

# Part II. Solutions

## Part I I. Solutions:

- **Green Building**
- Transit-Oriented  
Development
- Zero Waste

# Part II. Solutions

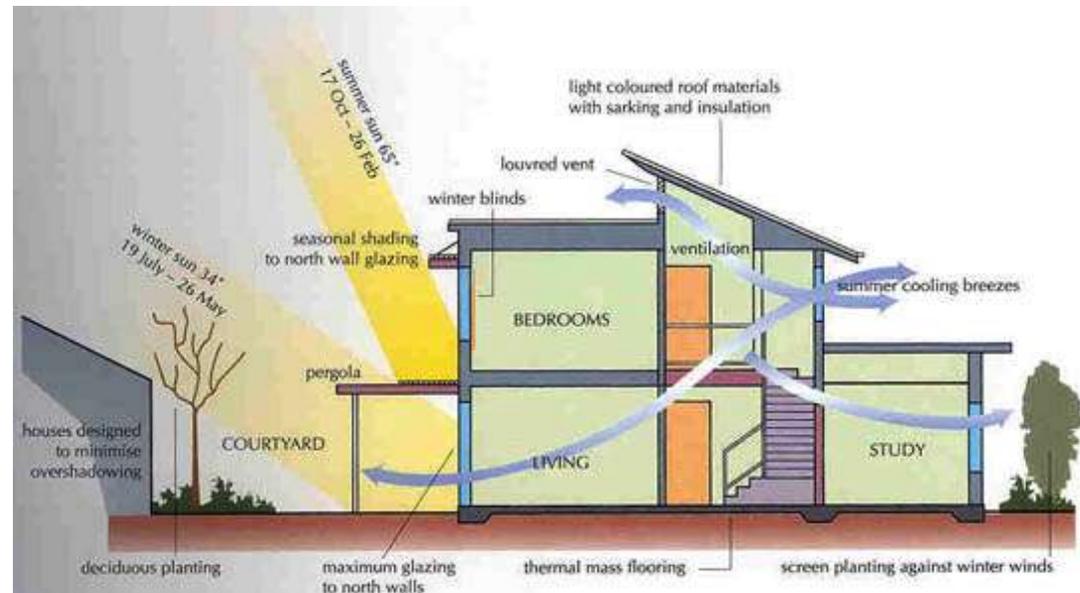
## Green Building

Green building or architecture refers to reducing buildings' environmental impact in terms of energy, water, and materials.

Benefits:

- ✓ Lower energy costs
- ✓ Improved indoor air quality
- ✓ CO2 savings

Buildings =30%  
of the country's entire  
energy demand

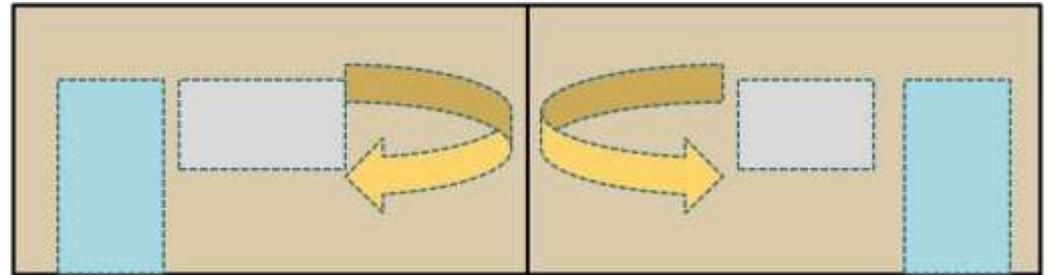
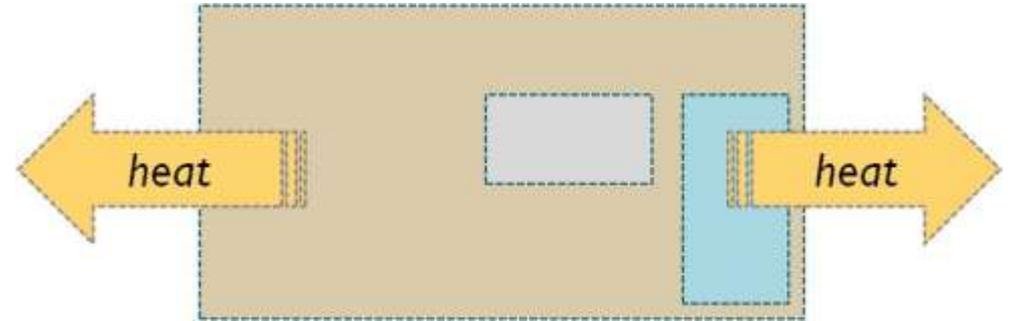


