Proceedings of the Launch Workshop.

Building Efficiency Accelerator

ICLEI Local Governments for Sustainability, South Asia

November 2016

Table of Contents

Introduction:

A half day workshop was recently organised in Rajkot city of Gujarat on 18th November 2016 to kick off the Sustainable Energy for ALL (SE4ALL) Building Efficiency Accelerator (BEA) project, launched by UNEP to assist the sub-national governments in speeding up the process of adoption of best-practice policies and implementation of building efficiency projects. Rajkot has been selected for deeper engagement and receiving technical assistance in identifying building energy efficiency actions, developing work plans and implementing policies, projects and tracking methods to fulfil its BEA commitments. Rajkot Municipal Corporation (RMC), with assistance from the World Resources Institute (WRI), has initiated Building Efficiency Accelerator (BEA) project, being implemented by ICLEI-Local Governments for Sustainability, South Asia (ICLEI South Asia).

Objective of the workshop was to publically communicate the city's commitment to pursue building efficiency actions while identifying and engaging a diverse set of stakeholders who are critical to the effective implementation of building efficiency actions in Rajkot. Outcome of the workshop will be utilised to develop a shared vision regarding the importance of building efficiency for achieving the community's broader goals and identify partners who are interested in assisting the city to achieve its BEA goals. The intent was to establish a shared body of knowledge among stakeholders with different levels of technical expertise and help the city to identify or refine the specific actions it will further assess for potential implementation.

The project was inaugurated by Mr. Jaiman Upadhyay, Honourable Mayor and Mr Banchhanidhi Pani, Honourable Municipal Commissioner, Rajkot Municipal Corporation at the workshop that was held on November 18, 2016, in presence of Ms. Darshitaben Shah, Deputy Mayor, Rajkot Municipal Corporation, Mr. Bharath Jairaj, Director, World Resources Institute and Mr. Ashish Rao Ghorpade, Regional Executive Manager, ICLEI South Asia. The workshop, focused on accelerating and promoting the green building design, energy efficiency in building concept in Rajkot and targeted city representatives, the builders' association, the architects' association, association of civil consulting engineers and the Rajkot Chamber of Commerce.

The inauguration session of the launch workshop was followed by one technical session and stakeholder group exercise. While the first session focused on green building technologies and deliberations over green building policies and regulations at national level, sub-national level and city level, the second session included stakeholder group exercise to know their views on energy efficiency in existing buildings and green building design.

Welcoming the BEA team, **Mr Banchhanidhi Pani**, **Municipal Commissioner, Rajkot Municipal Corporation**, expressed his gratitude for selecting Rajkot for this project. He mentioned that Rajkot is one of the fastest developing cities of Gujarat (22nd fastest growing urban centres in the world). He added that 38% of the energy can easily be saved in buildings sector following very simple steps and without any financial and technological intervention. Recognising need to engage relevant stakeholders in this initiative which may include Rajkot Municipal Corporation, Builders' Association, Architects' Association, Civil Engineers' Association, he emphasised to involve academic Institutions as well as the citizens because they are the end consumers. He has also cited several examples of

traditional houses called “Bhunga” in Kutch region of Gujarat as well as the traditional houses of south India, Mohenjo-Daro and Harappa those were very well planned and they have used natural source of energy. He criticised the failure in considering the local aspects in planning and coping from other irrelevant models, without taking into consideration local aspects. Awareness is another area which the municipal commissioner has highlighted and encouraged the need to innovate, continuously and to use a mix of traditional and modern methods in buildings’ planning.

Mr Bharat Jairaj, Director, World Resource Institute, explained on postulates and framework of Buildings Efficiency Accelerator Program in his introductory remarks. He mentioned that benefits of exploring building energy efficiency are not limited to environmental sustainability but it has other economic and social benefits. International research papers and studies show that building efficiency is most cost effective intervention, yet in reality this space sees the least amount of action. Thus it is important to take action in this sphere by identifying priority areas and making cost effective solutions. He has suggested identifying the need of cities using support from stakeholders and picking up the most important issues of the city. He further recommended forming new partnership and alliances to unlock finance & incentives as well as the technology options which might be useful for the cities. He mentioned that under this project, we seek cities’ cooperation to:

1. Implement one enabling policy,
2. Suggest and help to implement one demonstration project and
3. To create baseline for entire city to be used as platform for track and report progress.

Further he cited example from Mexico City where BEA program is implemented. He also highlighted important steps taken by Mexico City and challenges faced by them in implementation of the same. He lauds effort of the team who in spite of these challenges, in span of just 16 months drafted a building efficiency policy through which several buildings in the city have been audited and retrofitting is taking place.

