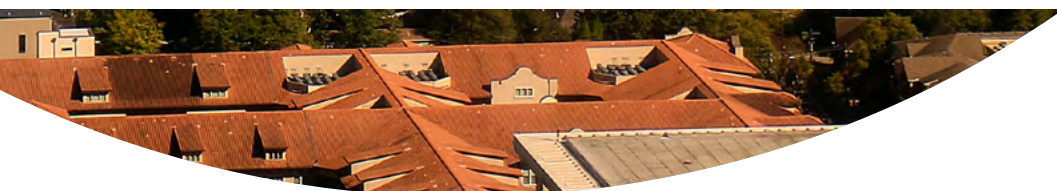


Driving city-scale action for energy efficiency in buildings

Handbook to create dynamic local markets



**Outcome report of the Energy Efficiency
in Buildings (EEB 2.0) project**



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Foreword



Peter Bakker
President and CEO, WBCSD

Buildings play a critical role in combating climate change worldwide. They account for over one-third of final energy and almost 40% of energy related CO₂ emissions. According to the Global Status Report 2017 of the Global Alliance for Buildings and Construction, we need to reduce the energy intensity per m² floor space by 30% by 2030 globally in order to meet the global climate ambitions of the Paris Agreement. This presents a large challenge, given the building sector's fragmented nature, but also a significant business opportunity as the construction sector accounts for well over 10% of GDP in most economies and 50% of global wealth is locked up in building assets.

The challenge of climate change is global, but action in the building sector has to happen at the local level. And in order to reach the ambitions of the Paris Agreement, action has to be better coordinated. Hence, over the last 4 years WBCSD's Energy Efficiency in Buildings (EEB 2.0) project has developed and tested a methodology to bring together the many different groups that comprise the buildings sector to develop and implement action plans on energy efficiency at the city level.

This Handbook talks about WBCSD's experience of conducting eleven EEB Laboratories in cities around the world, the impact and the lessons learnt. It also provides guidance for any interested organizations on how to develop business-led multi-stakeholder action plans for energy efficiency in buildings in cities.

I recommend to all businesses, organizations and cities that deal with the building sector to study the results and the lessons learnt of the EEB 2.0 project and to replicate this in their respective markets so that we can foster a global, but localized movement to transform the building sector that involves business at its core.

The Paris Agreement and the adoption of the Sustainable Development Goals (SDGs) have created an irreversible and irresistible pathway to a low-carbon world. Now it is time to turn that ambition into implementation.

Join us in this global effort.

A handwritten signature in black ink, consisting of a stylized 'P' followed by 'Bakker'.

Peter Bakker
President and CEO, WBCSD

The Energy Efficiency in Buildings (EEB 2.0) project: results

Why energy efficiency in buildings matters

Buildings are collectively the world's biggest energy drain, consuming over a third of final global energy output. They also produce close to 40% of global energy-related CO₂ emissions. The numbers are rising as the world's population grows and urbanizes. There is an urgent and increasing need to reduce them significantly, and reverse the rise. While there are obvious environmental and sustainability benefits from rising to the challenge, there are also less-obvious - and potentially huge - economic rewards. According to the International Energy Agency, harnessing the full capacity for energy efficiency could boost cumulative global economic output through 2035 by USD 18 trillion, with related benefits (see adjacent box). But securing all these benefits presents a highly complex and unprecedented international challenge.

The buildings sector is highly fragmented, conservative and slow to change. It is typically characterized by:

- multiple groups of stakeholders, with no unifying incentive to prioritize energy efficiency
- wide variations in technical education and energy-efficiency knowledge between individuals and groups
- national and regional differences and inconsistencies in regulatory systems
- economics for new and renovation building projects that often impede viable energy efficiency investment

As well as these factors, the groups who can bring about the required changes are unaccustomed to working together in trusting relationships. In short, all this creates an urgent need for transformative change. Accelerating this change requires a fundamentally different approach.

Multiple benefits of energy efficiency in buildings

Until recently, the calculated return on investment for energy efficiency in buildings was limited to the energy saved and associated cost savings. More effort is now underway to understand, articulate, quantify and monetize a wider range of benefits of energy efficiency, including:

- **For building owners and occupants:** improved durability, reduced maintenance, greater comfort, lower costs, higher property values, increased habitable space, increased productivity, and improved health and safety.
- **For governments:** improved air quality, reduced societal health costs, an improved tax base and lower budget variation, higher GDP and enhanced energy security.
- **Utilities:** benefit from cost and operational benefits due to reduced customer turnover, reduced emissions and reduced system capacity constraints.

Source: Extract from Energy Efficiency Market Report 2015, IEA adapted from IEA (2014a), Capturing the Multiple Benefits of Energy Efficiency, OECD/IEA, Paris

The EEB 2.0 approach

WBCSD's Energy Efficiency in Buildings (EEB 2.0) project was a pioneering initiative to create a new strategic approach for cities and business to overcome the market barriers for increasing the energy efficiency of buildings, focused at the local level. Based on an innovative model for engaging actors from the full building value chain within a city (EEB Laboratory), over 4 years the effort produced comprehensive, **locally-driven action plans for energy efficiency in 11 partner cities**.

7 of these cities have moved into implementation through an established EEB platform, led by a central coordinator and supported by local stakeholders.

EEB 2.0's global ambition, "With today's best practices and technologies projected energy use in buildings can be reduced by 50% by 2030 through actions that offer favorable economic returns", served as the backdrop for each city engagement. This is in line with the reductions needed in the building sector to support the Paris Climate Agreement and will likely be truly implemented at the local city level.

EEB 2.0 has broken new ground by showcasing business leadership in cities:

- To stimulate an **inclusive engagement process of key city stakeholders** to identify key market barriers for energy efficiency investment in buildings and propose solutions and actions to overcome them;
- To **generate a broad-based action plan** for city-wide initiatives on energy efficiency in buildings, in the areas of raising awareness, capacity building, finance and policy
- To **establish a platform of enabled stakeholders** to lead the identified initiatives



EEB platform in Shanghai

Outcomes and Impact

Outcome

Between 2014 and 2017, WBCSD and its partners worked in 11 cities around the world, with the following headline outcomes:

- **11 EEB Laboratories (EEB Lab)** were conducted in Amsterdam, Bangalore, Houston, Jaipur, Jakarta, Kuala Lumpur, Rio, Shanghai, Singapore, Warsaw, and Zürich.
- **1500** building sector stakeholders were engaged across the 11 cities. Each EEB Lab convened approx. 150 stakeholders from architects, planning firms, material and equipment providers to construction firms, real estate companies, investors, utilities, academics and city officials.
- **7 Action Plans** were published as a result of the EEB Labs (Houston, Jaipur, Jakarta, Rio, Shanghai, Warsaw, Zürich) with over 100 individual actions identified, across 4 areas: awareness raising, capacity building, finance, policy. (In four cities, draft action plans were elaborated but not published, as the local actors did not achieve consensus post-Lab.)
- **7 EEB Platforms** were created to coordinate the implementation of the Action Plans (Houston, Jaipur, Jakarta, Rio, Shanghai, Warsaw, Zürich) – these platforms are led by local organizations in each city, by business networks (e.g. Green Building Councils, local Business Councils for Sustainable Development), research organizations or private companies.

Detailed information, action plans and progress reports on each EEB Laboratory can be found on the WBCSD website.



Zurich EEB Lab

Impact

The EEB 2.0 project **strengthened local coordination** of initiatives led by the private sector under a common vision with public officials:

- In Houston, the **EEB Houston** platform was created, involving over 75 participants, to address local shortfalls in finance, building operations, policy and communication to support the development of effective practical strategies for reducing building energy consumption by more than 30%. EEB Houston is led by the Houston Advanced Research Center (HARC).
- **EEB Rio** was created with 4 Working Groups to address building code development, data transparency, new finance schemes, awareness raising and capacity building, in close collaboration with the city. Led by the Business Council for Sustainable Development Brazil (CEBDS).
- In Shanghai, over 200 persons signed up to the **EEB Platform Shanghai** via its WeChat page. Based on the main EEB Lab recommendation regarding the lack of building energy information, the lead organization, Green Buildings Professional Partnership (GBPP), is bringing together all relevant actors to develop a data transparency regulation, to be adopted in 2018 in the Green Building Standard of the city of Shanghai.
- The **EEB Platform Poland** in Warsaw was instrumental in bringing together building operators to publish a report on Operating Costs in Office Buildings, a comparison of 48 certified and non-certified buildings, a voluntary initiative to start performance benchmarking.

The project helped initiate **project investment financial pipelines**:

- EEB Houston was critical in passing the adoption of the **PACE financing** in the city, and so far projects with a total value of USD 5m have been initiated, with a pipeline of

projects for USD 75m to be realized in 2018. The Houston Greater East End Management District will serve as a pilot area for project development support in 2018, engaging building owners and operators.

- The Jaipur EEB Network (JEEN) has plans to implement an **Energy Performance Contracting (EPC)** scheme in the region with expected implementation in 2018 under a pilot scheme in partnership with the IGBC. Early stage talks are underway with the International Finance Corporation of the World Bank to provide the financial backing for the pilot as a potential step towards broader scale in India.
- In Jakarta, the platform contributed to a new decree by the Ministry of Energy to promote **Energy Service Companies (ESCOs)**.

EEB 2.0 **enhanced the dialogue with the public sector**:

- In Warsaw, the EEB Platform Poland engaged with the city to increase its capacity to include energy efficiency in buildings in its **procurement guidelines**. Also, the city is interested to identify a zero-emissions demonstration site, subject to funding.
- The Jaipur EEB Network (JEEN) organized **workshops with the Public Works Department** of Rajasthan on how to integrate energy efficiency into their projects, using the WBCSD's EEB Toolkit.
- In Rio, the EEB platform is contributing to the revision of the city's **building code** ("código de obras").
- In Jakarta, the EEB Platform contributed to the Ministry of Energy's list of energy efficient technologies that forms the basis for **financial assistance**, soft loans, etc.
- In Zürich, the EEB Platform will contribute to the City of Zurich's goal of a "2,000-Watt Society" by 2050, the City's model for sustainable energy use that covers key areas such as energy efficiency, renewable energies and sustainable buildings.



EEB 2.0 Assurance Group chair, Dian Grueneich, is a Senior Research Scholar at Stanford University, principal of Dian Grueneich Consulting and former Lead Commissioner for Energy efficiency at the California Public Utilities Commission.

