

EEB Laboratory **Jakarta**

Energy Efficiency in Buildings



Project leaders in Jakarta



Lafarge Indonesia
GBC Indonesia
ICLEI
Universitas Indonesia
NaramaMandiri

Partners of the EEB lab Jakarta

UNEP SBCI
UNEP (Bangkok)
MASKEEI
Real Estate Indonesia (REI)
BOMA Indonesia

WBCSD
IBCSD
BPPT (research institution)
ENGIE
Synergy Efficiency Solutions

About the WBCSD

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its member companies - who represent all business sectors, all continents and a combined revenue of more than \$8.5 trillion, 19 million employees - to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The council also benefits from a network of 70 national and regional business councils and partner organizations, a majority of which are based in developing countries.

www.wbcSD.org

About GBC Indonesia

Green Building Council Indonesia (GBC Indonesia) is an independent, not-for-profit organization established in 2009 by professionals in design and construction industry who are concerned about green building practices. The main focus of GBC Indonesia is to pursue the socialization and transformation of sustainable green principles, particularly in building construction industry in Indonesia. In organizing its activities, GBC Indonesia collaborates with all building stakeholders, including professional, government and private sectors. GBC Indonesia have 3 main programs, there are: training & education, green building certification and stakeholder engagement.

For more information you can visit our website at

www.gbcindonesia.org

About IBCSD

The Indonesia Business Council for Sustainable Development (IBCSD) is a CEO-led association of companies operating in Indonesia, who share a commitment to promoting sustainable development through sustainable economic growth, ecological balance and social progress. The launch of this business council in April 2011 represents a new regional chapter of the World Business Council for Sustainable Development (WBCSD). Founder members of IBCSD include 6 prominent Indonesian companies. The IBCSD is providing a platform for businesses to share and promote best practice in tackling risks and taking advantage of opportunities related to sustainable development. It will also act as a key partner to government and civil society providing business input and solutions for Indonesian policies on sustainability issues.

<http://www.ibcsd.or.id/en/homepage>

WBCSD - EEB 2.0 project members:

LafargeHolcim (co-chair)
United Technologies (co-chair)
AGC
AkzoNobel
ArcelorMittal
Arcadis

ENGIE
Infosys
Schneider Electric
SGS
Siemens
Skanska

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1

Executive Summary

Over two days in July 2015, a private sector-led initiative brought together a diverse group of local stakeholders, thought leaders, and subject matter experts in the Jakarta market to define a set of ambitious, practical strategies for reducing energy consumption in buildings.

The Energy Efficiency in Buildings Laboratory (EEB Lab) was convened by the World Business Council for Sustainable Development (WBCSD), the Indonesia Business Council for Sustainable Development (IBCSD) and the Green Building Council Indonesia (GBC Indonesia), together with partners in the WBCSD's Energy Efficiency in Buildings [market transformation initiative](#). The initiative addresses the challenge that globally, buildings are responsible for nearly one-third of final energy consumption (and over 40% of primary energy consumption) with a similar proportion of associated CO2 emissions. The EEB Lab in Jakarta was [one of 10 pilot market engagements](#) carried out by the EEB2.0 project.

POTENTIAL FOR ENERGY EFFICIENCY AND CONSERVATION IN BUILDINGS

Indonesia is South East Asia's largest energy market, consuming 36% of the region's primary energy in 2011. Building sector energy is relatively low, at 18-20% of the total use in Indonesia, but it has grown rapidly over the last 20 years and is considered as "low hanging fruit" for energy saving. Improved energy efficiency of buildings could save between 15% and 40% of energy by 2025, with an official target of 15%, equivalent to 0.7% of the overall final energy use in the country¹.

GROWING AWARENESS

Energy efficiency has been clearly identified as a national strategic priority in the National Energy Conservation Master Plan (RIKEN 2011, due to be revised in early 2016). While market demand for green projects is picking up, this is from a low base and good examples of energy efficiency measures are mainly in big cities. For instance the Jakarta Metropolitan Government has set a mandatory energy efficiency requirement on large buildings. The Green Building Council of Indonesia has initiated voluntary ratings for commercial buildings, which has also begun to raise awareness. A further stimulus could come from the possible reduction of energy subsidies due to fiscal constraints.

STILL A LONG WAY TO GO TO TRANSFORM THE BUILDING STOCK

Initiatives have yet to be adopted on a wider scale and understanding of energy efficiency potential is not widespread. Education on energy efficiency exists but is not adequate to reach all professionals, data on the energy consumption of different buildings types is limited, and promotion to raise awareness is insufficient. A policy framework is in place but enforcement is patchy, and financial incentives for energy saving measures in buildings and industry have still not been finalized. The Financial Services Authority (OJK) is preparing banking incentives for energy efficiency projects, demonstrating the political commitment even during difficult financial circumstances.

¹ EEB lab Jakarta, [Market review](#), January 2015

KEY ACTIONS FROM THE EEB LAB

During the EEB Lab, a team of experts representing the WBCSD member companies, regional stakeholders and global partners interviewed a cross section of Jakarta's real estate market, including developers, investors, designers, engineers, facility operators and tenants. These discussions confirmed four key areas for action to transform energy efficiency, which were the focus of the EEB Lab sessions:

- Raising awareness and understanding of the multiple benefits of energy efficiency in buildings
- Workforce capacity – Training and Skills
- Financing energy efficiency solutions
- Policy and regulation

The EEB Lab discussions identified market barriers to energy efficiency in Jakarta, leading to recommendations for how to address them. Stakeholder groups are being formed to carry out the actions outlined below. The WBCSD, IBCSD and the Green Building Council Indonesia will manage a program in 2016 to create a stakeholder network to drive the activities in the Jakarta market around each of the four focus areas. Additional support will continue these initiatives beyond 2016.

FOCUS AREA 1

RAISING AWARENESS AND UNDERSTANDING OF THE MULTIPLE BENEFITS OF ENERGY EFFICIENCY IN BUILDINGS

- Help business set up energy efficiency programs and share good practices to motivate action.
- Promote transparency with online data collection and improve sharing information

FOCUS AREA 2

WORKFORCE CAPACITY – TRAINING AND SKILLS

- At the level of professionals, encourage the development of certification programs as well as improving knowledge on life-cycle cost analysis.
- At the academic level, push for integrating energy efficiency in existing formal education.
- Basic training for local/ central government officials
- Clear definition of an energy efficiency skills set

FOCUS AREA 3

FINANCING ENERGY EFFICIENCY SOLUTIONS

- Help banks to improve their understanding of energy efficiency models.
- Collect proven case studies of successful energy efficiency business projects in Indonesia or other ASEAN countries.
- Advocate for government to provide financing mechanisms /incentives.
- Examine developing ESCO models and private equity

FOCUS AREA 4

POLICY AND REGULATION

- Build dialogue between business and government to provide a direct communication channel and provide recommendations/ input/ feedback, especially on streamlining policy and regulation.
- Disseminate relevant regulations to the public.



2

Energy Efficiency in Buildings: Scaling up Action



BUILDINGS ARE CENTRAL TO ENERGY SECURITY AND CLIMATE CONCERNS

Buildings are the largest energy consumers in the world, accounting for more than one-third of all final energy use and approximately 30% of global carbon emissions. Energy-intensive sectors such as transport and heavy industry are more visible, but buildings have a major role to play in any corporate or national strategy to tackle climate change. This is why the WBCSD created the Energy Efficiency in Buildings (EEB) project – it is one of the key areas for action on energy security and man-made contributions to climate concerns.

BENEFITS OF ENERGY-EFFICIENT BUILDINGS

Energy efficiency in buildings is a key contributor to achieving the imperative of keeping global warming below 2°C. But improving energy efficiency in buildings has many additional benefits.

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 and monetize a wider range of benefits of energy efficiency, including²:

- 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: cost and operational gains due to reduced customer turnover, reduced emissions and reduced system capacity constraints.

OVERCOMING BARRIERS TO TRANSFORM THE MARKET

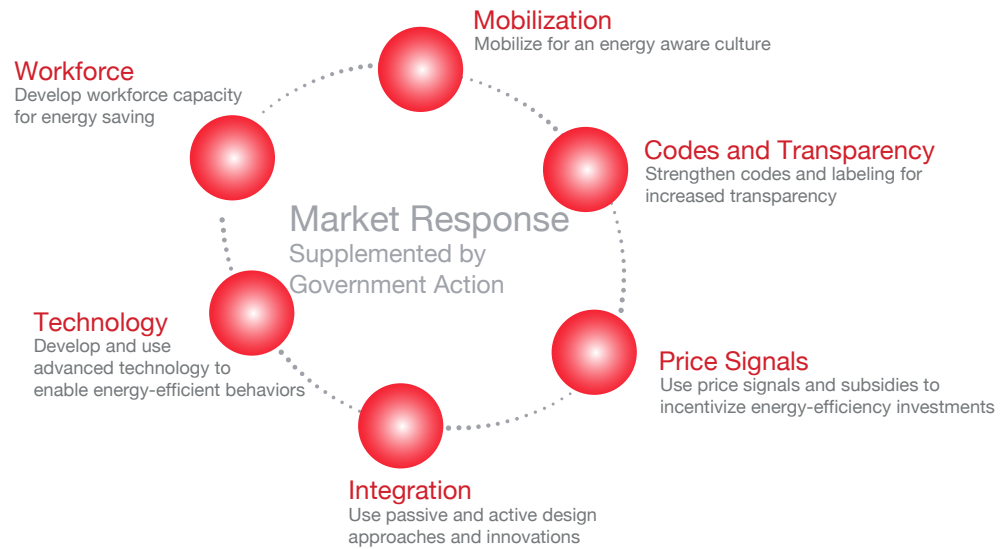
The first EEB project identified how to overcome barriers to energy efficiency in buildings, following a four-year research project. The [Transforming the Market report](#) made recommendations and created a roadmap to transform energy use in buildings. Research showed that transformation requires action across the building industry, from developers and building owners to policymakers.