He has expressed his gratitude towards all the stakeholders who have joined the meeting and seek their involvement in the project. He mentioned that as part of this project a work plan will be developed by the project team within coming months in collaboration with stakeholders with details on implementation of this project in Rajkot.

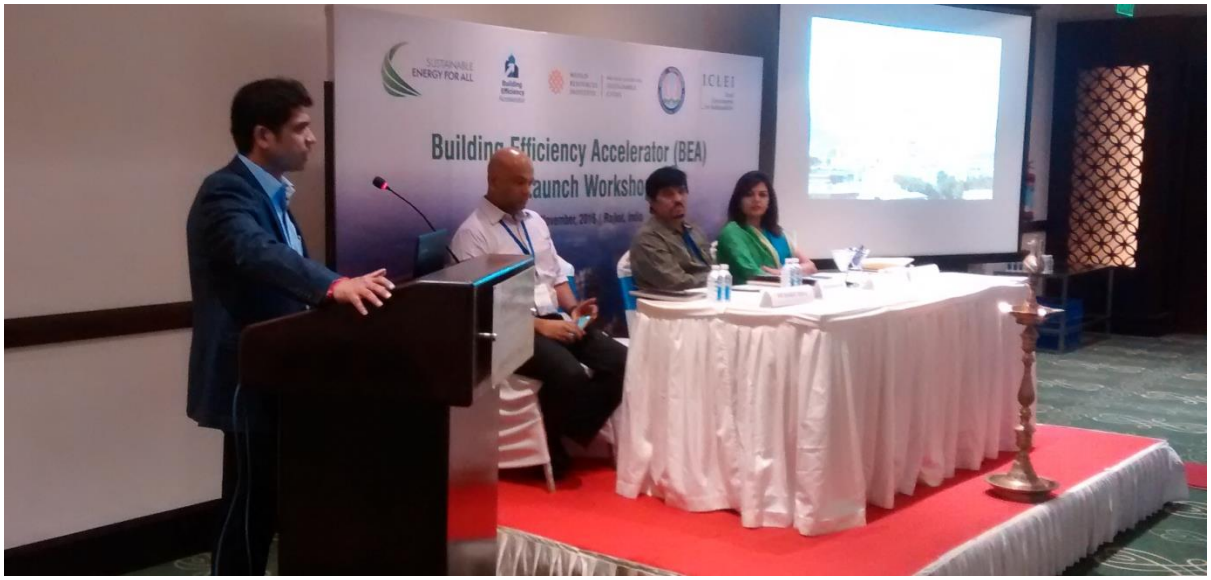
Dr. Jaimin Upadhayay, Honourable Mayor, Rajkot Muncipal Corporation, in his opening remarks has pointed out that Rajkot is developing very fast and wishes that all the development takes place in an environment friendly manner. He mentioned the recent selection of the city as one of the hundred smart cities under government of India’s Smart Cities Program and exhibit hope that very soon the implementation would start under the guidance of national and sub – national ministries for urban development.

He mentioned that Rajkot city is already in the process of implementing environment friendly and sustainable policies and actions. The exploration and implementation of low emissions strategies has enabled the Rajkot city to develop and prosper in sustainable, modern, affordable and green ways. He mentioned that Rajkot has recently been awarded the prestigious Earth Hour Award (National Earth Hour Capital in 2016). He also mentioned

that RMC has target to reduce our carbon emissions by 25% by the year 2020, for which Rajkot Municipal Corporation will dedicate all the required efforts.

Further, emphasising upon the increasing number of population in the city and internal migration, he mentioned that Rajkot has an approximate population of 15 lakhs and the development is very fast due to its status as the capital of Saurashtra region. This has lead Rajkot to develop into a local hub for medical services, education and industry.

We have taken this project on Building Efficiency Accelerator and looking forward to receive the technical and financial support from WRI and ICLEI South Asia in knowledge sharing and technology intervention to develop Rajkot as a truly green city.



Session I: Technical Session on Green Building Design

Session I was focused towards setting a context regarding the national and sub national schemes and programs that are available for the local governments to take appropriate actions in building efficiency stream. Besides, providing useful information on the national guidelines, schemes and programs, useful examples were also shared with the stakeholders for them to compare it in local context and take the necessary steps. Besides this, efforts were made to present the current local context regarding building efficiency programs / projects and enable all the stakeholders present in the workshop to compare and conceptualise a vision for sustainable future where building efficiency take the lead and take innovative steps.

