Using the Vulnerability, Consequences and Adaptation Planning Scenario (VCAPS) Process to Facilitate Community Discussion

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Training Agenda: 10:15-12:00

- 10:15 – 10:25 am: Welcome and Introductions
- 10:25 – 11:00 am: Introduction to VCAPS:
  - *Theoretical justification for VCAPS*
  - *VCAPS process*
  - *Facilitating a VCAPS group*
- 11:00 – 11:45 am: Exercise: Coastal Town, USA
- 11:45 – 12:00 pm: Group Discussion
- 12:00 pm : Adjourn

VCAPS answers calls for better decision support

- Help local decision makers make sense of all those maps and models
- Facilitate local assessments that engage stakeholders
- Adopt risk-based approaches
- Integrate climate (and other) science and local knowledge

What do we know from other risk contexts?

- Integrate analysis and deliberation (NRC 1996)
  - Builds on knowledge and preferences of diverse stakeholders
  - Acknowledges social dimensions of risk and risk perceptions
  - Can be generative, not just additive
  - Better decisions

- Support stakeholder participation (NRC 2008)
  - Builds legitimacy / support
  - Improves decisions
  - Builds capacity

What VCAPS does

- Help people think about hazards…
  - Structure discussions using conceptual frameworks
    - Analytic-deliberative process
    - Causal structure of hazards
    - Vulnerability (sensitivity, adaptive capacity, resilience)
  - Utilize visualization techniques
    - AKA “influence diagrams” or “causal pathway diagrams”

What VCAPS does

- Efficiently…
  - Reasonable (and flexible) demands on time and resources
- To produce “useable knowledge.”
  - Focus on what is relevant to participants and decisions
  - Co-construction of scenarios
  - Allow exploration of (local) complexities and uncertainties

The VCAPS process

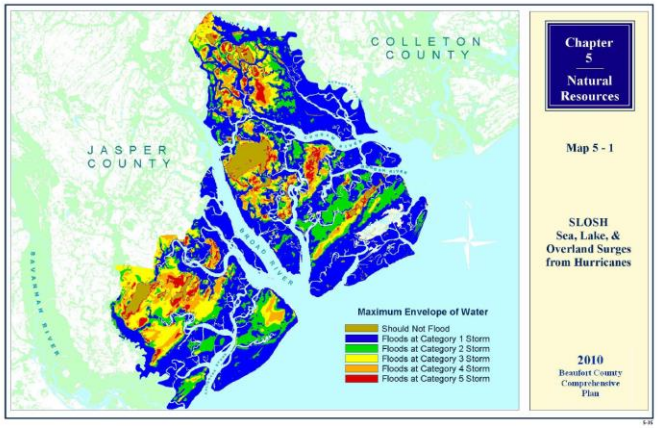
- Collectively produce diagrams illustrating impacts of hazard/climate stressors on critical infrastructure, community resources, etc.
- Discussions informed by
  - local risk perceptions, decision preferences, etc.
  - climate (and other) science
  - concepts of hazard management (causal structure of hazards) and vulnerability (sensitivity, adaptive capacity, resilience)

VCAPS Workflow

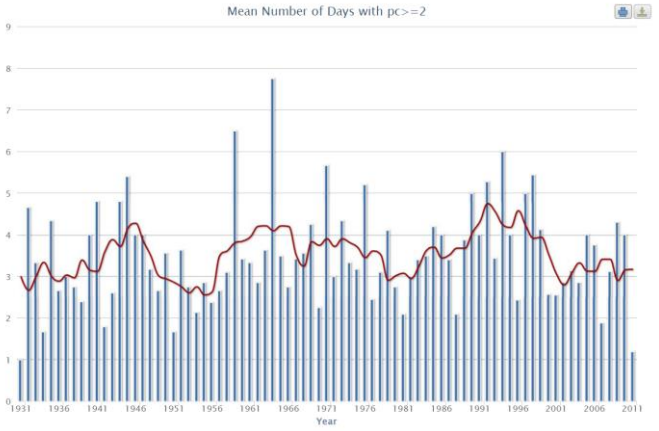
- Prepare!
  - Research background information on the community
  - Interview key informants
  - Logistics, including number of meetings
- Conduct the VCAPS diagramming session(s)
- Report back to community
  - Write narrative descriptions of diagrams
  - Validate diagrams and narratives

1-4 facilitated meetings

- Local hazards/climate presentation
- Collective decision about management concerns to discuss (stormwater, wastewater)
- Diagramming scenarios linking management concerns, climate stressors, consequences, and possible actions