# Green Building

## Energy Efficiency

– No cost

- Sharing walls-
  - keeps building warmer in winter and cooler in the summer
- Insulation-
  - Additional cost but further improves indoor climate

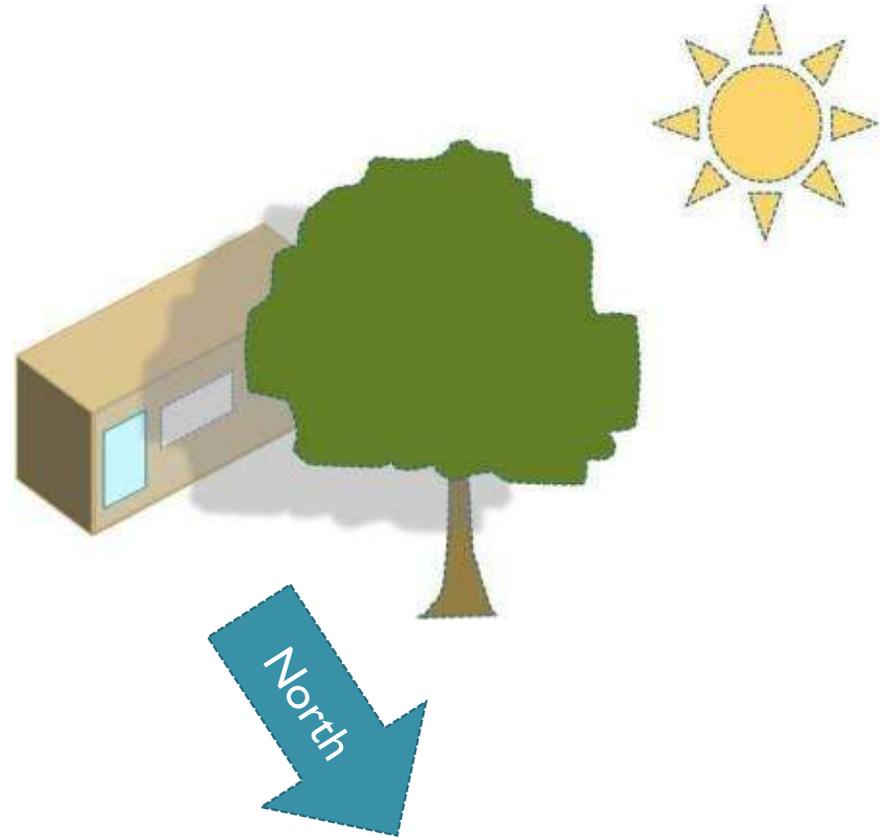


# Green Building

## Energy Efficiency

– Low cost

- Plant a deciduous tree
  - In winter, leaves fall off the tree to let in sun
  - In summer, leaves shade house
- Orient buildings so that windows face north to:
  - Receive light
  - Warm house in winter



# Green Building

Energy efficiency

-Low cost

- Efficient cook stoves:
  - Cleaner air
  - Reduce CO<sub>2</sub>
  - Uses less fuel- saves \$\$