Ms Roshini Udayawar Yewada, head of the department from Rachana Sansad Institute of Environmental Architecture discussed about the importance of building efficiency and sources of external and internal energy in a typical building. Emphasising on the need of research and innovation in various areas of building design and materials, she mentioned that estimates show that residential sector has a high energy consumption pattern that increases the peak load demand. This is highly been attributed to the increased use of Heating Ventilation and Air Conditioning (HVAC) in residential sector. She further mentioned that similarly in commercial sector the increased affordability of air conditioners has given rise to space conditioning becoming the primary energy consumption in commercial buildings and this consumption is expected to increase by 55% in 2030. Introducing various steps and measures to curb and limit the energy demand in commercial buildings, she said that implementation of Energy Conservation Building Codes (ECBC) in buildings could lead to saving of at least 30-40% in energy consumption and that would eventually translate into monetary savings to the building owners. She has provided updates on the current status of notifications that have been circulated in Gujarat and Maharashtra states to prepare and plan a road map for energy efficiency in buildings.

She has further shared the details on various components of the building codes and standards for envelop design parameters as per the local climate and use of various materials. She emphasised on the need of post construction monitoring which is very important to know the result and take further actions. Performance monitoring and benchmarking could be done using BEE star rating for buildings which is based upon energy performance index (EPI). She has listed out various performance benchmarking framework like GRIHA (Green Rating for Integrated Habitat Assessment), LEED (Leadership in Energy and Environmental Design), EcoHousing and Indian Green Building Council (IGBC) Code. Of these benchmarking frameworks she talked in detail about GRIHA and highlighted the near zero Energy Buildings which is a new concept around the world. India is currently targeting that all the new buildings will be nearly zero energy buildings by 2030. She has shared the case Studies from IIT Kanpur, Fortis Hospital in Delhi Torrent Research Centre, Ahmedabad and Empire State buildings that were able to achieve reduced energy consumption by up to 98% after adopting energy conservation and efficiency measures like cavity wall with insulation, insulated and shaded roof, double glazing, daylight integration and high-efficiency HVAC.

Mr Raju Pandya, Consultant and Ex. Employee, GEDA discussed on the current status of implementation of ECBC and other building energy efficiency codes in Gujarat. In his opinion not a lot of progress has been made but there is tremendous potential. He also emphasised the need of inclusion of building efficiency codes in the local building byelaws (General Development Control Regulation) to implement green building design for future constructions in the city, which is important as Rajkot is developing very fast. Identification of various issues that may be curbing Building efficiency would be crucial first step, which may include issues regarding awareness among all stakeholders, information gathering and storage for future audits and lack of incentive for architects and engineers. Star rating system must be part of marketing strategy for all kinds of buildings which is based on ECBC and other green building codes and standard, which later becomes a marketing tool for builders. He mentioned that it is very important to implement green building design features and envalop of building which will save more energy than retrofitting of energy efficient appliances in old building. . He briefly discussed about financial and technical tool available to access building efficiency. He concluded by saying that some progressive action is required and it would be ideal to showcase a demonstration project to serve as role model for large consumers of electricity.

Mrs Aaplana Mitra, City Engineer (sp.), housing department, RMC discussed about the green building initiatives taken by Rajkot Municipal Corporation in affordable housing scheme. Building efficiency accelerator is not just energy efficiency but encapsulated a larger building efficiency project. She has referred various action areas which may include water conservation, ventilation design, natural lighting, etc. that may be incorporated in the building efficiency. Giving the current status of General Development Control Regulations (GDCR), she mentioned that Rajkot has highlighted six important components in building efficiency which are rain water harvesting, grey water recycling, energy efficient buildings, solar water heating system, tree plantation and occupancy certificate. She updated on the status of implementation of rain water harvesting system, which was mandatory by law in Rajkot since March 2004 and has shown good results. Also, Grey water recycling, tree plantation and solar water heating is also mandatory since March 2004 for hospitals, hostel and schools, commercial buildings and other large buildings. Though energy efficient measures are not mandatory but builders who consider taking certification like GRIHA, LEED, etc. are given appropriate incentive is being given to the builders in form of 5% discount to buy additional FSI (Floor Space Index). In case of non-compliance with the above norms and occupancy certificate (permission issued by the local body to builder after inspection of all rules and regulation were followed per GDCR and builder can be to allow sale/rent/lease of constructed property) could be withheld.