FROM RESEARCH TO ACTION IN EEB 2.0

The second EEB project (EEB 2.0) began in 2013 to implement the recommendations and stimulate change. Its goal is to unlock financially viable energy-efficiency investments that are not being realized because of financial, regulatory, organizational and other non-technical barriers. EEB 2.0 is working with local and international stakeholders to develop the business case for energy efficiency in buildings with different groups of decision-makers and to provide recommendations for action.

² Source: Extract from Energy Efficiency Market Report 2015, IEA adapted from IEA (2014a), Capturing the Multiple Benefits of Energy Efficiency, OECD/IEA, Paris

Figure 1: How to transform energy use in buildings



Source: Transforming the Market, WBCSD, 2009

ENGAGING TO ACTIVATE THE MARKET THROUGH EEB LABORATORIES

EEB 2.0 has developed a structured, replicable stakeholder engagement process to diagnose and tackle key barriers to energy efficiency in urban areas where commercial buildings are most concentrated. It is pioneering ten market engagements

1. Houston/US
2. Warsaw/Poland
3. Bangalore/ India
4. Jaipur/India
5. Rio de Janeiro/Brazil
6. The Netherlands & Belgium
7. Kuala Lumpur/Malaysia
8. Jakarta/Indonesia
9. Singapore
10. Shanghai/China

EEB 2.0 acts as a convener and facilitator, especially through the Energy Efficiency in Buildings Laboratory (EEB Lab), a three day workshop which aims to:

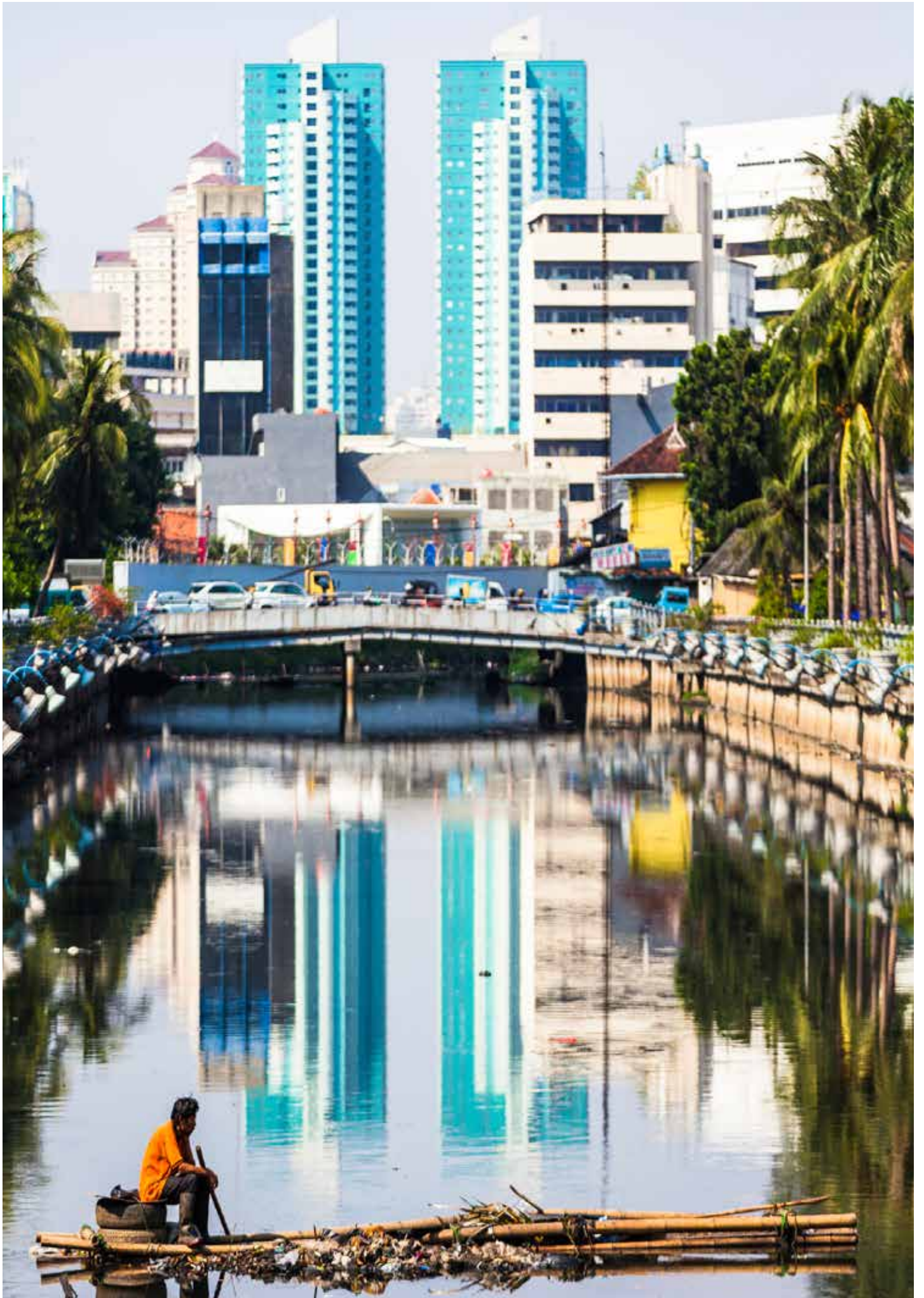
- Build a clear understanding of the market, identifying local barriers and enablers that could drive change;
- Define actions to overcome barriers and catalyze enablers to assist market transformation;
- Recruit key stakeholders to develop and implement an action plan for market-wide deployment.

The EEB Lab brings together local stakeholders and technical experts to pinpoint issues and priorities and create a coalition of actors who will drive transformation.

Check the EEB webpage for further information and *Why* and *How* to engage in Market engagements through the [EEB labs](#).

This report presents the activities and outcomes of the EEB Lab in Jakarta on July 29-30, initiated by WBCSD together with the Indonesia Business Council for Sustainable Development and the Green Building Council Indonesia.





3

The EEB
Laboratory
Jakarta



WHY JAKARTA?

Jakarta is one of three [EEB market engagements](#) in South East Asia, along with Kuala Lumpur/Malaysia and Singapore³. The city, and Indonesia in general, is a major presence in the region. Indonesia is an archipelago comprising 17,500 islands. It is a tropical country spanning the equator. With a population of 300 million, it is the 4th most populous nation in the world. It is one of the G-20 major economies. Its mixed economy is the largest in Southeast Asia and the world's 10th largest by nominal GDP with 2.3 % of global economic output⁴. The industry sector is the economy's largest and accounts for 46% of GDP (2012), followed by services (39%) and agriculture (14%).

The country is South East Asia's largest energy consumer, accounting for 36% of the total primary energy consumed in the region⁵. It is a net importer of oil, but the world's top exporter of steam coal, and a major supplier of Liquefied Natural Gas (LNG). As the world largest archipelago and a developing economy, it is a challenge to provide modern energy infrastructure to the entire country. More than a quarter of the population lack access to electricity, which partly explains the low per-capita energy consumption, at around 20% of the OECD average.

Although the built environment sector only uses 18% - 20% of Indonesia's final energy, it is a sector where energy efficiency technology and practices are mature and used all over the world, including in the tropics. Aspects such as lighting and air-conditioning are also highly replicable. This sector therefore offers "low hanging fruits" where investment to jump start building energy efficiency can reap significant benefits and have a multiplier effect.

The rapid growth of Indonesia's cities, especially medium-size cities, suggests that 75% of the population will be concentrated in urban areas by 2030⁶. Cities already produce up to 60% of Indonesia's GDP, so city planning is crucial.

Jakarta is Indonesia's business and government center. The city made a good start with the first mandatory green building regulation: Governor Decree No. 38/2012, requiring greater energy efficiency in the capital's buildings. Jakarta is the focus for Indonesia's progress on greening the built environment and solutions implemented here can be replicated in Indonesia's other major cities.

