Toward Green Housing for Indonesian Cities

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Indonesia Demographics:

- Population: 275.4 million (2022)
- Quantitative Backlog: 12.7 million units (2021)
- Qualitative Backlog: 23.7 million units (2021)
- GDP per capita: IDR 71 million (USD 4,700) (2022)
- Largest archipelagic country comprising 17,500 islands

Indonesia was in the top 10 carbon producing countries in 2017.

Indonesia must **scale up the climate action** on the housing ecosystem.

Indonesia NDC target in 2021 to reduce GHG emission of **41%** (conditional target by 2030)

Source: BPS Susenas data
THE GOI ‘ONE MILLION HOUSING PROGRAM’ IS SUPPORTED BY 3 KEY PROGRAMS

Credit-linked Subsidy
Quantitative Backlog: Home Ownership
210,000 units per year
Years 2018-2022

Home improvement grant
Qualitative Backlog: Home Upgrading
200,000 units per year
Years 2018-2022

Public Rental Housing
Quantitative Backlog: Rental Housing
8,000 units per year
Years 2015-2021

Total fiscal expenditures for housing in 2022: USD 1.9 billion

(1) Increase 7 times from 2011
Priorities of green building program and incentives should shift toward the more impactful housing typologies: Low-income landed, commercial landed, and retrofit.
Subsidized housing were mainly built in rural peripheries

More than 90% of the subsidized housing are located in rural areas, (70% at the rural peripheries and and 20% at non-metro rural area) while the acute needs are in the urban area.

In Jabodetabek, poorly-located subsidized housing have increased over time between 2015 and 2019.

Source: KPR Subsidy Data Set (2019)
One Million Homes Program, predominantly landed, induces sprawl and GHG emissions due to land provisioning for housing

Landed new housing construction accounts for 59% of OMH program, requires land provisioning

If we continue building at the same rate, we will generate sprawls almost twice the size of Jakarta by 2030

Data source: NAHP Task Team analysis with OMH data sets

*LIH: Low-income households | Source: Average of annual delivery of one million homes program (satu juta rumah), 2019-2020, MPWH. See Annex I
Sprawling is related to longer commutes and increased gas emission

26% of households in the outskirts travel 40 km or more for employment versus 1% of urban households

More than 80% of commuting-related emissions are generated in the outskirts

Indonesia Green Affordable Housing Program (IGAHP) TA

**IGAHP Targets**

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<tr>
<th>2024</th>
<th>2030</th>
<th>2050</th>
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<tbody>
<tr>
<td>100,000 Green Housing</td>
<td>1 Million Green- Net Zero Ready Housing</td>
<td>100% NET-ZERO Housing</td>
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**WB Technical Assistance**

- **Green & resilient designs:** for new housing construction, retrofits & urban densification
- **Sustainable & inclusive financial products development & piloting:** leverage private sector participation while catering the underserved
- **Housing location suitability assessment to address urban sprawl**
- **Scaling up green certification** for affordable housing
- **Unlocking Carbon Credit potential** through baseline study

**Greening by improving Design Quality, Location, Density & Inclusion**
**On-Going Works: Toward Green Housing in Indonesia**

**Indonesia Green & Affordable Housing Program Technical Assistance (IGAHP TA)**

- Enabling inclusive, affordable, and disaster & climate resilient homes in urban centers

**Affordable Housing and Public Building as Renewable Energy Power Grid Study (RSPV Study)**

- De-bottlenecking and scaling up solar PV uptake on public buildings & housing
- Developing a viable business model for RSPV in Indonesia
INDONESIA
IGAHP TA: Product Development and Piloting

Green Retrofit

Addresses sub-standard housing while ensuring climate resilience
- Structural improvements (roof, wall, floor)
- Non-structural improvements
- WASH/ Sanitation
- Home Expansion

Row Town House Maisonette

Provides adequate living space on smaller land size – better location
- 40 m² floor area with 20 m² footprint
- Green-field (developer-built) or brownfield (micro-developers)
- Modular design example: RUSPIN

Backyarding/ Additional Dwelling or Rental Units

Increases affordable housing stock in urban centers - densification
- Build additional units for families/ sales to affordable segment (MBR) / rental to MBR
- For rental, Government can consider providing additional vouchers for eligible MBR

Financing product options
- Housing Micro-Finance
- Mortgage

USD 50,000 grant available for piloting*

*provided by Build Change
**Role of Rental Aggregator:**

- **Financing**: Provide low-interest construction loan to banks to on-lend to prospective landlords.
- **Construction Quality of Rental Units**: Provide guidelines for rental unit construction and QAQC.
- **Rental Affordable Inventories**: Oversee supply of rental inventories, ensure quality etc.
- **Manage rental contracts** for eligible MBR’s using e-commerce platform.
- **Collect rent and repay** construction loans back to banks.
- **After 5 Years**, **Affordable Rental Units are being returned to Landlord, released from further obligations.**
ABIP RSPV study:
Affordable Housing and Public Buildings as Renewable Energy Power Grid

Solar roof-top (RSPV) on subsidized housing:
Address renewable energy target and reduce utility cost

Interdisciplinary and inter-sectoral collaboration
to address challenge & limitations

Potential investment cost to be financed by carbon credit
Green Livability Indicators Study

**Independent Variables**
- Roof Insulations
- Skylights
- Stilts

**Dependent Variables**
- Roof Materials
- Thermal comfort
- Air Quality comfort
- Visual comfort
- Perceived comfort
- Cross/Stack Ventilation
- Window shadings

**BSPS home improvement Programs**

**60 houses**
Data collection in total

**2 Climatic Region**
Java & Sumatra

**Before & After**
Green Retrofit Data Collection