(Beaufort County Comprehensive Plan 2010)

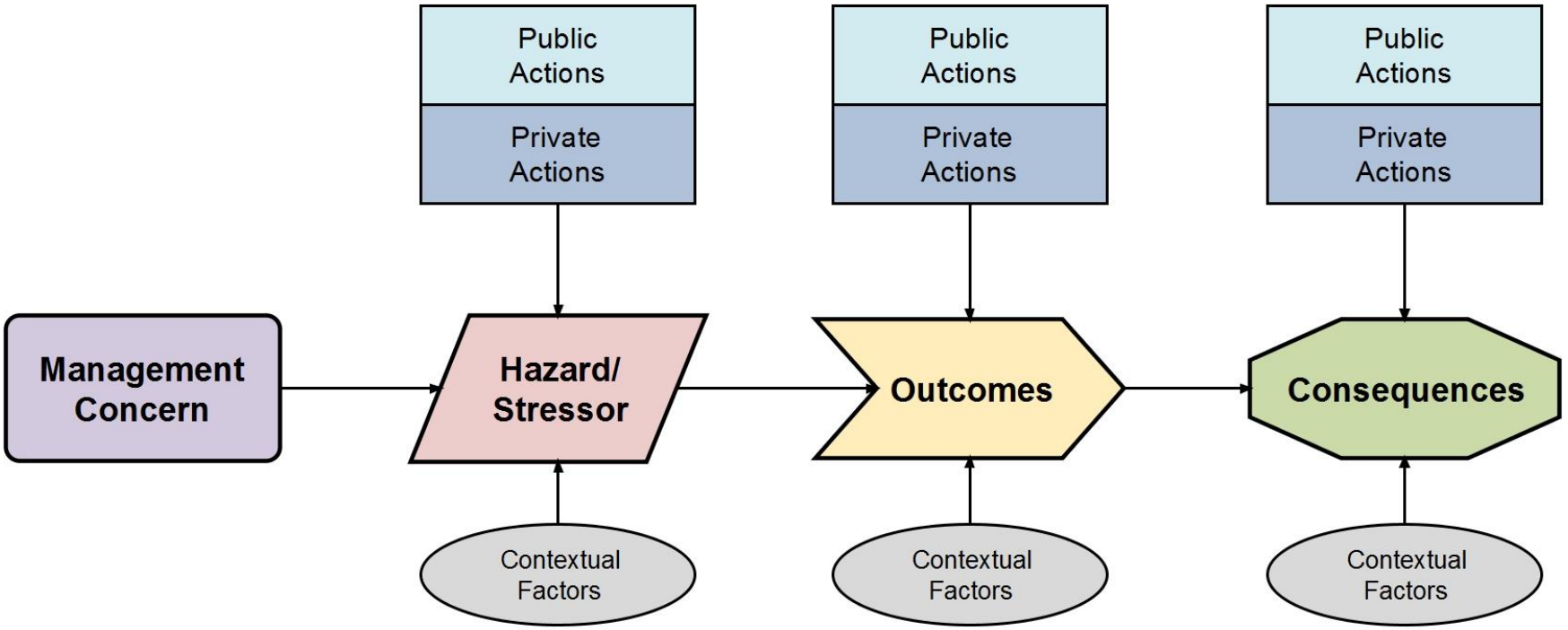


(http://charts.srcc.lsu.edu/ghcn/)

VCAPS session participants (6-15)

- Town manager/administrator
- Town Council
- Planning Commission and staff
- Water and sewer staff
- Stormwater managers
- Building inspector
- Town Comptroller
- Consulting Engineers
- Other local decision makers