Photos courtesy of Indaba Design

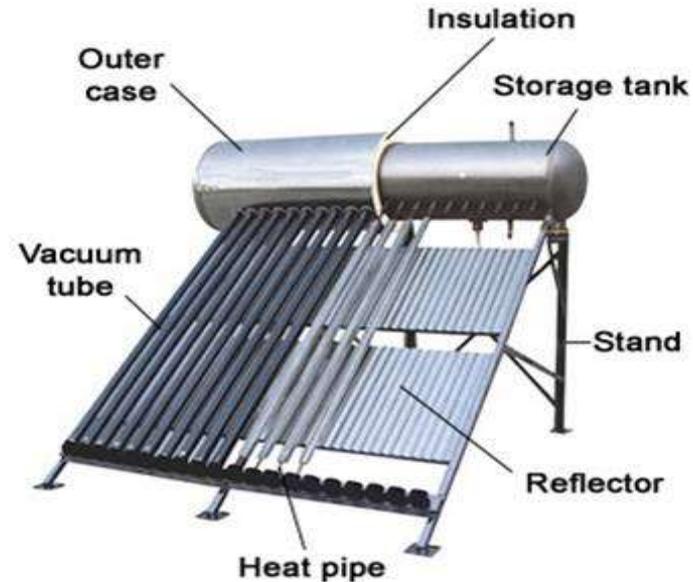
# Green Building

## Energy Efficiency

– Higher cost

A solar geyser with a 2 m<sup>2</sup> solar panel will every year:

- Collect up to 2,000 kwh of electricity
- Save 1,080 kg of coal and 2,800 litres of water
- Reduce CO<sub>2</sub> emissions by 1,956 kg



# Green Building

## Alternative Materials

-Low Cost

- Use indigenous building materials
- Sand bags used to construct these RDP houses in Cape Town
- Inexpensive to construct
- Materials easy to find
- More efficient- save on heating costs



Photos courtesy of Indaba Design

# Green Building

## Water efficiency

-Low Cost

- Rainwater harvesting – free water!
  - Reduces storm water flow
  - For watering garden
- Aerators- screw onto your tap
- Put a filled bottle in your toilet tank



*Aerator*



# Part II. Solutions

## **Part I I. Solutions:**

- Green Building
- Smart Growth and Transit-Oriented Development
- Zero Waste

# Smart Growth

## Conservation of Open Spaces

- Reduce impervious surface area, which:
  - Protects water quality
  - Prevents flooding
- Vegetation absorbs CO<sub>2</sub>, counteracts urban heat island effect
- Protects habitat
- OR provides space for community gardens

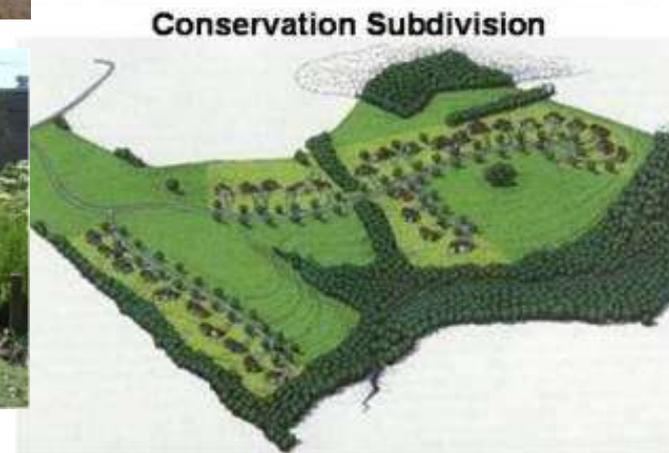


Image at <http://swim.wellsreserve.org>

# Transit-Oriented Development

- TOD is when higher density housing is built near public transit.
- Joburg's new Rea Vaya Bus Rapid Transit system will save 382,940 tonnes of CO<sub>2</sub> annually.
- Reduces air pollution, saves energy, more affordable to the poor



# Transit-Oriented Development

Respect the pedestrian!



A large percentage of the poor must walk because transport is so expensive.

Transit won't be successful until people can walk to it safely.