³ Separate reports will be available from the Kuala Lumpur and Singapore Labs

⁴ World Bank 2011

⁵ South East Asia Energy Outlook 2013, IEA

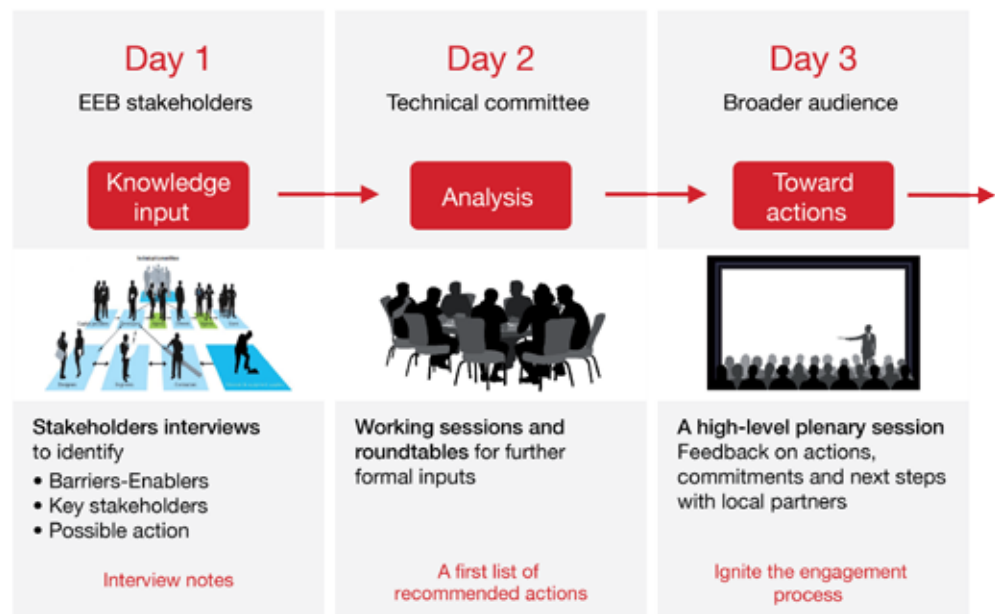
⁶ "[Sustainable Cities: Challenges and Opportunities in Jakarta](#)," workshop, Feb.2015

THE EEB LAB PROCESS

Overview

The EEB lab in Jakarta was a 2 day workshop in July 2015 at the Intercontinental Hotel. It concluded with a plenary in September in Singapore during the International Green Building Conference. The aim was to understand barriers to energy efficiency investment, identify solutions and create a stakeholder network to drive progress.

Figure 2: The EEB Lab concept



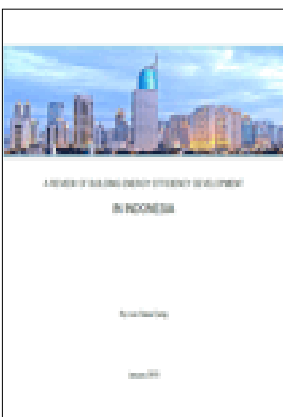
Preparation

The EEB Lab benefited from extensive preparation and the involvement of national and local partner organizations.

MARKET REVIEW AND KICK-OFF MEETING IN JANUARY IN SINGAPORE

In January 2015, a small group of stakeholders from Singapore, Malaysia and Indonesia met to scope the EEB Labs in South East Asia. They agreed to carry out three separate events, in Kuala Lumpur, Jakarta and Singapore, with a common plenary in Singapore during the International Green Buildings Conference to share the findings with a broader audience.

Ahead of the kick-off meeting, the National University of Singapore (NUS) was commissioned to carry out a market review to help in scoping the EEB Lab. Using publicly available materials (existing reports, analysis, academic papers, articles, and local information or media sources), it provided a description of the building stock and participants and a market analysis based on core issues. Professor Lee Siew Eang at NUS presented this market review during the kick-off meeting.





Following the kick-off meeting, a Steering Committee was formed with ENGIE (the WBCSD member company lead for the South East Asia market engagements), the Indonesia Business Council for Sustainable Development (IBCSD), Green Building Council Indonesia (GBC Indonesia) and the WBCSD secretariat. The Steering Committee identified relevant stakeholders, recruited experts and thought leaders to participate in the EEB Lab, and planned the event.

A Technical Committee is central to an EEB Lab as it brings together national and international experts who carry out interviews with local stakeholders and consolidate findings into meaningful recommendations for commitments and action. The Technical Committee in Jakarta consisted of experts from approximately 20 organizations (see Table 1).

Table 1: Organizations represented on the EEB Lab Technical Committee

Lafarge Indonesia	Real Estate Indonesia (REI)
GBC Indonesia	BOMA Indonesia
ICLEI	BCSD Indonesia
Universitas Indonesia	BPPT (research institution)
NaramaMandiri	ENGIE
UNEP SBCI	Synergy Efficiency Solutions
UNEP (Bangkok)	Independent Consultant
MASKEEI	WBCSD



Day 1 – Interviews

On July 29, Technical Committee members held more than 30 one-hour interviews with stakeholders from across the building value chain (see Table 2). These interviews are a key element of every EEB Lab, providing vital insights into barriers, enablers and actions relevant to the market.

Table 2: Organizations interviewed

<p>Architects, design consulting</p> <p>Landscape Architect PDW Architect Yodaya Hijau Bestari (YHB)</p> <p>Developers</p> <p>Ecoria/ Ciputra Property Development Group Sinarmas Land Kota Baru Parahyangan</p>	<p>Real estate advisors</p> <p>Real Estate Indonesia (REI)</p> <p>Banks, finance providers</p> <p>International Finance Corporation (IFC) Mitsubishi UFJ Morgan Stanley</p> <p>Construction/material suppliers</p> <p>Holcim Indonesia Association for Lighting and Electrical</p>	<p>Appliances (AILKI), B-Panel</p> <p>Facility managers</p> <p>Colliers - Indonesia Spektra Solusindo</p> <p>NGOs</p> <p>ILCAN (Indonesia Life Cycle Assessment Network) National Fire Protection Association</p>	<p>Academia</p> <p>The University of Indonesia (UI); Universiti Teknologi Malaysia</p> <p>Consultancy services</p> <p>Proven Force Indonesia;</p> <p>Mechanical/ electrical consultants</p> <p>PT Arnan Pratama Consultant Airkon Pratama</p>	<p>Owner/Occupier</p> <p>Great Giant Pineapple Tauzia Hotel Management Pacific Place Jakarta PT Grand Indonesia</p> <p>Public authorities</p> <p>Jakarta Capital City Government BPLHD Provinsi DKI Jakarta</p>
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Day 2 – Analysis and discussion

On July 30, Roundtable discussions tackled four central themes developed by the EEB 2.0 project to analyze the perceived and known barriers to energy efficiency investment. The Technical Committee consolidated the interview results from Day 1 and prioritized the key market barriers for each core topic. The Roundtable dialogues then considered these key barriers that are holding back green building investments. Each Roundtable had a group of experts and a facilitator, tasked with recommending solutions for each barrier with an implementation timeframe.

ROUNDTABLE 1: RAISING AWARENESS OF THE MULTIPLE BENEFITS OF ENERGY EFFICIENCY

Chaired by Naning Adiwoso, GBC Indonesia

ROUNDTABLE 2: FINANCING EEB SOLUTIONS

Chaired by Idris Sulaiman, Universitas Indonesia

ROUNDTABLE 3: BUILDING CAPACITY TO DELIVER EEB SOLUTIONS

Chaired by Ery Djunaedy, Synergy Efficiency Solutions

ROUNDTABLE 4: POLICY AND REGULATION

Chaired by Novi Triadilman Bramono, Consultant (ex-Ministry of Public Works)





Energy Efficiency in Buildings Laboratories in South East Asia

Malaysia - 27-28 July 2015

Indonesia - 29-30 July 2015

Singapore - 30-31 July 2015

EEB labs partners in South East Asia



WBCSD Project leader in South East Asia



See the [video of the EEB labs in Jakarta](#), Kuala Lumpur and Singapore prepared for the Sept.1 plenary session in Singapore.

Day 3 – Plenary

The high-level plenary brought together the participants of the three EEB labs in Kuala Lumpur, Jakarta and Singapore and other invited guests to discuss conclusions and seek commitments from participants to take action on the opportunities for improvement identified.

Table 3: Agenda of the plenary session

PLENARY OPENING – Welcome and Keynote speakers

Roland Hunziker, Director Sustainable Buildings and Cities, WBCSD

Terri Wills, CEO, World Green Building Council (WGBC)

Singapore: Ang Kian Seng, Group Director, Technology Development Group, Building and Construction Authority.

