- Create awareness and build capacity: entire value chain
- Regulate standards
- Provide incentives
- Build on the country's great potentials
- Renewable energy
- Tree plantation
- Local building materials

3. Towards a Zero Carbon Footprint in the Building Industry Responding to Pakistan's Ecological & Physical Diversity

Mr. Shahid Saeed, CEO Indus Earth explained the participants that the building's carbon footprint is the amount of CO₂ it produces during its operations and activities. Considering a building's carbon footprint is something that affects both new construction as well as existing buildings. He explained that every year, 6.13 billion square meters of buildings are constructed. The embodied carbon emissions of that construction is approximately 3729 million metric tons CO₂ per year. By the year 2050, accounting for all the new construction in that 30-year span, embodied carbon emissions and operational carbon emissions will be roughly equivalent.

Unlike operational carbon emissions, which can be reduced over time with building energy efficiency renovations and the use of renewable energy, embodied carbon emissions are locked in place as soon as a building is built. It is critical that we get a handle on embodied carbon now if we hope to phase out fossil fuel emissions by the year 2050. A huge wave of new construction is projected to accompany population growth and urbanization over the coming decades. Embodied carbon will represent the largest portion of emissions associated with this global new construction between now and 2030, highlighting the important role that repurposing existing neighborhoods and prioritizing the adaptive reuse and renovation of existing buildings will play in reducing embodied carbon.

He explained that as the work on development of green building codes in Pakistan has already started, we now have a critical window of opportunity, to identify tools needed to address the massive amount of new construction before its operating emissions are locked-in for decades to come.

In the subsequent Question and Answer session, it was highlighted that the topic of green buildings needs to be tackled with urgency. While several initiatives have been launched, so far, this has not resulted in the necessary transformation of priorities of the sector. This includes builders, developers, and financiers. It was also pointed out, that Pakistan's geographic characteristics need very specific consideration, including with regard to climate and seismic activity.

TECHNICAL SESSION II

This was followed by a second technical Session, where inputs from breakout groups were sought for the Green Building Code Road Map development. There were 5 breakout groups convened. These consisted of

1. Professional bodies, practitioners (including Architects and Town Planners), and Academia,
2. Builders and Developers,
3. Civil Society and NGOs,
4. Government, and
5. Private sector / investors.

First, a stakeholder mapping was conducted, as well as recommendations for specific topics of a to-be-developed National

Green Building Code Expert Group, comprising of technical experts for various areas. Other topics worked on by the breakout groups included which policy interventions would be conducive in the context of a GBC, including regulatory, advisory, and financial programmes; which streamlining with existing policies and integration with agencies and national initiatives would be needed; as well as which needs and constraints of current building practices and building sector SMEs and technology and capacity gaps would need to be considered.

Participants shared their expertise and their fruitful discussions and results informs the finalisation of the SWITCH-Asia assignment's deliverables, including the Roadmap for the Green Building Code development.

PHOTOS



Final Report (full version) available [here](#).