She further explained about RMC's building efficiency efforts in affordable housing scheme under various state and central housing programmes. She later on elaborated about research done in design charrette under the Indo-Swiss Building Energy Efficiency Project (BEEP). She explained result of design charratte program done at Rajkot and implementation of the same in their upcoming new housing scheme to see energy saving scenario and create model green affordable housing scheme.

Session II: Group Exercise

In Group exercise, all the participants were divided into five groups of 7-8 members each. Each of the group was tasked to identify the most important and relevant policy and action areas for Rajkot city amongst the several options that were given to the group. A simple hand out with information on various policy / pilot project options were circulated amongst the participants and they were instructed to carry out the discussions on the appropriateness and relevance of the most important and feasible options with the help of the guiding questions mentioned in the hand out. Each group was given 60 minutes time for the discussion and recording their recommendations. After which, representative from each group was requested to come and present the summary of the discussions along with most important interventions in policy and action areas and respective dynamics of it. The recommendations from each of the groups are mentioned in the following sections here:

Group One: (1. RMC: Deputy Commissioner and City Engineer, 2. GPCB, 3. IGBC, and 4. Researchers)

The summary of recommendations from group one is mentioned as follows:

1. Some kind of Incentive regarding FSI should be given to those developers who are complying with ECBC.
2. Buildings which do not comply with any of the building codes should be subject to strict actions in the way of penalties and other fine.
3. Occupants may be given incentives in property tax to comply with Green Rating system.
4. Existing buildings could also be incentivised based on property tax and/or electricity tariff.
5. All Public building must go for Green Building Rating in open selection manner – IGBC or GRIHA or LEED and further ECBC should be compulsory
6. For commercial buildings, ECBC is mandatory for all the buildings which are larger than 1,000 sqm. But the state government can initiate its own time line for various buildings sizes.
7. All the green building should have signage prominently marked. This would lead to awareness in the citizens. , awareness should be done by the builders, by the people who are using it, and by the people who are giving them the certificates like IGBC, GRIHA or LEED. Awareness should be taken up at the larger scale by the municipal authorities and the private parties through all kinds of media.
8. Co-ordination between various authorities i.e. various utilities and the municipal corporation could be important form monitoring and incentive perspective.
9. Academic institutions should be conducting training program for awareness on various subjects including energy simulation, and it should be targeted towards architects, developers, government town planners etc.
10. ECBC must be linked to GDCR.
11. Low cost loans and to incentives for developers.
12. Public building could be used for Demonstration project.
13. In case of SWH which is mandatory – there should be quality standardization.
14. Commercial building large ones should be assessed by ULB a list of accredited TPA should be formed who can certify at fixed fee.

Group Two: (1. Consulting Engineers; 2. Developers; 3. Engineers from Electrical department of RMC)

The summary of recommendations from group two is mentioned as follows:

1. Green Building Manual exhibiting its definition, features and processes should be made such that clearly show they can be voluntary or mandatory. Hence Voluntary initiative could be highlighted.
2. Building which take Green certification should be highlight by municipal corporation in terms of environmental benefit, cost benefit and power consumption to the people.
3. Existing building could be converted into green building and best effort should be recognised based onwards.

Group Three: (Group of Civil Engineers, Officers from town planning and accounts department, RMC)

The summary of recommendations from group three is mentioned as follows:

1. Baseline could be made based on energy consumption and building space parameters. Integration between Electrical Utility Company and Municipal Corporation could be bridged by collecting metering information at the time of completion.
2. ECBC could be made compulsory for all public buildings.
3. In Rajkot due to water crisis, Rain water harvesting is currently mandatory for all buildings larger than 15000 m^2 in area but only few projects are successful.
4. Performance monitoring could be very important from implementation point of view. All the buildings must be audited every two years to check losses in implementation.
5. Awareness and transparency could lead to improvement in future specially in water bills, where high cost incurred by government is not visible to citizen.
6. Certain bill boards should be placed with weather and pollution control mechanism to see status of air pollution.
7. In all the traditional building height of the floor is three meters and at the top ventilation used to be there, which was excellent way create vertical air circulation.

