

Urban Planning Response to Energy, Climate & Development Nexus

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Cities and Sustainable Development

- Need to address environmental problems at the local level (WCED, 1987; UNCED, 1992)
- The notion of “sustainable cities” implies --
 - a. many environmental problems stem from activities located in urban areas
 - b. efficient solutions may also be found in cities
- Even global environmental problems can be addressed at city-level

Local Air Pollution and GHG Emissions

- Conventionally, focus has been on controlling local emissions of SO₂, NO_x, SPM
- Now, preferred approach is to reap co-benefits of reducing GHG emissions along with local air pollutants
- Examples:
 - Energy efficient technologies
 - Alternate fuels for transportation
 - Cleaner technologies for power production
 - Renewable energy technologies (wind, solar)
 - Energy conservation

Alternate Fuels for Transportation



Renewable Energy Technologies



Urban Planning Responses

I. Planning

- Landuse planning
 - Location and density of development
 - Mixed-use development to reduce need to travel
 - Integrated landuse and transport planning
- Urban design
 - Urban greenery
 - Energy conservation in buildings
 - Energy efficient buildings
- Civic services
 - Waste disposal systems (role of recycling, conversion, and managed landfills)

Urban Greenery



Energy Efficient Buildings



Urban Planning Responses

II. Transport

- Efficient vehicles and cleaner fuels
 - reduce local and GHG emissions
 - have significant health effects
- More public transport
 - Many benefits (e.g. reducing congestion, improving “livability” along with air quality improvements)

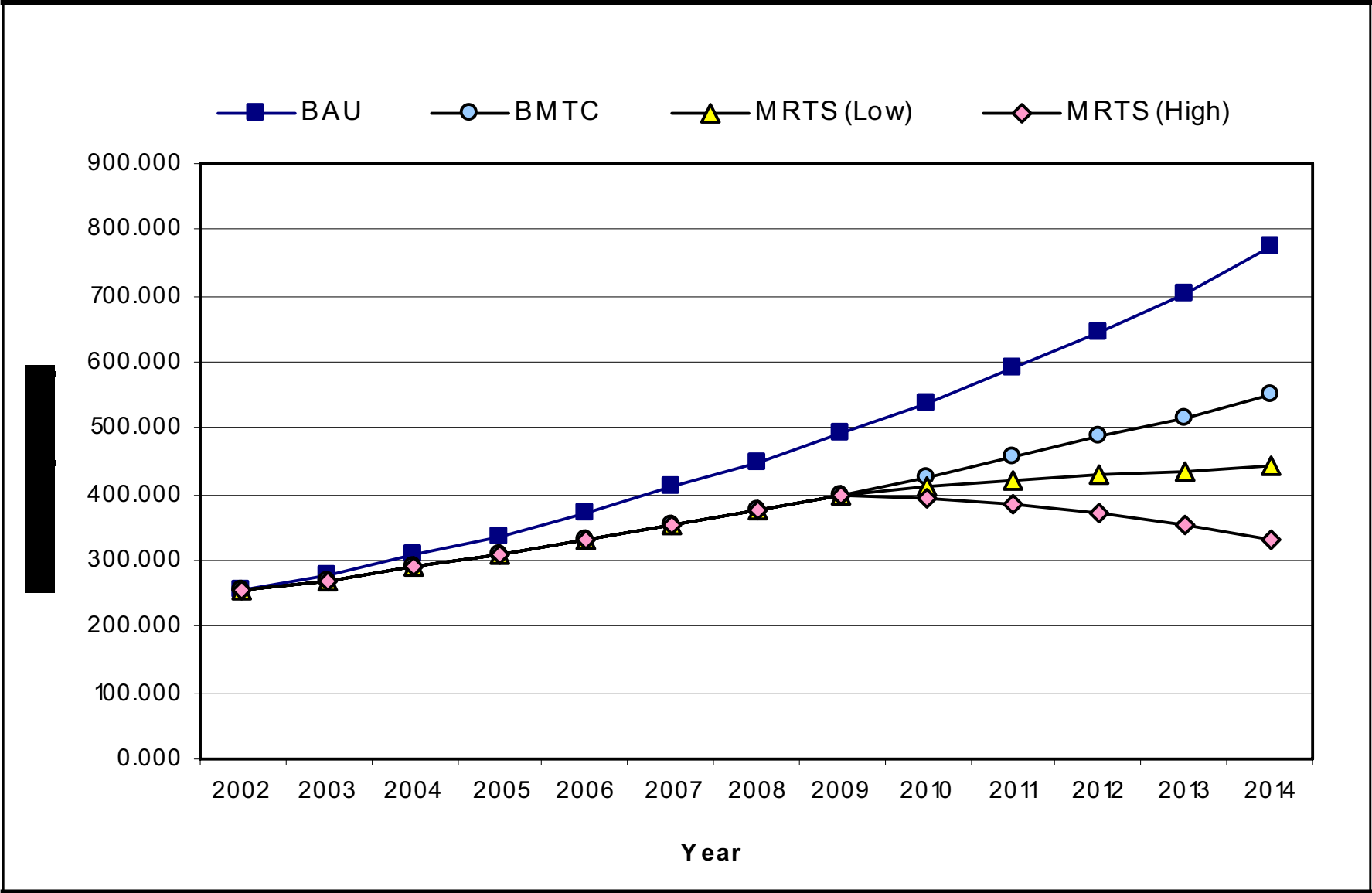
Urban Planning Responses

- Mass public transit systems
 - Can limit growth of private vehicles
 - May facilitate more efficient urban planning (horizontal vs. vertical development)
- Demand management measures
 - Restraining access by cars
 - Increasing parking charges
 - Road-user charging
 - Difficult to implement

Mass Public Transit Systems



Growth in number of 4-w under different scenarios (for Bangalore City)



Source: Prem Pangotra & Somesh Sharma (2006)

Horizontal vs. Vertical Development



Impact of Climate Change on Cities

- Long-run threats (floods, droughts with unpredictability)
- Urban planning responses and infrastructure decisions must take these into account
- Need to anticipate water availability, vulnerability to disasters and plan accordingly
- The challenge of urban sustainability is to align
 - long-term perspectives and short-term actions
 - matching top-down and bottom-up signals
 - balanced development patterns

Long-run threats



Advantage Developing Countries

- Many of the hard and soft planning options are still not exhausted
- Right choices can generate huge benefits of development and environment in the long-run
- Similarly, wrong choices would result in costly “lock-ins”
- Probably the window of opportunity is about 20 years to align policies and strategies for sustainable development

Thank you all !