Metadata on SDGs Indicator 11.c.1

Indicator category: Tier III

Goal 11 : *Make cities and human settlements inclusive, safe, resilient and sustainable*

Target 11.c: *Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.*

Indicator 11.c.1 *Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials.*

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1. Goal and Indicator

The goal of this indicator is to measure the increase in utilization and manufacture of local sustainable building material in least developing countries that promote a positive impact in the local economy in relation with the amount of financial and technical support of LDCs

2. Definitions and method of computation

2.1 Definitions

Manufacture of locally available building materials:

The term 'locally available building materials' is used to refer to materials of which the entire lifecycle (including all steps of the production chain: 1. extraction of raw materials, 2. manufacturing into building products, 3. sale and 4. use of building products, 5. recycling/end-of-life) takes place within the same region. The manufacturing process of these materials provides economic benefits predominantly to the region in which the raw materials were sourced.

Sugaladevi model village, Sri Lanka © UN-Habitat.

Positive impact on local economy:

Indicator 11.c.1 is formulated in a way that promotes a positive impact on local economies. The close link with employment is one of the most important economic functions of housing. For example, residential construction makes up between 7% and 10% of the total labour force in developing economies [2]. Therefore, the relative use of local building materials and resources in the construction industry has a substantial effect in the way in which the construction industry can be harnessed to enable growth in the local economies of LDCs. The development of local sustainable building materials and technologies may also boost the associated retail and consulting industries.

Sustainable and resilient buildings

The environmental and economic impacts of the chosen construction materials forms one of the most significant parts of a building's overall sustainability [3], therefore the focus of the indicator 11.c.1 is on the choice of building materials in measuring the increase in sustainability and resilience of buildings in LDCs. Use of locally available building materials with low embodied energy provides substantial benefits in decreasing the carbon footprint of buildings, especially in rapidly urbanizing regions where most of the building stock is yet to be built.

The use of local materials can also contribute to the resiliency of settlements, as these materials tend to be well suited to the local climate, and can be conveniently altered and replaced using locally available resources. However, a conscious choice of sustainable building materials in various global contexts can only be made if adequate information on the carbon footprint and environmental impacts for different materials is available for said location. The creation of national life-cycle inventory (LCI) databases of various construction materials is thus an effective way to define the sustainability of different materials.

President Kagame with government officials building a foundation of a house during Umuganda © rwandapedia.

2.2 Method of Computation

This indicator is related to monitoring the financial allocations for the construction industry of LDCs involved in the manufacture of local sustainable building materials that promote a positive impact in the local economy, out of the total allocations received by LDCs.

For this indicator, the total funds allocated to least developed countries will be required. Out of this allocation, the proportion allocated to the construction and retrofitting buildings utilizing local materials will be derived.

$$x = \left[\frac{\text{funds allocated to constructions and retrofitting buildings utilizing local materials}}{\text{total support allocated to LDCs}} \right] 100$$

Government buildings project, Port-au-Prince, Haiti © UN-Habitat / Julius Mwelu.

3. Rationale and interpretation

This indicator is the first of its kind connecting to other critical dimensions of development and has not been previously incorporated in the Millennium Development Goals (MDGs). This indicator is highly relevant and important in terms of ecologically sustainable development and resilience by supporting decreased ecological impact of housing construction in the form of sustainable extraction of resources, short supply chains (avoiding emissions caused by transportation of materials over long distances), potential use of local vegetative materials with low embodied energy and using local building material proven to be adequate in local climate circumstances and events. It is also relevant in terms of economically sustainable development when it comes to supporting growth in the local economies of LDCs through promoting growth of local economies, placing "Housing at the center" of policies and urban areas, local job creation in LDCs, professional skills development and multiplier effects in the economy associated to the local construction industry.

In addition, features like increased affordability of housing due to decreased use of cost-defective imported construction materials, use of healthy construction materials and cultural adequacy of housing through the use of traditional local materials in the production of building products makes this indicator highly relevant in terms of socio-culturally sustainable development by supporting increased global access to adequate housing. The indicator is also important since it connects financial and technical assistance from developed and middle-income countries to LDCs to promote the generation of jobs in the construction industry to build sustainable and resilient buildings utilizing local materials.

Emelia Doriendes (center) awaits ceremonial handing of the house key after ribbon cutting, Roxas City, Philippines © UN-Habitat.

4. Disaggregation

- Disaggregation by **location** (major cities)
- Disaggregation by step in the material life cycle
- Disaggregation by **gender** for the workers
- Disaggregation by **age** for the workers

5. Sources and data collection

Suitable data sources for indicator 11.c.1 include national accounts statistics and national data on manufacturing industry. LDCs through their national accounts departments have a good understanding of capturing foreign direct investments. The data will have to be broken down by sectors to ensure that allocations for the portion for construction and retrofitting of sustainable, resilient and resource efficient buildings utilizing local materials are easily derived.

6. Comments and limitations

Gaps in the currently available data for monitoring target 11.c along with some recommendations of upcoming opportunities for filling such gaps are provided below.

- Baseline data for the indicator may not exist in all countries and thus needs to be created.
- Monitoring of informal construction and self-construction activities need to be enhanced.
- The indicator focuses on local building materials, disregarding imported sustainable building material and its work chain (sale/building).

7. Data for global and regional monitoring

This indicator is categorized under Tier III of which no internationally agreed methodology exists. We are planning for an EGM where the methodology will be refined and definitions clarified to international standards.

8. Responsible entities

UN-Habitat will take the lead on global reporting. National governments will take the lead for national level reporting.

9. Data collection and data release calendar

The monitoring of this indicator can be repeated at a bi-annual interval, allowing several reporting points until the year 2030.

10. Treatment of missing values

Since data will be derived from national accounts we expect limited missing values.

11. Sources of differences between global and national figures

None

12. Regional and global estimates and data collection for global monitoring

Data are available for essentially all high-income countries, and for an increasing number of middle-income aid providers.

13. References

[1]: ILO (2013) Measuring informality: a statistical manual on the informal sector and informal employment.

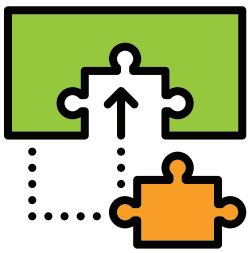
[2]: Tibaijuka, A. K. (2009). Building Prosperity: Housing and Economic Development. London: Earthscan.

[3]: Stephan, A., Crawford, R. H. (2012). A holistic building life cycle energy analysis model. 46th Architectural Science Association conference, Gold Coast, Australia.

OECD, 2014 Aid to Urban Climate Change Adaptation.

There is need to **define** the **technical solutions** to improve local housing and built environment in ways that allow for use of local materials

Solutions based on **use** of **local materials** are **easily available**, **adaptable** and allow for self construction.



Such solutions are designed to **keep a close link** with **place** and **people** and **environment** and often more affordable.

Ongoing construction Port-au-Prince, Haiti © UN-Habitat.

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