

Stormwater Footprint Calculator

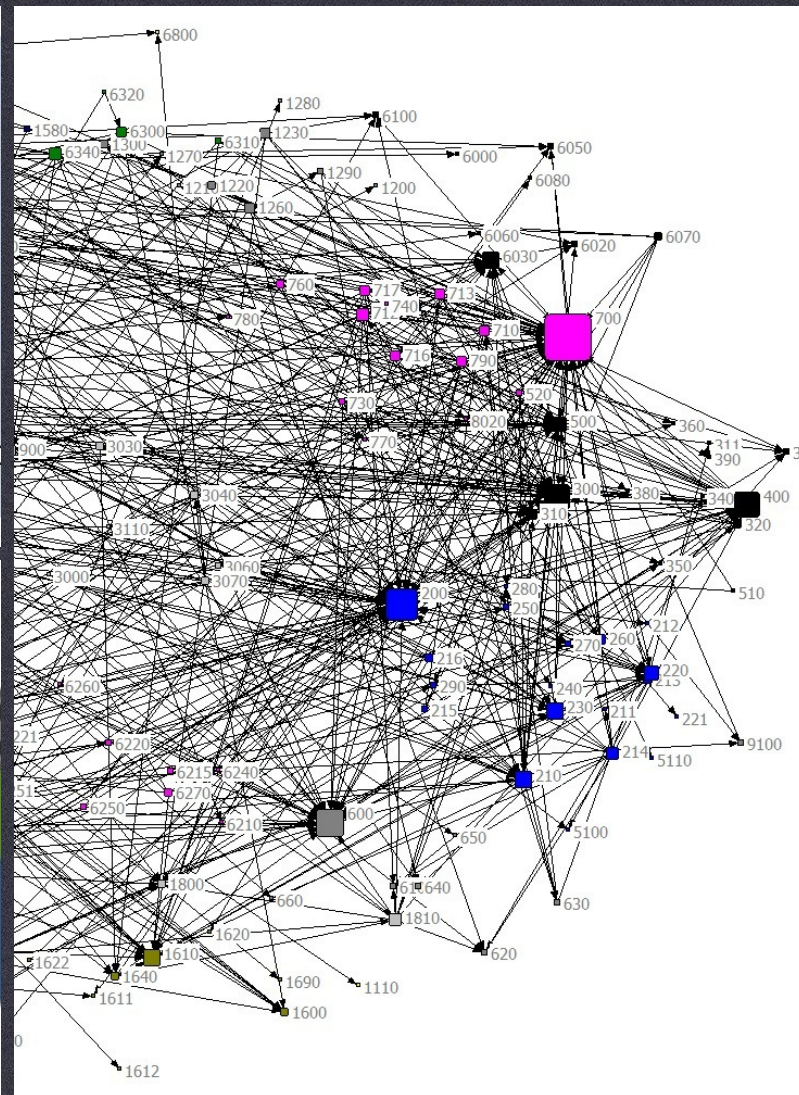
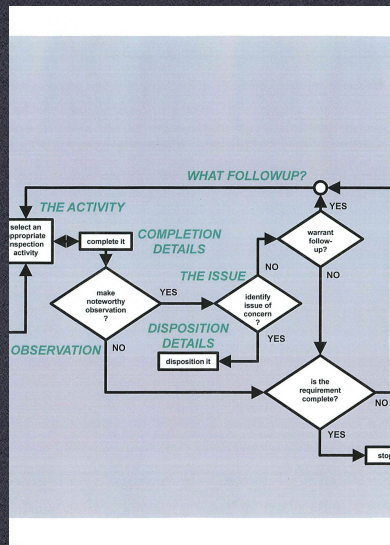
Every time it rains, some water runs off into the ground and some goes into the stream.

As roads and pavement replace vegetation and bare soil, causing less stormwater to soak into the ground and more to run off into streams.

Even large streams cannot accommodate the increased water volume and flow that occur immediately following rainfall, leading to erosion, streams choked with mud, destroyed aquatic habitat, and increased flooding and property damage. In addition, stormwater carries a mix of bacteria, sediments, fertilizers, oil and grease to nearby streams.