In South Africa, 32 people out of 100,000 are killed annually in road accidents. 39% are pedestrians.



New pedestrian bridge at Orange Farm over the N1

# Transit-Oriented Development

Global Park(ing) Day-  
Friday 17 Sept 2010

- So much land is paved over for cars... what could we do with less pavement?
- Take the bus and reclaim the street for the pedestrian



# Part II. Solutions

## **Part I I. Solutions:**

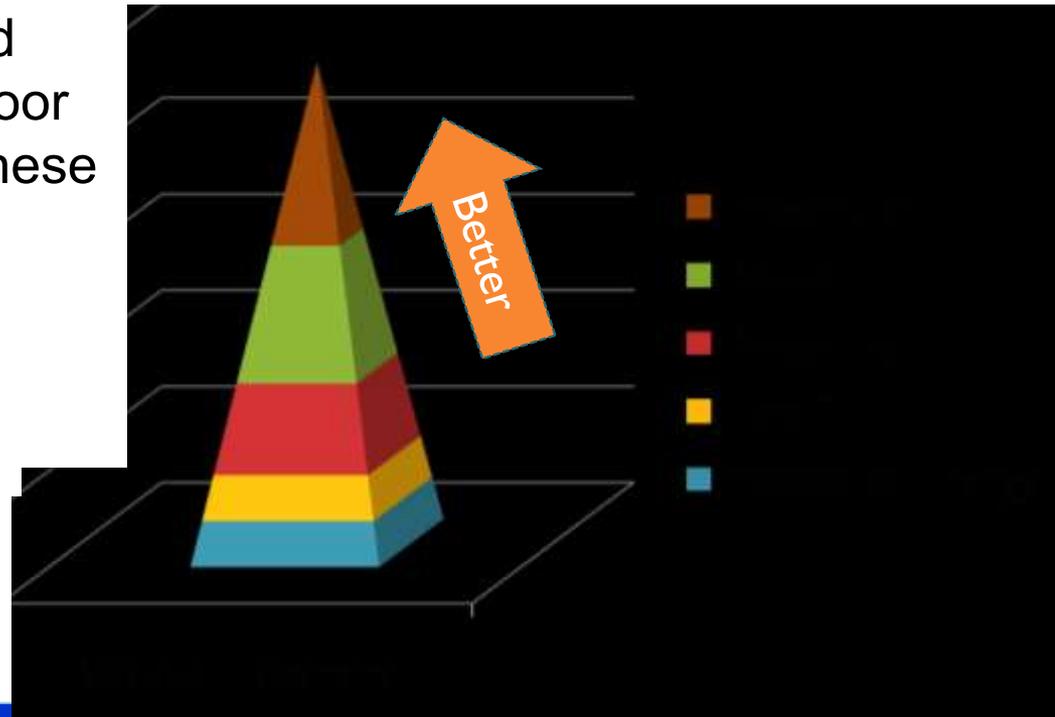
- Green Building
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# Zero Waste

## Why Zero Waste?

- There is no such thing as waste. What we think of waste is actually compostable, preventable, reusable, or recyclable.
- Environmental justice. Landfills and incinerators are usually located in poor communities. Reduce demand for these facilities!
- The reuse and recycling industries create economic opportunities.

The Polokwane Declaration (2001) commits South Africa to achieving **Zero Waste** by 2022.



# Zero Waste

## Recycling Requires Less:

- Use of raw materials
- Water consumption
- Energy in manufacturing new goods
- Transportation fuel (in some cases)

Example: Recycling a glass bottle saves enough energy to power a 100 watt incandescent light bulb for 4 hours. In a landfill that glass bottle will take 4,000 years to decompose!

•Example: There is no limit to the number of times an aluminum can can be recycled. Recycling one can saves enough energy to run a TV for 3 hours. In a landfill, it will take at least 500 years for the can to break up.