Group Four: (Ex. GEDA officer and consultant, Engineers from RMC and people from Banks)

The summary of recommendations from group four is mentioned as follows:

1. Awareness on Green Building could be done, such that architects and developers understand that any addition cost they put in making energy efficient buildings it can recover from payback as savings from the building.
2. For big building some bench marking may be done based on Energy Performance Index (EPI), which can in kW/m^2/annum. This could be brought out by having database for building information about consumption patterns in representative groups for these samples.
3. It will be good to have a database for building energy consumption and Small but definite start must be done as improvements can always be done.
4. Elaborate studies are required in terms of energy consumption, though some suggestions are available in form of EPI for different climatic zones but these could be very well be outdate due fast paced development of technology
5. Majority of the saving come from envelop, by using good material and good design strict norms with strong compliance should be there.
6. Once the building is occupied, energy consumption data available with the utilities could be used for monitoring purpose. Further a small penalty could be applied on the high consumption for users in large buildings.
7. Builder have to go through lot of hurdles process of approval could be simplified, but a strict compliance for the efficiency norms and after that occupant can be encouraged to use energy efficient appliance.
8. Energy efficient Buildings attract additional cost, which can be shared in form of fiscal incentives like giving rebates on property tax or in terms of additional FSI.
9. Compliance could be ensured using easy to use tool that mutually acceptable by both builders and local government, so that clearance hurdles could be reduced.

Group Five: (1. RMC Officers, 2. Climate Change Consultant and 3. Architects)

The summary of recommendations from group five is mentioned as follows:

1. There is lack of information on Energy Performance Index and this could be developed only with the conjunction between Municipal Corporation and PGVCL. A database needs to be created that could store this information and Energy Performance Index could be calculated.
2. Some restriction on glass to wall ratio could be enforced.
3. Currently assessors demand a huge fee which could be shared by the government and assesse.
4. On inclusion of ECBC in Local Byelaws, consensus believes it might feasible to implement Third Party Assessor model. So the stakeholders could be trained on using tools and other resources that might be required must be made available to them.
5. On the financial aspect, participant believe that no benefits could be provided to the buyers, however they believe that cheaper loan or property tax relief may be made available to the user.
6. Clear label on buildings regarding certification would create awareness among the citizen and instil a sense of pride.
7. Rain water harvesting could be used for personal use and not for recharging of well.
8. A lot of capacity building needs to be done which could be in form of training program for architects, engineers and government officers may be conducted.

Closing Remarks by Honourable Municipal Commissioner, RMC

Closing Remarks were delivered by Honourable Commissioner Mr. Banchhanidhi Pani. Results from group exercise were well received by him. Educational Institutions can be major asset for capacity building training regarding green building and spreading awareness. He explained and made it mandatory for all the government buildings to get the green building rating from any agency like GRIHA or LEED. Some form of database shall be created to store and process information such as energy consumption, building area; this may not made public information but will serve to help the relevant departments to make a baseline survey and compare results with that. Engineers, Architects, Designers and Builders must be awarded based on review if they are following green building standards and norms and taking green building certification from any of related agency. It shall be six months lay to establish process. Also, RMC can talk to bankers to provide low interest housing loans to people who are buying house in building which follows green building norms. He emphasised to prepare a guideline and manual for best practices for city of Rajkot based on the most successful practices all over India, which suit the local requirements. Smart Energy Lab needs to be started in educational institution where students will know about energy management, energy audits, participate in activities, they will analyse the databases, public policy makers may use information from these data sources. The final recommendations given by the honourable municipal commissioner of Rajkot Municipal Corporation can be summarised as follows:

1. Setting a Baseline - Setting a baseline to form strategy to achieve energy efficiency in buildings to analyse baseline situation, suggest appropriate technical options to stakeholders and policy makers, monitor and report activities and compare them with baseline
2. Inform, Consult, Involve, Collaborate and Empower (Awareness activities)
    - Training and capacity building for all stakeholders regarding energy efficient building design i.e. Builders, Developers, Architects, civil engineers, education and finance institute under RMC as an umbrella for implementation.

- Consultation with all the stakeholders including PGVCL, affordable housing development team, Smart cities team, builders, developers, architects, civil engineers, education and finance institute
- Energy Labs to be formed which will create awareness among the students and encourage them to learn about new and innovative technologies. Further enabling students to participate and contribute in some activities of the awareness.
- Collaborate with stakeholders to prepare guiding manual for Rajkot city with good examples of building energy efficiency traditional and good practices in India, based on ground reality.
- Empower engineer, architect and builders who follow green building norms.