Indonesia: Rana Yusuf Nasir, Founder Airkon Pratama

THE BUSINESS CASE FOR ENERGY EFFICIENCY – Keynote and panel discussion moderated by Prof. Lee Siew Eang

Malaysia: Dato' Wan Hashimi Albakri, Head, Property Investment and Asset Management, Sime Darby

Singapore: Tan Phay Ping, Managing Director, Building System & Diagnostic

KEY FINDINGS FROM THE EEB LABORATORY AND PRIVATE SECTOR CALL TO ACTION

Panel discussion with EEB lab representatives moderated by Prof. Lee Siew Eang

Indonesia: Rana Yusuf Nasir, core founder GBC Indonesia

Malaysia: BK Sinha, Malaysia Green Building Council and James Chua, REHDA

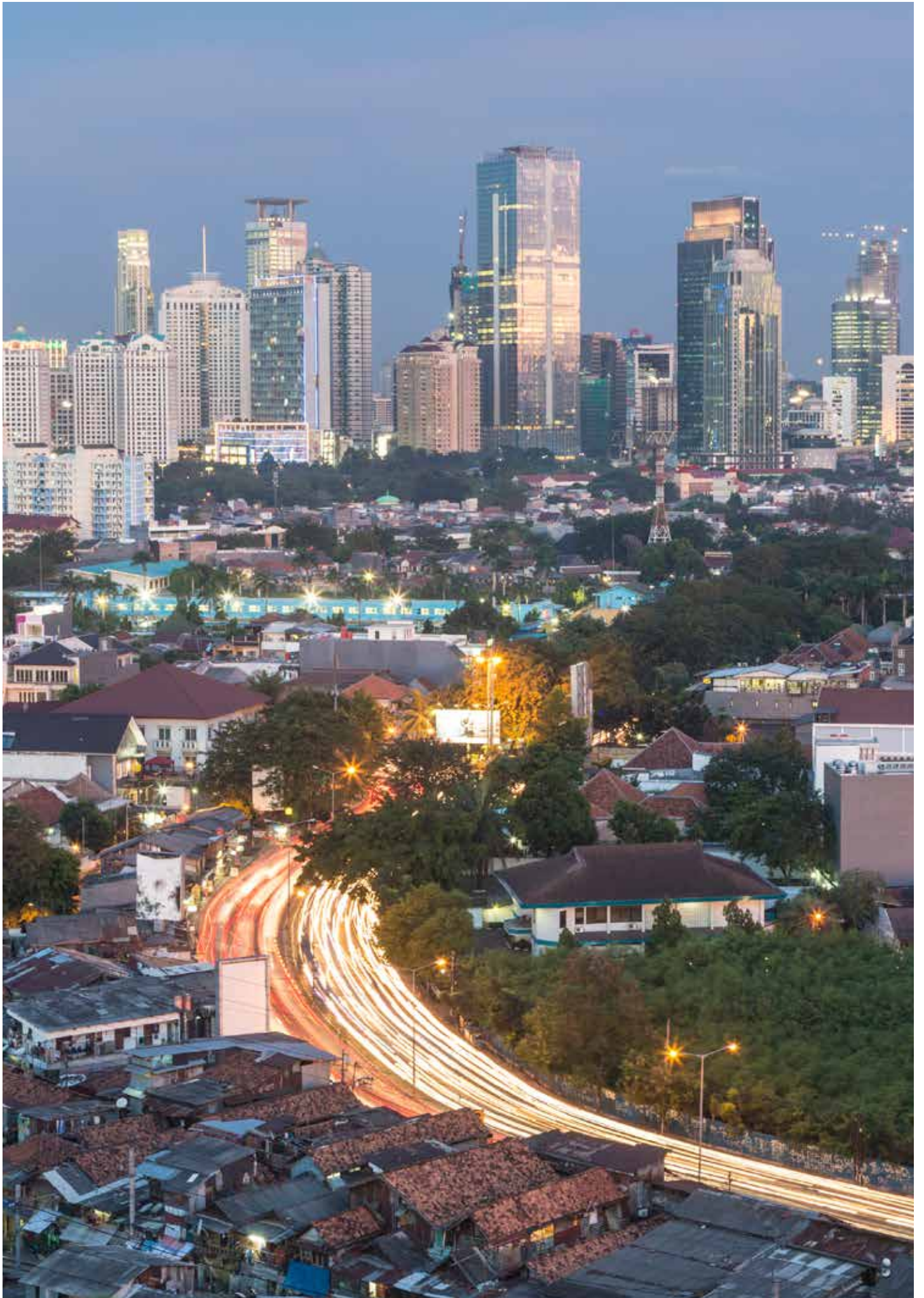
Singapore: Prof Yu Shi Ming, School of Design & Environment, National University of Singapore;

and Steffen Endler, Siemens Pte Ltd

WRAP UP & NEXT STEPS

William Sisson, Director, Sustainability, United Technologies Research Center, co-chair WBCSD EEB 2.0 project, United Technologies

Alexandre Jeandel, Corporate senior advisor, Sustainable Development Strategy, ENGIE, company lead for the South East Asia EEB labs



4

Analysis and Recommendations



Check the video produced during the EEB lab with interviews from prominent participants.



The key outcomes and recommendations for action for the four roundtable topics are detailed in this section.

Focus area 1 Raising awareness and understanding of the multiple benefits of energy efficiency in buildings

Although the demand for energy efficiency solutions seems to be picking up, it is still emergent, due to an overall lack of vision on the multiple benefits.

MARKET BARRIERS

- **LACK OF AWARENESS OF THE BENEFITS OF ENERGY EFFICIENCY**

Misperception of the cost of energy, despite the government's move to reduce subsidies

The low cost of energy due to subsidy is a major barrier to the rapid development of the market for energy efficiency. In 2014, subsidies amounted to approximately 15% of the Indonesian national budget – IDR 250 trillion (USD 19.6 billion). Approximately a third was for electricity and the rest for transport fuel. The Indonesian government elected in 2014 is embarking on an extensive pro-market reform and President Joko Widodo's announced at the start of 2015 that the fuel subsidy will be abolished⁷.

At the start of 2016, the government said it will set a new price for low-grade gasoline and diesel which is slightly higher than their international cost⁸. The pricing policy will be used to pay for a new energy security fund, aiming to ensure the availability of energy (including renewable energy) in accordance with Law No. 30/2007.

Although the cost of energy is growing by 20% every year, building owners still think energy is cheap and do not yet understand how urgent it is to increase energy efficiency. In fact, owners are not even informed of their energy consumption as Perusahaan Listrik Negara (PLN, Nation's Electricity Company) issues bills in rupiah and not kWh.

Limited understanding of energy efficiency in buildings

Saving energy in buildings is still a relatively young concept. It began to grow in 2009 with the creation of the Green Building Council Indonesia, which has publicized the importance of sustainable solutions. Awareness is growing among the population but only slowly. The green building concept is perceived as a marketing tool and some developers who see it as a selling point for tenants accept the extra upfront cost.

- **LACK OF KNOWLEDGE AND UNDERSTANDING**

Most developers are driven by "first cost" considerations and do not see the longer term benefits (energy saving, good airflow and better acoustics). Their short term focus ignores the total cost of ownership of the building. More generally, building professionals tend to focus on cheaper products even if they waste energy in operation. The total additional cost of an energy efficient building also tends to be over-estimated (12% to 15%). It is typically no more than 10% and global research has found that actual design and construction costs can even be lower than a conventional building. Research has found a range of -0.4 to 12.5%, with the higher figure relating to a zero carbon building project⁹.

⁷ "Indonesian president abolishes fuel subsidy", 15 January 2015, wsw.org

⁸ "Benefits of energy security fund", the Jakarta post, 4 January 2016

⁹ WGBC, the Business Case for Green Buildings, 2013

Focus area 1 Raising awareness and understanding of the multiple benefits of energy efficiency in buildings

- **LACK OF COMMUNICATION AND DISSEMINATION OF INFORMATION**

Indonesian government ministries work in “silos”, resulting in a lack of an overall vision and strong communication on energy efficiency (see Policy and regulation).

At the city level, some mayors have been driving the green building agenda and EEB Lab participants acknowledged that local government is the key to success. Jakarta, Surabaya, Makasar and Bandung are leading, with mayors having a good vision of urban planning that develops their cities sustainably. Surabaya and Bandung have won Smart City awards, which include some green energy and green building components in their assessments (IKCI 2015).

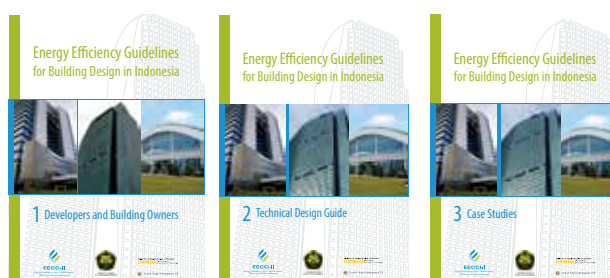
Good examples in big cities include:

- The recently completed Ministry of Public Works building in Jakarta has achieved Platinum certification by the Green Building Council of Indonesia. The building is designed to save 38% of the energy of an average office building in the city.
- Private sector examples include Menara BCA; Pacific Place shopping mall; Ciputra Office/Mall complex in Jl. Satrio, Jakarta; ATMI University building in Jakarta.
- Export oriented businesses, such as Great Giant Pineapple, are driven by their international clients’ standards and have adopted sustainable practices, including for their buildings. In the hotel industry the Jayakarta Hotel in Yogyakarta, Central Java is a pilot in the region with a green strategy.

There is too little promotion of these good examples. Some publications exist but they are poorly promoted. For example, Energy Efficiency Guidelines for Building Design in Indonesia¹⁰ provide advice and references for building owners/ developers and professionals on how to design buildings to minimize energy use while still

¹⁰ Published by Energy Efficiency and Conservation Clearing House Indonesia (EECHCI) under the Directorate General New Renewable Energy and Energy Conservation, Ministry of Energy and Mineral Resources of Indonesia, Danish Energy Management, 2012

meeting comfort, health, and safety needs. The Guidelines are in three parts, for developers and building owners, on technical design aspects, and case studies. However, this resource is not easily available online on the Ministry website and there are no plans to keep them updated.



