Modeling the socio-economic value of meteorological information systems in resource-constrained settings

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Work Done in April

- Refinement of:
  - Revision of statement of the problem
  - Objectives
  - Scope/application sectors
- Introduced methodology section

Refined Statement of the Problem

- Stakeholders have not realised the full potential socio-economic value of met IS despite efforts and investment made in their dev, deployment & use
- It's a problem of:
  - Their capacity to deliver expected weather information &
  - Capacity of multi-stakeholders to respond to met info & advisories & translating them into meaningful & timely decisions & actions
  - Stakeholders have not realised the full potential socio-economic value of met IS despite efforts and investment made in their dev, deployment & use

- Inability to respond has resulted into the recurrent weather-related deaths & human as well as animal well-being

- Hence the need to study the dynamics surrounding the generation, delivery and use of meteorological information systems in order to create a better understanding of the problem among stakeholders and hence develop systemically embedded policy to tackle the problem

Refined main objective:

- The study aims at investigating the variables, which influence the socioeconomic value of meteorological information systems and developing models, which represent the cause and effect relationships among the variables in order to guide policy on improvement of the socioeconomic value of meteorological information systems.

Refined specific objectives:

- Investigate the variables that influence the socioeconomic value of meteorological information systems in a multi-stakeholder environment.
- Design causal loop diagrams, which reflect relationships between the identified variables that influence each other in the process of creating value for stakeholders
- Develop a system dynamics model by way of stock and flow diagrams, which quantifies the variables and reflects the established underlying feedback structure of the variables.
- Conduct a sensitivity analysis using simulation experiments in order to replicate the reference mode and secondly, establish and propose the optimal policy for increasing the value of meteorological information systems to a selected sector of application

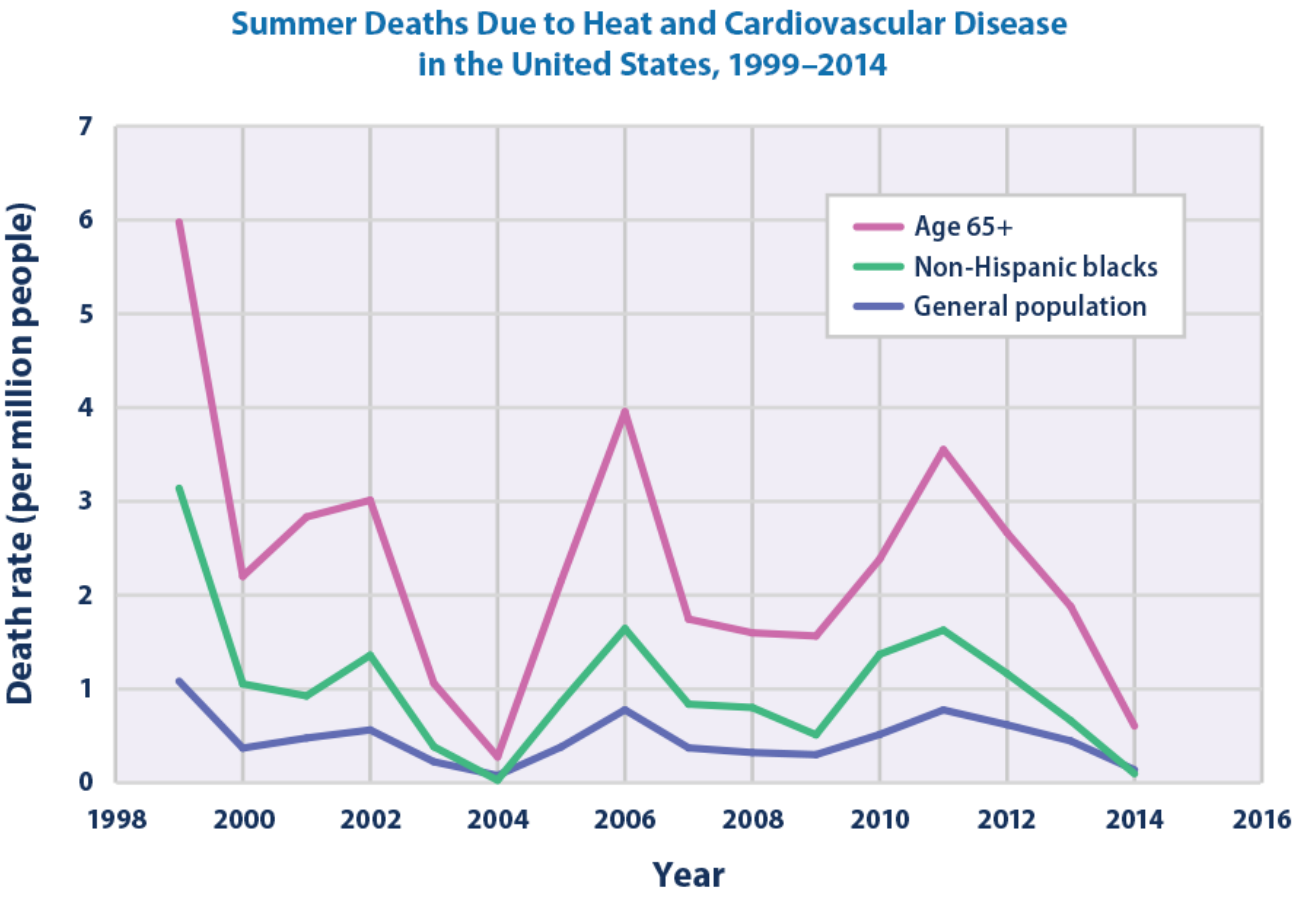
Methodology

- System Dynamics (SD)
- Characteristics of a SD problem
  - Obvious solutions have not yielded the desired results i.e. the dynamics of achieving responsiveness of target information users to availability of met IS (e.g. early warning IS)

Obvious solutions seem to be quick fixes and do not tackle the sys & structural-organisational challenges

- Whereas there are recent and international efforts to develop and deploy weather IS
- such as in Benin: some new 800,000 people have access to early warning IS

The dynamics of met IS effectiveness



Data source: CDC (U.S. Centers for Disease Control and Prevention). 2016. CDC WONDER database: Multiple cause of death file. Accessed July 2016. http://wonder.cdc.gov/mcd-icd10.html.

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

Refined Scope

- The study will focus on exploring the value of meteorological information systems to weather-related communicable and animal disease control health system in a developing world context. The study will target districts in Uganda with the highest incidence of weather-related ailments in order to demonstrate the difference that meteorological information systems could make in such an environment in order to get value for the investment and/or illustrate the investment gaps necessary to fill in order to register expected value.

Next steps: May targets

- Review draft proposal with feedback from supervisors & today's meeting (methodology)
- Present to the doctoral committee & HDRC

- Thank You