

## Glossary

**Albedo:** "The proportion of sunlight (solar radiation) reflected by a surface or object, often expressed as a percentage. Clouds, snow and ice usually have high albedo; soil surfaces cover the albedo range from high to low; vegetation in the dry season and/or in arid zones can have high albedo, whereas photosynthetically active vegetation and the ocean have low albedo. The Earth's planetary albedo changes mainly through changes in cloudiness, snow, ice, leaf area and land cover." (IPCC, 2022).

**Blue Infrastructure:** "Blue infrastructure includes bodies of water, watercourses, ponds, lakes and storm drainage, that provide ecological and hydrological functions including evaporation, transpiration, drainage, infiltration and temporary storage of runoff and discharge." (IPCC, 2022).

**Building Coverage Ratio:** A metric that compares the area of a building to the size of the land it's built on (Arrows International Realty, 2021).

**Building Information Model (BIM):** A collaborative process that allows architects, engineers, real estate developers, contractors, manufacturers, and other construction professionals to plan, design, and construct a structure or building within one 3D model.

**Capacity:** "An ability of individuals, organizations or systems to perform appropriate functions effectively, efficiently and sustainably" (Milèn, 2001, p.4).

**Co-benefit of Climate Action:** Co-benefits approach refers to the development and implementation of policies and strategies that simultaneously contribute to tackling climate change whilst addressing local environmental and developmental problems (United Nations IAS, 2013).

**Co-production of Knowledge:** "Processes that iteratively unite ways of knowing and acting - including ideas, norms, practices, and discourses - leading to mutual reinforcement and reciprocal transformation of societal outcomes." It embraces multiple ambitions, engaging multiple actors (researchers, decision-makers, citizens etc.) to produce new knowledge and new ways of integrating this

knowledge into decision-making and action; ultimately producing new outcomes (Wyborn et al., 2019).

**Climate Justice:** Justice that “links development and human rights to achieve a rights-based approach to addressing climate change” (IPCC, 2022, SPM p.7).

**Climate Change Adaptation/Maladaptation:** “The ability of an urban system — and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales — to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity” (Meerow & Newell, 2016).

**Climate Change Mitigation/Malmitigation:** Reducing greenhouse gas (GHG) emissions and enhancing processes that remove GHG emissions from the atmosphere with the goal of preventing global warming (Walsh, 2011).

**Climate Change Transformation:** “The explicit integration of adaptation and mitigation actions, to achieve a new regime of 1.5 degrees of warming above pre-industrial levels by 2100, and to be well adapted to it” (Hurlimann et al., 2021, p.4).

**Climate Gentrification:** Investment and real estate firms speculating on land values, generating further marginalization and intra-urban displacement (Robin & Castan Broto, 2021; Teicher, 2018).

**Climate Resilient Development:** Integrated adaptation and mitigation framework that combines “strategies to deal with climate risks (adaptation) with actions to reduce greenhouse gas emissions (mitigation) which result in improvements for nature’s and people’s well-being.” (IPCC, 2022).

**Climate Neutrality:** Climate neutrality means achieving net zero greenhouse gas emissions by balancing the amount of emissions we produce with those we remove. It also involves considering regional or local effects of human activities, like changes in surface albedo or local climate. Essentially, it means reducing our emissions through climate actions to ensure that they have no net impact on the climate system (UNFCCC, 2022).

**Design Charette:** "A design charette is an intensive period of work or meeting involving various stakeholders to brainstorm, conceptualize, and develop creative design solutions for a specific project or problem." (Fierke-Gmazel, 2022).

**Design Guidelines:** Design guidelines are defined as sets of practical recommendations or codes on how to design strategies, plan actions, and apply measures to respond to climate challenges. Design guidelines coalesce multi-disciplinary knowledge to advance climate action (Interaction Design Foundation, 2012).

**Distributive Justice:** The way how benefits and burdens of adaptation are shared and/or allocated among multiple actors across the city (Chu & Michael, 2019; Jafino et al., 2021).

**Environmental Justice:** Environmental justice is defined as equitable exposure to environmental good and harm (Wolch et al., 2014). It refers to the unequal nature of environmental protection to the distribution of a range of environmental goods as well as bads (such as green space, public transit, and fresh food) (Schlosberg, 2013).