"Energy efficiency efforts have historically been driven by governments and various advocacy groups, whereas the EEB project is driven by and engages the corporate sector at a global level. It recognizes the critical role of business, using a multi-stakeholder approach. It is companies

that design, produce, install and deliver energy efficient products and services. They therefore have a unique role in delivering efficiency.

The EEB Laboratory model is both exciting and well thought-out. It's a truly international effort and has shown us that the same approach can work well in many, quite different situations. The EEB project is very much multi-stakeholder-driven, and its workshops place a real focus on first identifying and then engaging with the real leaders in any given location. The most successful schemes work hard to include all the relevant groups, whether they are about economic development, environment policy, or something else. It's the hallmark of a valuable and enduring initiative."

Good practices

In its new approach to involve city decision-makers and business along the full value chain, the EEB 2.0 project revealed good practices that are critical to creating successful local action platforms:

- **Involve organizations with well-established local networks**

As the market engagement needs to have the building value chain fully represented, it is essential to secure the participation of well-connected organizations - particularly in the Steering Committee. Early commitment from regulatory authorities is also critical.

- **Leverage existing local building energy efficiency market initiatives**

The engagement should build on and support existing local initiatives to strengthen its relevance in the market, particularly initiatives undertaken by the public sector.

- **Align public and private sector interests to motivate public officials & ensure early commitment from public authorities**

As a consequence of leveraging existing local building energy efficiency initiatives, public and private interests should be aligned, which will help to motivate public officials to participate (actively) in the EEB engagement.

- **Eliminate knowledge biases with neutral market research**

Commission an academic partner to carry out the market study to maintain neutrality in the information used. It is important to establish high quality input (market review) and interview-generated content to inform the Technical Committee and eliminate knowledge biases.

- **Engage a diverse Steering/Technical Committee**

The Steering/Technical Committee needs to represent the entire buildings value chain with a good mix of public and private stakeholders. Representation of the entire value chain promotes a holistic understanding of the market barriers and their potential solutions.

- **Commit respected local unbiased agents as coordinators**

Possibly the most important factor of success is identifying and recruiting the right local coordinator to drive the action plan following the EEB Lab. The person/organization needs to be credible, neutral and locally respected to mobilize the various building market stakeholders to implement the action plan.

- **Make EEB Platform action commitments public**

It is important to develop and communicate public commitments, and potentially involve media. Presenting the results of the EEB Lab in open plenary is a good way to communicate public commitments for action.

- **Provide opportunities for community leadership**

Providing opportunities for individuals and organizations to be visible (e.g. through media stories, local dialog, etc.) and help enhance their image as leaders in the local community can benefit the local EEB movement in general.

- **10-40% of EEB Lab participants claim their involvement created business opportunities**

Stakeholder participation in the market engagement should create in as many business opportunities as possible (e.g. in the form of news contacts, improved knowledge of the market resulting in product innovation, etc.).

Key learning and further development

The EEB 2.0 project has been successful in creating strong stakeholders engagement and building momentum for action through the EEB Lab. It also resulted in creating business opportunities for those involved, though the evidence for this remained anecdotal. Based on selected post-Lab surveys, 10-40% of participants claimed their involvement in the EEB Lab created business opportunities (in the form of new contacts, improved knowledge of the market and resulting product innovation).

On the other hand, the model of the EEB platforms reached a limit in terms of a business model to sustain the coordination activities and implement the agreed action plan without relying exclusively on external funding and in-kind contributions from platform members. Also, the EEB platforms struggled to develop solid activity-impact frameworks that could have helped them secure follow-on funding from different sources (business, city, programmatic or philanthropic funding).

The following gaps were therefore identified in the EEB Laboratory model:

- The action plans mostly focus on creating an enabling environment for energy efficiency in buildings, in terms of awareness raising, capacity building and regulation. The EEB platforms struggle to **create business opportunities** that will keep companies involved in the work since a focus on market barriers results in a longer-term perspective; working on concrete projects (renovation work for instance) could be a way forward.

- The EEB platforms have not managed yet to come up with a solid **business model that will help them self-sustain activities** (beyond initial support from WBCSD for instance). They need to find ways to generate revenues (consulting, brokerage, member fees etc.) through projects.
- In terms of measuring impact, the EEB platforms need to work on projects that can deliver **CO₂ emissions reduction** in alignment with a City Climate Action Plan and in closer collaboration with the City Government. A stronger commitment from cities is necessary.
- There has been a willingness from local stakeholders to **look beyond energy efficiency** and encompass the decarbonization of buildings (incl. renewable energy).

By addressing these issues, it can be made sure that the approach of the EEB Laboratory and Platform will be effective in engaging the private sector on energy efficiency in buildings. The EEB Lab has proven to be an engaging way to identify and bring together the critical public and private sector stakeholders from a wide spectrum of the building sector to build up a dialogue, trust and a shared purpose, and identify priority issues and actions. We highly recommend our partners and interested stakeholders to study the results and the lessons learnt of the EEB 2.0 project and we encourage them to replicate this in their respective markets so that we can foster a global movement to activate business on the critical challenge of reducing energy consumption and related CO₂ emissions in the built environment to levels that are required to reach the ambition set out in the Paris Agreement.

WBCSD will further develop the EEB Lab model and evolve it towards the creation of local public-private delivery organizations that help implement city climate action plans at a district- or city-level. Local capacity needs to be built to engage critical stakeholders (city, business and citizen) through a trusted, independent entity that can act as an intermediary to identify, initiate, execute and finance projects.

WBCSD will therefore develop EEB 2.0 into a new strategic initiative, the **Low Emissions Economy Partnership (LEEP)**. LEEP will help business, cities, and

citizens cooperate and innovate more effectively to reduce greenhouse gas emissions and strengthen the local urban economy. It will be a small, independent and flexible local entity funded jointly by business and government. It will be able to hire staff and raise capital, to develop and help finance and deliver projects to support local climate and energy plans. By doing so, LEEP will bring together stakeholders to raise their common ambition, reduce transaction costs for companies to develop new projects and markets, and increase innovation through new ways of working and new business models.

Why get involved in a market engagement

“Market engagement” refers to a structured methodology of bringing together the ‘building value chain’ locally to identify key market barriers preventing EEB investments and to define an action plan to overcome them.

The ‘building value chain’ refers to the many different groups who have an interest in, or could play a part in driving greater uptake, of EEB solutions. These include architects, developers, owners, tenants, banks, city planners, utility firms, policy makers, etc.

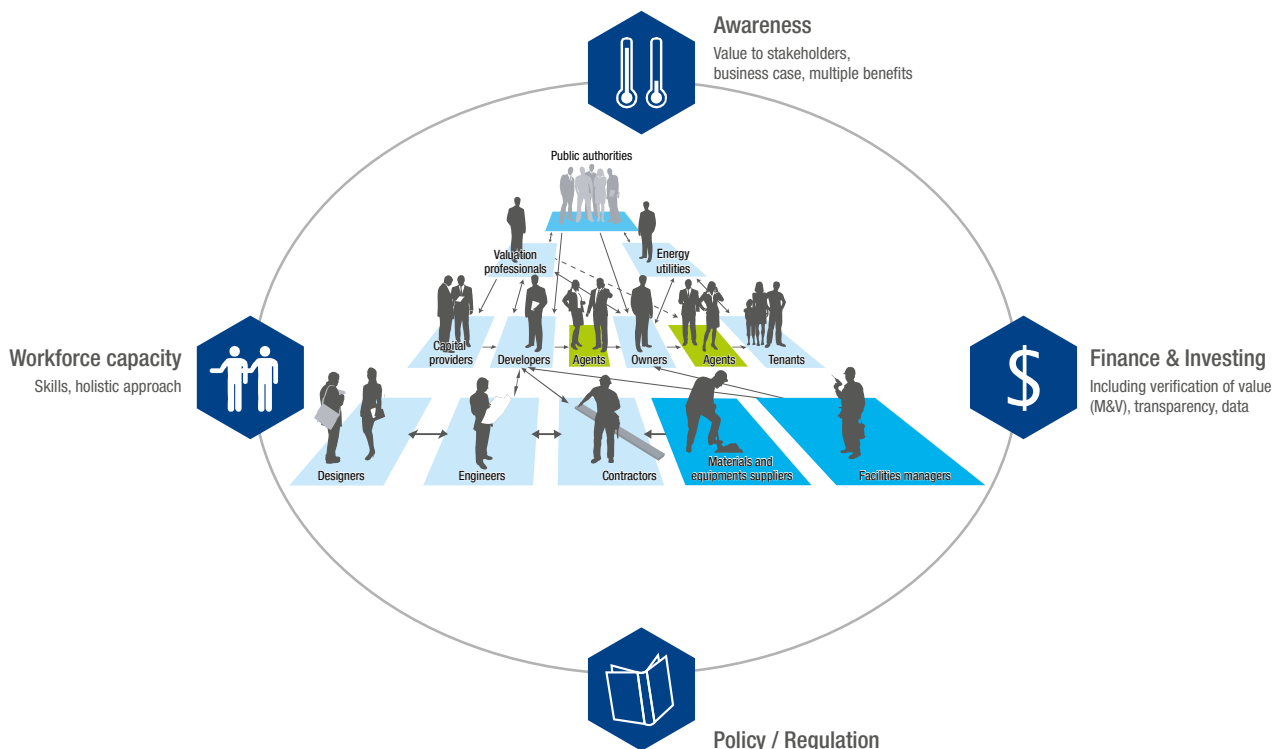
The challenge: market barriers

Technological solutions exist that use significantly less energy in building operations. However, achieving widespread uptake of efficient technology, design and best practice requires the correct market conditions.

What hampers progress is a multitude of local, non-technical market barriers amplified by the highly fragmented building value chain.

The project’s pilot engagements have shown that the following 4 core topics typically surface in all local building markets – though this does not preclude other issues from emerging during the preparation of a market engagement.

1. **Lack of awareness and leadership** particularly related to challenges in making the business case;
2. **Workforce capacity** and the need for proper skills and collaboration throughout the value chain to consult, plan, implement and operate the right solutions;
3. **Lack of adequate financing models** that overcome the split incentives inherent in the buildings sector and enable value sharing;
4. **Lack of consistent and long-term policy frameworks** (national, sub-national, regional and city), including regulations and incentive schemes.



The solution: engaging the buildings value chain

These market barriers combined with fragmentation of the building value chain result in a misalignment of stakeholder interests, benefits and motivations.

It shows that the market barriers are best overcome by convening all the relevant stakeholders in the building value chain at local level. This market engagement approach is a way of creating a sustained non-competitive environment by going beyond conservatism and building trust among stakeholders. It also helps to develop the necessary awareness and collaboration that will encourage decision-makers to adopt more energy-efficient building practices.