VCAPS diagrams: Building blocks



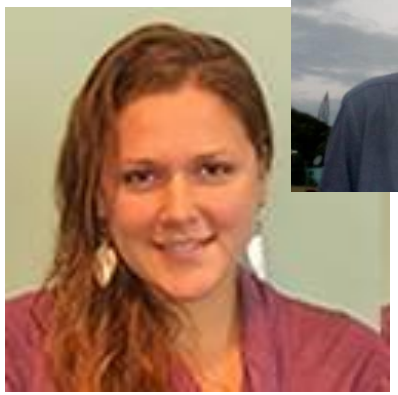
Freeware: vue.tufts.edu

VCAPS facilitation team

- Facilitator
- Scribe
- Hazard/Climate Expert
- Assistant Scribe
- Notetakers



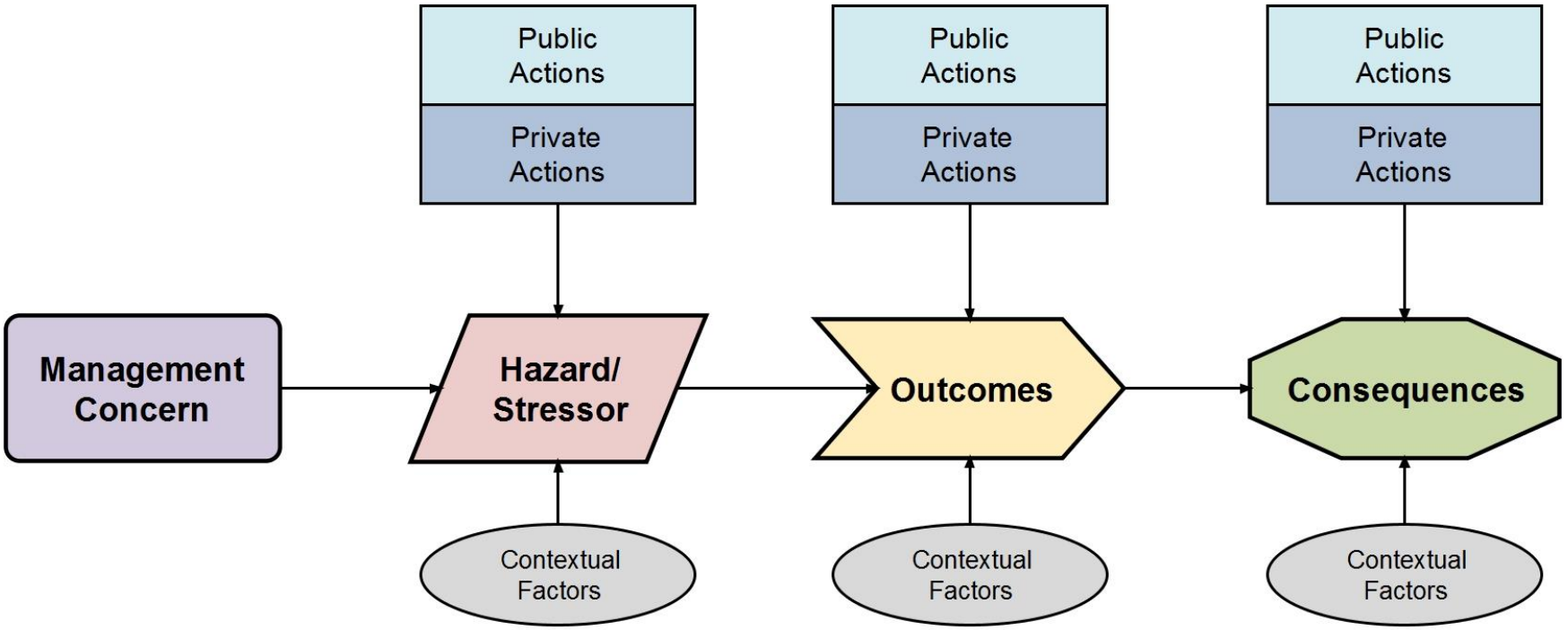





VCAPS diagramming sessions

- Session 1
  - Introduction to VCAPS
  - Presentation about locally relevant climate stressors
  - Primer on VCAPS building blocks
  - Interactive diagramming time
- Session 2++
  - Interactive diagramming time
  - Reflections and wrap-up

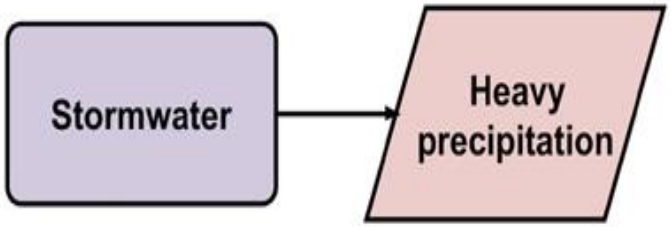
VCAPS diagrams: Building blocks



How to create a diagram

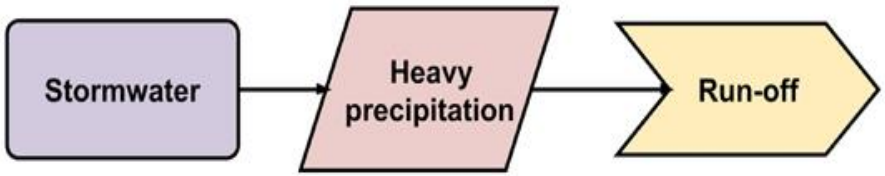
- Start simple; make the diagram more complex gradually.
- Begin with a **management category** and a **hazard/climate stressor**.
- Start with the **outcome** that follows most immediately from the **climate stressor**.
- Focus on **outcomes** and **consequence**s that can be modified by **management actions** or **individual actions.**