**Frontal Area Density:** The ratio of a building to its total surface area, (Xu and Gao, 2022).

**GHG Intensity:** The amount of GHG emissions per unit of an activity or output (WRI, 2019).

**Gray Infrastructure:** Gray infrastructures consists of "engineered physical components and networks of pipes, wires, tracks and roads that underpin energy, transport, communications (including digital), built form, water and sanitation and solid waste management systems." (IPCC, 2022).

**Green Infrastructure:** Green infrastructures consist in "the strategically planned interconnected set of natural and constructed ecological systems, green spaces and other landscape features that can provide functions and services including air and water purification, temperature management, floodwater management and coastal defense often with co-benefits for human and ecological well-being." (Culwick & Bobbins, 2016).

**Maladaptation:** Actions that reduce short-term risk at the expense of long-term vulnerability or that increase the vulnerability of other systems, sectors or social groups over any time horizon (Magnan, 2014).

**Passive Building:** "Passive building is a set of design principles for attaining a rigorous level of energy efficiency while also creating comfortable indoor living spaces." (Zeller, 2010).

**Procedural Justice:** Inclusive decision-making processes based on fairness and representative mechanisms shaped on the integration of differential interests, values and priorities (Archer et al., 2015; Holland, 2017; Chu et al., 2018; Fünfgeld & Schmid, 2020; Swanson, 2021).

**Prototyping:** In design, prototyping refers to developing a representation of the idea or solution to test before a product is launched to demonstrate positive outcomes (Interaction Design Foundation, 2012).

**Recognitional Aspects of Urban Climate Justice:** Recognition of the structural drivers of inequality dependent by dynamics of institutionalized domination (Chu & Michael, 2019) that deal with issues of norms, culture, context and production of knowledge about climate (Walker & Day, 2012).

**Regional Green and Blue Networks:** Network of existing and restored rivers, canals and reservoirs (blue) connected with agricultural areas, parks, forests, redeveloped wastelands and degraded areas (green) in strategic locations across urban and peri-urban areas (Lynch, 2018).

**Roughness Length:** A parameter that models the horizontal wind speed near the ground (NSF, 2023).

**Sky View Factor:** Ability of built surfaces to re-emit solar radiation to the sky during night-time.

**Social Innovation and Grassroots Innovation:** Network of activists and organizations that generate new bottom-up solutions for sustainable development and sustainable consumption that respond to the local situation and the interests and values of the communities involved (Seyfang & Smith, 2007; Hossain, 2016).

**Social Technology:** Technology can be classified as social when it proposes to act on a social problem and its values are informed by the development of society not the market, when it is developed based on the needs and interests of local communities, lived and identified by them, considers the knowledge of the actors directly affected by the problem and when it includes emancipatory and self-management processes and promotes appropriation, engagement, empowerment and autonomy of individuals and communities (Neder, 2011; Dagnino, 2014; Pozzebon, 2015; Addor, 2021).

**Street Canyon:** Proportion between width of streets and height of flanking buildings.

**Synergy:** Intersection of adaptation and mitigation so that their combined or “co-operative” effect is greater than the sum of effects if implemented separately (Corning, 1998; Duguma et al., 2014).

**Systems Knowledge:** Systems knowledge focuses on the present states of systems to understand what needs to change (Pohl & Hirsch-Hadorn, 2007).

**Target Knowledge:** Target knowledge generates alternative future proposals for those systems that are desirable and plausible (Pohl & Hirsch-Hadorn, 2007).

**Transformation Knowledge:** Transformation knowledge is about building the potential paths between the current (i.e., undesirable and unsustainable) and future (i.e., desirable and sustainable) states of the systems that are subject to transformation (Pohl & Hirsch-Hadorn, 2007).

**Trade-off:** The balancing of factors that cannot be attained at the same time or in combination, involving, for example, pathways to achieve various sustainable development goals (Field et al., 2014; Wiréhn et al., 2020).

**Traditional Ecological Knowledge:** “Knowledge of the environment that is derived from experience and traditions particular to a specific group of people” (Leonard et al., 2013, p.2).

**Urban Adaptation:** Process of adapting cities and urban areas to climate change (Giordano et al., 2020).

**Urban Morphology:** Roughness length in urban areas, frontal area density, building coverage ratio and the layout of buildings (Shen & Dong, 2022).

**Zero Carbon Goals:** Zero carbon goals aim to reduce or eliminate greenhouse gas emissions. The goal is to balance human-caused emissions with an equivalent amount of carbon removal, so that there is zero carbon in the atmosphere (United Nations, 2023).

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