Main drivers to be included in urban planning
- Mobility
- Energy consumption and production
- Urban morphology
- Land use
- Climate and environment
- Health

Main outputs
- Quality of life
- Environmental quality
- CO₂
- Cost of operation
- Attractiveness

CASE STUDY

New York City (southern Manhattan)
- Evaluate the impact of energy production and traffic
- Scenarios based on urban policies for mobility and energy
- A focus on air quality

Collaboration between: Columbia University - Mailman School of Public Health, EDF (France), and EIFER (Germany) with the participation of the Ecole Centrale de Lyon

1. Urban planning
Definition of the current situation
Scenarios of city’s evolution: buildings, transport network, and energy production system

2. Emissions of the systems
Determination of the emissions of pollutants for each system (energy production units, street)

3. Dispersion
Modelling the dispersion of pollutants in the city, including emissions coming from other sources in the city (with software SIRANE©)

4. Assessment of impacts (ongoing)
Health: Mortality and morbidity, with a focus on vulnerable people
Environmental impacts: climate change, biodiversity

SOLUTION

A method, for diagnostic and prospective analysis
- Prospective scenarios
- Simulations
- Modular, replicable and adaptable to client’s needs

For all actors
- Stakeholders, citizens, scientists, etc.
- Possibility to test scenarios and compare consequences

WHAT NEXT?

- Health impact assessment
- Include climate change scenarios
- Adding other environmental stressors (noise, urban heat islands)
- A decision support tool with a systemic view

References

https://doi.org/10.1016/j.atmosenv.2017.08.034
