

Ecological Urban Design

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Ecological urban design is becoming a reality - a reality endorsed by one truth -our cities are an ecosystem operating in a larger eco-system. Once we understand and are aware of the intricate details of how these two ecosystems can complement each other, our cities - being the largest man made creations - will definitely heal from the alarming ecological footprint they are producing.



Figure 1-cities as urban ecosystems

Roads act as main way of transporting people and goods from the point of entry of a neighbourhood to an array of potential stop stations. The choice we human make when designing such a road needs to be influenced by the way our brain interpret and perceive these different possibilities. As designers, we are responsible for ensuring legibility- the capability of a city arteries(roads) to be understood intuitively . Although it is a design factor, it goes a long way in addressing efficiencies; the more direct and clear it is for our brains (or GPS) to guide us through the maze of points we need to go to ,the more possibilities for alternative transport mode can be thought of such as tram, monorail, biking tracks ,pedestrian zones. We tend to always analyse the pedestrian network as running parallel to roads through the inclusion of sidewalks sandwiched

between the roads and the buildings .However, cities that have been resilient through thousands of years prove to us that our rationalisation of how we walk in cities is reductionist to our urban spaces. Walkable cities are legible .



Figure 2 walking is a choice that legible cities force us to take

Whether it is surface, multi story or basement parking, it plays a role in increasing accessibility to public transport points , pedestrian retail zones within the city ,civic spaces .accessibility as a design facto is highly linked to proximity of public transport to public spaces and recreational spaces .it results in vibrancy and animation of these spaces during all days and across different population segments ,

An example of ecological urban design is Downtown Silver Spring .The Development near transit stations is often compact and intense which gave the developer an opportunity to do Placemaking. The design of Civic open spaces make the development unique and fulfil an important need in compact, urban neighbourhoods.

After residents in Silver Spring, Maryland, called for more open space, Montgomery County, Maryland, planners wrote guidelines for a Transit Oriented Development. A developer of a 27-acre project a short distance from the Metro stop responded by redeveloping the suburban superblock around a series of public spaces by Bing Thom Architects and Sasaki Associates. The public spaces add to the urban centre distinctness and a sense of place .

relationship between sun, wind and the orientation of our city fabric, streets and public space is important to manage efficiently the city as an ecosystem leading to efficiencies in energy consumption especially if it is applied on a district level and city level. Xeritown is a development in Dubai that have used wind in shaping its urban fabric-see figure 4



Figure 3-Source:bettercities.net

Cities in the Gulf are part of a larger ecosystem – a coastal desert .The heat in urban spaces is caused through the reflection of the sunlight rays on the horizontal and vertical surfaces. This warming leads to an over use of air conditioning - air cooling that consumes fossil fuels . In these days, our technologies are focused in either inventing materials that do not get affected by sun rays or cooling technologies to save on energy. What about wind? What about we work with the wind? Understanding the

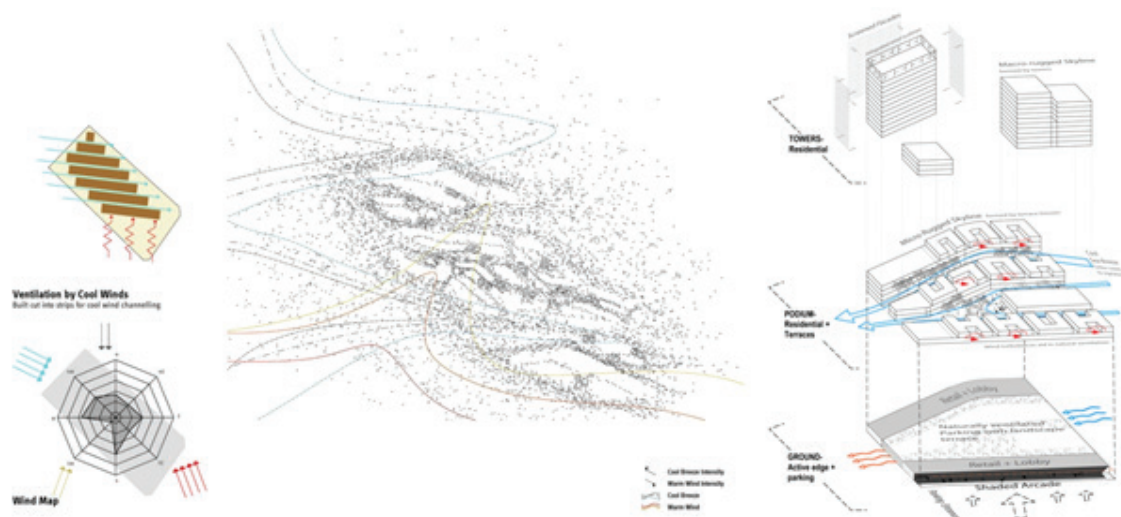


Figure 4-Xeritown used wind to reduce heat by reorienting the fabric to benefit from cool breeze coming from the sea to the desert -source-Carboun.com

