



Desember 2021 | SERIAL #3

## REPORT TITLE

# *DEVELOP LOW CARBON BUILDINGS POLICY*

## FINAL PROGRESS REPORT

Samarinda, Indonesia

By LEP (Untag-Samarinda)

# PREPARED FOR GLOBAL BUILDINGS PERFORMANCE NETWORK (GBPN) BY

## Authors

**Prasetyo**, Architecture Departement University 17 August 1945 Samarinda

**Wardhana**, Architecture Departement University 17 August 1945 Samarinda

**Achmad Riza**, Architecture Departement University 17 August 1945 Samarinda

**Dimas Bintang Mudrajad**, Architecture Departement University 17 August 1945 Samarinda

**Cover photo:** *The building envelope of SDN 005 Samarinda Seberang - LEP (Untag-Samarinda)*

## Published by

Global Building Performance Network

Co/ CS Avocats, 24 Avenue Hoche, Paris 75008, France

Email: [finance@gbpn.org](mailto:finance@gbpn.org)

Website: [www.gbpn.org](http://www.gbpn.org)

**2021**

## ACKNOWLEDGEMENTS

This activity was very useful for capacity building and a learning process that allowed the team to have a better understanding of how to support local governments to implement policy reforms towards low carbon building development.

The authors express their deepest gratitude for the financial support from GBPN.

# LIST OF CONTENTS

Prepared for Global Buildings Performance Network (GBPN) by..... 2  
    Published by..... 2  
Acknowledgements ..... 3  
list of contents..... 4  
FOREWORD ..... 5  
ABOUT THE DEVELOP LOW CARBON BUILDINGS POLICY SAMARINDA-INDONESIA..... 5  
PROJECT SUMMARY ..... 6  
IMPLEMENTATION OF UNTAG SAMARINDA-GBPN-GOVERNMENT OF SAMARINDA ..... 7  
    Participatory policy reform ..... 8  
The Opportunities and Challenges of Samarinda's Low Carbon Building Regulations..... 9  
Report cover ..... 10

## FOREWORD

The Develop Low Carbon Buildings Policy of the Government of Samarinda City is an implementation of the commitment of the Government of the Republic of Indonesia in the Paris Agreement Nationally Determined Contribution (NDC) for Reducing Greenhouse Gas Emissions 29%-41% compared to Business as Usual has been welcomed with the issuance of the Mayor of Samarinda Regulation No. 55 years 2021 concerning the Efficiency of the Use of Electrical Energy and the Efficiency of the Use of Water in Buildings.

Mayor of Samarinda, H. Syaharie Ja'ang. SH, M.Si gave a letter of support on 19 October 2020 for the collaboration of the Samarinda City Government, the Global Building Performance Network (GBPN) and the University of 17 August 1945 Samarinda to make a policy plan for the implementation of the low-carbon Housing Development Policy in Samarinda.

University of 17 August 1945 (UNTAG) Samarinda as GBPN's Local Expert Partner (LEP), assisting GBPN to develop a measurable funded policy plan that leads to decarbonization of the building sector in the city of Samarinda and contributes to meeting the commitment of the Indonesian government to change Indonesia's sustainable climate targets. direction of cooperation for the development of a related LEP integrated platform to address gaps in policy development to achieve collective policy impact.

The results of data analysis in Samarinda City show that the highest GHG effects are:

- MEP : - use of AC- COP 4.2  
- Ceiling Fan-Hybrid,
- Building Envelope : - Wall- sandwich
- Behaviour : - AC Set Point 25°C

Proposed regional regulations focus on energy efficiency and water use efficiency.

## ABOUT THE DEVELOP LOW CARBON BUILDINGS POLICY SAMARINDA-INDONESIA

Commitment to Development of Low Carbon Buildings in the context of Sustainable development The Government of the Republic of Indonesia with a regional target of all Regional Governments will soon have a regional regulation that regulates the growth of low carbon buildings.

The urgency of low-carbon buildings for the city of Samarinda is:

1. Limited natural resources are not commensurate with the level of energy and water demand.
2. The high rate of urbanization which results in urban and environmental management problems.
3. Decrease in environmental carrying capacity due to population density, pollution, deforestation, flooding,
4. Increased construction growth by increasing the number of hotels, malls, hospitals and residential buildings.