RATING TOOLS

Rating tools are available to encourage energy saving but they are still seen more as communication tools:

- GREENSHIP certification from GBC Indonesia is based on 6 criteria (Land use; Energy efficiency; Water efficiency; Source Materials; Indoor Air Quality; Environmental Management). To date (11 January 2016), GBC Indonesia has awarded green building certificates to 16 developments – nine of them to newly developed buildings, one of them is interior space, and six belong to existing buildings. Among them are the 56-storey BCA Tower and Sampoerna Strategic Square office and function centre. An additional 70 buildings are being examined for certification - most of them within Jakarta. Total energy efficiency from GREENSHIP Existing buildings is around 14,600 Megawatt hour per year, which equivalent to 13,000 ton CO2 emission reduction.
- EDGE (Excellence Design for Greater Efficiencies) - users can audit their buildings via the EDGE website without having to apply for its certificate. EDGE calculates energy, water, and material efficiency. Up to January 2016, there are 19 building registered and in the middle of process for EDGE certification.

Focus area 1 Raising awareness and understanding of the multiple benefits of energy efficiency in buildings

• THE CHALLENGE OF ENERGY DATA COLLECTION

EEB Lab participants commented that there is little data available on energy consumption in buildings.

The law requires consumers of 6000 toe (Ton of Oil Equivalent) or more to appoint energy managers, set up an energy conservation program and implement energy audits. Data should therefore be collected and performance benchmarked but, even in Jakarta, collecting building data has not been a priority. In practice, there is some electronic data submission but it is not systematic even though it was supposed to be implemented in 2008. As a result, there is little data and no baseline data for buildings, even in Jakarta.

ENERGY EFFICIENCY VS. ENERGY CONSERVATION

International understanding is that energy efficiency aims to reduce the amount of energy required to provide the same amount of energy consumption to produce products or services. On the other hand, energy conservation is generally understood as reducing energy consumption. In Indonesia, the term “Energy Conservation” is used for both these concepts, creating confusion. This is one of the major stumbling blocks in raising awareness in the population and even in formulating effective policies by decision makers in private and public sectors.

RECOMMENDATIONS FOR ACTION

To increase awareness, the Technical Committee recommended holistic and ecosystem thinking to include all stakeholders (government, business, building occupiers and academics).

An umbrella organization such as GBC Indonesia, IBCSD, the Employers Association (APINDO) and Chambers of Commerce (KADIN) should bring together private sector groups to fill the knowledge gap:

- Inform industries on regulation updates (online).
- Help businesses create energy efficiency and conservation strategies, with goals to continually reduce energy consumption.
- Showcase the longer and multiple benefits of energy efficiency in buildings, especially to developers to overcome the first cost mentality.
- Promote and up-date existing publications such as the Energy Efficiency Guidelines for Building Design in Indonesia. Make available more publications on energy efficiency and provide such information online in a non-technical fashion, accessible by all citizens with mobiles, tablets and computers.
- Collect and share the stories of leading organizations to motivate others to take action.
- Promote and adopt energy efficiency benchmarks for the private sector.
- Celebrate good practice:
 - I. Create ambassadors of energy efficiency
 - II. Name public sector champions, led by the Ministry Public Works and Housing (EE building)
 - III. Institute Energy Efficiency awards to acknowledge efforts by companies and their Energy Services Companies (ESCOs).
- Push for a campaign to reduce energy consumption in public facilities and help spread the message with success stories.
- Produce energy bills in kWh as well as rupiah to improve users’ awareness of energy consumed and, whenever possible, provide the average energy consumption in the class of energy users in the specific district/regional area so that each household or organization knows their relative energy consumption.
- Push for transparency with online data collection and reporting:
 - I. Make mandatory reporting data available in a public database.
 - II. Call for the implementation of “UU Akses Publik No. 14 Tahun 2008” (Access to Public Information) to make data available.
 - III. Implement e-submission funding (explicit funding for planning, training and monitoring related to the provision of online government or e-government).
 - IV. Publish government regulations and contact officials in print and online.

Focus area 2 Workforce capacity – Training and Skills

MARKET BARRIERS

Building professionals play a key role in driving market demand for energy efficient solutions. In Indonesia however, EEB Lab participants acknowledged gaps in workforce capacity that prevent the growth of energy efficiency.

- **LACK OF SPECIFIC PROFESSIONAL EDUCATION ON ENERGY EFFICIENCY.**

There are some good examples of training for professionals in Indonesia but it is necessary to scale up and mainstream energy efficiency and green buildings education to professionals and the general population, particularly the younger generation.

GREEN BUILDING COUNCIL INDONESIA (GBC INDONESIA) is an independent non-profit organization that is committed to educating building professionals and the community in applying environmental best practices and facilitating the transformation of the global building industry. GBC Indonesia conducts the Green Building Certification in Indonesia with the assessment tools GREENSHIP, which attracts private and public sector participants. There are two types of professional certification:

- GREENSHIP ASSOCIATE - for professionals from all backgrounds with a minimal qualification of polytechnic D3 certification
- GREENSHIP PROFESSIONAL - for bachelor degree or equivalent in engineering, architecture and related fields with a minimum of 3 years' experience in the building industry.

GBC Indonesia also provides in-house training in:

- Public institutions, such as the Ministry of Public Works, Ministry of the Environment and Public Works
- Cities, such as Semarang and Surabaya.
- Companies, such as Soegiyopranoto, Pembangunan Perumahan (housing development), Adhi Karya (Construction), Institute of Technology Surabaya (ITC)

In 2015, GBC Indonesia collaborated with the International Finance Corporation (IFC) to launch the [EDGE certification](#) in Indonesia. This complements the GREENSHIP programs and trains auditors certified by the IFC.

A few private sector organizations run in-house training programs on energy efficiency but they do not cover the full value chain. For example, the Pacific Place mall, hotel and office complex ran in-house training with its building operators, involving Holcim which promoted their new products. Some large companies such as Schneider Electric have developed online resources but such programs are usually promoting their products.

A number of donors have collaborated with GBC Indonesia or run their own programs (Danish Aid Agency DANIDA, International Habitat, WWF, UNEP, GIZ, SIDA). In some cases such programs are held jointly with regional governments, such as with the City of Bandung and Surabaya.

Despite these initiatives, there is a need to scale up and mainstream energy efficiency and green buildings education given the number of professionals involved in the built environment.

Lack of technical skills on energy efficiency among professionals

EEB Lab participants provided several examples of this barrier:

- Many buildings and building equipment are oversized and over-provisioned in terms of their energy capacity.
- Lack of energy modelling and awareness on energy modelling is still very low.
- Lack of knowledge of Life-cycle cost analysis (LCCA). Although some developers such as Ciputra and Sinarmas are supporting LCCA, it is still conceptual in Indonesia and not well implemented.
- Lack of specific programs for mechanical engineers and architects.
- Lack of recognition for skilled employees in organizations.
- Inadequate communication of the training needed to master energy efficiency.

“Business as usual” mind-set

EEB Lab participants argued that engineers generally follow a business-as-usual approach and are not ready to take risks. It is common practice for suppliers to commission consultants who select their products, which does not motivate consultants to think “outside the box” and leads them to work with sub-optimal suppliers. Along the value chain, there is a lack of commissioning and building energy simulation and architects do not take responsibility.

Focus area 2 Workforce capacity – Training and Skills

- **LACK OF BASIC KNOWLEDGE ABOUT ENERGY EFFICIENCY AMONG REGULATORY BODIES.**

Although some public officials are knowledgeable on energy efficiency, the high turnover in public administration results in a loss of knowledge when administrators move from one department to another.

- **LACK OF LINKAGE BETWEEN RESEARCH CENTERS AND CONSTRUCTION INDUSTRIES**

There is no culture of applying research to industry and a lack of knowledge sharing between the two sectors. Similarly, inadequate investment in testing products and standards fails to filter out poor quality products.

- **LACK OF SKILLS DEFINITION ON ENERGY EFFICIENCY**

The National Profession Standardization Agency (BNSP) provides certification for energy audits, energy management and energy performance assessment. EEB Lab participants said this should be widened to cover professionals across the full value chain – especially architects, engineers, designers and facility managers. While the Ministry of Energy and Mineral Resources is the key actor which sets out the standards to perform energy efficiency work, the Ministry of Public Works and Housing is in charge of regulations relating to all other physical aspects of buildings.

RECOMMENDATIONS FOR ACTION

At the level of professionals

- Encourage professional organizations to develop certification programs, improve knowledge on Life-cycle cost analysis (LCCA) and maximize the use of ASEAN-based qualifications such as the Energy Manager Accreditation Scheme (AEMAS)

At the academic level

- Push for an energy efficiency (EE) specific curriculum as well as general EE/climate change/sustainability training in formal educational institutions. The Age of Sustainable Development gives students an understanding of the key challenges and pathways to sustainable development developed by leading experts such as Jeffrey Sachs (<https://www.coursera.org/learn/sustainable-development>).

