

GEQ1917

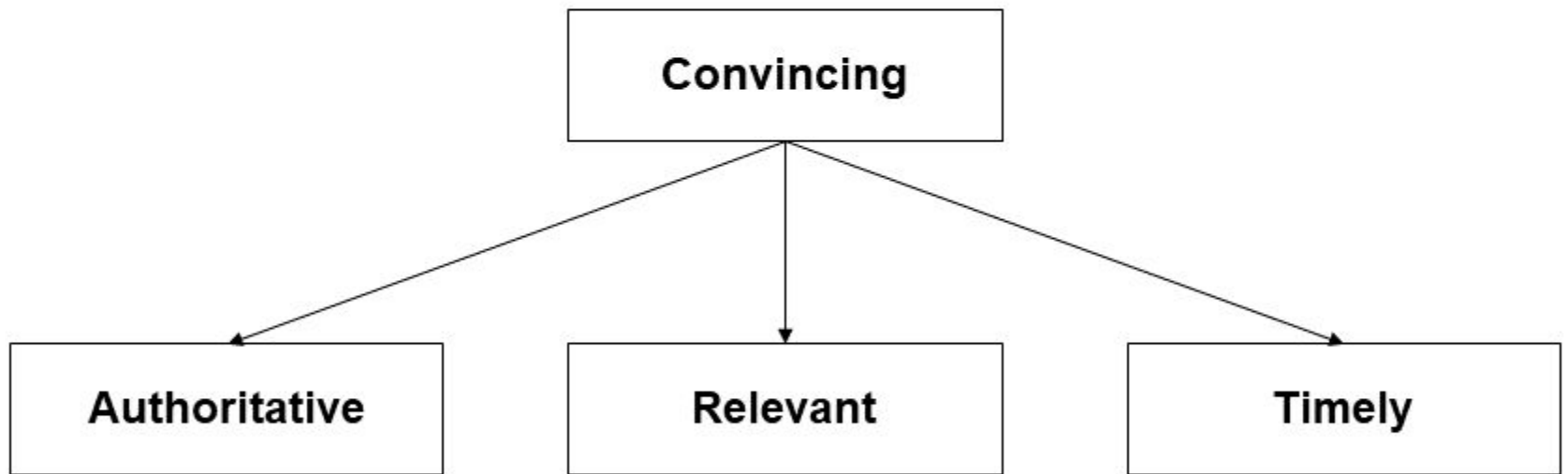
Summary



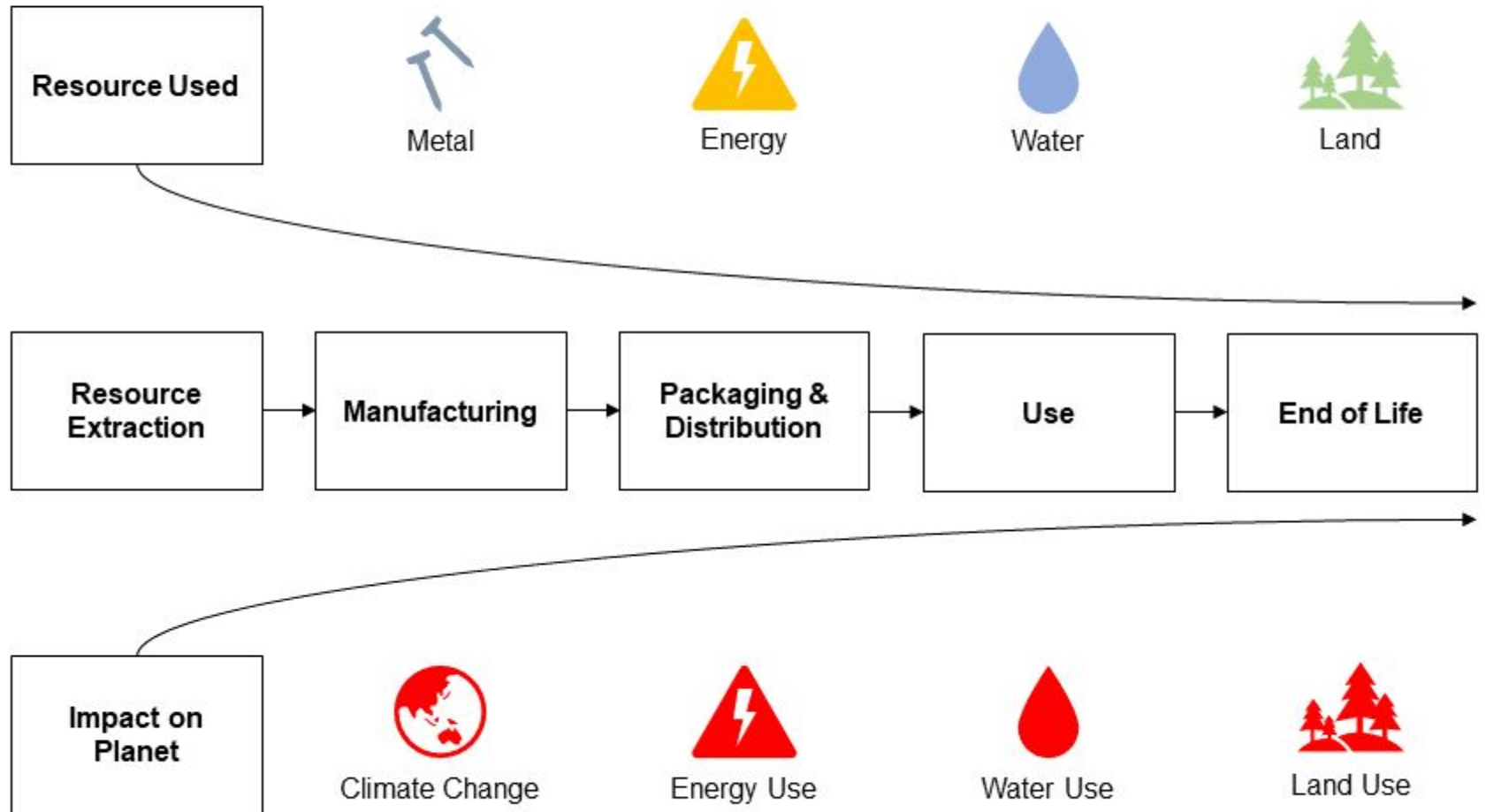
Tool - 3P

People	Planet	Prosperity
<ul style="list-style-type: none">• Job opportunities• Nutrition (Fat, Protein)• Malnutrition/Obesity• Disease (Heart disease, Haze)• Affordability• Accessibility• Harsh working condition• Big companies force out smaller farmers	<ul style="list-style-type: none">• Habitat conservation/Loss• Species extinction• GHG production (methane, ...)• Water pollution• Soil fertility• Land use• Prawn farm > Mangrove loss• Pesticide/Fertiliser > Algae• Transport > GHG & Fossil fuels• Irrigation system• Pesticide > Pollinator	<ul style="list-style-type: none">• GDP (Price, Income)• Agriculture• Affordability• Susceptibility to disease• Additional cost to companies• Build company image