Start with the management concern and the hazard/climate stressor

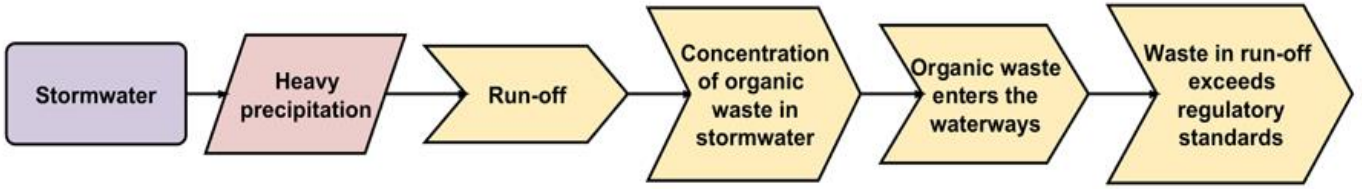


Add outcomes

- There are many **outcomes** associated with *heavy precipitation*
  - What happens to the socio-ecological system?
  - Ask, “Why does the town care about heavy precipitation?”
  - If we simply drew a diagram that went from *precipitation* to *flooding*, we’d be ignoring opportunities to manage causes of flooding or erosion (e.g., run-off).

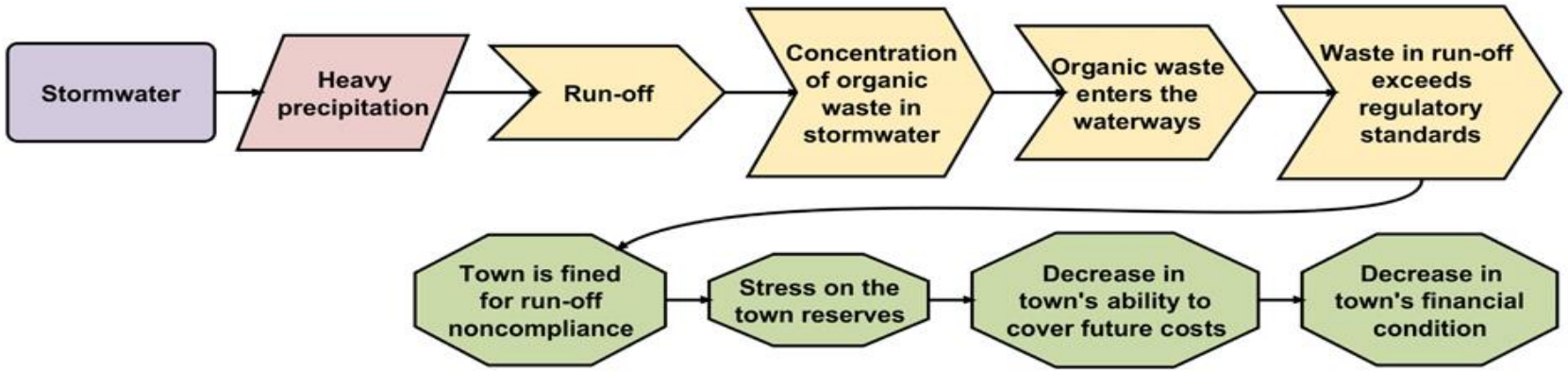


- The more detailed the causal chain, the easier it will be to identify and envision possible **public actions**.