The support and commitment of local regulatory and/or legislative policy makers is an important success factor. It is indeed the collaboration between the public sector and the private sector that creates a vibrant market for energy efficiency. National and sub-national governments have an important role to play in helping the building sector achieve higher levels of energy efficiency and sustainability (e.g. adoption of energy codes; promotion of transparency on energy consumption for residential and commercial buildings; set up of incentive schemes). And business can provide insights and support to prepare and implement these policies.

The WBCSD market engagement process provides:

- An analysis of the market situation for energy efficiency in buildings
- The engagement of all relevant stakeholder groups in the market
- The identification of the key market barriers and actions to overcome these barriers
- An action plan and identification of the stakeholders who will lead the implementation of these actions
- The formation of an EEB platform to enhance sustained action-oriented public-private sector dialogue
- Access to a global stakeholder network driving local action (with best practice sharing)

The cornerstone of each market engagement that the WBCSD has piloted in 11 locations is the Energy Efficiency in Buildings Laboratory (EEB lab) – a three-day workshop bringing together the value chain which aims to get a clear understanding of the market situation and recommend actions around the four core topics usually addressed (Awareness and Leadership; Workforce capacity; Financing; Policy and Regulation). The actions are then implemented by the motivated stakeholders through an EEB platform. EEB Platforms typically represent the first-ever, cross-sector, coordinated action covering the entire value chain in their respective local markets. The Platforms themselves are therefore powerful vehicles to drive action and create greater local investment in EEB.

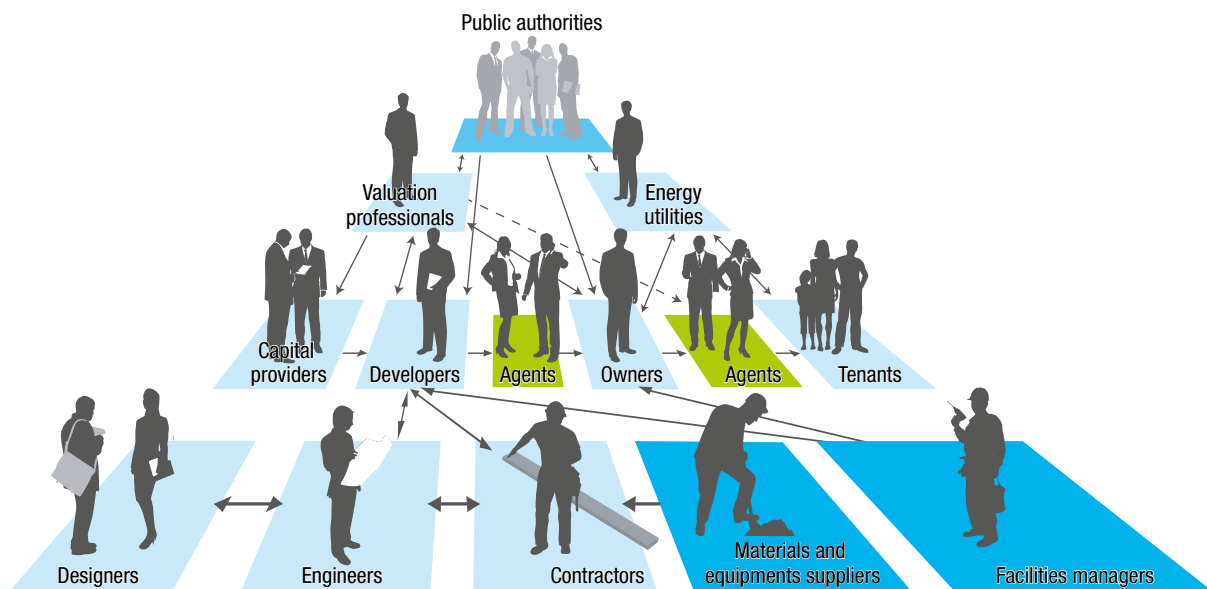


Figure 1: Engagement of the full building value chain to identify and initiate market-wide actions on energy efficiency in buildings (Source: WBCSD 2007, updated 2014)



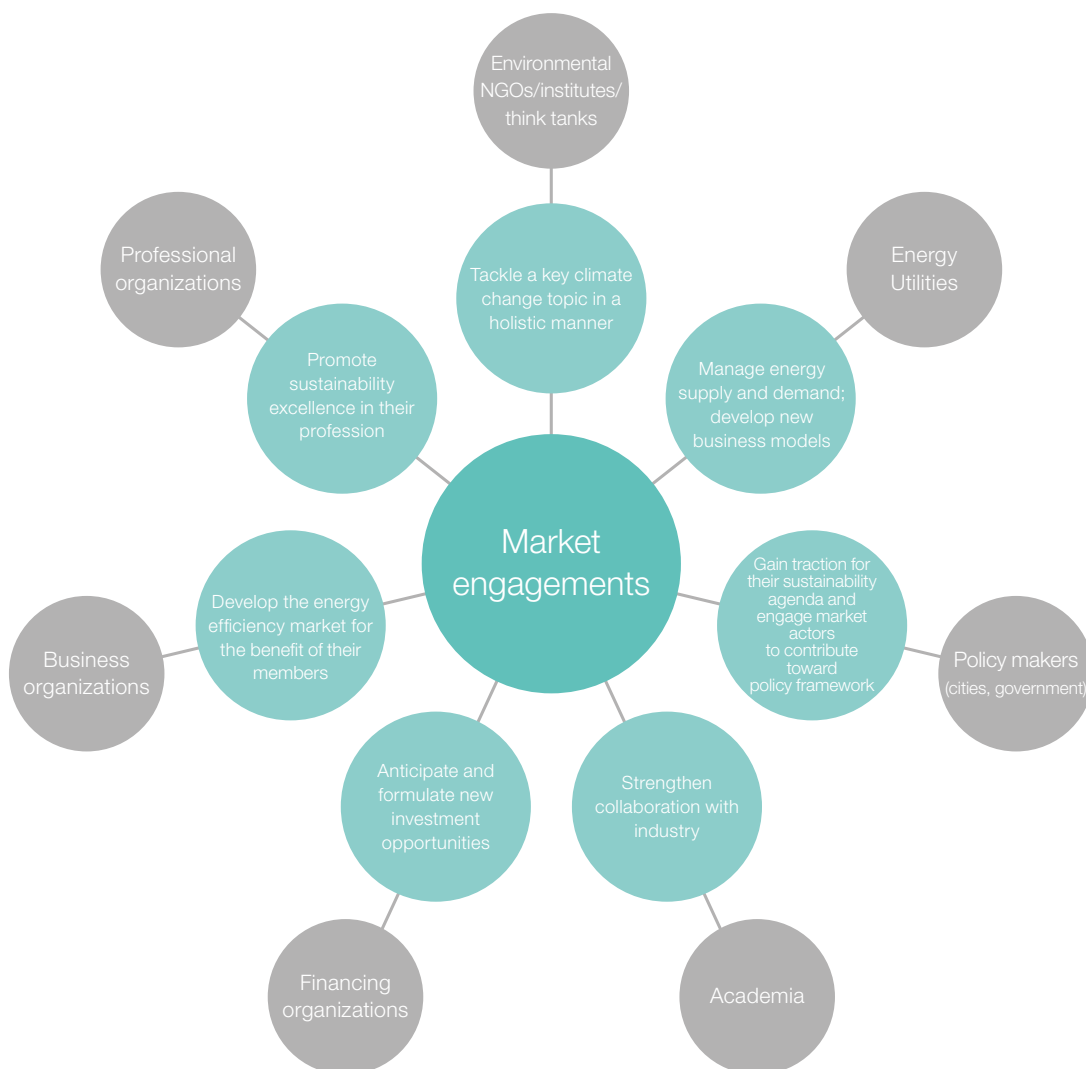
Idris Sulaiman is Project Coordinator of the WBCSD's Jakarta EEB Laboratory, is an External Advisor to Green Building Council Indonesia, and Research Associate on Energy, ICT and Buildings at the Research Center for Climate Change Studies at the University of Indonesia

"One of the things I like about the EEB Laboratory process is the group discussion format. This allows a diverse group of people from across the building and general business sectors to talk about and share their experiences. The Building industry here is conservative, rather sluggish to innovate and very fragmented. This makes it difficult to get a holistic viewpoint. The EEB Project makes that easier. Businesses tell me they appreciate the stakeholder-convening power of the Laboratories, the ability to define local priorities, and the open and honest dialogue"

Benefits of participating

The stakeholder table below summarizes why different stakeholders should get involved in a market engagement, in what capacity and what they stand to gain.

For the 11 pilots, WBCSD and its members were the conveners for the market engagements. There are however different opportunities for stakeholders to be involved in a market engagement.



Source: Extract from Energy Efficiency Market Report 2015, IEA adapted from IEA (2014a), Capturing the Multiple Benefits of Energy Efficiency, OECD/IEA, Paris

“Being involved in a market engagement is a real business opportunity. In the US, companies and partners that actively engage in this program will be first movers that share in the over US\$300bn global energy efficiency market as it expands over the next 10 years, while demonstrating visible leadership at both global and local levels to support growth and impact through energy efficiency in buildings”.

William M. Sisson

Sr. Director, Sustainability and REACH
 United Technologies Research Center, UTC
 EEB project co-Chair

“The market engagements provide neutral platforms to share best practices and discuss policy and regulation. They are a way to get direct market feedback to align business development and R&D. They strengthen local business networks to create deal flow”.