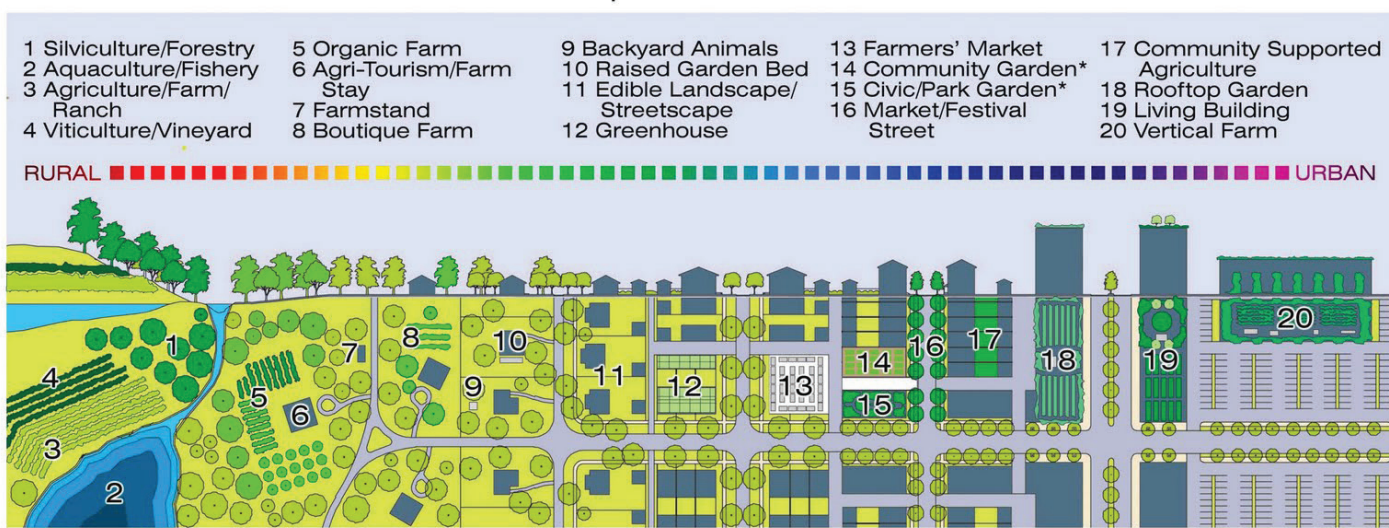
Greening the city is gaining momentum as a substantial resource efficiency initiative. There is always a pitfall in our cities to consider greening the city as just dedicating a big plot of land for a park. Actually, greening the cities now is expanding into urban ecosystem management through Urban agriculture and Biodiversity protection activities. We share with these city elements the oxygen and carbon - carbon being the enemy number one across the world when it comes to national sustainability campaigns. We look for ways to buy, share, transfer, calculate and

resolve carbon footprint issues. What about plants? Cities are looking for various ways now to incorporate urban agriculture projects. In Dubai, Zaabeel park acts as an urban haven reducing heat and the impact of sheikh zayed highway high traffic activities carbon emissions. Zaabeel park also hosts a numerous of local adapted flora species that with time might become also a haven for local birds, insects and other fauna species. One of the interesting use of zaabeel park is storm water management due to its proximity to Dubai International Financial center. In case of wind storms, its palm trees might reduce the impacts of sand erosion on the neighbourhoods in karama and bur dubai.



Agri-Urban Spectrum

Permacultural Concepts and the Urban-Rural Transect



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Permaculture is an ecological design system for sustainability in all aspects of human endeavor. It teaches us how to build natural homes, grow our own food, restore diminished landscapes and ecosystems, catch rainwater, build communities and much more. Permaculture.org
* Community, Civic and Park Gardens are ideal sites for Community Emergency Centers, which could include emergency equipment, supplies, portable toilets, and

Urban agriculture is the growing of plants and raising of animals within and around cities. The most striking feature of urban agriculture, which distinguishes it from rural agriculture, is that it is integrated into the urban economic and ecological system: urban agriculture is embedded in--and interacting with--the urban ecosystem. RUAF.org

Figure 5-possible projects in urban agriculture

In ecology, urban ecosystems are not mere assemblages of their parts but are continually growing and changing along with their elements. The generative field of a living system extends into the environment and connects the two, for what is needed for the health of the entire system. It is about the connected fabric of constantly evolving relationships between all living things.

Ecological urban design, in face of the current pressures, adopts a holistic design approach that combines accessibility, walkability, local climate constraints, greening cities in order to produce places that are meaningful. Our spaces will turn into places that breath, inspire, uplift and even heal...