RE-Think Buildings

A circular toolkit for the sustainability of the housing and construction sector

A UN joint programme by:
RE-Think Buildings

A UN toolkit to RE-Think sustainability in the buildings sector

RE - Resource Efficiency
with a focus on SDG12 sustainable construction and production & SDG11 housing and SDG13 climate change confrontation
UN-Habitat, UNEP and UNOPS have joined forces to support countries to strengthen their path towards sustainability in the buildings and construction sector with a focus on housing.

A UN joint programme by One Planet Multi-Partner Trust Fund for SDG 12
How does RE-Think Buildings work

Sustainable buildings and construction set of tools

Helps countries strengthen the path to sustainable buildings and construction developed by a UN team of experts.

Make the case

Development of a strong argument for the need for and benefits from integrating SBC and resource efficiency concerns into policy and planning processes.

Prioritize

Incorporation of resource efficiency concerns into country strategies, plans, policies and regulation, and processes using the rich data assimilated in the previous phase for further integration into mainstream policy guidelines and initiatives.

Implement

Implementation of resources and material efficiency strategies through effective capacity building and partnership-building, requiring stakeholder engagement tools, monitoring and reporting tools, templates, step-by-step guides, etc.
RE-Think Buildings Toolkit

SBC ADVOCACY GUIDELINES
Guidelines and resources to assist stakeholders in mainstreaming advocating for sustainable buildings and construction.

COUNTRY & CONSTRUCTION ASSESSMENT (RE-CCAT)
Sustainable buildings and construction assessment methodology.

HOUSING VALUE ASSESSMENT METHODOLOGY (RE-Housing VAM)
National housing programme and large projects housing value assessment methodology.
UN-Habitat - The Housing VAM is a RE-Think Buildings programme tool that analyses the value of shifting towards more sustainable national housing programmes or large projects.

1. Analyses a housing programme from the design stages.
2. Identifies the gaps for improvement
3. Provides inputs and recommendation on how to strengthen those gaps.
Circular value-chain approach to housing

Based on the construction value-chain:
Housing VAM

A RE-Think Buildings tool for housing

A value assessment methodology for sustainable housing

CONTEXT, GOVERNANCE & REGULATIONS
- Context adequate and regulations compliant housing that ensure housing rights

URBAN & HOUSING DESIGN
- Urban and housing design that contribute to sustainable cities

RESOURCES & CIRCULARITY
- Resource efficient and circularity to reduce waste and climate footprint

ENVIRONMENTAL IMPACT & CLIMATE CHANGE
- Healthy, comfortable and resilient spaces that promote wellbeing
Objectives

1. Promote sustainable built environments and housing
   Sustainable neighbourhoods/ public and open spaces / compact design / universal design / passive principles

2. Reduce emissions and overall environmental impact
   Energy efficiency/ water / waste management / user comfort/ health and wellbeing / disaster risk reduction and resilience

3. Promote resource efficiency and circularity in housing
   Low carbon materials / resources efficiency / circularity / waste management

4. Ensure compliance with governance and regulations and responds to the context
   Compliance with regulatory framework/ housing rights for tenants and owners / avoid evictions / promote housing adequacy and inclusion via human rights
A rapid and assisted assessment on added value:

Targeted at housing programmes and projects, with valuable feedback on gaps and potentials to shift towards more sustainable construction practices. Upon completing an assessment, users will receive a tailored feedback report.

The feedback report provides information on gaps and main areas of improvement.
The assessment is related to SDG, NUA, and Human Rights frameworks.
Structure of the Housing VAM

The 4 pillars of analysis

1. Context, governance and regulations
   - 1. General programme information
   - 2. Context analysis & regulatory framework
   - 3. Housing rights
   - 4. Affordability
   - 5. Governance and management

2. Housing and neighbourhood design
   - 6. Urban design
   - 7. Housing design
   - 8. Energy
   - 9. Water

3. Resources & circularity
   - 10. Resource efficiency and circularity
   - 11. Life cycle assessment

4. Environmental impact & resiliency
   - 12. Disaster, risk reduction & resilience
   - 13. Health and wellbeing
   - 14. Waste management

Assessment categories:
- Net Zero
- Low energy consumption
- Compact housing
- Local growth
- Low carbon materials
- Circular construction
- Climate resiliency
- Energy efficiency
- Mixed income neighbourhoods
- Housing for all
- Universal design
- Habitability
- Risk management

>100 questions

One planet
Multi-Partner Trust Fund
for SDG 12
### Structure of the Housing VAM

**Example of the questionnaire and definition of the pillars**

#### Housing VAM Categories
- Context, governance & regulations
- 1. General programme information
- 2. Context analysis and regulatory framework
- 3. Housing rights
- 4. Affordability
- 5. Governance and management
- Housing & urban design
- 6. Urban design
- 7. Housing design
- Resources & circularity
- 8. Resource efficiency and circularity
- 9. Life cycle assessment
- Environmental impact and resiliency
- 10. Disaster, risk reduction and resilience
- 11. Health and wellbeing
- 12. Energy
- 13. Water
- 14. Waste management

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#### 7. Housing design

**Objective**

Improve sustainability through design.

**Indicators**

- WWR (%) = Glazing Area/Gross exterior wall area.