- Encourage private schools to participate in an energy efficiency/climate change/sustainability “living laboratory” at universities, polytechnics and schools.

For the public sector:

- Provide basic training on energy efficiency for local/central governmental officials
- Promote knowledge exchange between government officials.

To define the skill set:

- Define the set of competences and skills for energy efficiency
- Obtain approval from the Ministry of Labor on certification criteria

Focus area 3 Finance

EEB Lab participants identified a need for financing instruments as well as supporting regulations. The Financial Service Authority (OJK) and the Ministry of Environment and Forestry (KLHK) launched a “Roadmap for Sustainable Finance in Indonesia” at the end of 2014 . The adoption of the Roadmap is encouraging but implementation is slow, particularly for financial incentives. During 2016, the OJK plans to announce banking incentives in new “Investment Financing Guidelines for Energy Efficiency” relevant to buildings and industries.

In Thailand the Energy Efficiency revolving fund (EERF) was launched in 2003 following the adoption of a regulatory framework on energy conservation. It provides a line of credit to local banks, which provide low-interest loans to developers for energy efficiency and renewable energy projects. The fund has been financed by a tax on petroleum products.

MARKET BARRIERS

• LACK OF ACCESS TO FUNDING

Lack of financing mechanisms

There are currently no specific funds or financial incentives set aside for energy efficiency projects as there is no political commitment on this issue (contrasting with renewable energy). The EEB Lab considered that financial mechanisms could accelerate the development, commercialization, and deployment of energy efficiency projects, backed by proper legislation covering energy efficiency policy - see box for the Thailand example.

Holistic thinking is needed to coordinate the various players in providing financing for energy efficiency investments (see Figure 1). The government is the critical player, but may be pushed by champions at the national and regional levels.

Poor understanding from banks of the energy efficiency model

The IFC has initiated discussion with some banks (BNI and HSBC) on providing loans to green certified buildings. But while financing is available for pilot projects, banks currently do not offer financing products specifically for energy efficiency projects because they do not understand the business opportunity these investments represent. For example, banks do not understand the business case for ESCO models, they do not have enough examples to showcase the opportunity, and the technical language on energy saving needs to be translated into financing terms (cash flows, risks, liquidity).

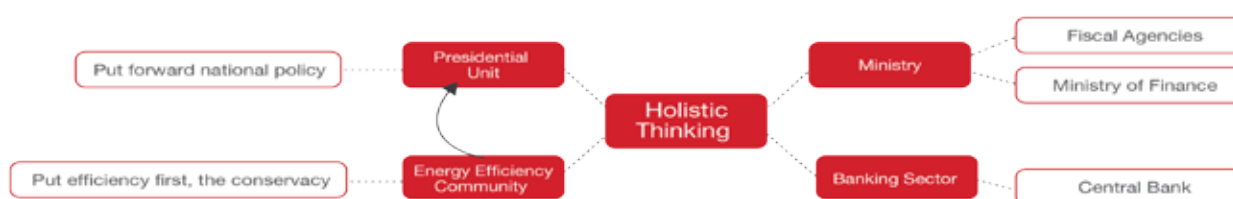


Fig. 1: A holistic approach to energy efficiency finance

Focus area 3 Finance

Lack of use of CSR funding for energy efficiency

Companies in Indonesia are obliged by law to allocate funds for CSR implementation. However, energy efficiency measures are not usually considered because energy efficiency is not seen as a priority in most companies.

- **LACK OF DATA AND REPORTING SYSTEM FROM ENERGY USERS – MEASUREMENT OF BUILDING PERFORMANCE**

Aggregated data on energy consumption/energy performance is not available as a basis for financing decisions (See Awareness).

- **LACK OF UNDERSTANDING AND RECOGNITION OF THE ESCO MODEL**

The Energy Services Company (ESCO) business model helps to overcome the barrier of upfront cost issues but there has been a lack of policy support for the ESCO model in Indonesia. However, the Ministry of Energy and Mineral Resources (MEMR) is finalizing a decree in early 2016 to clarify the definition of ESCO, Energy Saving Performance Contracts and other financing issues. ESCOs will be able to take on government projects which have previously not been supported by financing institutions.

The Financial Services Authority (OJK) has also begun educating banks on the ESCO model to encourage investment in energy efficiency projects.

ESCO MODEL FOR PUBLIC BUILDINGS (GOVERNMENT AND STATE-OWNED BUILDINGS)

Previously, the ESCO model could not be applied to public buildings because of budget procedures restricting multi-year payments. Changes in government regulation in 2016 will allow sharing savings and multi-year payment terms for energy saving procurement, allowing public buildings to use the ESCO model

RECOMMENDATIONS FOR ACTION

To overcome lack of access to funding:

- Help banks to improve their understanding of energy efficiency models. Training is needed for product development departments, including on the technology aspects so they develop suitable packages.
- Collect proven case studies of successful energy efficiency business projects in Indonesia or other ASEAN countries
- Advocate for the government to urgently provide financing mechanisms / incentives.
- Create a sense of urgency and press the government to dedicate a fund for energy efficiency, using the example of the Energy Efficiency revolving fund in Thailand (see above, page nn). Other measures could include increasing the Building Area Coefficient/ Koefisien Luas Bangunan (KLB) for green buildings; giving a discount on Pajak Bumi dan Bangunan (PBB); tax reductions.
- Examine developing ESCOs and private equity, with seed funding to set up efficient ESCO models at the ASEAN level. The example of Thailand provides a model, with funding assistance instruments set up under the government-run ESCO Fund (equity, venture capital, equipment leasing, partial credit guarantees, carbon credit trading, and technical assistance).

ENERGY EFFICIENCY FEED-IN TARIFFS (FIT) FOR ESCO PROJECTS?

Public incentive schemes, such as feed-in tariffs and tax breaks for energy efficiency equipment, can stimulate private sector investment in renewable energies and energy efficiency.

Clean energy FITs are being established for most renewable technologies in Indonesia, at relatively high cost levels/kWh. Recognizing that energy efficiency is one of the cleanest, quickest and most economic means to deliver power to the grid, it is time to establish an EE FIT. This would enable this technology to compete alongside subsidized renewables, strengthen the integrity of project savings and encourage financial sector participation in project funding.

Focus area 4 Policy and regulation

A series of regulations since 2002 have set up energy conservation programs. New and renewable energy resources, including energy conservation, are high priorities for the government. However, EEB Lab participants identified challenges linked to fragmentation in the policy area that prevent solid and consistent implementation at local level. Several specific gaps were identified:

- Power generation regulations say nothing about energy efficiency – they must specifically define energy efficiency as a source of energy.
- There are no standard product parameters - “testing procedure” standards and standards for laboratory and product testing tools are needed. Many still rely on manual operations from international vendors which are not accurate enough. On labelling, manufacturers say that product testing and standardized procedures are too costly but without them there will be a ‘bad domino effect’, damaging trust in products and hitting demand for energy efficient lighting such as LED.
- Building procedures: regional governments’ issue of building and occupancy permits is handicapped by limited competence in checking regulatory compliance. The Jakarta “Green” Building Regulation No. 38 has been seen to be successful because its compliance is based on issuing building permits and occupancy permits.

MARKET BARRIERS

Multiple but fragmented EEB policies at national level

Policies at national level are usually sector-based and project-driven. They include Energy and Building Laws, and the National Standard of Indonesia (SNIs) but there is no mandatory energy code. DKI Jakarta issued the first mandatory green building regulation (PerGub No. 38, 2012) in 2012. The Ministry of Public Works and Housing (MoPWH) has finalized National Guidelines on Green Building (Permen No. 2/2015), with energy efficiency as one of the important requirements. Several ministries have a mandate over commercial and residential buildings (Ministries of Finance, Public Works and Housing, Energy and Mineral Resources, Trade, Labor, Communications and Information) and there is a need for better cooperation between them.

Building regulations and standards relating to performance and energy efficiency cover the building envelope, air condition system, lighting and audit procedures (Standar Nasional Indonesia – SNI¹²) but they are not mandatory, monitoring of implementation is inadequate and there is no assessment of their impact.

Consultation and transparency are also poor. Some consultants carry out impact studies for the government to assess the results of policy but these may not often be published online, resulting in a lack of transparency in policy making.

Policy making sometimes is also hampered by regular reshuffling people in the administration who take their knowledge with them.

- **LACK OF IMPLEMENTATION OF EXISTING REGULATIONS AT LOCAL LEVEL**

Local governments have a key role in the effective adoption of building regulations since they transpose and implement national policies into local regulations. It is necessary to show the importance of energy saving at the national level to motivate the regions.

The current fragmentation of national policies hampers successful implementation at local level. Local governments and municipalities often focus only on Building Permit procedures. Under 30% of the 507 cities and district governments have Local Building Code Regulations in accordance with Building Law, although the number is expected to grow.

Even mandatory requirements may not be enforced. For example, consumers of 6000 toe (Ton of Oil Equivalent) or more are required to set up an energy conservation program, appoint an energy manager and implement energy audits (Government Regulation No.70/2009 and Ministry of EMR Regulation No.14 / 2012). Although this is compulsory, it is not enforced and many consumers of more than 6000 TOE do not comply, possibly because city governments do not have the capacity to execute the regulation and lack inspectors to check compliance. City governments receive some training and tools to facilitate implementation, but frequent rotation of officials makes it difficult to achieve the necessary understanding.