3. Creating a Monitoring, Reporting and Verification (MRV) framework:
   - Monitoring and reporting of implementation of energy efficient building certification for buildings
   - Verification and correction by RMC and compare with baseline - during building use permission

Next Steps

1. **Develop and send workshop summary document (with presentation slides, participant list, etc.)** – *to all participants and invitees-* ***Done***
2. **Identification of members to form the coordinating group** (Representatives of relevant city departments involving environment, property, buildings, urban development, finance, a representative of the commissioner's office, and relevant private sector, technical, financial or academic partners**)** – ***Done***
3. **Preparation of a draft work plan –** ***Done***
4. **Develop a ToR for the coordinating group** (a Terms of Reference detailing the mandate of the coordinating group like discussions and suggestion on the proposed objectives and activities identified under this project, research and technical suggestion on key questions and activities, and get insights from the group) – ***Done***
5. **First meeting of Local BEA Coordinating Group -** the main focus of the first meeting is to present the draft work plan and discuss identified activities under project – ***Proposed to the city administration, awaiting response***
6. **Final work plan development and approval from RMC** (a draft 18-month work plan shall be finalized after review and comment by the coordinating group. Final work plan shall be approved by RMC)) - ***Targeted by 31st of January, 2017***

Annexure I – Agenda of the Workshop

Building Efficiency Accelerator (BEA) - Launch Workshop **Date: 18th November, 2016** Venue: Hotel Fortune JPS Grand, 150 Feet Ring Road, Rajkot		
Workshop Agenda		
Moderator: Mr Ashish Verma, Manager, ICLEI South Asia		
Duration	Topic	Speaker / Organization
9:30 - 10:00	Registration	-
10:00 – 10:05	Welcome Remarks	Mr Banchhanidhi Pani Hon. Commissioner, Rajkot Municipal Corporation
10:05 -10:10	Inaugural Ceremony: Lighting of the Ceremonial Lamp	
10:10 – 10:25	Introductory Address	Mr Bharath Jairaj, World Resource Institute
10:25 – 10:35	Opening Remarks	Dr Jaimanbhai Upadhyay, Hon. Mayor, Rajkot Municipal Corporation
10:35 – 10:50 Tea Break		
10: 50 – 11:05	The Buildings efficiency Opportunity	Ms Roshni Udyavar Yehuda, Head of Department at Rachana Sansad Institute of Environmental Architecture
11:05 – 11:20	Regulatory and policy provisions to implement buildings efficiency in cities	Mr Raju Pandya, Independent expert on Energy Management
11:20 – 11:35	Sustainability in affordable housing	Mrs Alpana Mitra, City Engineer (Sp, Housing), Rajkot Municipal Corporation
11:35 – 11:45	Q&A	
11:45-13:15	Working group session: Policies and regulations to accelerate buildings efficiency in Rajkot	
13:15 – 13:45	Conclusion and Way Forward	Representative from each group and moderator
13:45 –13:55	Participant feedback	All Participants
13:55 – 14:00	Closing Remarks	Mr Banchhanidhi Pani Hon. Commissioner, Rajkot Municipal Corporation
14:00 – 14:05	Vote of Thanks	Mr Ashish Rao Ghorpade, ICLEI South Asia
14:05 onwards	Lunch	

Annexure II – Hand out for group discussion

Building Efficiency Accelerator

The SE4ALL Building Efficiency Accelerator (BEA) assists sub – national governments to improve the energy efficiency in their jurisdictions. The multi – sectoral collaboration will help speed actions on the efficiency policies and projects.

Commitments under the BEA

The Building Efficiency Accelerator will support the city of Rajkot in fulfilling its three commitments. Rajkot, like other BEA partner cities, commits to three activities in which it is supported by the BEA and its extensive partner network:
(1) Developing or implementing an energy efficiency policy,
(2) Implementing a demonstration project and
(3) Establishing an approach for tracking progress, documenting activities and successes against policy and project goals.
The discussion held during this inception workshop shall support the selection of the most appropriate action in these three categories to accelerate efficiency in Rajkot's buildings, with an emphasis on the options for policies (see Table 1) and demonstration projects (see Table 2).

Selecting the right policy option for Rajkot

Participants are encouraged to share their perspectives and opinions on the options presented. Leading criteria for the selection among these options include their "importance" and "feasibility". The guiding questions for the discussion are:

1. How important is the action? How large will the impact be? Can it be scaled up?
2. How difficult is the implementation of this action? How likely are we to be successful? Is there authority to take action? Is there political will and leadership?
3. What are barriers to implementing this action? How can they be overcome?
4. Which of these actions are most aligned with the broader energy and development strategies for Rajkot?