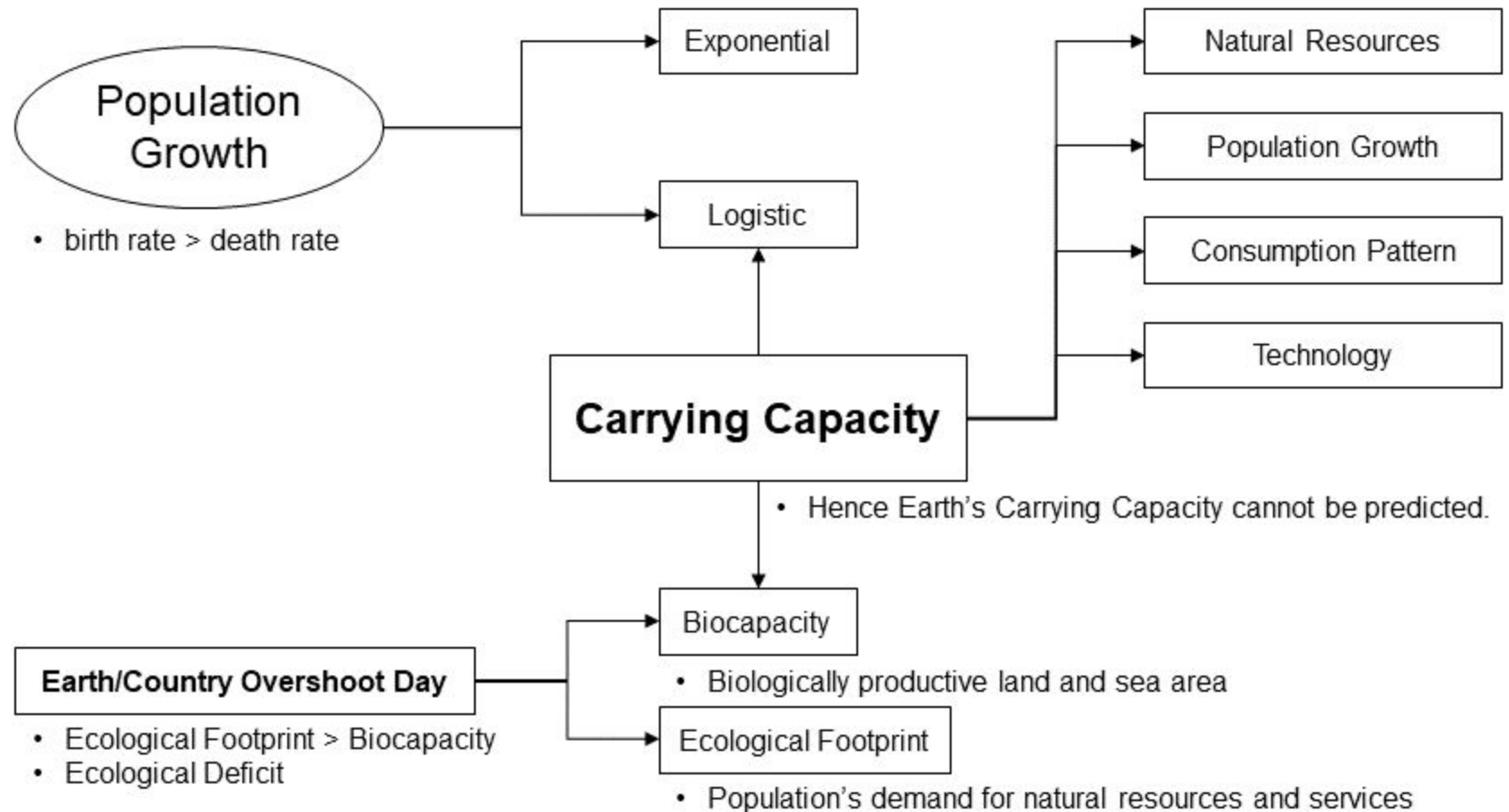
Tool - A.R.T.