¹² [Country Information Sheets](#), Indonesia, GBPN

Focus area 4 Policy and regulation

SOME LEADING CITIES

A few cities are demonstrating leadership, such as Surabaya, Makassar and Bandung. They have started to develop Green Building Local Codes to address sustainability issues, including energy efficiency. These initiatives are expected to inspire many leading cities to elaborate local EEB-related policies.

The Jakarta Megalopolitan Area enacted Governor Regulation No.38/2012 (PERGUB 38) on Green Buildings in 2012, targeting 20% energy reduction. It mandates that buildings in the city with at least 50,000 square meters of occupied space must be designed to improve energy efficiency and reduce waste. Energy efficiency has to be considered in new buildings and construction activities (along with water efficiency; indoor air quality; land and waste management). Currently, PERGUB 38 is limited to reporting. There is no penalty system but compliance is required to obtain a building permit. In Jakarta, 63 buildings already have the building construction permit (IMB) while hundreds of new buildings are applying.

Complementing this initiative, the Indonesian government has passed regulation no. 2/2015 encouraging cities and regions to introduce Green Building regulations in their building codes.

CITY NATIONALLY APPROPRIATE MITIGATION ACTIONS (NAMAS) IN JAKARTA

NAMAs are a set of policies and actions that countries may undertake as part of a voluntary commitment to reduce GHG emissions under UN climate change initiatives.

The NAMA project in Jakarta works primarily with the Ministry of Environment and Forestry (KLHK) to assess opportunities for building sector mitigation in the areas of policy, capacity building and financing mechanisms. For example, one project focuses on the Government of DKI Jakarta implementing energy efficiency measures in a new building (City Hall / DPRD DKI Jakarta) to achieve Green Building criteria. Another project aims to assist the Energy Ministry to create reliable enabling conditions for measures to increase efficiency in refrigeration and air-conditioning technology. Details are available on the [NAMA database](#).

RECOMMENDATIONS FOR ACTION

- **Build dialogue between business and government**
Set up collaboration between business and government to create a direct communication channel for recommendations/ input/feedback on:
 - A. Streamline policy and regulation
 - Make an inventory of existing regulations that have online versions in Bahasa Indonesia, English and other languages (if there are specific external requests or funding).
 - Review and evaluate the degree of implementation and results.
 - Improve reporting to the ministries/related stakeholders (including data collection mechanisms; improve mechanisms for drawing up new regulations; revise outdated ones).
 - B. Disseminate relevant regulations to the public; encourage new ways to communicate them. For example, the Ministry for ICT and Industry could collaborate and share spending to spread messages on energy efficiency.
 - C. Revise and Improve PP (Peraturan Pemerintah / Government Regulation) No 70/2009.
 - D. Implement additional regulations.
 - E. Propose MRV (Measurement, Reporting and Verification) mechanism.
 - F. Conduct public accountability on results of regulations and initiatives.
 - G. Propose stronger coordination between ministries involved in driving energy efficiency at national level.

5

Roadmap to transform the market



The following tables recap and group the EEB Lab recommendations. Four working groups are taking actions forward. Their first task has been to prioritize actions with clear objectives and identified action leaders (see Next Steps).

01 Focus area 1: Raising awareness and understanding of the multiple benefits of energy efficiency in buildings

Areas of work

1. Help businesses create energy efficiency and conservation strategies, with goals to continually reduce their energy consumption.

2. Showcase the longer and multiple benefits of energy efficiency in buildings, especially to developers to overcome the first cost mentality.

Promote and update existing publications such as the Energy Efficiency Guidelines for Building Design in Indonesia.
Collect and share the stories of leading organizations to motivate other organizations to take action.
Celebrate good practice:
 - o Create ambassadors of energy efficiency.
 - o Name public sector champions, led by the Ministry Public Works and Housing (EE building) to lead by example.
 - o Institute Energy Efficiency awards to acknowledge efforts by companies.

3. Promote and adopt energy efficiency benchmarks for the private sector and organizations.

Push for transparency with online data collection and reporting. Lead agencies that collect data from the application of « permission to build » (IMB) permits or « Occupancy Permits Letter» (SLF) for existing buildings (IMB) must be funded to fully digitize all documents and to aggregate and publish their building statistics. The mandatory reporting data should be made available in a public database.

Call for the implementation “UU Akses Publik No. 14 Tahun 2008” (Access to Public Information) – to make data available
Implementation of e-submission funding.
Publication of government regulation and contact officials.

4. Inform end-users on the importance of energy efficiency

A campaign in public facilities on how to reduce energy consumption could help spread the message with success stories.

Produce energy bills with clear readings in kWh as well as rupiah and comparative kWh averages for the nearby region to allow comparisons and improve end-users’ understanding of energy consumed.

Proposed stakeholders

A multi-stakeholder group bringing together organizations like GBC Indonesia, IBCD, Employers Association (APINDO), Chambers of Commerce (KADIN) and other private sector organizations could coordinate this area of work.

This group, which could be named “Center for High-Performing Buildings” should aim to get the participation of the public sector

The use of the WBCSD Energy efficiency Toolkit for buildings (www.eeb-toolkit.com) could support the strategies set up by organizations to plan and initiate investments in their building portfolios.

02 Focus area 2: Workforce capacity – Training and Skills

Areas of work

Proposed stakeholders

At the level of professionals

5. Encourage professional organization to develop certification programs. Improve knowledge on Life-cycle cost analysis (LCCA) and maximize the use of ASEAN Energy Manager Accreditation Scheme (AEMAS) or other regional or internationally recognized programs.

This is particularly relevant with the start of the ASEAN Economic Community (AEC) on 1 January 2016.

For this solution, the time frame was expected to be in 1 to 2 years.

At the academic level

6. Push for an energy efficiency specific curriculum and a general Energy efficiency and conservation/Climate Change/Sustainability in formal educational institution.
7. Encourage private schools to participate in an energy efficiency/ climate change/sustainability program, teaching from an early stage. Specific mandatory courses on sustainability (based on many online models) and invitations to the private sector to donate their energy efficiency products (for example innovative “absorption chillers”, building energy management, building information modelling or superefficient solar PV, bio-mass or bio-fuel solutions) as “living laboratories” at university and technical colleges.

A group resulting from the EEB Lab could coordinate activity on workforce capacity targeting the following audiences:

Professional associations, certification institutions, building professionals (architects, engineers and technicians), Employers Association (APINDO), Ministry of Education, Ministry of Labor, Ministry of Public Works, Ministry of Industry, Ministry of Environmental and Mineral Resources and also BPPT (Agency for the Assessment and Application of Technology). Involvement of certification and other professional NGOs are also important such as Association of Energy Saving Professionals (HAKE), Energy Association of Indonesia (YEI), Pelangi and others.

Vocational schools, technical college students under the ministry of education and also ministry of higher education

02

Focus area 2: Workforce capacity – Training and Skills

Areas of work

To overcome the lack of basis knowledge about energy efficiency among the regulatory bodies:

8. Provide Basic training on energy efficiency for local/central governmental officials, backed up with authoritative online information as well as social media tools such as YouTube, Facebook, etc.
9. Promote knowledge exchange between government officials.

For this solution, the time frame was expected to be short term (1 to 2 years).

To define the skill set:

10. Define the set of competencies and skills for energy efficiency.
11. Obtain approval from the ministry of labor on certification criteria.

For these solutions, the time frame was expected to be in 2 to 3 years.

Proposed stakeholders

Stakeholders: National Directors, Sub-Directors, and Sectional Heads and Local Heads of District, Heads of Division, and Heads of Administrations).

ICLEI can support outreach to cities.

MASKEEI (Indonesian Society of Energy Conservation and Efficiency), HAKE (Association of Chief Conservation Engineer), Ministry of labor, Ministry of Environmental and Mineral Resources.

03 Focus area 3: Financing

Areas of work

12. Help banks to improve their understanding of energy efficiency models.
13. Collect proven case studies of successful energy efficiency business projects within Indonesia or other ASEAN countries (see Awareness).
14. Advocate for the government to provide financing mechanisms / incentives.
Use the example of the Energy Efficiency revolving fund and energy tax as in Thailand.
Other measures could include increasing the Building Area Coefficient - Koefisien Luas Bangunan (KLB) for green buildings; provide a discount on Land and Building Tax - Pajak Bumi dan Bangunan (PBB); tax reduction).
15. Examine developing ESCOs, with seed funding to set up efficient ESCO models at the ASEAN level. The example of Thailand provides a model.