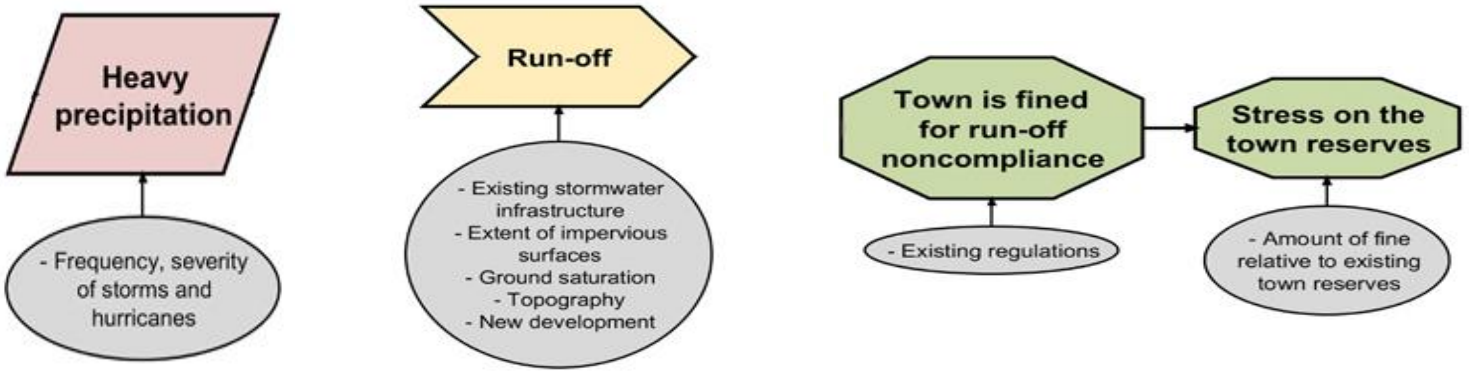
Continue by adding consequences

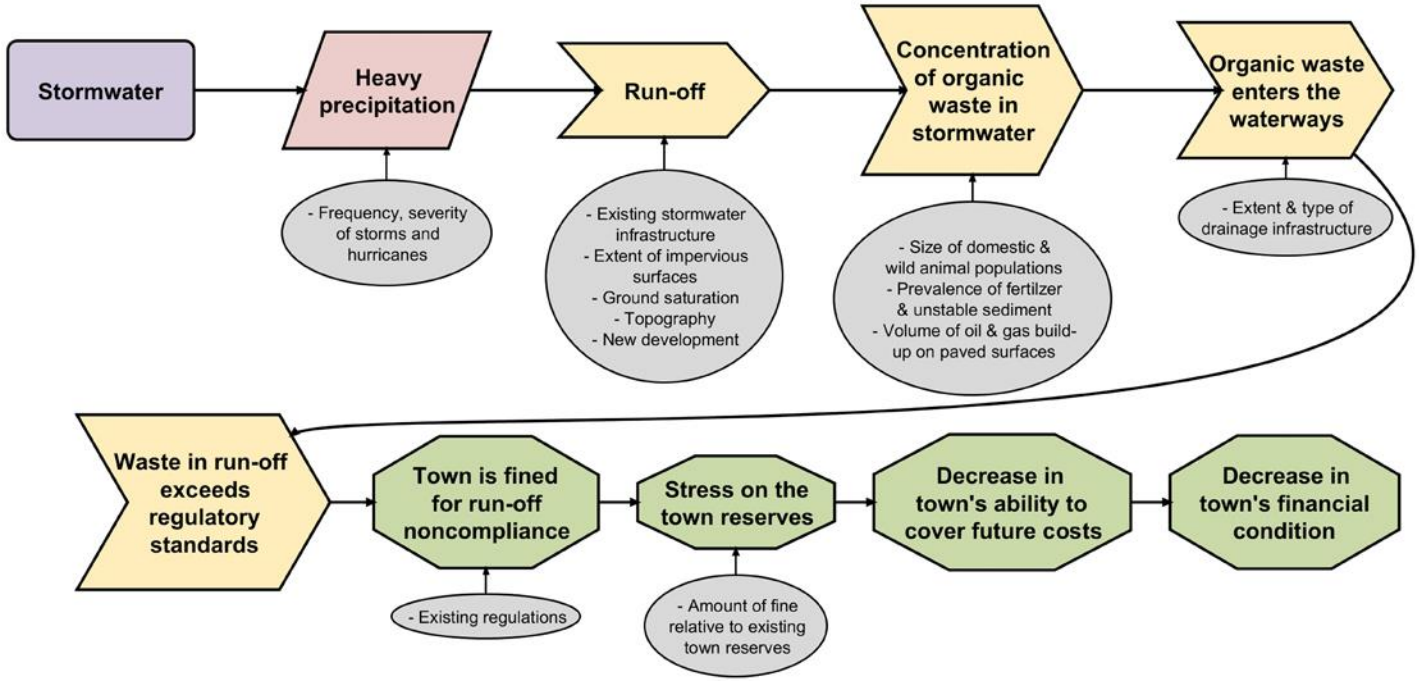
- **Consequences** are implications of the **outcomes** that affect things that people care about. They exert some sort of loss or cost to things that people value.
  - individuals, communities, institutions, or ecosystems.
- Sometimes the distinction between outcomes and consequences is fuzzy. That's OK!