Table 1: Policy options for accelerating buildings efficiency

Problem statement/Barrier	Action area	Proposed policy	Feasibility (Very feasible/ Feasible/Not feasible)
Lack of information about the energy performance of buildings and benchmarking of energy performance for existing buildings	Building energy Performance information and certification	Mandating reporting of electricity consumption by all government and commercial buildings in Rajkot	
		MNRE's GRIHA (green building rating program) to be made mandatory for all	

		new government buildings in Rajkot	
Split incentives- Building owners do not want to invest in energy efficiency because tenants/occupants pay for electricity bills. This is especially true for commercial buildings where occupants are leased spaces and do not have any choice on efficiency of equipment and common services that building owner or manager provides.	Building energy codes and standards	Energy Conservation Building Code (ECBC) should be made mandatory as per RMC building bye-laws	
No financial support or incentives to builders/project developers	Finance and incentives	Low cost loans to project developers	
		Incentives in the form of 1-4% increase in Floor Area Ratio (FAR)	
Any Other			

Selecting a demonstration project for Rajkot

The chosen policy option from the discussion above will be supported by a demonstration project. Potential projects for demonstrating impact of enabling buildings efficiency policy have been listed below. The demonstration project should also fit into Rajkot's energy efficiency targets. Rajkot has committed to a 45% reduction in GHG emissions by the year 2020. Rajkot is also a participating in the 100 smart cities challenge. Smart cities are required to ensure that 80% of the buildings in redevelopment and green field projects are energy efficient and green buildings. Of these, at least 15% should be in the affordable housing category.

Table 2: Potential demonstration projects for Rajkot

Potential project idea	Project description	Is this of interest?
Renovation of existing municipal buildings	Identify 1 existing municipal building, conduct an energy audit, identify options to improve energy efficiency and implement those options through renovation	

Energy efficiency in new affordable housing in Rajkot	Builders/developers of affordable housing in Rajkot can be given guidance on process of designing and constructing energy-efficient new homes. BEA tools and resources can be provided to project developers on building efficiency technologies, best practices and low cost/no-cost options for affordable homes	
Energy benchmarking program for large commercial buildings/government buildings to set energy efficiency targets	Electricity consumption data of selected large commercial buildings and government buildings can be used to benchmark energy performance and then use to set energy efficiency targets	
Training/capacity building program for builders/developers on tools for incorporating energy efficiency in construction	Developers can be trained on suite of tools and resources (e.g. IFC's EDGE certification) that will help guide builders in decision making on energy efficient construction	
Any Other		

Annexure III – Attendance Sheet

ICLEI Local Governments for Sustainability — SUSTAINABLE ENERGY FOR ALL — WORLD RESOURCES INSTITUTE | WRI ROSS CENTER FOR SUSTAINABLE CITIES

Registration Sheet

Building Efficiency Accelerator (BEA) - Launch Workshop

Date: 18th November, 2016

Venue: Hotel Fortune JPS Grand, 150 Feet Ring Road, Rajkot

S.N.	Name	Designation / Department	Phone Number	E-mail id	Signature	
1	Savan Motani	Manager / Yes Bank	9978877070.	savan.motani@yesbank.in	[signature]	(3)
2	JAGDISH KADIVAR	Manager / Yes Bank	7600997229	Jagdish.Kadivar@Yesbank.in	[signature]	(4)
3	Ajay Vegad.	DEE / RMC.	9624096899.	ajayuvegad@gmail.com	[signature]	(1)
4	Ambrish D. Mehta	DEE/RMC	9624971000	ambrishmehta@gmail.com	[signature]	(6)
5	Himanshu Shah	Executive Officer / I4SC	9687261000	himanshu.shah@cii.in	[signature]	(5)
6	Chirag Pandya	City Engineer	9714503719	rmc_jnnurm@yahoo.com	[signature]	(12)
7	ASHISH R G.	MGR, ICLEI	9818011633	ASHISH.RAO-GHORPADE@ICLEI.ORG	[signature]	(4)
8	Dr. Suresh Bhesaniya	Research officer (RMC)	98795-83377	skbhesaniya@yahoo.co.in	[signature]	(6)
9	Ajesh Raju	Asst. Engg (JNNURM-RMC)	89050 85450	ajesh.b.raju@gmail.com	[signature]	(6)