Proposed stakeholders

A group resulting from the EEB Lab could coordinate the work on Financing in relationship with relevant financing organizations:

Financial Services Authority (OJK)
Ministry of Finance (BKF)
Central Bank (BI)
Asia Development Bank (ADB)
Asian Development Fund (ADF)
Japan International Cooperation Agency (JICA)
USAID Indonesia Clean Energy Development (ICED)
German Agency for International Cooperation (GIZ)
Danish Aid Agency (DANEDA)
Asia-Pacific Economic Cooperation (APEC)
ASEAN
UNEP/UNDP and others



Areas of work

16. Build dialogue between business and government to create a direct communication channel for recommendations/ input/feedback on:
- A. Streamlining policy and regulation
 - Make an inventory existing regulations
 - Review and evaluate the degree of implementation and results
 - Improve reporting to the ministries/related stakeholders (including data collection mechanisms; mechanisms for drawing up new regulations; revise outdated ones)
 - B. Disseminate relevant regulations to the public; encourage new ways to communicate them
 - C. Revise and Improve PP (Peraturan Pemerintah / Government Regulation) No 70/2009 Regarding energy
 - D. Implement additional regulations
 - E. Propose MRV (Measurement, Reporting and Verification) mechanism
 - F. Conduct public accountability on results of regulations and initiatives
 - G. Propose stronger coordination between ministries involved in driving energy efficiency at national level.

Proposed stakeholders

DEN (Dewan Energi Nasional), Kementerian Pekerjaan Umum (Ministry of Public Works), Kementerian Industri (Ministry of Industry), Kementerian Perdagangan (Ministry of Trades), Kementerian Lingkungan Hidup (Ministry of Environment), Kementerian Keuangan (Ministry of Finance) President, Vice President, Governors, Local Leaders.

Financial Services Authority (OJK), Ministry of Finance (BKF), Central Bank (BI), ADB, ADF, ICED/USAID, GIZ, DANEDA, APEC, ASEAN, UNEP/UNDP and others can help with the recommendations to Ministers.



NEXT STEPS

As a result from the EEB lab, a new platform, Energy Efficiency in Buildings – Jakarta has been set up as the overarching body to coordinate the work of the four groups which will implement the action plan:

- Awareness and understanding the multiple benefits of energy efficiency in buildings
- Workforce capacity (training and skills)
- Financing
- Policy and regulation

The WBCSD, Green Building Council Indonesia and IBCSD are managing this program in 2016 to drive the activities in the Jakarta market around each of the four focus areas and to build additional support to continue these initiatives beyond 2016.

A working group has been formed for each focus area, with a chairperson. Each working group comprises a diversity of energy efficiency market participants representing the building owners, building operators, equipment vendors, building tenants, the public sector and energy efficiency consultants. Each group will set their priority actions based on the findings of the EEB lab for the short term, medium and long term.

For further information, please contact Idris Sulaiman, coordinator of Energy Efficiency in Buildings – Jakarta on behalf of Indonesia Green Building Council
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See also the [WBCSD website](#), including progress reports on the work of the Energy Efficiency in Buildings – Jakarta platform.

SYNERGIES BETWEEN THE INDONESIA - AUSTRALIA COMMERCIAL BUILDING SYMPOSIUM AND EEB LAB

In October 2015, the Indonesia – Australia Commercial Building Symposium took place in Jakarta. ClimateWorks Australia, GBC Indonesia, the Jakarta Property Institute and various professionals agreed to start work on tangible program ideas that can deliver real improvements in the energy performance of buildings in Indonesia. Following the workshop, three focus areas have been progressed:

- | | | |
|--|---|--|
| 1. Develop a new performance-based energy efficiency benchmark for Indonesia | 2. Create an international forum for sharing best practice in building code development, implementation and enforcement (starting with Australia and Indonesia) | 3. Develop and communicate a strong business case for high energy performance buildings, tailored for each stakeholder |
|--|---|--|

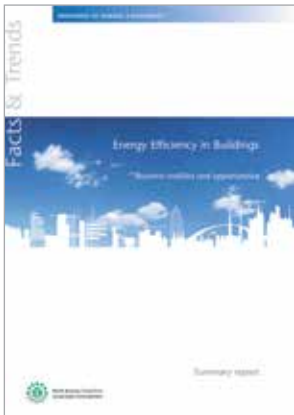
Efforts are also underway to progress the 3 other focus areas identified at the workshop: analysis of finance mechanisms for energy efficiency in Indonesia; develop a standard competence for building professionals in energy efficiency; and establishment of periodic retro-commission and reporting of the energy performance of existing buildings.

Considering the synergies between these action areas and the EEB lab scope of activities, stakeholders of the two programs will coordinate where possible to deliver results.



APPENDICES

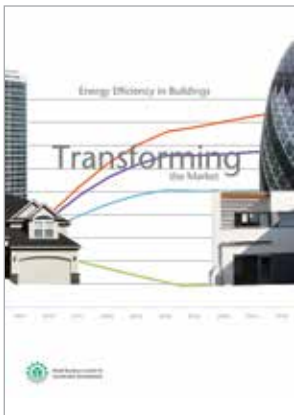
The WBCSD's EEB 2.0 project



In response to climate and development challenges in the building sector, the World Business Council for Sustainable Development (WBCSD) initiated the cross-industry Energy Efficiency in Buildings (EEB) project. In the first phase, from 2006 to 2010, the EEB project sought to create an understanding of both the challenges and the opportunities within the global building sector.

The project's first achievement was the publication of the **Facts & Trends** summary report, which combines the findings from research existing at the time of the project and stakeholder dialogues during hearings, workshops and forums with a breakthrough market research study that measures the stakeholder perceptions of sustainable buildings around the world.

The project's second milestone was the publication of its second report, **Energy Efficiency in Buildings: Transforming the Market**, launched in 2009. The report is based on a unique simulation model that analyzes the energy use of thousands of building types and millions of existing and new buildings, both commercial and residential. This model shows how energy use in buildings can be cut by 60% by 2050, which is essential to meeting global climate change targets. But this will require immediate action to transform the building sector.



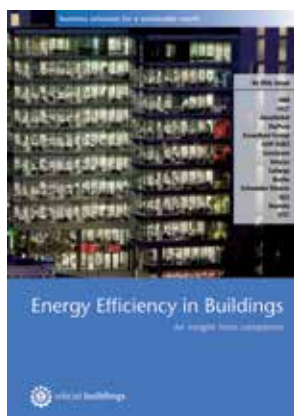
Finally, the EEB project also developed a roadmap setting out the key actions in the short and medium term for the seven groups that can contribute to meeting this challenge, ranging from investors to government authorities. The roadmap is an addendum to the main report, **Transforming the Market**.

See: <http://www.wbcd.org/work-program/sector-projects/buildings/eeb-first-phase.aspx>

WBCSD'S VISION 2050 SEES "9 BILLION PEOPLE LIVING WELL, WITHIN THE RESOURCE LIMITS OF THE PLANET BY 2050."

As this 2050 timeline is too distant for businesses to plan against, the WBCSD launched a stepping stone initiative, Action 2020, which has identified priority areas for business action that are based on scientific facts and social trends. A societal "Must-Have" has been set for each priority area that business solutions should work towards achieving by 2020.

The Energy Efficiency in Building 2.0 project will contribute to the climate change "Must-Have" by working with member companies to dramatically reduce the energy consumption of new and existing buildings.



CLIMATE CHANGE "MUST-HAVE"

With the goal of limiting global temperature rise to 2°C above pre-industrial levels, by 2020 the world must have energy, industry, agriculture and forestry systems that simultaneously:

- Meet societal development needs;
- Are undergoing the necessary structural transformation to ensure that cumulative net emissions do not exceed one trillion tonnes of carbon;+ peaking global emissions by 2020 keeps this goal in a feasible range;
- Are becoming resilient to expected changes in climate.

+ Anthropogenic CO₂ emissions from pre-industrial levels as outlined in the IPCC Working Group I Fifth Assessment Report. One trillion tonnes carbon = 3.67 trillion tonnes CO₂.



As part of the EEB project, the WBCSD decided to bring a Manifesto for Energy Efficiency.

Buildings to all its members, calling on them to take voluntary action. By signing the **Manifesto**, companies “walk the talk” and send a strong message to the market, stakeholders and employees.

The Manifesto and its accompanying **Implementation Guide** outline five actions for companies:

1. Create a baseline for the company’s commercial buildings and set time-based energy and/or CO reduction targets in line with transformative change;
2. Publish a company policy for minimum energy performance levels in the company’s commercial buildings;
3. Define and carry out the company’s audit program and implementation strategy to meet energy targets for its commercial buildings;
4. Publish buildings’ energy use, CO emissions and progress against reduction targets annually in the company’s corporate social responsibility or other report;
5. Further promote energy efficiency in buildings among suppliers, employees and other stakeholders through advocacy, marketing activity, R&D, education and training.

140+ member companies, non-member companies and regional network partners have signed the Manifesto.

For more information on the WBCSD Manifesto for Energy Efficiency in Buildings, please see:

<http://www.wbcscd.org/work-program/sector-projects/buildings/eeb-manifesto.aspx>.

In 2014, WBCSD issued two magazines which describe the successes and challenges of companies implementing the EEB Manifesto

An **insight from companies**, April 2014 and **A call to action**, September 2014

In December 2015, an Energy Efficiency Toolkit for Buildings was released - A web guide for organizations to plan and initiative programs on energy efficiency. It focuses on the business case and illustrated with good practices from companies.

www.eeb-toolkit.com

Check the WBCSD website <http://www.wbcscd.org/buildings.aspx>



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TECHNICAL COMMITTEE

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