Michael Scharpf

Sustainable Development, Head Sustainable
 Construction, LafargeHolcim
 EEB project co-Chair

Why different stakeholders should get involved in EEB market engagements

Category of stakeholder <i>(options for involvement: lead or support)</i>	Why get involved?	Stakeholder benefits from the market engagement <i>(Short/ Medium/Long term)</i>
Business organizations and their members (such as WBCSD, BCSDs at local level, Green Building Councils, RE associations) <i>Lead or support</i>	Develop the energy efficiency market for the benefit of their members and help achieve corporate commitments (carbon reduction)	ST: Business networking opportunities; understand market issues and trends MT: Identify collaboration opportunities to overcome market gaps (e.g. capacity building) LT: Higher demand for energy efficiency solutions
Professional organizations (association of architects, owners, tenants, facility managers, developers, real estate, etc.) <i>Lead or support</i>	Promote sustainability excellence in their profession	ST: Enhanced market understanding; networking opportunities MT: Ensure that professionals' interests are well understood LT: Better trained professionals on sustainability issues
Policy makers (cities, government) <i>Lead or support</i>	Gain traction for their sustainability agenda and engage market actors to contribute toward policy framework	ST: Access to a network of private organizations MT: Stakeholder consultation and input on public policies LT: Enhanced support for the implementation of public policies; strategic engagement with the private sector and other stakeholders
Environmental NGOs / institutes / think tanks <i>Lead or support</i>	Tackle a key climate change topic in a holistic manner	ST: Ensure the challenges are framed in a way which is consistent with research MT: Visibility for NGO work LT: Transform the market to reduce energy consumption and emissions from buildings
Energy Utilities <i>Lead or support</i>	Manage energy supply and demand; develop new business models	ST: Satisfy their customer demand MT: Develop new business models LT: Transform the energy market
Academia <i>Support</i>	Strengthen collaboration with industry	ST: Enhanced relationships with business MT: Established trusted relationship with business LT: New research and implementation opportunities
Financing organizations <i>Support</i>	Anticipate and formulate new investment opportunities	ST: Better understanding of the issues related to energy efficient business models MT: Develop innovative financing models for EEB projects LT: Finance EEB projects



“We know what can be done: after just 10 years more than a third of buildings in Singapore are now Green-rated. But to achieve this kind of result you must overcome the human factors that can impede or limit progress.

For other companies that might be considering taking part, I’d say this project is an extremely good and sophisticated way to build deep as well as broad networks for the long term, without the hard commercial instinct acting as a break on open dialogue”.

Depending on the local situation, a neutral third-party may be needed to bring together the various stakeholders, to build engagement, trust and open

information-sharing. This, and the ability to convene an engagement team sensitive to local input and knowledge, is the WBCSD’s role. I’m happy with what I’ve seen so far.

Chuan Seng Lee, is one of five members of the EEB Project Assurance Group. He is Emeritus Chairman of engineering consultancy Beca Asia, Chairman of the Singapore Building & Construction Authority’s Green Mark Advisory Committee, and Honorary Advisor and Founding President (2009-11) of the Singapore Green Building Council. In 2015 he was the inaugural recipient of the Council’s ‘Green Visionary Award’ for his contributions to green buildings and sustainability in Singapore and regionally.

Case Study: City of Houston, USA

The Energy Efficiency in Buildings Houston initiative (EEB Houston) was launched in 2015 to support the development of ambitious and practical strategies for reducing building energy consumption by 30% or more by 2030 in the Houston market (2010 baseline).

EEB Houston is managed by the Houston Advanced Research Center (HARC), a non-profit university consortium with a sustainable development research focus. Efforts have concentrated on creating a stakeholder network and driving the activities around the four focus areas of Policy, Building Operations, Finance and Communications. Each is managed by a dedicated local committee.

Houston is already considered a front-runner in energy efficient public buildings, and the EEB Laboratory in October 2014 successfully brought together all stakeholders involved in the city's EEB ecosystem into a single platform.

EEB Houston is therefore a valuable resource that presents great opportunities for promoting EEB in the city. Local interest continues to grow along with the number of participants.

"EEB Houston is unique in its ability to harmoniously bring together key market participants from both the private and public sector," - Jeff Craig, Ascentergy

Promoting, piloting and scaling up financing tools in Houston

EEB Houston Finance committee worked with the City of Houston to develop and implement a strategy to adopt and promote Commercial PACE (Property Assessed Clean Energy) financing in the region.

C-PACE facilitates financing for voluntary water conservation, energy efficiency, resiliency, and distributed generation projects to eligible commercial, industrial, agricultural, non-profit and multifamily properties by utilizing the local property assessment mechanism to provide security and transferability for repayment of the financing. The committee members participated in outreach and engagement presentations to socialize the C-PACE concept among stakeholders including building owners, property managers, service providers and capital providers. Through these efforts, the committee obtained over 50 stakeholder signatories for the City of Houston program letter of support and assisted with engaging program supporters to testify before City Council in support of the program. After the program was adopted in 2015, the committee developed a list of stakeholders for continued outreach and education to promote participation in the program.

To date, one project has been completed through the Houston PACE program and over a dozen are in the pipeline. Simon Property Group used C-PACE to finance over \$2.2 million in energy and water saving retrofit investments at the 450,000 square foot Houston Premium Outlets that include: interior LED lighting, smart glass, heat reducing awning technology, replacement of hundreds of faucets, and conservation updates to water features and irrigation technology. Anticipated savings benefits include: 6 jobs created 896 tonnes of CO₂ reduced annually 9,402,000 gallons of water saved annually 1,720,958 kWh of energy saved annually

The EEB Houston website provides information on the project background, project supporters and sponsors, the justification for EEB and resources (such as case studies and tools created by the EEB Houston committees). <http://eebhouston.org/>

EEB Houston Key Facts

Launched: March 2015

Number of technical partner organizations: 40

Key partners: IREM, BOMA, AEE, US BCSD, ASHRAE and Uptown Houston

Company lead: UTC and Schneider Electric

Local Management: HARC



Gavin Dillingham, PhD,
*Program Director, Clean
Energy Policy/Senior
Research Scientist, Houston
Advanced Research Center*

In the course of my work as an academic and sustainability consultant to the Houston City Authorities I see a lot of energy efficiency initiatives. This one stood out. I advised Houston's city leadership team to get involved because it looked like the WBCSD had the right backing and global scale to really make a difference. There was a clear intent to build understanding and capacity in Energy Efficient Buildings, and that was appealing.

We thought the EEB Laboratory process was complimentary to the work we first began in 2004, where Houston led by example in mandating LEED standard for city-owned

buildings. Now we have one of the highest concentration of LEED buildings anywhere.

Our Houston EEB Laboratory took place in October 2014 and I don't think anyone was sure what to expect. That's the nature of this type of program: you're dealing with a unique set of people and every city has its own character. But we are very happy with the outcome. It showed us who we needed to bring to the table, what the City's real issues were and where to focus our EEB efforts. It was very helpful to have a neutral outside organization facilitate that.

It's really important to bring together all the different sectors of the real estate market rather than work in isolated groups: in Houston we had a wide diversity of people who don't usually talk to each other coming together, not just a few siloed groups.

I would certainly recommend others get involved in an EEB Laboratory project. They are a great, unifying forum for learning about what others are doing, to understand best practice and discover the different resources available.

How to carry out market engagements

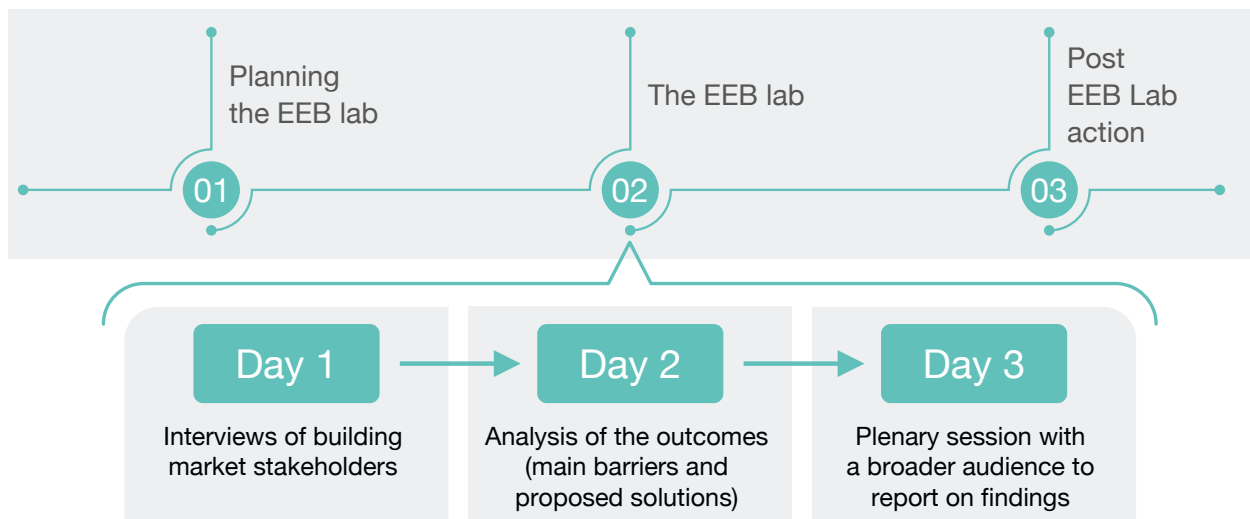
As we have seen in Why get involved in a market engagement, a broad spectrum of stakeholders stand to benefit from participating in local EEB market engagements. The WBCSD has refined the methodology for undertaking these, including the detailed description of the Energy Efficiency in Buildings Laboratory (EEB Lab), which is the cornerstone of each market engagement.

The EEB Lab is a three-day workshop that brings together the key stakeholders in the building value chain, facilitates open discussion and commits them to drive action on energy efficiency in buildings.

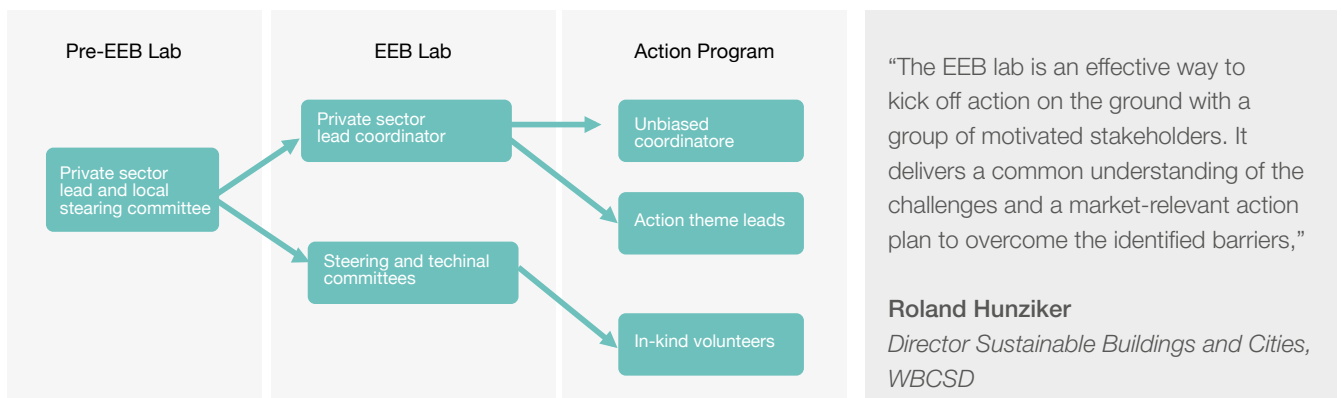
The WBCSD methodology is detailed in the following pages, with examples of good practice in terms of the process from multiple pilot projects. However, it should be noted that this is not meant to be prescriptive. We actively recommend and encourage adapting it to meet the local market context.