Localize the diagram with contextual factors

- Start asking:
  - What about this place makes the town more or less vulnerable to these outcomes and consequences?
  - What makes this (**hazard/stressor, outcome,** or **consequence**) better, worse, stronger, larger...?

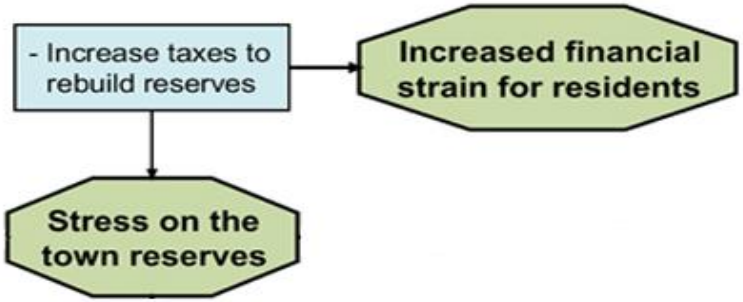


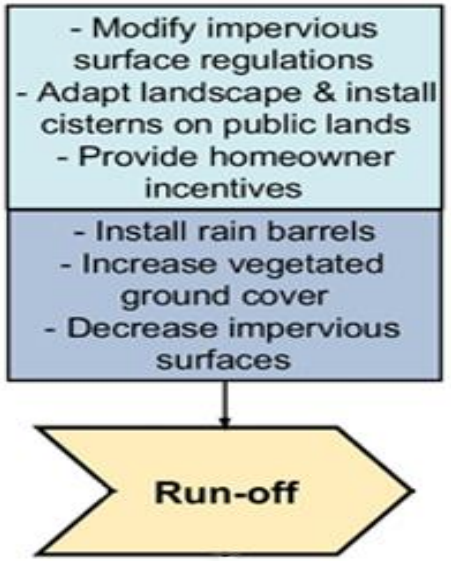

Stormwater
Heavy precipitation
- Frequency, severity of storms and hurricanes
Run-off
- Existing stormwater infrastructure
- Extent of impervious surfaces
- Ground saturation
- Topography
- New development
Concentration of organic waste in stormwater
- Size of domestic & wild animal populations
- Prevalence of fertilzer & unstable sediment
- Volume of oil & gas build-up on paved surfaces
Organic waste enters the waterways
- Extent & type of drainage infrastructure
Waste in run-off exceeds regulatory standards
Town is fined for run-off noncompliance
- Existing regulations
Stress on the town reserves
- Amount of fine relative to existing town reserves
Decrease in town's ability to cover future costs
Decrease in town's financial condition