## PROJECT SUMMARY

Title	<b>DEVELOP LOW CARBON BUILDING POLICY IN CITY OF SAMARINDA</b>
Date of report	<i>Desember 15, 2021</i>
Type of report	<i>Implementation Progress Report</i>
Authors	<i>Prasetyo Wardhana Achmad Riza Dimas Bintang Mudrajad</i>
Email	<i><u>prasetyo@untag-smd.ac.id</u> <u>wardhana@untag-smd.ac.id</u> riza@untag-smd.ac.id bintangdimas98@yahoo.com</i>
Name of the project	<i>Local Expert Team to Support Policy Formulation Low Carbon Buildings in Samarinda City</i>
Project Start and End dates	<i>begin on December, 15th, 2020 (Effective date) and will end on December, 15th, 2021</i>
Project duration	<i>12 months totaling 62 working days</i>
Project locations:	<i>Samarinda City, Indonesia</i>
Thematic areas	<i>draft Mayor's Regulation for Low Carbon Buildings</i>
Sub themes	<i>residential and commercial buildings</i>
Total budget	<i>\$(USD 9,300.00)</i>
Donor	<i>Global Buildings Performance Network (Association Loi 1901 numéro 751210733 - SIREN 540 078 052)</i>
Estimated beneficiaries	<i>To prepare implementation guidelines, the implementation tools of the Mayor's regulation on low-carbon buildings</i>
Overall objective	<i>To support the Samarinda City Government in developing a draft Low Carbon Building Regulation in accordance with the character of the city of Samarinda in the form of a Mayor Regulation draft</i>

# IMPLEMENTATION OF UNTAG SAMARINDA-GBPN-GOVERNMENT OF SAMARINDA

## UNTAG Samarinda involvement

The Global Building Performance Network or abbreviated as GBPN is a non-governmental organization that globally and locally has a mission to organize experts to create policies and provide technical guidance to improve building energy performance and create a sustainable environment for all.

To overcome the potential for high carbon emissions from buildings in Samarinda City, a building regulation is needed that regulates buildings in accordance with low-carbon building rules. In order to support the Samarinda City government, GBPN together with UNTAG Samarinda will provide technical support, capacity building and build awareness for the creation of a Low Carbon Building Regulation that will be able to reduce the potential for carbon emissions generated by buildings in Samarinda City in the future.

The involvement of UNTAG Samarinda, the Global Building Performance Network and the Samarinda City Government to assist in finding innovative and sustainable solutions for green residential growth. The plan to implement a low-carbon housing development policy is the first key to be carried out until December 2021.

These involvements include :

- Building data in Samarinda City (type, stock and growth)
- Data on regulations that are taken into consideration in making decisions at the city level.
- Final sensitivity analysis report for Samarinda city.
- Information on perceptions, responses, input on the proposed building base and improvements.
- Orientation on technical recommendations for low carbon buildings.



Photo. 1. Technical meeting for survey preparation (doc. LEP Untag Samarinda)



Photo. 2. Resident Survey (doc. LEP Untag Samarinda)



Photo. 3. Survey Office (doc. LEP Untag Samarinda)



Photo. 4. Workshop via online (doc. LEP Untag Samarinda)



Photo. 5. Workshop resource persons via online (doc. LEP Untag Samarinda)

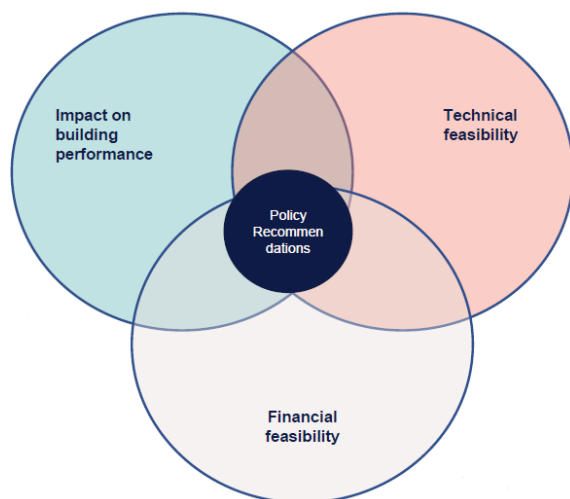


## Participatory policy reform

Indonesia as the country with the fourth highest population in the world, currently has the highest composition of young and working population. It is estimated that by 2050, due to the rapid development of industry and services, nearly 70% of Indonesia's population will live in urban areas (UN, 2020). Due to the rapid growth and lack of development regulation, Indonesia is currently one of the largest carbon emitters in the world, marked by a sharp increase in energy use, especially energy derived from fossil fuels.