Support resources such as templates of the various documents (invitations, promotional documents, briefing papers, etc.) are available on request (indicated by *).

Overall structure of the market engagement



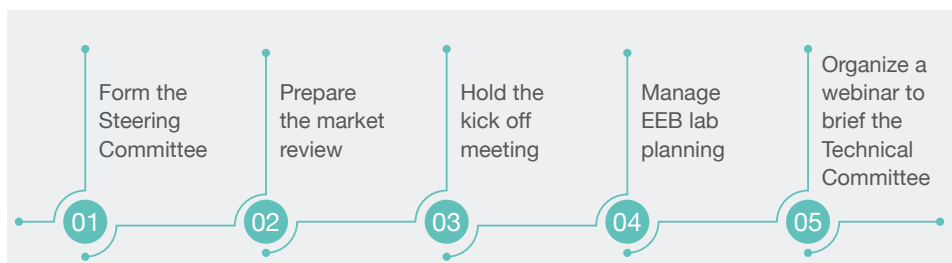
Market engagement governance



“The EEB lab is an effective way to kick off action on the ground with a group of motivated stakeholders. It delivers a common understanding of the challenges and a market-relevant action plan to overcome the identified barriers,”

Roland Hunziker
 Director Sustainable Buildings and Cities,
 WBCSD

Planning the EEB Lab (duration: 6 months)



Local demand from global companies (as in the 11 pilots) can trigger the interest to start a local market engagement. In the EEB Project, two or three WBCSD member companies showed interest to begin and one or two of them would lead the engagement, supported by local colleagues. Once a group has decided to run a particular market engagement, the group can start the planning phase, as follows:

01 Form the Steering Committee

What The initial organizers should identify and approach potential partners to introduce the idea of the market engagement, building the case based on the elements presented in Part I (Benefits of participating in a Market Engagement). The Committee is made up of a relatively small number of organizations (3-5) and can be a mix of global and local members. It is the decision-making body and acts as the secretariat of the market engagement. Members might include business organizations and their members, cities, NGOs and academics - which all have a strong interest in acting on EEB.

Some organizations are better positioned to lead the market engagement as part of the steering committee, while others provide supporting roles (depending on commitment, resources and knowledge base). We found that identifying a group leader – someone with great enthusiasm, knowledge local connections – led to increased efficiency in our pilot EEB Labs.

Why The steering committee sets the EEB Lab agenda, coordinates work to prepare the market engagement, identifies stakeholders to involve in the Lab, drafts and sends invitations, organizes logistics, identifies Lab discussion topics and action leaders, prepares Lab materials, briefs speakers, communications, Lab reports and post-Lab action.

How The Committee has fortnightly conference calls in the run-up to the Lab and can meet locally as needed.

When The Committee is usually formed as soon as at least two or three organizations have agreed to carry out a market engagement.

The role of the local coordinator

It is a good practice to identify and contract a local coordinator as early as possible. This person will increase the process efficiency and enhance the chance of market engagement success.

A local coordinator should be from a “neutral” entity (research institute, NGO, academic, independent consultant) to ensure unbiased interests and should have a mix of technical skills and extensive stakeholders network.

The responsibilities of the local coordinator include:

- **Arrangement of the EEB lab preparation**
 1. Coordinate the Local Steering Committee in preparing the EEB Lab
 2. Engage key stakeholders in the process
 3. Selection of the Technical Committee
 4. Organizing the pre-lab webinar, presenting the Building Market Brief
 5. Overseeing EEB lab administration
 6. Draft the EEB lab report (action plan) and collect input from EEB lab participants
 7. Quality Control of the EEB Lab report
- **Coordination of the EEB platform**
 1. Ensure the transition from the EEB Lab to EEB Platform,
 2. Supporting the EEB Lab Action Teams to implement post-lab actions
 3. Coordination of the implementation of the action plan
 4. Monitoring local project impact
 5. Plan the self-sustaining financial support of EEB platforms
- Provision of communications local support and media engagement
- Reporting back to the Regional / Global Steering Committee

The most valuable benefit of the WBCSD's approach is its ability to motivate real, collaborative change on the ground. Partnering with IGBC, which is part of the Confederation of Indian Industry, gave the EEB Project instant credibility. It ensured we got attention at all the right levels: government, academia, public and private sectors.

Jaimni Uberoi is Chairman of the Confederation of Indian Industry/Indian Green Building Council, Jaipur Chapter, and Managing Partner of J. Mohanco, a leading construction firm in Rajasthan. He is also an elected member to the CII-Rajasthan State Council.

02 Prepare a market review

What The market review is an analysis of the current EEB market in the chosen location.

Why The review helps to identify and confirm the scope of the market engagement, identify a host city and which type of buildings to include (e.g. commercial offices, private residential, publicly-owned, etc.). The steering committee may undertake the Review itself, or contract an external partner. Involving an academic partner is good practice and helps maintain neutrality in terms of information collection.

How The Review is a compilation of publicly available materials (existing reports, analysis, academic papers, articles, and local information or media sources). It should include: 1) a description of the building stock and participants; 2) a market analysis based on core issues (see p xx for the four core topics usually addressed: Awareness and Leadership; Workforce capacity; Financing; Policy and Regulation)
*An outline template for the Market Review is available.

When The Review should be completed within two months and a draft should be shared at the first meeting, as follows.



03 Hold a kick-off meeting

What This meeting formally launches the EEB Lab market engagement.

Why Its purpose is to:

- Agree on the EEB Lab objectives
- Decide on the best format and timing of the event
- Determine the scope (geographical, buildings segments, and core topics to address from the Market Review)
- Draft a first list of stakeholders to invite to the EEB Lab (see categories of stakeholders below)

How The meeting should gather the Steering Committee and other potential partners to be involved in the planned EEB Lab - approximately 20 people. The selection criteria for Kick-off participants should include their local EEB market knowledge (both issues and stakeholders), their network, degree of influence and capacity to drive actions forward after the EEB Lab. The Market Review is typically shared at this stage ready for further analysis and comment at later stages in the EEB Lab preparation process. *See slides template

When The kick-off typically takes place three or four months before the EEB Lab.



“The kick-off meeting is crucial in confirming the interest of stakeholders to conduct a particular market engagement and align viewpoints,”

Steering Committee member

“In Zurich, we decided at the kick-off meeting to add renewable energy to the scope of the EEB lab to better reflect the interest of market stakeholders.”

Steering Committee member

Categories of stakeholders for the EEB Lab (see details in the EEB Lab to understand their role)

<p>Technical Committee (25-30 stakeholders)</p> <p>The Technical Committee (TC) gathers experts on the core topics of the EEB Lab and stakeholders with networks across all key stakeholder groups (see next column) that can be interested in the topic.</p> <p>The TC members are expected to:</p> <ul style="list-style-type: none"> • Participate in the 3-day EEB Lab • Provide input to prepare the Market Review, Final Report and Action Plan • Stay engaged in the post-EEB activities to support the development and implementation of the action plan 	<p>Interviewees (40-80 participants)</p> <p>Interviewees are invited to share their specific knowledge for hour-long discussions on the first day of the EEB Lab. They are working level or senior managers from the different categories of key stakeholders:</p> <ul style="list-style-type: none"> • Capital providers • Developers • Contractors, designers, architects, engineers • Equipment, material suppliers • Facility managers • Building owners /tenants • Policy makers • Utilities • Academics 	<p>Plenary participants (min. 100 stakeholders)</p> <p>The plenary of the EEB Lab gathers all EEB Lab participants and additional guests. It typically takes place on the third day of the EEB lab (to use the momentum of the event) but can also happen some time later (e.g. a few weeks). The purpose of the plenary is to share the findings of the EEB Lab (high level action plan) and build momentum for the follow-up activities.</p> <p>Invitees of the plenary should include the senior level representatives of EEB Lab participating organizations to secure the involvement of these stakeholders in the next stages and other organizations from key stakeholder groups, including media. Speakers should represent the highest level of organizations.</p>
<p>Roundtable leaders and subject matter experts</p> <p>As part of the TC, roundtable leaders will be identified to lead the roundtable discussion that take place on the second day of the EEB lab (see details in the EEB lab section). They should have specific knowledge on the topics selected for the EEB Lab (usually on financing, policy, training and skills and awareness). The Steering Committee should identify one roundtable leader per topic. Other Subject Matter Experts may be identified to participate in the roundtable discussions.</p>	<p>Note takers</p> <p>To help capturing the information shared during the interviews, it is helpful to have one note-taker per interview group (up to 6 on day 1). They are usually students; they note down all they hear; it helps at the time of writing the EEB Lab report. Two note takers could also support capturing the discussion on Day 2.</p>	<p>Plenary speakers & moderator(s)</p> <p>Speakers for the plenary session should be identified and invited early. They usually are inspiring thought leaders from the public and private sector as keynote speakers.</p>

04 Manage EEB Lab planning

The Steering Committee manages all planning and communications between the Kick-off meeting and the EEB Lab. This may include:

1. **Stakeholder matrix and invitations** – a list of approximately 250 names to invite to the EEB Lab should be created. This will include the potential Technical Committee members, interviewees and invitees for the plenary.
2. **Two-page promotional PDF and invitations** – To accompany the invitation, a 2-page PDF to present the Lab is typically designed immediately after the kick-off meeting. This can be communicated externally by partners (e.g. posted on websites).
3. **Logistics** – a suitable venue should be chosen to accommodate up to 6 parallel interviews, briefing and debriefing for the Technical Committee and a plenary on the third day that can accommodate around 100 people.
4. **Support** – the Committee should discuss how best to support the EEB Lab:

Facilitator(s) – identify who should moderate the first two days of the EEB Lab. Facilitators must: 1) Navigate the Technical Committee through the agenda of the first two days of the EEB Lab; 2) drive and manage the Committee discussions at the end of Day 1 (debriefing session) and during Day 2 (especially the morning session when the Committee has to prioritize the main market barriers). A facilitator can be a member of the Steering Committee.

Roundtable leaders – the Steering Committee also appoints members of the Technical Committee to lead core topic discussions (one roundtable leader per topic). A specific briefing should be made to the roundtable leaders (*see briefing template). Their role includes the moderation of the roundtables discussion on Day 2. They also support the review of the post-EEB Lab draft action plan, playing a key role to ensure it complies with the Lab discussion. They may also be involved in other post-EEB Lab activities. Additional subject matter experts may be identified to participate only in the roundtable discussion on day 2.

