

EcoSydney? – Understanding the Future of an ecocity

Australia, inhabited by the most unique wildlife on earth, is one of the most urbanised Nations on the planet. With the bulk of the population residing in the major city centres such as Canberra, Melbourne, Brisbane, Perth, Adelaide and Sydney. Adding the steadily rising population, more people move from the Australian outback and the rest of the globe to these major centres to find a better quality of life. While the population in Australian cities grow, one must understand the significance of a sustainable eco-city through addressing the appropriate and efficient use of urban planning, social infrastructure innovative technologies and education. With these major cities consistently being ranked as one of the most liveable cities on earth, it is crucial that Australia should be an example of not only for liveability but also sustainability. However, these cities consist of wasteful consumption of resources and combined with increasing population growth, poor urban planning and lack of proper sustainable design, Australia is one of the most liveable places on earth, but by far one of the most sustainable.

In order to create a sustainable and eco-friendly city, one must first understand the characteristics of an ecocity. Simply putting garbage in the correct recycle bin isn't enough. The main issues that allow for proper ecocities to thrive include; architecture, transportation, urban strategic planning, technology and education. Each of these issues must be properly addressed to create the ecocity of the future.

Architecture in a sustainable ecocity (New Urbanism and New Classical Architecture) should include; Eco-industrial parks, urban/ local farming, urban infill, walkable urbanism, new urbanism and individual design.

- Eco-industrial parks allow for mass water collection, increase of fauna and flora and decrease of energy consumption.
- Urban and local farming focuses on the proper growth and local distribution of food and the correct raising of animals in an urban area, reducing the carbon footprint of transportation.
- Urban infill generates proper city density. With cities becoming denser, the importance of historic rehabilitation in architecture and new construction becomes increasingly demanding. Interior spaces need to be spacious, ventilated, properly circulated and insulated.
- Walkable urbanism demonstrates the importance of social and physical activities in urbanism. Encouraging mix uses of walkable/ cycle streets, positive public space, integrated civic and commercial centres, transit orientation and accessible open space.
- New urbanism focuses on the importance of walkable design through minimising the use of private transportation and encourages the use of public transport. Mainly using the concept of Circular flow land use management, promoting sustainable land use patterns for compact cities.
- Individual Design, "sustainability is the new black" in architecture. Leadership in Energy and Environmental Design (LEED) is an internationally recondensed building certification system, focusing on key areas on a design such as; sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, location and linkages, innovation in design and regional priority. Allowing for innovative thinking for optimum ecofriendly designs.

Transportation systems account for nearly a quarter of the world's energy consumption and carbon emission. Australians own more cars per person than citizens in any other developed country/ continent such as in the U.S. and Europe. Sustainable transportation is vital to reduce the cities reliance on greenhouse emitting gases by utilizing an ecofriendly urban environment with low-impact vehicles and local urban centres for residential activity.

Transportation is of huge importance when it comes to sustainability, factors should be considered such as; Carfree city, proximity, diversity of transportation and accessibility.

- Carfree City, allowing for extended pedestrian areas, increase the use of public transport, additional green spaces and cleaner air.
- Proximity is the key factor in a sustainable city. With the increasing of populations in cities such as Sydney, destinations should have a smaller transit time through closer proximities to another. Reducing fuel expenditure and allowing for alternate transportation such as bike riding, walking or public transportation.
- Diversity of transportation has a huge emphasis on public transportation and non-fuel travelling such as walking and cycling. If however private transportation is used through an alternative energy source such as electric or biofuel should be used instead of traditional gasoline.
- Accessibility to the general public allows for easier transport decisions. It must be accessible to all levels of society and in a close proximity of another. The costs of rides must become affordable, this allows for the increasing use of public transport.

Urban strategic planning for sustainability has only started to develop in the last decade, focusing on the roles of local governments and authorities on how they can change the development of urban planning in a local scale. To clearly identify the local challenges of the community that allows for quick institutional responses, rapid and efficient development. This allows for new concepts to rapidly develop in housing, energy and transportation.

Technology is the leading cause to generating a carbon footprint of today's society, however it is also the leading factor to sustainable architecture in the modern age. It leads to innovative and new designs that allows for renewable energy, energy efficient construction, grey water treatment, sustainable building and town planning and permaculture (agriculturally productive ecosystems).

With Sydney containing the largest population in Australia of 4.5 million people and existing in one of the most liveable countries in the world, the city is vastly becoming one of the world's leading green cities. The city council and the carbon neutral council have created an ambitious blueprint to strive for low-impact energy and water for the city itself while simultaneously connecting it via green networks and infrastructure hubs through the use of Trigeration energy. The plan called 'Sustainable Sydney 2030' responds to challenges of global warming, rising oil prices, declining housing affordability, growth and an overall sustainable ecocity (EcoSydney). Trigeration is locally produced electricity that simultaneously produces power, heating and cooling for the overall city. Building a Trigeration network under the city itself, it locally generates enough electricity to power the whole city and reduce emissions by 70% by 2030.

All these factors greatly influence the critical designing process of a sustainable ecocity, however its citizens need to understand the importance of their contributing factor to the maintenance of sustainability in their local area. Knowing where their produce comes from, understanding the importance of recycling, biodiversity, use of resources and overall environmental responsibility allows to develop the skill, knowledge and values to promote behaviour supporting a sustainable environment. In 2009, the Australian government launched "Living Sustainably: the Australian Government's National Action Plan for Education for Sustainability" to equip Australians with the knowledge required to live sustainable. Setting up a framework of national action which adopts the following four strategies to respond to the needs and priorities of education for sustainability.

1. The national government operating with smaller, state, territory and local governments, opening up a faster and more efficient communication line through the exchange of sustainable policies, programs and operations through ideas and suggestions.

2. Reorientating education systems to sustainability to create a younger generation that is aware of the importance of sustainability, done through high school and college.
3. Brining awareness to the importance of sustainability in the business industry. Building a business and industry to plan for sustainability through the use of cost efficiency, reputation, staff morale and retention.
4. Community spirit allows for a diverse range educational providers to help improve the sustainability of a community through awareness and providing the knowledge and tools to support and understand the issues, attitudes and behaviour of individuals towards sustainability.

Sydney is slowly working its way towards the 'Sustainable Sydney 2030' project, through the use of Trigeneration, renewable energy master plan, installing energy efficient street and park lights, solar panel project, energy efficient retrofits of major buildings and reducing carbon emissions and energy bills of businesses through energy efficient programs. Since 2005 The Sydney council has installed:

- 8 900 street trees
- 14 additional rain gardens
- 5500 solar panels (by 2015 they will supply 12.5% of the cities requirements)
- Created new stormwater harvesting and re-use projects across Sydney

Sydney's innovate designs to a sustainable future is remarkable, creating an urban environment that is user-friendly and sustainable (partly). However, would this be enough by 2030? Having discussed about the requirements of an ecocity, does Sydney have the criteria to become the leading example of an ecocity for the rest of the world? I personally think not, the 'Sustainable Sydney 2030' project is a good first step to the development of a sustainable zero-carbon emission ecocity. However, with the Sydney's increasing population, lack of proper public transport and too few buildings being completely sustainable, I don't see Sydney becoming the world's leading ecocity that they hope to be anytime soon.