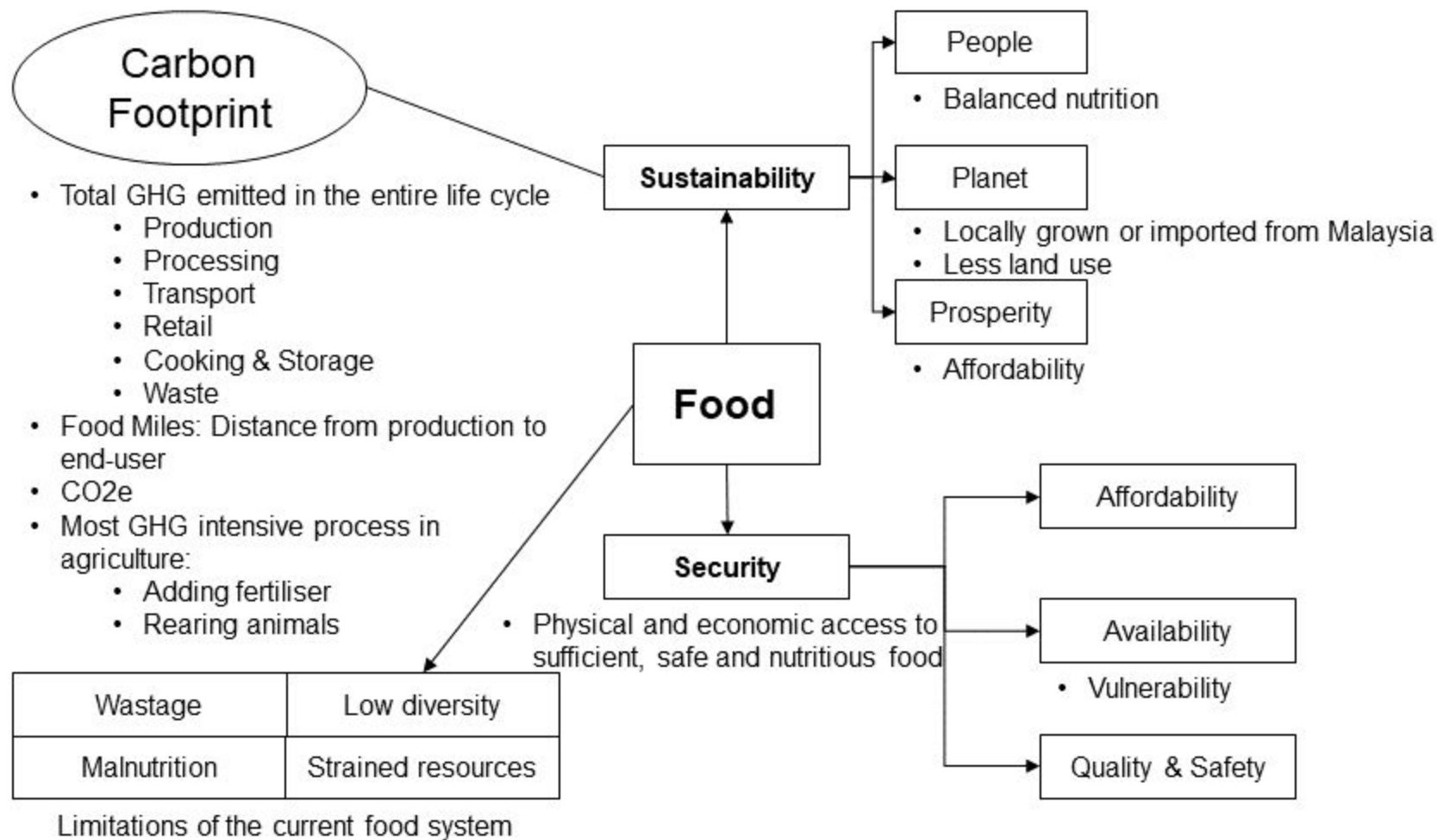
Tool - Life Cycle Thinking



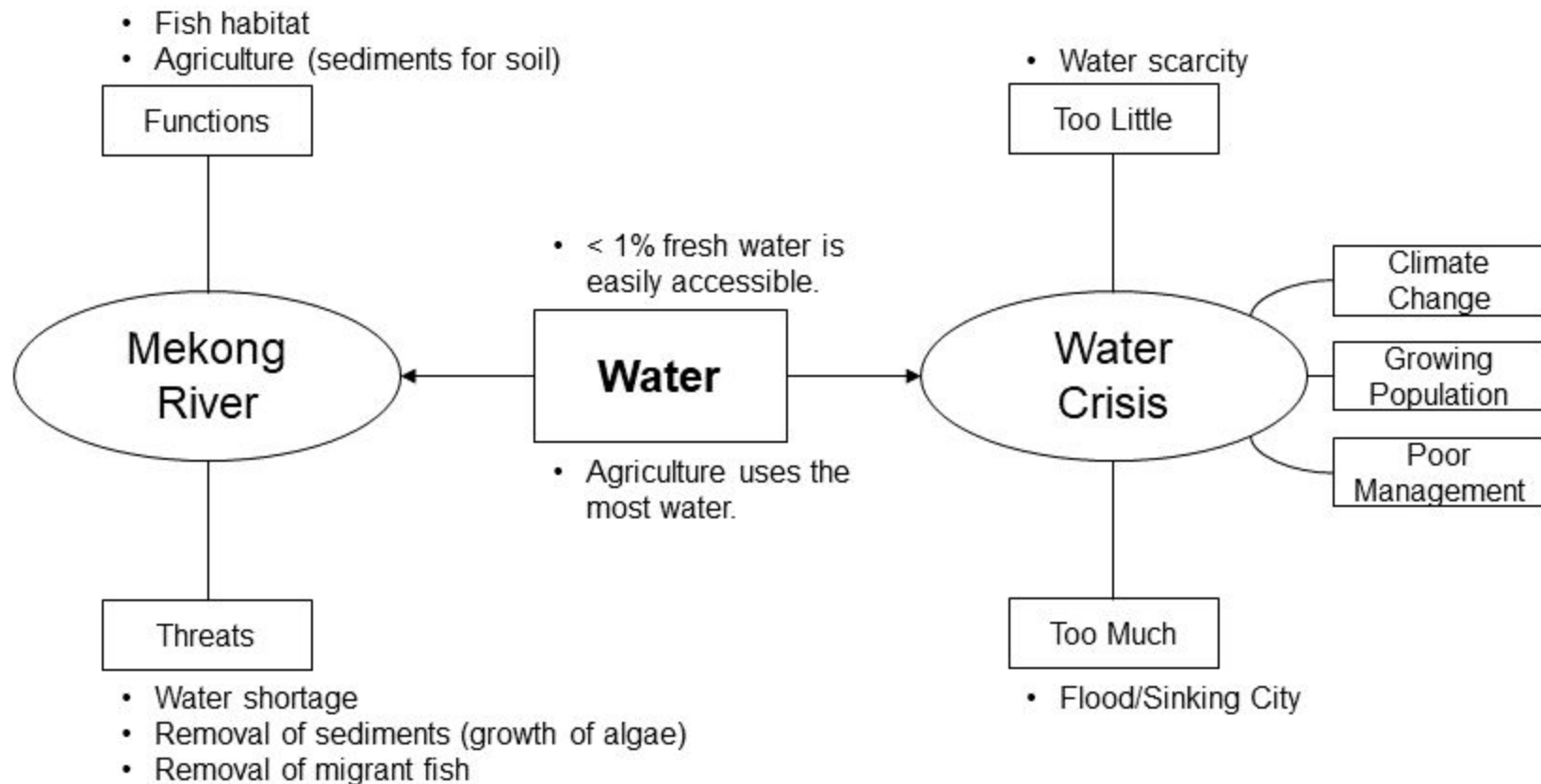
Carrying Capacity



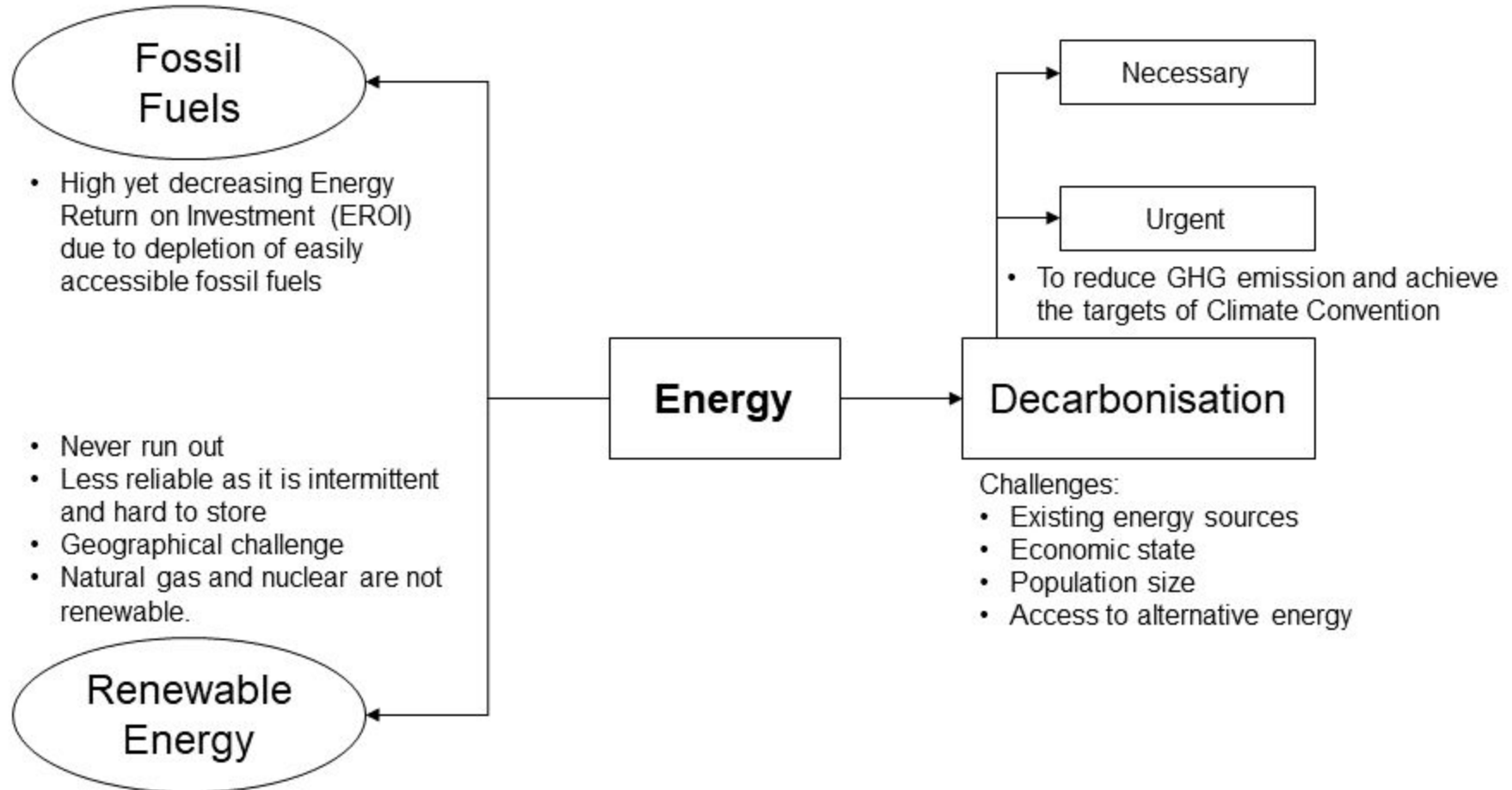
Food



Water



Energy



Marine Litter



60% - 80% of all marine debris is composed of plastic.

International Coastal Cleanup



Marine Litter



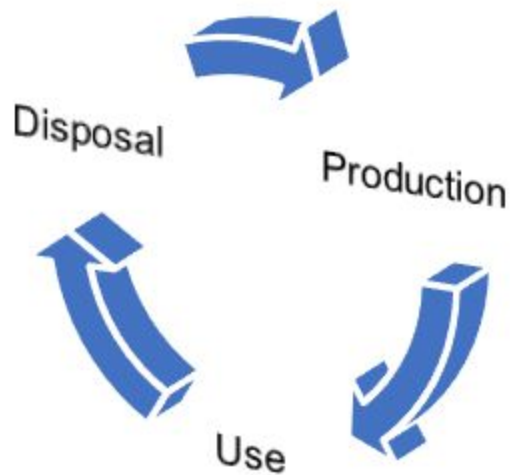
Marine trash impact marine life.

- Ingestion
- Entanglement
- Smothering of Habitat
- Bioaccumulation

Singapore has marine life worth conserving.