The development sector, especially housing, is one of the most important things to pay attention to in a country with high economic development such as Indonesia. Over the last decade, there has been a 50% increase in electricity use for buildings (IESR, 2019). The building sector takes up 40% of the current final energy use. Key issues such as building comfort and performance, energy efficiency, renewable energy and sustainable construction must be addressed and implemented at both national and regional levels.

### Priority technical recommendations



#### Impact on building performance :

- Building Envelope
- Equipment/MEPS
- Behaviours

#### Technical feasibility

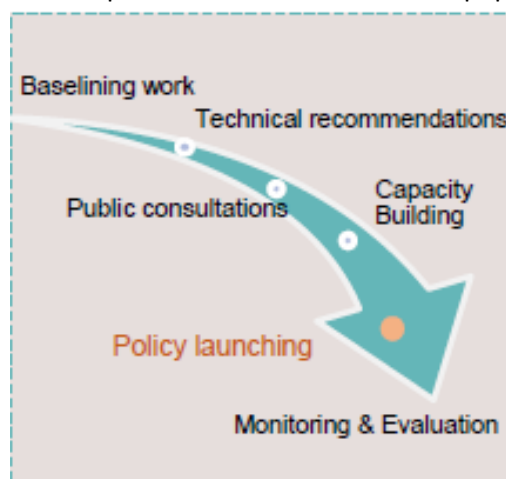
- Product/service market readiness
- Expertise/capacity availability

#### Financial feasibility

- Financial effort to implement the solution
- Incremental cost
- SPP/IRR/ROI
- Incentives

## Steps to a low-carbon building

Samarinda as the capital city of East Kalimantan province has a population of 850 thousand inhabitants. This number will and is being significantly increased with the planned relocation of the State Capital to East Kalimantan. If the population growth that is definitely accompanied by the growth



of buildings in the city is not properly regulated, then the amount of increased carbon emissions will increase drastically from the presence of buildings that will be present in the City of Samarinda.

- support the Government of Samarinda City in developing a draft Low Carbon Building Regulation that is in accordance with the character of the city of Samarinda in the form of a draft Mayor Regulation.
- To carry out the preparation of building baselines in Samarinda City.
- To prepare implementation guidelines, implementation tools (implementation tools) of the Mayor's regulation on low-carbon buildings.



## Monitoring, evaluation and improvement efforts

### Capacity Building Scheme for Building Permits

- Training or workshop on technical requirements
- Training or workshop on mechanism checking and document checking
- Training or workshop on evolution monitoring and mechanisms
- Pilot project: base inspection of building designs in compliance with low-carbon regulations

### Capacity Building For private (developers, designers, builders, ..)

- GBPN low carbon building design training or workshop as facilitator/speaker/supporting document
- Design guidelines and tools: support the development, design and building of low carbon buildings in accordance with the new regulations

### Measurement, Reporting and Verification

- MRV framework and mechanisms (who, what, how and duration of monitoring)
- recommendations for further implementation)

## THE OPPORTUNITIES AND CHALLENGES OF SAMARINDA'S LOW CARBON BUILDING REGULATIONS

Opportunities and challenges of low carbon building regulation in Samarinda City :

Community perspective :

1. The mindset/way of thinking of the people of Samarinda City, there are still many who do not understand the importance of low-carbon buildings for buildings, especially the health and comfort of buildings.
2. Not many people in Samarinda City have built buildings using prototypes from the Regional Government or using the services of a Planning Consultant (Architecture) so that in the design of buildings they still do not consider technical standards of building layout and building reliability.

City Government Regulations:

1. There are still many buildings in Samarinda City that are not in accordance with the Building Intensity and Designation so that in the field, land/site is maximized for buildings (KDB) and there is no KDH (RTH and RTNH).
2. Use of Environmentally Friendly Materials in Buildings in Samarinda City There are still few that use local (low Carbon) materials.
3. In Samarinda City, natural openings for lighting and ventilation (Health) in buildings are still not optimal so that each room in the building is equipped with artificial air conditioning (AC) and artificial lighting (lamp).
4. Sanitation (Clean Water, Dirty Water and Dirt) in buildings in Samarinda City are still many that do not comply with technical standards (SNI) so that when using buildings there are still many sanitation systems that do not have BG maintenance and care.
5. There are still many buildings in Samarinda City that do not yet use a rainwater management system (still dependent on the use of PDAM water).

## REPORT COVER

By knowing the opportunities for future challenges in the Samarinda City Government and in general in regional governments outside Java, it is still very necessary to continue this activity supported by the Indonesian GBPN Team so that the target of the Paris Agreement Nationally Determined Contribution (NDC) for Reducing Greenhouse Gas Emissions 29%-41.