•Example: Each ton (2,000 pounds) of paper recycled can save 17 trees, 380 gallons of oil, 3 cubic yards of landfill space, 4,000 kilowatts of energy, and 7,000 gallons of water! Results in a 64% energy saving, a 58% water saving, and 60 pounds less air pollution.

For more info: [www.recycling-revolution.com](http://www.recycling-revolution.com)

## Informal Recyclers

▪Reclaimers provide a valuable service because their job increases our environmental sustainability.

For more info: [www.groundwork.co.za](http://www.groundwork.co.za)



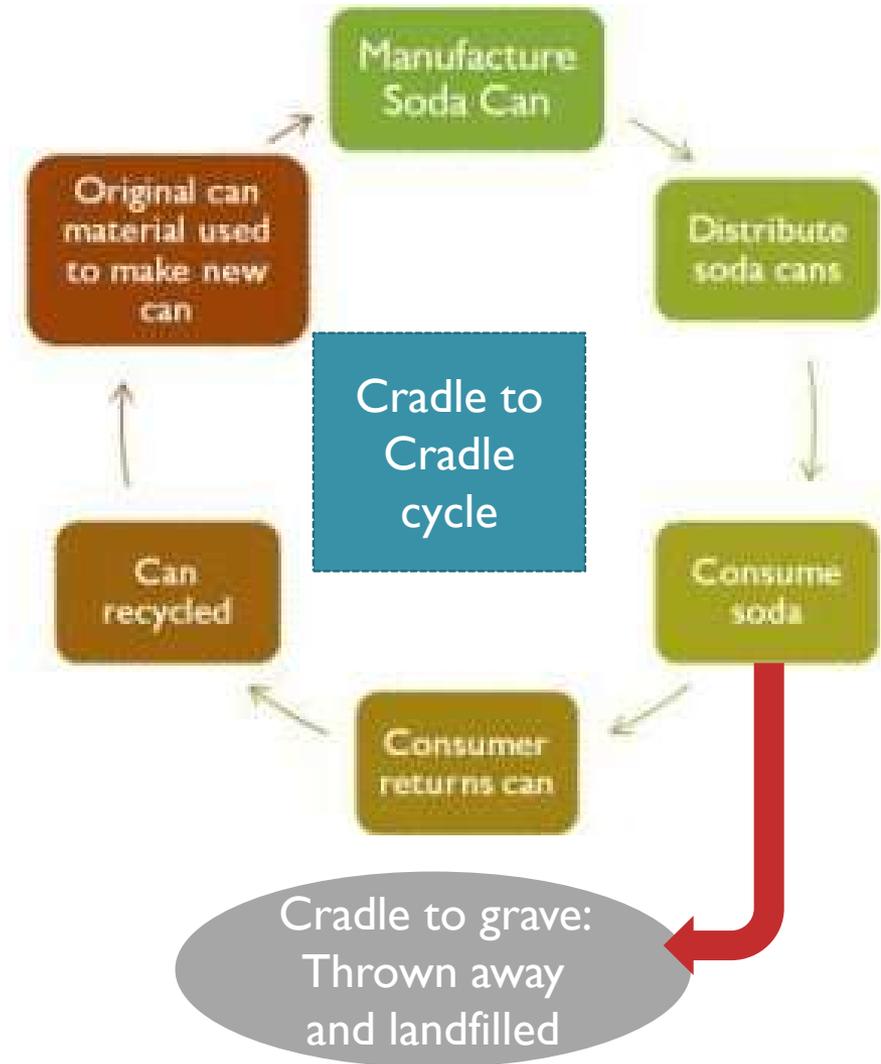
# Zero Waste

## Cradle to Cradle

-A book by William McDonough  
& Michael Braungart

**Idea:** Our environmental  
problems are a problem of  
design.

**Solution:** Design the waste out.



See [www.mdbc.com](http://www.mdbc.com) for more info

# Conclusion

Environmentalism is not a value held only by rich people....

.....For the poor, it's environmental justice.

Integrated and holistic development planning *requires* thinking about the environment.

*Thank you!*