Circular Economy

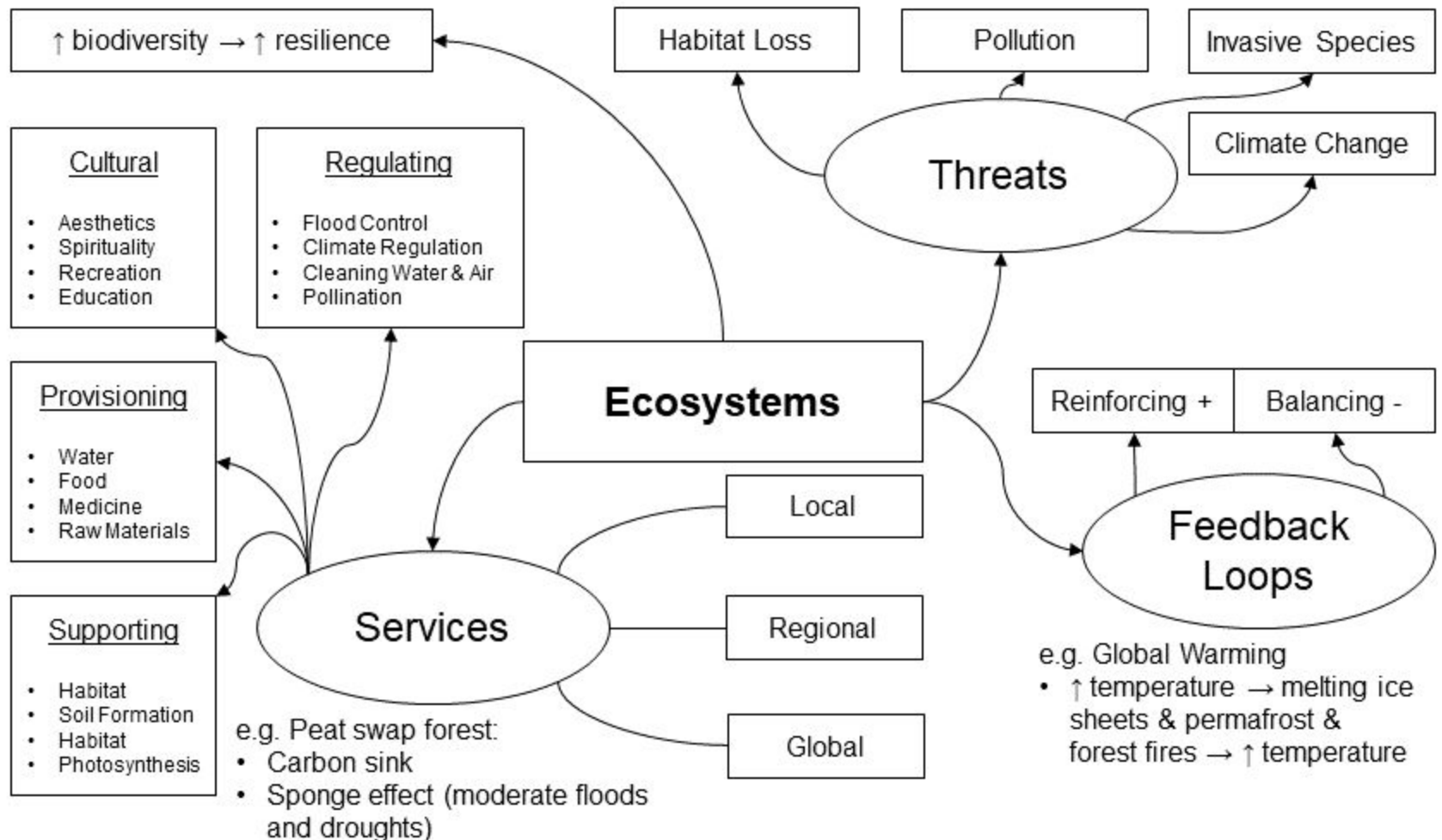


- A circular economy seeks to reduce waste, recovers resource at the end of a product's life, and channels them back into production, hence significantly reducing pressure on the environment.
- Resource Sustainability Bill:
 - To impose obligations relating to collection and treatment of electrical and electronic waste and food waste
 - To implement a framework where persons who profit from the supply of products bear the cost of collecting and treating these products when they become waste;
 - To encourage producers of packaging to reduce, reuse or recycle packaging;
 - To enable proper segregation and treatment of food waste.

Responsible Consumption: Choice of consumption impacts People, Planet and Prosperity.