Note takers – A lot of information will be shared during the three days of the EEB Lab, especially during the interviews. The dialogue should be recorded and will help to draft the EEB Lab report/action plan. A good practice is to enlist the help of students as note-takers: one per room to note everything heard in the interviews on Day 1 and the discussions on Day 2. It

is useful to have six students on day 1, two on Day 2, and one on Day 3. If the market review was prepared by an academic institution, this provides a ready source of students for note-taking.

Anticipating the writing of the EEB Lab report – It is also good practice to agree within the small group of the Steering Committee who will be responsible for writing up the Final Report and Action Plan.

Documents to prepare ahead of the EEB Lab

As part of the preparation of the EEB Lab, the Steering Committee should prepare:

- Briefings for roundtable leaders to ensure they understand their role, including a template to guide and capture the roundtable discussions. * template
- Pre-interview guidance for interviewees to help prepare for their discussion. * template
- A detailed outline for the Technical Committee (*See template) which includes:
 - Logistics information for the EEB Lab
 - Interview timetable, including how the Committee will be divided
 - Description of the roundtable discussions
 - Mini profile of interviewees
 - Template to guide the interview conversation and taking notes

Media - the Committee should also consider if journalists might be invited to report on the EEB Lab and, if so, consider help from their communication departments or a specialist PR agency. See more in the communications section.

Preparation of a scoping document

It is good practice for the local coordinator to prepare a scoping document to present the key issues that will be discussed during the EEB lab. This living document complements the market review and can be updated regularly throughout the preparation of the EEB lab to reflect the discussions the local coordinator can have bilaterally with stakeholders.

“The scoping document helps shape the discussions that will take place during the EEB lab. It aligns the Steering Committee on what to focus on” **Martin Jakob**, TEP Energy, EEB lab Zurich coordinator

05 Organize a Technical Committee briefing

What A 90-minute webinar to brief the Committee members and answer any questions. *See slides template

How Managed and run by the Steering Committee, and covering: 1) details of the 3 days; 2) presentation of the market review.

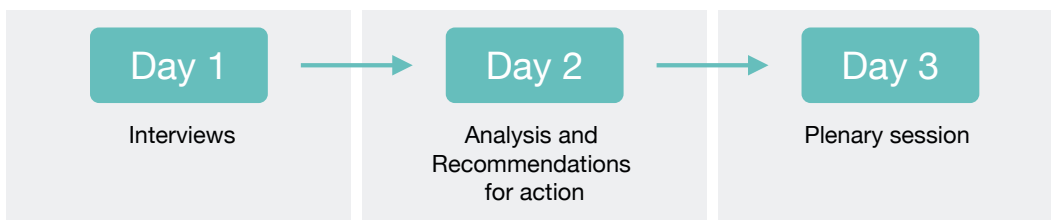
When One week before the EEB Lab.

Following the webinar, the organizers should send Committee members detailed information on the EEB Lab as gathered in the Detailed Outline (see the list above in Documents to Prepare).

Key success factors for the EEB lab

- Put the potential driving force organizations of the platform in the Steering Committee.
- Contract a local coordinator as early as possible to increase the process efficiency.
- Create a high quality Technical Committee (representing the entire value chain, and the real decision makers in the local context).
- Ensure the roundtable leaders are committed to be a driving force on this specific topic.
- Ensure the participation of senior executives in the plenary (typically a senior manager Technical Committee members report to).
- Source funding for a paid coordinator pre- and post-lab to increase the process efficiency and enhance the chance of market engagement success.

The EEB Lab (duration: three days)



Day 1 – Interviews

What One-hour discussions with one building market stakeholder.

Why To understand market barriers from professionals on the ground.

How After a short briefing (30 min), the Technical Committee splits into small groups (three-five people) to conduct the interviews. Typically, six/seven interview groups will interview six stakeholders each.

Using four core topics: awareness; workforce capacity; financing; policy and regulation (* See template), the interview covers:

- What works well and why in the local EEB market?
- What works less well and why, including perceived barriers
- What could accelerate actions towards EEB efficiency?

The interviews are followed by a quick debriefing at the end of the day to capture fresh feedback on what works well and what the barriers are in the market.

When Day 1 of the Lab

	Group 1 Room : Leo	Group 2 Room : Boardroom in HOUSE	Group 3 Room : Taurus	Group 4 Room : Libra	Group 5 Room : Aquarius	Group 6 Room : Business Center room	Group 7
TC members	Alexandre Jeannot, GDF SUEZ Filip Milewski Schneider Electric Regina Gut JLL (support Group 7) Ursula Harfenberger, RICS Reporteur: Dominika WGBIC	TC members Adam Targowski, Skanska Marek Zaborowski, IEE Robert Sobotnik, AkzoNobel Reporteur: Piotr Niewiadomski, UTC Support Alicja Basczyńska (Skanska)	TC members Harvey Dunham, Schneider Electric Andrzej Podobas, AGC Andrzej Rajkiewicz / Wisniewski, NAPE Reporteur: Jonna Bykajska, UTC (from 11am)	TC members Didier Brélaud, ArcelorMittal Marek Toboła Siemens (support Group 7) Paweł Palonkowski, Lafarge Reporteur: Renske van Heerikamp, AkzoNobel	TC members Nelis Schreuder, AGC (from 1pm) Jędrzej Zdzichowski, Lafarge Dan Sianiszczak, BPIE Greszta, SGS Reporteur: Zuzanna, Colley	TC members Roland Ullmann, Siemens Kasia Chwałborski-Kusek (BPCMG) Olivier Chaudet (Lafarge) Reporteur: Curt Garrigan, UNEP SECT	Ad hoc group Roy Antink, Skanska Regina Gut, JLL Marek Toboła, Siemens Roland Hunziker
9.00 - 10.00 am	Redosław Górski Budimex	Szczepan Wroński WVCA sp. z o.o. <i>Polish</i>	Dariusz Zgorzeński Ecovale	Magdalena Stretton Greszta <i>English or Polish</i>	Andrzej Hyjek UBM Polska PCL/SB	Bolesław Meloch Zanpak Bankow Polskich	Andrzej Rajkiewicz / Wisniewski
10.00 - 11.00 am	Jarostaw Witek ARUP <i>English</i>	Agnieszka Kalinowska Sohys AFA Węglowod. Architekt. <i>Better in Polish</i>	Peter Malland ARCADIS RICS <i>English</i>	Maciej Gawronski Greszta <i>more comfortable in Polish but English OK</i>	Dominik Krajewski Emil Skrzypczak Roger Prasno <i>more comfortable in Polish but English OK</i>	Wojciech Falkowski SPE Polska	Jeroen van der Toelen Graham Poland
11.00 - 12.00 pm	Fredrik Lesire BPI	Robert Włodarczyk Colliers <i>Polish better</i>	Piotr Bartkiewicz Warsaw University of Technology	Jan Ciesla Buro Heggørd <i>Polish or English</i>	Mieczysław Górecki Hines Polska	Maria Urbowicz National Fund for Environmental and Water Management	Roman Babut KAPE
12.00 - 1pm	Monika A Dębaka- Pastuska Knight Frank <i>English or Polish</i>	Aleksandra Noonan and Boris Jagielski BASP + Dariusz Łazęcki RAC Tarmo - Oganska <i>Polish</i>	Przemysław Olszewski PRC	Szymon Liszka Polish Found. for EE <i>English or Polish</i>	Joanna Wis CDP <i>English or Polish</i>	Robert Mandziunowski LH	Filip Milewski, Schneider Electric
1pm - 2pm	Marek Wojcikiewicz CBRE <i>English</i>	Wital Schurmas Visio <i>English or Polish</i>	Paweł Warda Regina Gut Jones Lang LaSalle	David Broderick Helman Financial <i>English</i>	Bogusław Pawlak Wood Management	Janusz Mazur ESKO	Marc Albin Fortier Bovages Immobilien
2pm - 3pm	Jonathan Cohen Colliers <i>English</i>	Bogdan Biek Pricis	Maria Dreger Rockwell	Henryk Kwapiak Sare Guban <i>English</i>	Agnieszka Skorupiska Dentons	Hermann Stammeler Katarzyna Soszyńska Karolina Krzyżewska Imtech Polska	Edgar Rosenzmayr & M. Krzywicki phone MILCOW SILVERSTEIN PROPERTIES

Create an interview timetable to assist with planning and time keeping

“Interviews are a very good way to learn new things from people on the ground,”

Technical Committee member



Day 2 – Analysis and recommendations for action

What This second day is dedicated to the analysis and prioritization of the market barriers (morning) and the identification of the solutions (afternoon).

Why The interviews gathered lots of information. The Technical Committee must consider this information, together with their own market knowledge, in compiling an action plan to tackle identified market barriers.

How The day is made up of two parts:

1. Analysis and synthesis of market barriers (typically in the morning). The Committee works in groups to prioritize the top three-five barriers per topic (awareness, workforce capacity, financing, policy). Examples of barriers for each topic:
Financing: lack of energy efficiency capital in the market; low awareness of EEB financial opportunities; how to articulate the business case for EEB; Incentives do not go far enough, etc.
Awareness: lack of awareness among the public/building professionals on energy efficiency in buildings; Lack of “data driven” action, etc.

Workforce capacity: Inadequate level of knowledge and skills in building supply chain;

2. Identify solutions and action owners (typically in the afternoon). The Committee splits into two for two parallel roundtable discussions (2x2x75 min). The purpose here is to create recommendations for action to overcome the identified market challenges. Roundtable leaders moderate the discussion and report back to the entire group at the end of the day.

When Day 2 of the Lab



Technical Committee at work, India

“The discussion on the barriers bring an alignment and consensus among the TC on what are the priorities to address,”

Technical Committee member



Technical Committee, EEB lab Rio de Janeiro



Technical Committee, Houston

Template to capture the discussion during a roundtable discussion:

Identified barriers	Recommended solutions	Stakeholders to involve in the solutions	Is it short/medium/long term action?
1.	-	-	-
2.	-	-	-
3.	-	-	-
4.	-	-	-
5.	-	-	-

Day 3 – Plenary session

What A plenary session concludes the EEB Lab. It gathers all the participating organizations at senior management level and provides an opportunity to invite thought leaders from the public and private sector as keynote speakers (typical size: >100 participants)

Why Its purpose is to report on the findings and build buy-in and momentum for follow-up activities.