I.C.L.E.I Local Governments for Sustainability

SUSTAINABLE ENERGY FOR ALL

WORLD RESOURCES INSTITUTE | WRI ROSS CENTER FOR SUSTAINABLE CITIES

	No.	Name	Organization	Phone	Email	Signature	
	10	BHARAT KANTARIA	Unique Design Unit Proprietor	9428889383	bbkantaria@hotmail.com	BBKantaria	(4)
	11	J.V. HERMA	Rajkot Building Deve. ~~Corp~~ Association	9624733990	JVHerma@gmail.com		(5)
	12	R.N. Pandya	En. Consultant	9909922457	rprasad58@yahoo.com	[signature]	(3)
	13	M.S. JAVIA	RADHE	9227574427	msjavia@gmail.com	[signature]	(5)
	14	Pratik mistry.	ARCHITECT. IIA (Sau)	99988 15851	Pratik.mistry118@gmail.com	[signature]	(5)
	15	CHAITANYA SINHAR	ARCHITECT IIA (SAU.)	9426915816	CSINHAR@GMAIL.com	[signature]	(3)
(1)	16	R.J. Hulumi	Dy. Commi. RMC	9714503702	~~[illegible]~~ dmc.wz.rmc.gujarat	[signature]	(4)
(3)	17	A M Mitra.	RMC, CE.	9714503710		[signature]	(5)
	18	Kumar Abhishek	RMC, TPS	9978975654	splendra@gmail.com	[signature]	(5)
	19	Er. Nilesh kalra	ACCE - Rajkot	9824249945	nvk-design@yahoo.com	Nilesh	(5)

ICLEI Local Governments for Sustainability | SUSTAINABLE ENERGY FOR ALL | WORLD RESOURCES INSTITUTE | WRI ROSS CENTER FOR SUSTAINABLE CITIES

20	V P. Padaliya	DEE	9723456338	VPPatdiliya @yahoo.in	[signature]
21	R. D. Kadu	A.E	9574712777	Teeyazuddin Kadu@gmail.c	[signature]
22	VIRENDRA GANDHI.	A.C.C.E	98242 12042	gandhi.virendra @gmail.com	[signature]
23	GAURAV SOLANKI.	A.C.C.E.	9099028701	[illegible] @gmail.com	[signature]
24	Prakash Mandevia	Architect.	9879003113		[signature]
25	Chinmai Hemani	Climate Change Consultant	9426431216	Chinmaihemani @ gmail.	[signature]
26					
27					
28					
29					

ICLEI Local Governments for Sustainability | SUSTAINABLE ENERGY FOR ALL | WORLD RESOURCES INSTITUTE | WRI ROSS CENTER FOR SUSTAINABLE CITIES

Registration Sheet

Building Efficiency Accelerator (BEA) - Launch Workshop

Date: 18th November, 2016

Venue: Hotel Fortune JPS Grand, 150 Feet Ring Road, Rajkot

S.N.	Name	Designation / Department	Phone Number	E-mail id	Signature	
1	C.K. Nandani	Dy Commissioner	9714503707	cnandani@rmc.gov.in	[signature]	1
2	P.C. Vekariya	Dy. Executive Engineer	9624700659	pcvekariya@rmc.gov.in	[signature]	2
3	K.P. Dethariya	Addi. city Eng. RMC	96247 38181	kpdethariya@rmc.gov.in	[signature]	4
4	G H Trivedi	Sn Env Eng GPCB - Rajkot	7574827422	vorajkot@gmail.com	[signature]	2
5	H. P. Patel.	Sr. Sci. officer GPCB Rajkot	9825273918	gpcb-roj@gujarat.gov.in	[signature]	1
6	B. M. Bagdu	Asst. Env. Engr. GPCB	7874143454	bipinbagdu@yahoo.co.in	[signature]	1
7	Y. K. Goswami	GM RRL.	9624084100	ykgoswami@rmc.gov.in	[signature]	3
8	G.J. Sutaria	Dy Exe. Engineer	96240 77399	gjsutaria@rmc.gov.in	[signature]	4
9	Rushikesh Vyas	Er. Consultant	9825217060	rushikesh_vyas@...	[signature]	4

ICLEI Local Governments for Sustainability

SUSTAINABLE ENERGY FOR ALL

WORLD RESOURCES INSTITUTE | SUSTAINABLE CITIES

10	R. P. Rathi - 1	Consulting civil Engineer	9426216569	ramnikrathod@rediffmail.com	R. P. Rathod	(2)
11	A. R. Lalchete	DEE - R.M.C	9624085399	ashwinlalchete.rmc@gmail.com		(1)
12	PARTH SHAH	BPS Architects	9427220972	bps_architecture@yahoo.co.uk		(4)
13	R. P. DANGAR	A.E. RM.C.	9825109190	rpdangar.civil@gmail.com		(1)
14	PANKAJ H PANDYA	CONSULTING ENGINEER	98252 19954	1		(2)
15	HARSHIT JOGIA	ENGINEER & DEVELOPER	98250 76336	harshitjogia@gmail.com		(2)
16	K. V. Dhola	Chief Fire officer Rajkot Fire & Emergency Ser.	96247 18254	KVdhola.CFO@gmail.com		(2)
17						
18						
19						