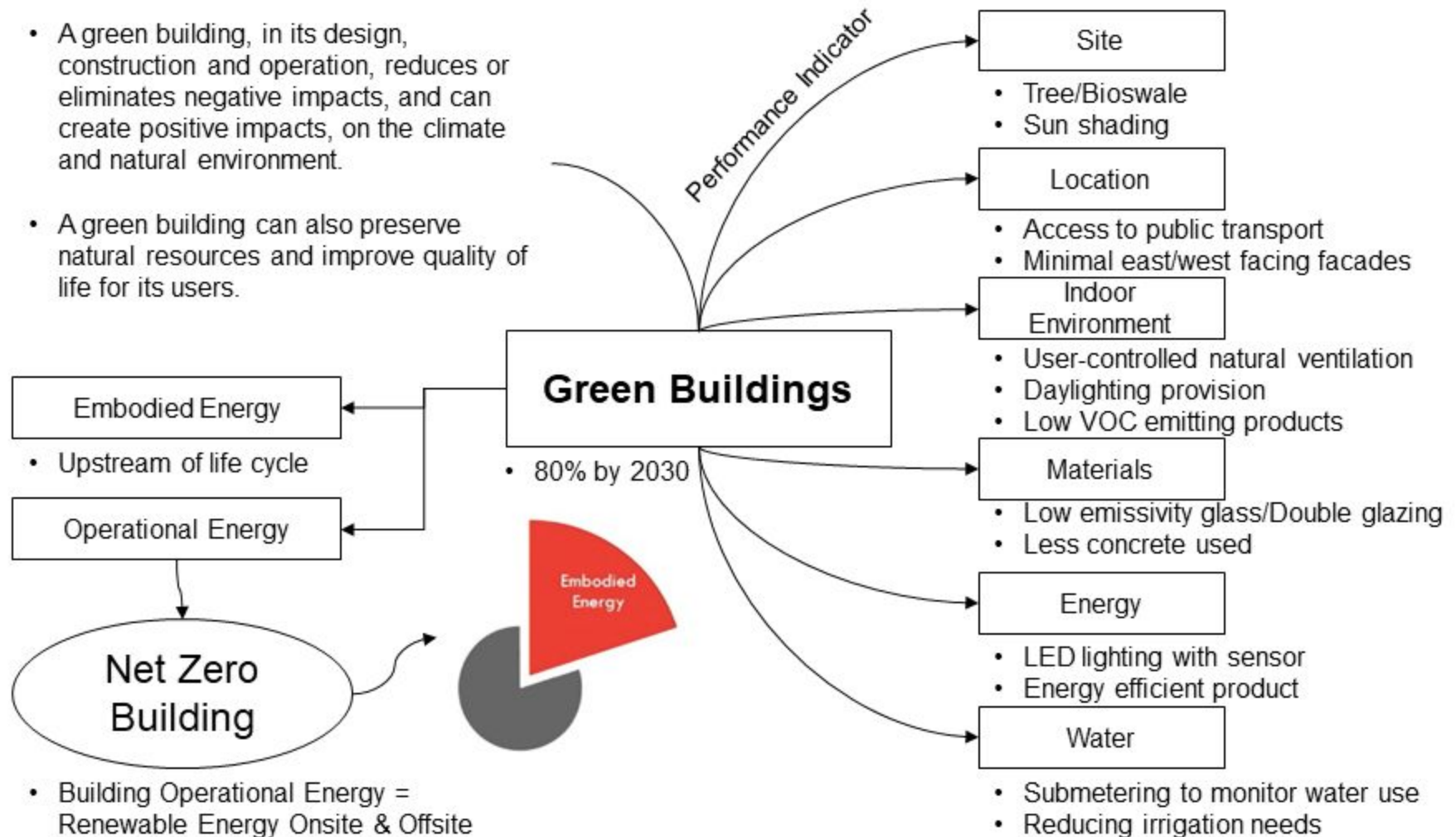
Ecosystem Degradation



Green Buildings



- A green building, in its design, construction and operation, reduces or eliminates negative impacts, and can create positive impacts, on the climate and natural environment.
- A green building can also preserve natural resources and improve quality of life for its users.



Building Materials

	Raw Materials Extraction	Manufacturing	Packaging & Distribution	Use	End of Life
Concrete	<ul style="list-style-type: none"> Cement: CO2 emission + pollution Sand: Mining causes ecological degradation. 	<ul style="list-style-type: none"> 4-8% of world's CO2 10th of industrial water use 	<ul style="list-style-type: none"> Use of fossil fuel CO2 emission 	<ul style="list-style-type: none"> Strong material Low maintenance needs Damage top soil Urban heat island effect 	<ul style="list-style-type: none"> Hard to reuse Crush for lower grade uses
Steel	<ul style="list-style-type: none"> Iron: Mining causes ecological degradation. 	<ul style="list-style-type: none"> High energy use in extracting, adding other elements and furnacing 	<ul style="list-style-type: none"> Heavy Use of fossil fuel CO2 emission 	<ul style="list-style-type: none"> Strong material Low maintenance needs Urban heat island effect 	<ul style="list-style-type: none"> Easy to reuse (melt) Some pollution
Glass	<ul style="list-style-type: none"> Sand, soda ash, limestone: Mining causes ecological degradation. Use chemicals 	<ul style="list-style-type: none"> High energy use in crushing, grinding, shaping and tempering 	<ul style="list-style-type: none"> Heavy Easily damaged (require special handling) 	<ul style="list-style-type: none"> Strong material Easily replaced High maintenance needs Exterior glaring Interior greenhouse effect 	<ul style="list-style-type: none"> Crush for lower grade uses No pollution
Bricks	<ul style="list-style-type: none"> Natural clay: Mining causes ecological degradation. Use chemicals 	<ul style="list-style-type: none"> High energy use in crushing, grinding, shaping, drying and firing 	<ul style="list-style-type: none"> Heavy Use of fossil fuel CO2 emission 	<ul style="list-style-type: none"> Strong material Easily replaced Low maintenance needs Urban heat island effect 	<ul style="list-style-type: none"> Crush and use as filler No pollution

- An urban heat island is an urban area that is significantly warmer than its surrounding rural areas due to human activities, such as modification of land surfaces and waste heat generated from energy use.
- Evapotranspiration from plants and water has a cooling effect.