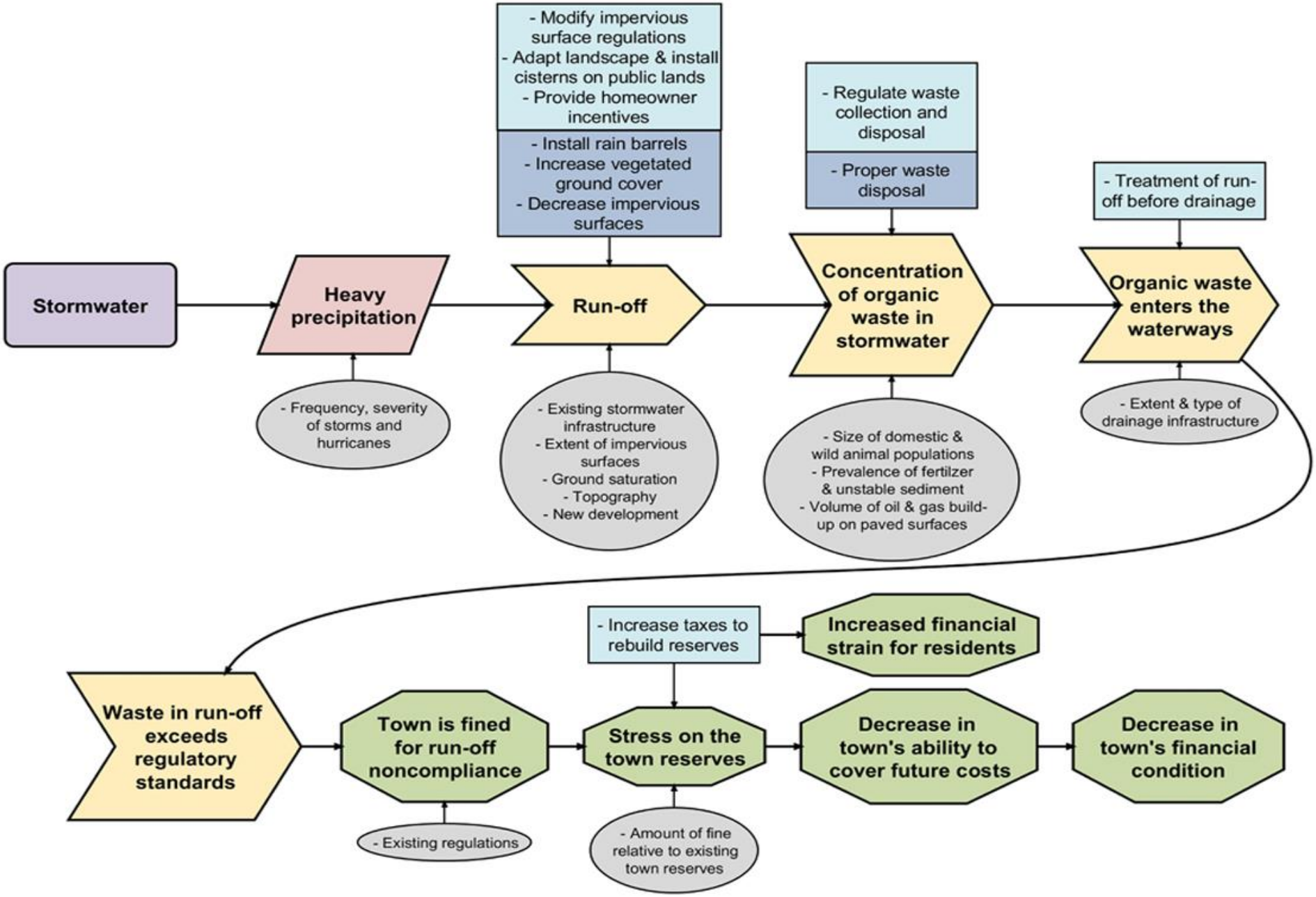
Complete the diagram by adding public and private actions

- For each object in the diagram, ask:
  - What IS government doing to prevent or mitigate this? What COULD government do?
  - What ARE private individuals, businesses, or organizations doing to prevent or mitigate this? What COULD individuals do?

- Actions can have consequences.