**Parameters**

1. Bio-climatic design
2. Passive design
3. Density
4. Modularity
5. Innovation

**Tools and resources**

- Edge, EC3, Levels, Breezeam, etc.
- Passive House

**Case studies**

- S-Space

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#### 9.4 Material savings

**Multiple**

- The building uses any of the following measures to reduce material bills given the shape.

  A. The use of flat slabs with equal spans (i.e. squares) as much as possible.
  
  B. Use standard beam and slab forms (and formwork) for lower likely wastage rates.
  
  C. The use of post-tensioned slabs for longer spans (i.e. slender columns) and thinner floors for a given load-bearing capacity compared to normal floor slabs.
  
  D. The use of voided floor slabs, which are lighter and can be supported by smaller foundations.
  
  E. The use of exposed concrete forms (floor, wall or ceiling) to reduce the later need for fill-out materials (this benefit does not actually impact on the value of structural materials).

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#### 9.5 Lifespan, durability, and maintenance

**Single**

- The lifespan, life expectancy, or useful service life of the building, as well as the service life of its components, are important factors influencing construction and use phase impacts.

  A. Materials life expectancy is less than 10 years and no maintenance plan has been drafted.
  
  B. Building lifespan has not been considered and there is no knowledge of the actual lifespan.
  
  C. Building lifespan has been considered and there is a maintenance plan for the development.
  
  D. Lifespan has been considered and materials and building techniques used are above average building construction, more than 30 years.

**Attach**

- Attach additional information

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#### 9.6 Responsible material sourcing and circularity

**Single**

- Where materials utilised will be sourced from and if the extraction follows regulations and sustainability standards, or if extraction occurs at a sensitive site.

  A. Lack of data regarding material sourcing or composition.
  
  B. Partial knowledge of material sourcing and adherence to regulations, or partial technical data on materials, or no full knowledge of extraction impact.
  
  C. Less than half of the materials are certified, have building passports, or respond to national or international rating systems.
  
  D. More than half of the materials are certified, have building passports, or respond to national or international rating systems.

**Attach**

- Attach additional information

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Housing constructions will continue to increase in number, most of this growth will be concentrated in development regions of Africa and Southeast Asia. Sustainable methodologies and qualification standards are a must to enable construction improvements, responsible material sourcing and quality standards, lower emissions, reduced environmental impact, and ensuring affordability and accessibility.

The overarching goal of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping the global temperature rise well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 °C (UNFCCC, 2020). A high percentage of energy emissions can be abated with already demonstrated technologies. The key questions are what mix of technologies and solutions is needed to be implemented to achieve emissions reductions while staying within a “carbon budget,” limiting costs, and delivering quality and affordable? How does this mix vary across geographies? How will it change over time?

A value assessment methodology for sustainable housing programmes and projects is needed to accelerate the shift from buildings and construction sector towards zero emissions. Likewise, there is a need to foster the implementation of the SDG12 on Sustainable Consumption and Production. The global methodology aims to respond to the needs of national housing sector stakeholders that require initial sustainability assessments. It is grounded and applied by the mandate of the participating United Nations Organisations (PUNOs). It is a quick analysis that helps to uptake sustainability mechanisms and approaches on national housing programmes. The end objective is to pave the way for a more granular evaluation of the processes with the aim of acquiring certification.

Moreover, the value assessment methodology connects to the main existing sustainability certifications and assessments tailored at similar contexts, to mainstream a global visibility of approaches that foster the shift into sustainable building and construction practices, including carbon emissions. The initial value-assessment methodology is an open-source tool to assist in creating networks of local stakeholders, as well as communities of practice linked to the PUNOs interested in incorporating sustainability standards and mechanisms to their housing programmes and projects.

The Value Assessment Methodology (VAM)

The following text presents in a summarised manner, the way in which the VAM’s architecture has been designed.

Analysis phase:

The VAM is grounded on an analysis of definitions and composition of existing sustainability benchmarking frameworks, tools. It is enriched with the latest findings from relevant reports. This includes BREEAM, LEED, Housing Parameter, PASSPORT, SDGs, CARB Reports, Circular Built
Outputs of the Housing VAM

4 levels of outputs to the housing programme assessment

1. **Technical feedback**
   Feedback report: Identifying areas of improvement, recommendations, links to standards and regulations.

2. **Awards and United Nations recognition**
   Connection and link to UN system of awards and recognition. (World Habitat Awards, COP Awards, Innovation Challenges...etc.)

3. **SDG and New Urban Agenda**
   Human rights assessment on the programme highlighting the performance of the programme regarding SDGs

4. **Certification and access to funding programs**
   Highlight recommendations of certifications or link to green financing opportunities
6. Piloting
**Country Piloting**

**SRI LANKA**

*RE-Think Buildings implementation*

Under the leadership of the State Ministry of Rural Housing and Construction and Building Materials industries Promotion, Sri Lanka has launched the implementation of the SDG12 Resource Efficient Housing programme. The activities, consultation and tool piloting are being implemented by the UN agencies and assisted by WWF.

**BURKINA FASO**

*RE-Think Buildings implementation*

Led by the Ministry of Town Planning, Housing and Cities - Burkina Faso, through its Directorate of Architecture, Housing and Construction (DGAHC), has launched the implementation of the SDG12 Resource Efficient Housing programme. The activities, consultation and tool piloting are being implemented by the UN agencies and in partnership with the Global Green Growth Institute (GGGI).
Meet the team

**Internal Steering Committee**
- Christophe Lalande
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- Christina Cheong

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