How The session is typically around three hours in length. The agenda is usually built around the keynote speakers and panel discussions on: The business case for energy efficiency; Key findings from the EEB Lab; and a Private sector call to action. The key findings on the barriers and solutions for each core-topic are also presented. * See agenda template

When Day 3 of the Lab



Panel discussion during the Plenary - EEB lab Houston



Plenary – EEB lab Rio de Janeiro



Idris Sulaiman is Project Co-ordinator of the WBCSD's Jakarta EEB Platform, is an External Advisor to Green Building Council Indonesia, and Research Associate on Energy, ICT and Buildings at the Research Center for Climate Change Studies at the University of Indonesia

Indonesia's president Joko Widodo made a clear commitment to lowering carbon emissions following the UN's COP21 Climate Conference in Paris last year. Such intentions are important but we still need convincing, concrete activity at the business level in Indonesia to bring this about. And even though we have a rapidly growing and urbanizing population, there hasn't been any focus on energy efficiency in buildings. That's what makes the WBCSD EEB Project so interesting and important, in my view: it is squarely addressing both needs.

I first encountered the EEB Project at a joint WBCSD/Green Building Council event. In November 2015 I was invited to be its local coordinator. I have specialized in public policy, research and project management roles within energy efficiency, ICT and sustainability for 20 years.

One of the things I like about the EEB Laboratory process is the group discussion format. This allows a diverse group of people from across the building and general business sectors to talk about and share their experiences. The Building industry here is conservative, rather sluggish to innovate and very fragmented. This makes it difficult

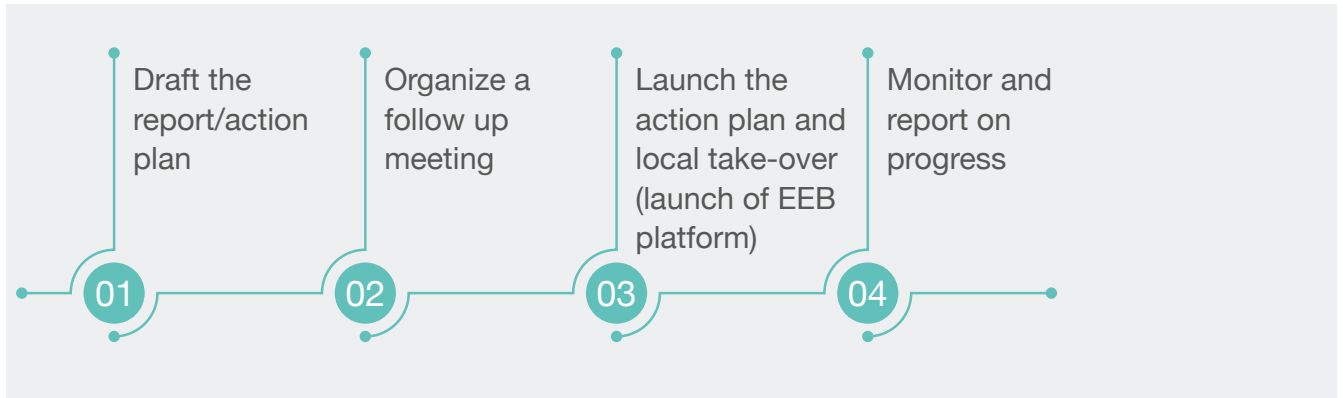
to get a holistic viewpoint. The EEB Project makes that easier. Businesses tell me they appreciate the stakeholder-convening power of the Laboratories, the ability to define local priorities, and the open and honest dialogue. Since holding our Jakarta Laboratory in July 2015 we have created Special Interest Groups for seven specific building types: commercial, tropical design, schools, universities, hotels, hospitals and data centers. We are focusing on activities that create tangible value – the altruistic motive isn't enough on its own.

One example is our contributions to a Master List of energy efficient technologies created by the Ministry of Energy and Mineral Resources. This will become a basis for so-called 'soft loans' and other adoption incentives. The UK government already has an Energy Technology Product List. We borrowed the basic idea, adapted it and constructed a list of technologies specifically relevant for Indonesia. Various individuals and companies supporting the EEB Laboratory in Indonesia have contributed to this.

Indonesia is South-East Asia's largest energy market but we don't have national building codes for energy efficiency. Policy is therefore created at individual city level. Jakarta has set the bar fairly high in this respect, but now our third largest city, Bandung, has just announced a Green Building Standard even more stringent. It's a clear signal of what will happen elsewhere.

We're making good initial progress. There's still a lot of awareness-raising to do; helping people make the business case for energy efficient buildings. But I'm optimistic. The macro-economic environment is conducive to our aims, so I'm certain we'll soon be expanding our work to more Indonesian cities.

Post-EEB Lab action and the EEB platform



01 Draft the report/action plan

What The report summarizes the EEB Lab findings, with further detail included in the action plan.

Why During the EEB Lab, a high-level action plan is formulated that needs to be expanded with detail following the event. In particular, the action plan will look at identifying the stakeholders that will drive each action forward.

How The Steering Committee manages preparation of the report (one partner should be identified to lead this process). The notes from students should facilitate the writing

When Speed is important to maintain momentum. A first draft should be ready approximately one month following the EEB Lab.

02 Organize a follow-up meeting with the Technical Committee

What The Steering Committee organizes this

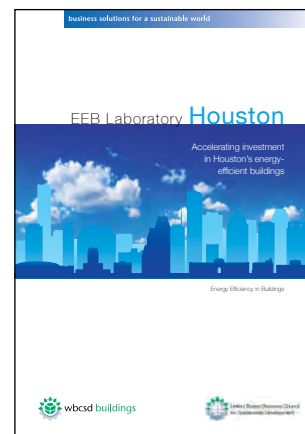
Why In order to:

- Review the content of the draft report and confirm identified actions.
- Confirm ownership for the recommended actions. It is good practice to have one working group per topic with interested parties to take the actions forward.
- Agree on governance (i.e. setting up of a coordination EEB platform) to take the work forward.

How The draft report should be sent to the Technical Committee before the meeting.

When The meeting should take place around two months after the EEB Lab.

1. Awareness and leadership	Commitments
<p>3 Create a coordinated, sustained awareness campaign, supported by the private and public sectors and others, targeting different segments of society by responding to their respective values (see page 17 for details).</p>	<p>CMG will be working on developing an awareness campaign relevant for CMG partner companies and to help to coordinate an awareness campaign for local, regional and national audiences. CMG will also coordinate an awareness campaign for the development of a coordinated awareness campaign. Several awareness activities will be organized and partners need to discuss how these will be supported into the plan and which dependencies are identified for each activity.</p> <p>Specific projects and organizations mentioned were:</p> <ul style="list-style-type: none"> The City of Houston Professional bodies, educational institutions, associations and other relevant organizations Media outlets to be used for awareness campaigns
<p>4 Develop training materials for education curricula targeting young people (see page 17 for details).</p>	<p>CMG will be working on developing an awareness campaign relevant for CMG partner companies and to help to coordinate an awareness campaign for local, regional and national audiences. CMG will also coordinate an awareness campaign for the development of a coordinated awareness campaign. Several awareness activities will be organized and partners need to discuss how these will be supported into the plan and which dependencies are identified for each activity.</p>
<p>5 Business to develop and disseminate Public Case studies that demonstrate the business case for new and retrofit energy-efficient buildings to foster awareness and credibility (see page 17 for details).</p>	<p>CMG will be working on developing an awareness campaign relevant for CMG partner companies and to help to coordinate an awareness campaign for local, regional and national audiences. CMG will also coordinate an awareness campaign for the development of a coordinated awareness campaign. Several awareness activities will be organized and partners need to discuss how these will be supported into the plan and which dependencies are identified for each activity.</p>
<p>6 Create studies and communication materials to include health and productivity benefits of energy efficiency in buildings, based on existing global metrics for health and productivity benefits to address page 18 for details.</p>	<p>CMG will be working on developing an awareness campaign relevant for CMG partner companies and to help to coordinate an awareness campaign for local, regional and national audiences. CMG will also coordinate an awareness campaign for the development of a coordinated awareness campaign. Several awareness activities will be organized and partners need to discuss how these will be supported into the plan and which dependencies are identified for each activity.</p>



03 Launch the report/action plan and local take-over

What The action plan is finalized after the follow-up meeting. Working groups are formed on the core topics identified to take the actions forward.

Why It is a good opportunity to reconvene all EEB Lab participants.

The purpose is to:

- Present the final action plan
- Present the action area leaders and mobilize further stakeholders to support
- Present the intended collaboration model (see below – EEB platform)

How The launch of the report is usually the moment when local takeover occurs. Local stakeholders then take full ownership of the action plan implementation and organize the necessary future work (i.e. the Steering Committee hands over the initiative to the local action teams).

When The report could be launched at a co-located event of another relevant conference/meeting.



Meeting to launch the EEB lab report in Poland



04 Launch the EEB platform to take the actions forward

What Identifying how the various EEB Lab partners will coordinate their future work is vital. A (resource-light) EEB Platform can be set up for this purpose. It can be led by one organization, which is recognized by all partners, or a rotating co-chair model can be identified. EEB Platform examples: EEB Houston is coordinated by HARC, with support from the US Business Council for Sustainable Development; EEB platform Poland is co-chaired by the Construction Marketing Group (BuroHappold and NAPE). Each working group has a leader.

Why The EEB platform coordinates the continuing work and ensures progress.

How The resources to develop the action plan need to be identified locally among the EEB Lab partners. This generally includes coordination, work in specific action areas and potential funding for publications and communication.

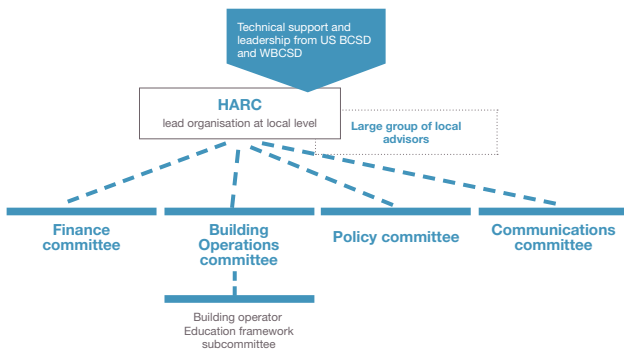
When The EEB platform typically receives its formal launch at the event for the launch of the report (local take-over).

