

Week 10 SEM 1 2018:

CITIES AS SUSTAINABLE COMMUNITIES

DEFINITIONS:

Ecological sustainability: The protection of ecological process and natural systems (air, ecosystems, soil and water) for the present and future generations use.

Sustainable development: It is ensuring development meets current needs without impacting the needs of future generations.

1) Global megatrends affecting cities

Megatrends are **global changes** that will have **local implications**

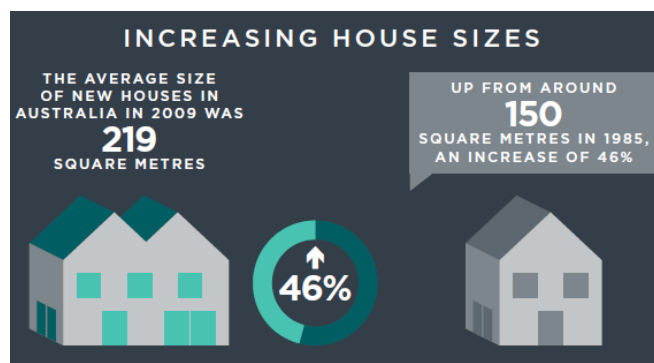


I) **AUSTRALIAN POPULATION AND URBANISATION TRENDS:**

- Australia's population is projected to grow over 50 million by 2060 (predominately due to **migration**)
- Currently replacement fertility rate is 1.9 (below need of 2.1)
- Suburban expansion (urban sprawl) →

Concentrating growth in urban areas adds pressure to housing, infrastructure, employment and services
- Average floor area of new free standing house is increasing (More land needed for less population)

SOLUTION: Increase medium-high density town housing and apartments



ii) AUSTRALIA'S CHANGING DEMOGRAPHICS

As

Globally there is a shift to an
AGING Population

As a result....

- Elderly remain longer in the workforce
- Economic flow on implications for
 - Health care cost RISE
 - Labour market productivity
- City structure implications
 - Design of future homes
 - Proximity to services – transport
- Create built environments that allow for active transport (walking, cycling etc)

iii) RESOURCE DEPENDANCY

- The **finite nature of natural resources** means there needs to be careful use and distribution of resources
- Minerals including oil and gas → DEPLETING → MORE \$\$\$ → will **become exhausted**
- Food production = fossil fuel dependant

iv) RESOURCE DEPENDANCY

- **Climate change:** 'Change in the pattern of weather and related changes in oceans, land surfaces and ice sheets occurring over time'
- Human induced climate change poses a risk for human activity and natural systems

Australia's vulnerability to climate change:

- Australia's **arid climate** = vulnerable to **bush fires and drought**
- Cities located on coast = vulnerable to coastal **flooding and sea level rise**

v) GLOBAL CONNECTEDNESS

- Australia has a **global locational advantage** to **service emerging economies** and middle classes of **China** and **India** particular
- **Employment trends:**
 - Increased casualization of the workforce (more casual roles)
 - Growth of mixed use precincts → Reducing separation of employment and residential uses
 - Design of buildings adapting to lifestyle conditions → better work from home options

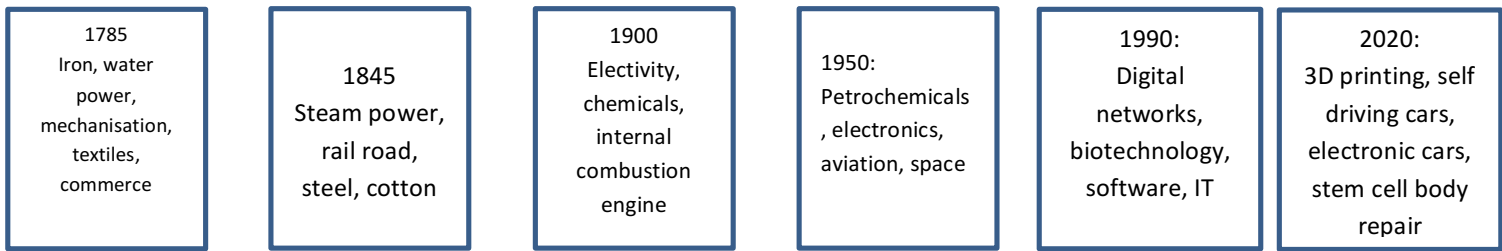
vi) INFRASTRUCTURE:

- Essential component in growing and productive cities = Significant infrastructure to enhance;
 - Transport, Energy & Telecommunication network

Successful cities relies on;

- Investments in **economic infrastructure**; *physical structures and facilities*
- Investments in **social infrastructure**; schools, hospitals, and emergency services
- Advances in **affordable technologies**

vii) NEW TECHNOLOGIES:



viii) NEW TECHNOLOGIES:

- Increased concern with overuse of resources and excessive consumerism → Resulted in...

COLLABORATIVE CONSUMPTION

- 'Cohousing' = mix of privacy and community
 - 'Common house: community of 20-40 households meeting for shared meals/activities
 - UBER
 - AIR BNB
- **GPS Scanning and 3d modelling...**
 - Visualise cities past and future (land use strategies → assist planners)
 - Providing visualisation of transport
 - Assist in development applications of new buildings → shows overshadowing and appearance in city

2. CITIES – URBAN PATTERNS AND FORMS

I) Cities in transition to a more sustainable built environment

- **Modern cities are products of fossil fuel technological developments since the 1800's:**
 - 1880's = Horse Drawn transport (walkable city)
 - Late 1880's = Steam and electric public transport (train and tram)
 - Introduction of oil powered automobiles (cars and trucks)
 - Eventually oil based economy will fail → requiring alternative renewable energy
- **Urban form and Design**

Urban form is a set of complex web of relationships comprising of;

 - Development patterns and spatial structure in a **hierarchy of scales** (the urban morphology)
 - Height, shape, density and appearance of built environment
 - Streets, public spaces, plazas
 - Transport systems (for people and goods)
 - Public and private open space

II) From resilience to transformation concepts

- **Resilience** = Ability to bounce back and adapt to change

- City governments aim to make them more resilient in changing economic and natural environments
- Adapt to change through; **transport, land use systems**, multiple sources of **renewable power** that allow city to survive **natural disasters, shortages in resources**

III) SUSTAINIBILITY TO REGENERATION

- Challenge of moving on from sustainability to regeneration (not just sustaining in a degraded condition)
- **Long term viability of cities depends on;**
 - Powering themselves with renewable energy
 - Developing a circular urban metabolism
 - Regenerating soils, forests and watercourses
- **Regenerative city initiatives:**
 - Minimising / eliminating **low density sprawl**
 - Converting inner suburb low density to medium density mixed use options
 - Build more urban density **mixed use**

3. Private development must be profitable

2) The conundrum of affordable housing

- **Unaffordable housing**
 - Housing stress if a household pays more than 30% of income to housing costs
 - 2 incomes needed for a loan
 - Investor advantages
 - Forced rent
 - Locational factors → outer = cheaper
 - No strong federal government policy on affordable housing