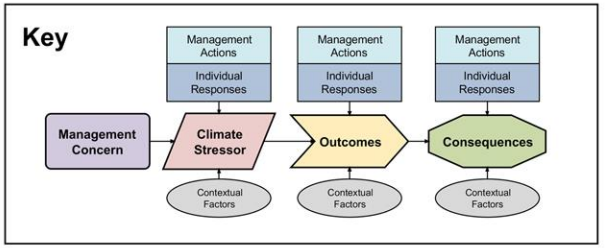


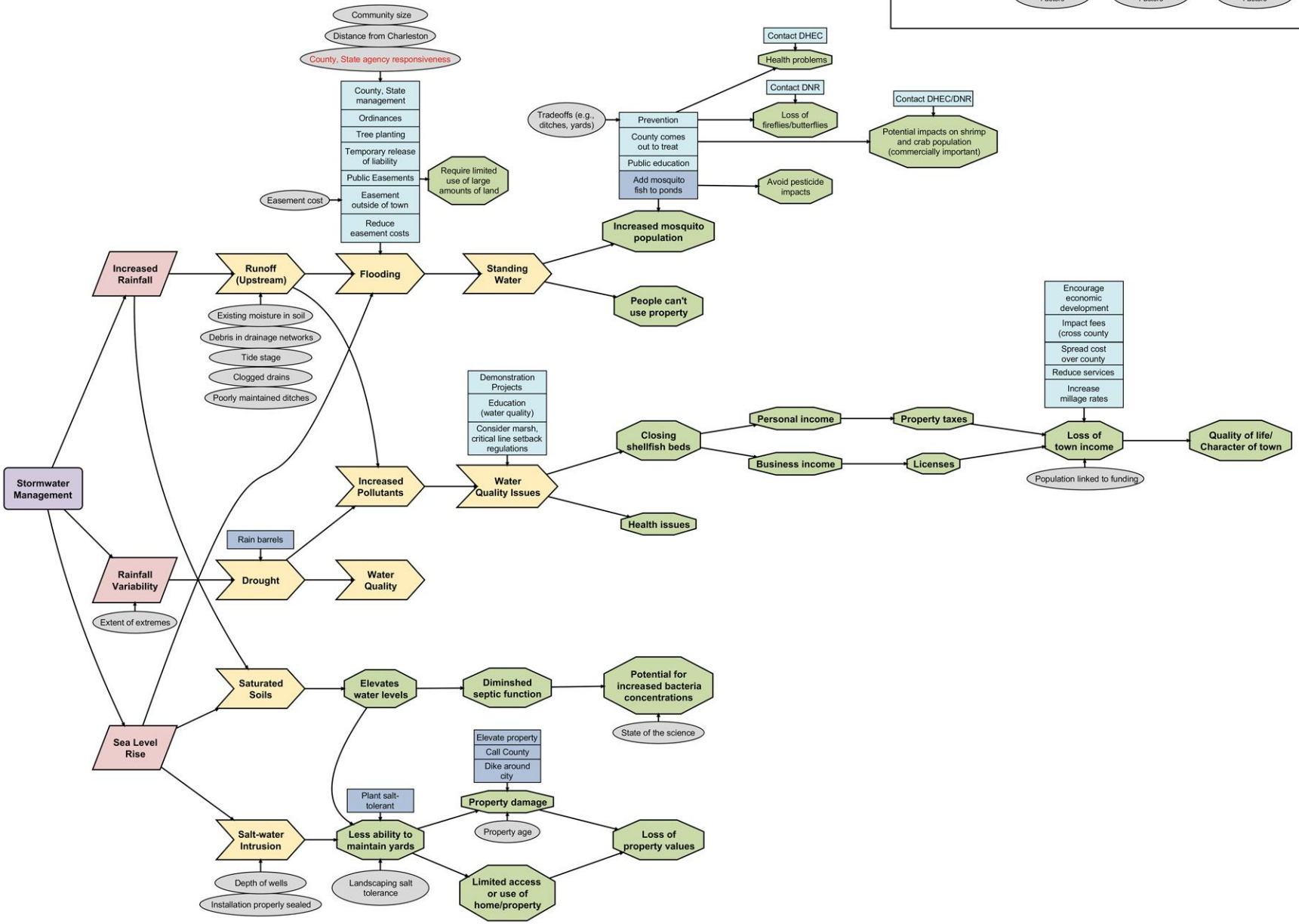



- Modify impervious surface regulations
- Adapt landscape & install cisterns on public lands
- Provide homeowner incentives
- Install rain barrels
- Increase vegetated ground cover
- Decrease impervious surfaces
- Regulate waste collection and disposal
- Proper waste disposal
- Treatment of run-off before drainage
Stormwater
Heavy precipitation
Run-off
Concentration of organic waste in stormwater
Organic waste enters the waterways
- Frequency, severity of storms and hurricanes
- Existing stormwater infrastructure
- Extent of impervious surfaces
- Ground saturation
- Topography
- New development
- Size of domestic & wild animal populations
- Prevalence of fertilzer & unstable sediment
- Volume of oil & gas build-up on paved surfaces
- Extent & type of drainage infrastructure
- Increase taxes to rebuild reserves
Increased financial strain for residents
Waste in run-off exceeds regulatory standards
Town is fined for run-off noncompliance
Stress on the town reserves
Decrease in town's ability to cover future costs
Decrease in town's financial condition
- Existing regulations
- Amount of fine relative to existing town reserves

McClellanville VCAPS Diagram

April 1, 2011





Time to try an example

- Experience the process (briefly)
- Start with the management concern
  - Stormwater pre-selected for sake of time
  - Use context as outlined in handout
- Identify hazard stressors that affect the management concern
  - SLR and more frequent downpours pre-selected for sake of time
- Develop a full diagram with outcomes, consequences, contextual factors, and public/private actions

Think about

- What observations do you have about how the diagrams/output can be useful to communities?
- How did the process help the group come to a shared understanding of the issue?
- How would you improve the process if you were conducting a VCAPS exercise in your community?
- How is this different than other approaches used in past?

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- www.vcapsforplanning.org