Success factors

The success of an EEB Platform lies in the following factors:

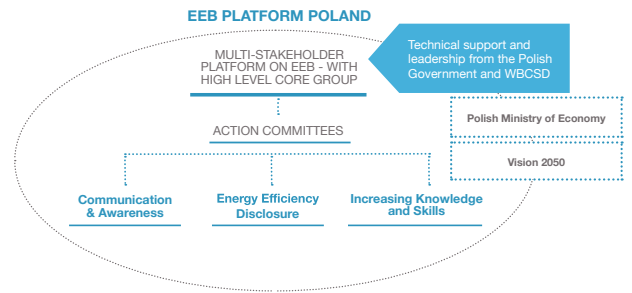
- It is private-sector led with strong involvement from public sector, academia and NGOs
- It balances interests
- It focuses on actions, based on a common understanding of key market barriers
- It identifies actors that can bring about positive change
- The EEB platform is local
- The EEB platform manages to find a successful business model to sustain its activities

EEB Houston: organization



Note: the EEB 2.0 project funded the market engagements for 2 years (from the preparation of the EEB lab to the coordination of the EEB platform for 1 year). It was part of the

EEB Platform Poland: organization



mission of the local coordinator to secure funding for the EEB platform after its first year of existence (through foundation support, public contracts, corporate sponsoring etc.).

Case Study: How the Warsaw EEB Laboratory facilitated public-private sector engagement

The EEB Laboratory in Warsaw in June 2014 brought together many private sector companies. Despite some competing interests, it proved to be a catalyst for driving cooperation, not just with each other but also with the Lab's public sector participants. The EEB Platform Poland was created as a result. Its aim is to coordinate national work on EEB by raising awareness of which organizations are doing what, and sharing good practice. The platform also established strong relationships and long-term cooperation with the public sector. The platform plays an important role in avoiding the duplication of work, which was previously a local issue, and encouraging EEB action by promoting cooperation and engagement among EEB stakeholders.



Katarzyna Chwalbińska-Kusek *Buro Happold Engineering, co-chair and local coordinator of the WBCSD's EEB Platform Poland*

“The most valuable thing for me was the willingness to collaborate and cooperate, not just from such a diverse group of stakeholders from different markets but also between competing companies. It really brought home to me the value of working together in this way, and how it's far better to have a bigger, coordinated effort than lots of separate, tiny initiatives.

A particular outcome from this collaboration was the publication of a Health & Productivity White Paper (Q3 2015). The paper was produced to improve awareness of EEB's multiple benefits in the Warsaw region, and to promote the consideration of secondary benefits when evaluating the full costs and returns.

The group now works in cooperation with the public sector to drive a long-term national multi-stakeholder campaign on EEB benefits: to communicate what the EEB Platform is doing, raise awareness, recruit more members, and achieve long-term policy change objectives. Other specific actions from the EEB Lab include the creation of a national energy benchmarking system for buildings and the development of training materials to be used to guide the commissioning, design and construction of EEB projects in Poland.

The Laboratory process itself was impressive, and brought together lots of very experienced people. The WBCSD has developed a really great model for this and I'm very pleased I became involved. It was a valuable learning experience with tools and techniques I can use again. It resulted in 20 recommendations and, while they didn't identify any that could be described as new, it was hugely valuable to have them validated by a unique external group of experts.

Our big goal is to strengthen collaboration and cooperation with public sector stakeholders in Poland. In summary, I'd say it was an extraordinary experience; a one-off chance to sit around the table with so many others in a well-planned and structured way. We've started an EEB movement in Poland and I'm very pleased with progress so far.”

EEB Poland Key Facts

Launched: December 2014

Number of partner organizations on the steering committee: 15

Key partners: BuroHappold, NAPE, City of Warsaw

Company lead: Skanska

Local Management: Katarzyna Chwalbińska-Kusek, BuroHappold Engineering

Poland Progress

- Residential EE financing facility of 200m Euros launched by EBRD
- Launch of benchmarking report on “Operation cost in commercial building”, November 2016
- Platform for public-private dialogue and action

05 Monitor & Report on progress

Following the action plan launch, regular calls will take place among the EEB Lab coordinators and the action area leaders. The working groups should meet with whatever regularity is considered appropriate to keep up the momentum and organize the work.

Webinars can be organized to share good practice and progress with other local action teams in the region or around the world. Regular progress reports to document how the work is advancing are also useful (e.g. six monthly progress reports).



Indicators to measure progress and impact

Three levels of indicators can guide how to measure progress and the impact of the action plans:

1. Enhanced coordination among building market stakeholders – the degree to which the EEB Lab has led to improved coordination and collaboration can be measured using simple tools, such as interviews and surveys.
2. Progress on identified actions – each action area should define a timeline and deliverables, which can be assessed in short/mid/long-term perspectives (6-12 months, one-two years, over two years) E.g. the number of building operators trained in presenting the EEB investment/business case can be assessed (EEB Houston).
3. Impact on investment decisions in the market (new build and retrofit projects) – this is the most difficult progress indicator to capture but also the most important one.

Examples include using surveys before and after awareness campaigns to track changes in target audience understanding. Feedback surveys can also be used for users of specific tools or guidance documents developed.



Jaimni Uberoi is Chairman of the Confederation of Indian Industry/Indian Green Building Council, Jaipur Chapter, and Managing Partner of J. @Mohanco, a leading construction firm in Rajasthan. He is also an elected member to the CII-Rajasthan State Council.

"I first became aware of the WBCSD's EEB Project through my long-standing involvement with CII-IGBC, the Indian Green Building Council. I saw this as an opportunity to make a real difference at the local level so was happy to participate in India's first EEB Laboratory in the city of Jaipur.

With any new initiative, there is uncertainty about how it will turn out. But we had a tremendous response, with around 70 people representing the entire local building and construction sector. In October 2016, I presented the EEB Laboratory, the outcomes and the resulting Action Committee plans at a national IGBC event. As a result,

four other city Chairmen immediately expressed interest in running similar EEB Laboratories. So we're now planning these for Mumbai, Bangalore, Kochi and Gujarat. The most valuable benefit of the WBCSD's approach is its ability to motivate real, collaborative change on the ground. Partnering with IGBC, which is part of the Confederation of Indian Industry, gave the EEB Project instant credibility. It ensured we got attention at all the right levels: government, academia, public and private sectors.

More and more people in positions of influence here know we cannot continue building inefficiently when it comes to energy use. We're a fast-growing and modernizing economy with a corresponding rise in energy demand. So building and retro-fitting with maximum energy efficiency in mind is gaining recognition as fundamental to the future.

I feel like we've already made a great contribution to ensure this happens with the EEB Lab, the resulting Jaipur Energy Efficiency Network and its continuing work. We are about to launch a Government-driven EEB awareness program in Jaipur. I am telling anyone who will listen to join us, learn from us and replicate what we've done."

Communication throughout the market engagement

Various tools have been developed to communicate on the EEB market engagement:

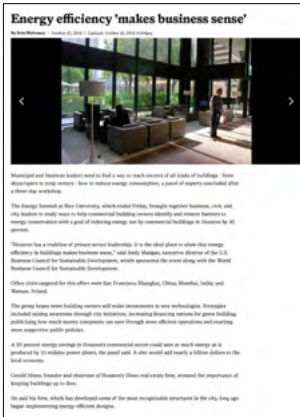
Prior to the Lab

- **A two-page PDF brochure on the EEB Lab** – describes the main details of the Lab (context, objective, date, venue, and partners) – it accompanies the EEB Lab invitation and is available online beforehand. *
- **Web news** announcing the EEB Lab should be posted on Steering Committee member websites
- **Media involvement at the EEB Lab** - This is a planning question the Committee should consider. It may be more advantageous to invite the media to the launch of the report, once messages from the EEB platform are clearer and stronger. Support from a public relations agency may be considered to engage with relevant local media at the optimum times.



“We hired a PR agency to manage contact with local media. We engaged with the agency early in the process so that they understood what the lab was all about. This resulted in 2 articles in one of the local newspapers,”

Steering Committee member, EEB lab Houston



Energy Efficiency “makes business sense”, Houston Chronicle



Classy old buildings strive for modern energy efficiencies, Houston Chronicle

During the EEB Lab

- **A short video** (less than three minutes) can be produced during the EEB Lab with interviews of roundtable leaders – it can be posted online and shown during the launch of the report. A video helps to visualize the events and get traction from stakeholders who did not attend the EEB Lab but are still interested to join the initiative.



Example of the video of the Netherlands & Belgium EEB lab produced for the plenary session

Web news – on Day 3 of the Lab, or shortly after the Lab, a news item should be posted online with the main outcomes and a list of participants. It may be a press release if the SC has decided on a media strategy.



Video of the EEB labs in Kuala Lumpur, Jakarta and Singapore

After the EEB Lab

- **The EEB Lab report** - Consists of a summary of the Lab and includes the final action plan, which details the action areas and how the action will be coordinated in the future.
- **Web news on partner websites** (such as announcing the launch of the EEB Platform)
- **Progress report Snapshots** - are created and regularly updated to document how the work is advancing (e.g. bi-annually). The progress reports are posted online.

“We managed to produce the video overnight and it was shown as an introduction to the closing plenary the next day”.

Rinske van Heiningen, AkzoNobel, coordinator EEB lab in the Netherlands/Belgium

WBCSD members of the EEB 2.0 project (2014-2017)

Lafarge (co-chair)

United Technologies (co-chair)

AkzoNobel

ArcelorMittal

Arcadis

Infosys

Saint-Gobain

Schneider Electric

SGS

Siemens

Skanska

Dow

Energy efficiency in buildings is a global issue but needs to be tackled locally

About WBCSD

The World Business Council for Sustainable Development (WBCSD) is a global, CEO-led organization of over 200 leading businesses and partners working together to accelerate the transition to a sustainable world. WBCSD helps its member companies become more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies.

WBCSD member companies come from all business sectors and all major economies, representing a combined revenue of more than \$8.5 trillion and 19 million employees. The WBCSD global network of almost 70 national business councils gives members unparalleled reach across the globe. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues.

www.wbcd.org

Dec. 2015 – updated Nov. 2016 and Feb.2018

The first edition of this Handbook was published in 2016 to gather the experience from the 10 pilot cities engagements that WBCSD carried out between 2014-2016. This revised edition adds more insight with an analysis of the impact in the pilot cities together with the learnings of the work with Climate-KIC in 2017 in Zurich and finally the way forward.

For more information, please contact

Roland Hunziker, Director, Sustainable Buildings and Cities, WBCSD (hunziker@wbcd.org)

or

Delphine Garin, Manager Sustainable Buildings, WBCSD (garin@wbcd.org)

<http://www.wbcd.org/buildings.aspx>

**World Business Council
for Sustainable Development**

Maison de la Paix
Chemin Eugène-Rigot 2B
CP 2075 1211 Geneva 1
Switzerland

www.wbcsd.org

