Urban metabolism is one new emerging arena of urban planning and design. It complements two other more traditional arenas: the growth dynamic or the urban built environment, real estate development, land economics, and demographics, and (2) health and quality of life (QoL). <<cite forthcoming>>

In this tripartite scheme, biodiversity, biophilia, and integrating nature, or "habitat" into the city can be considered as another urban "infrastructure" or layer that links the built environment and urban metabolism. Defining habitat as "infrastructure," as one of the "essential components of urban space, may add some "helpful" value etc. that it would not be perceived as present on its own. It adds multiple values to the other arenas too, objectively and qualitatively.

This is the "simple" answer, which may be as far as we need to go. However, if one goes a bit beyond the greenery, habitat, and biodiversity themselves, the plot thickens a little. And this thicker value may have some import that we would need to explore, develop, and package appropriately, as follows.

Four Dimensions of a Biophilic City. For instance, Timothy Beatley, in his field-forming book, Biophilic Cities—Integrating Nature into Urban Design and Planning, defines four dimensions of a biophilic city (see Chap3, pp 45-50, also 51-81): (1) Biophilic Conditions & Infrastructure; (2) Biophilic Activites (urban activation, stewardship programs); (3) Bioplic Attigues and Knowledge (culture); (4) Institutions & Governance (political support for and real spending on integrating nature in the city).

More Definition. As Tim says, "A biophilic city is at its heart a biodiverse city, a city full of nature, a place were in the normal course of work and play and life, residents feel, see, and experience rich nature—plants, trees, and animals. . . . We need contact with nature, and that nature can also take the form of shapes and images integrated into building designs (the young field of biophilic design (buildings, architecture) gave birth to Beatley and his biophilic city/planning). He goes on to say that there are "many ways in which" biophilic cities differ from green cities (or green urbanism, as in energy/eco efficiency). A biophilic city is "a place that learns from nature and emulates natural systems, incorporates natural forms and images into its buildings and cityscapes, and design and plans with nature. . . . . The love and care for nature, the core value in biophilic cites, extends even beyond its borders to take steps and programs, and actions that help to defend and steward nature in other parts of the globe. . . . For me, biophilic urbanism represents a creative mix of green urban design with a commitment to out-door life and protection and restoration of green infrastructure from the bioregional to the neighborhood level. . . . How much of a city's budget goes to actively restoring and repairing nature and to educating, celebrating, and actively working to bridge the nature disconnect" is a key indicator of a biophilic city, of a city with strong, defining biophilic values.

The Underlying Biophilia Hypothesis. Embedded in the above is EO Wilson/Kellert (et. al.; citation forthcoming) biophilia hypothesis, that human brains are genetically hardwired to NEED daily contact with nature, and deeper contact, not only for normal emotional health, BUT for critical human development (baby thru young adult). It's functions to provide a direct connection to a deep (and weak) core of human nature that is essential to know and to develop deeply to become fully human in relationship to yourself, others, and the natural world. In a sense, this argument is that there is a "core" set of essential human concepts and experience of them that is only available through contact with nature, and that these represent core human values needed to act well within the larger social and natural world. The argument becomes a little clearer when we realize that some of the toolbox of human torture involves disconnection and deprivation from nature, and the effects are likely universally recognized as damage and violence against what it means to be human.

This may not be the best explanation of the hypothesis, but the presumption of the hypothesis is what shifts the value and imperative of biophilic city planning and design from optional but nice aesthetics to required and essential health; nature becomes a fountain or source of existential knowledge and grounding.

Our "Mission Impossible" Design-Integration Synthesis. As a result, if we are willing to "buy" some or all of this, and "accept" this *mission impossible*, then our task becomes embracing the development agenda and innovation involved in inventing this new arena of urban planning theory and practice, likely with a synthesis of ecological restoration, urban design, ecological city planning, architecture, landscape architecture, and maybe some engineering. We would pursue how to understand biophilia and its implications for the built environment, how to incorporate nature into the built environment from room to building, to site, to block, to district, to city and beyond.

Another dimension of this, mission wis natural areas, and recreation and park resources too. All these dimensions of Biophilic city planning need to be represented in urban sustainability planning, regardless of where we situate it (Urban Metabolism, etc). BUT stitching it all together to see/show/maximize the value generated for the whole city would be Planning's, "job!"

[Posted by Scott T. Edmondson, AICP, founder/past co-director and current Research Program Lead of the Sustainability Committee; one of the APA Sustainable Communities Division's Sustainability Champions; and a strategic sustainability planner-economist at SF Planning Department.]