Climate Change: Translating Science Into Action for Infrastructure

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IPCC Forecasts for 2090-2099

- Warming: 3.2 º to 7 º F (1.8 º to 4.0 º C)
- Sea Level Rise: 7- 23 inches (.18 to .59 meters) (excluding future rapid changes in ice flow)
- More droughts and intense precipitation events, more intense tropical storms

Source: IPCC WG I, Summary for Policymakers, 2007

Characteristics of Infrastructure

- Long-lived
- Expensive
- Heavily regulated
- Long lead-time for implementation

Guidelines for Incorporating Climate Change in Infrastructure Design

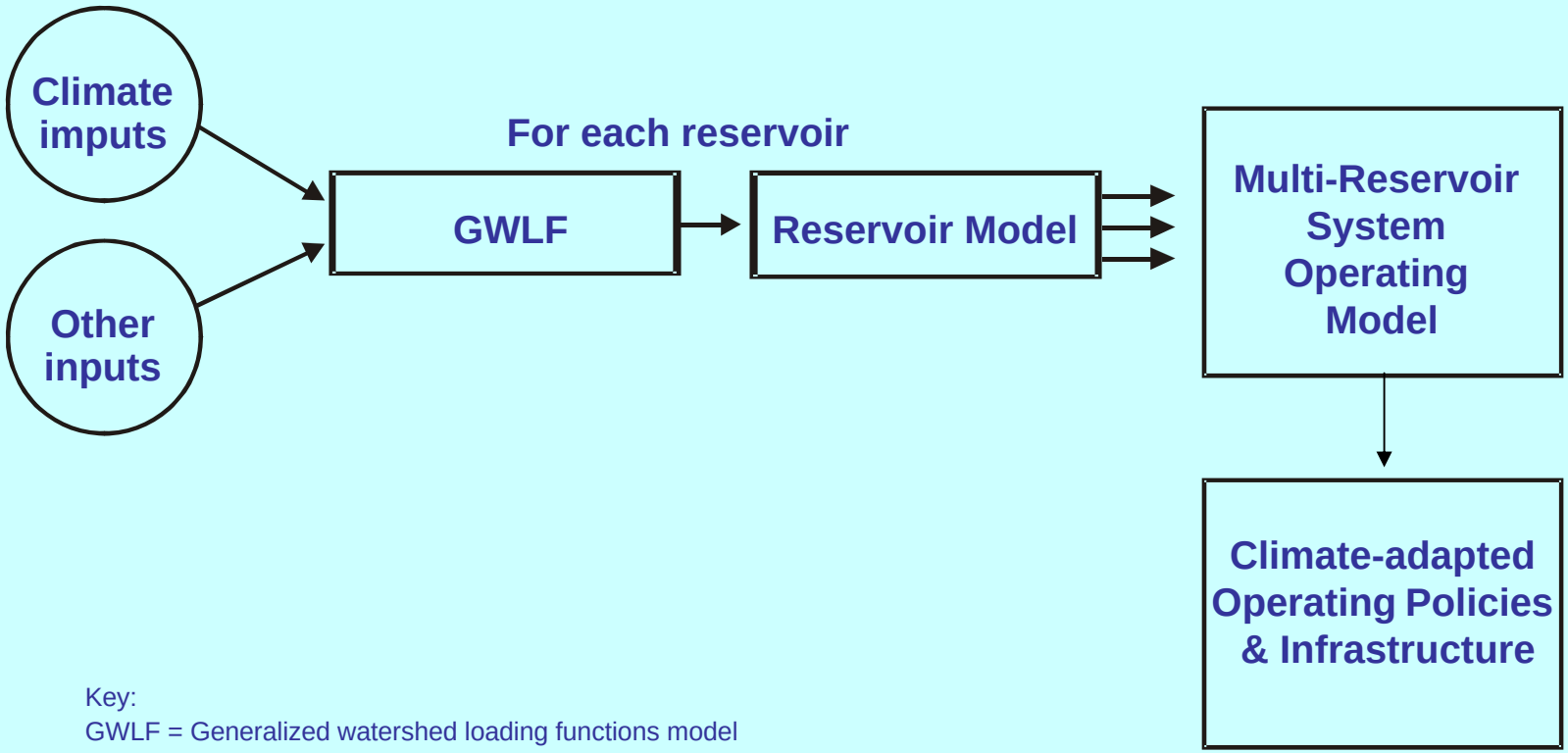
- Conduct audit of existing infrastructure, lifetimes, rehabilitation cycles
- Compare with climate change forecasts for the region/locality
- Design for thresholds and ranges of forecast temperature, sea level, hydrology
- Evaluate potential adaptations (cost/benefit, environmental impacts)
- Schedule (over decades)
- Review climate parameters (every 3-5 years)

Infrastructure Adaptation: Flood Walls

As part of its Climate Change Program, the New York City Department of Environmental Protection is preparing an RFP to study the impacts of rising sea level on WPCPs, tide gates, and other structures, and to develop and evaluate adaptations. Issuance within a few months.

Treatment tanks overflowed at the Hunts Point (Bronx) WPCP during a March 2001 storm; unusually high tide elevations prevented discharge of treated sewage into the East River and caused back-up

Infrastructure Adaptation: System Operation Studies



Key:
GWLF = Generalized watershed loading functions model