How are your choices affecting the stormwater?

Begin



TALK

COMMUNICATION DESIGN FOR DISASTER PREPARATION, RESPONSE, AND RECOVERY: THE STORMWATER FOOTPRINT QUIZ

JOSHUA BARBOUR, PHD, COMMUNICATION, TEXAS A&M UNIVERSITY

COMM.TAMU.EDU / MACROMORPHIC.COM/BLOG

DATE

2/21/2014

CEI - DONUTS AND DISASTERS



STORMWATER FOOTPRINT QUIZ TEAM

Outline

- * Communication design and disasters
- * Stormwater Footprint Quiz
 - * Experimental assessment of quiz on knowledge, attitudes, and behavioral Intentions
 - * Integrating research and teaching in scholarship
- * Potential for gaming in disaster studies
- * Q & A

“...design is useful at all levels of communication, from the design of specific messages, to argumentation and dyadic communication, to protocols for specific types of interaction (e.g. dispute resolution), to interventions (e.g. health campaigns), and to systems of communication (e.g. communication practices in groups or organizations).”

Harrison, in press

"The immediate product of design is some intervention into ongoing activity (e.g., a device, a service, an interactional format) that might or might not affect the activity in the way the design expects. The design of information and communication technology is grounded in some idea about how communication works and ought to work."

Aakhus and Jackson, 2005

Communication Design and Disasters

- * Messages created by stakeholder about organizational change (Barbour, Jacocks, Wesner, 2013)
- * Collective design of communication formats for safety oversight of nuclear power plants (Barbour & Gill, in press)
- * Volunteer response organizing pre-crisis (Chinn & Barbour, 2013, Barbour & Chinn, under review)
- * Hazards materials response knowledge networks (Barbour & Bierling; Sommer, Barbour, Bierling)
- * App design to enable community members' local adoption of low impact development technologies (Scott, White, Politte, Collard, Saathoff, Baltensperger, Zehcman, Barbour, Sprintston, A., in press)

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STORMWATER FOOTPRINT QUIZ

[HTTP://PEOPLE.TAMU.EDU/
~BARBOUR/HFRQ/QUIZ/
HFR.SWF](http://people.tamu.edu/~barbour/hfrq/quiz/hfr.swf)

Stormwater Footprint Calculator

Every time it rains, some water runs off into the ground and some goes into the stream.

Roofs and pavement replace vegetation and blanket the soil, causing less stormwater to soak into the ground and more to run off into streams.

Even large streams cannot accommodate the increased water volume and flow that occur immediately following rainfall, leading to erosion, streams choked with mud, destroyed aquatic habitat, and increased flooding and property damage. In addition, stormwater carries a mix of bacteria, sediments, fertilizers, oil and grease to nearby streams.

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Research findings

Table 3 Summary of results.

Measures	α	t	df	r (effect)
Δ Knowledge of Stormwater Effects (KSE)	0.62	0.461	230	-
Δ Knowledge of Stormwater Causes (KSC)	0.77	6.732*	225	0.23 (medium)
Δ Development Knowledge (DK)	0.65	10.466*	230	0.33 (strong)
Δ Willingness to take action (ACTION)	0.91	11.873*	220	0.29 (strong)
Δ Environment and economics (EE)	0.65	-2.297*	219	0.08 (small)
KSE for HFR vs. PF	-	1.312	506	-
KSC for HFR vs. PF	-	1.442	502	-
DK for HFR vs. PF	-	2.791*	506	0.12 (small)
ACTION for HFR vs. PF	-	0.800*	497	-
EE for HFR vs. PF	-	-0.107*	496	-

Note * $p < .05$. Δ refers to the change in these measures between the pre- and post-tests. HFR refers to Hydrological stormwater residence. PF refers to peak flow.



Sustainabi

ARTICLE

An evaluation of the Stormwater Hydrological Footprint Residence sustainability in stormwater man

Tommi Jo Scott¹, Alyssa Politte², Sean Saathoff³, Sam Sprintson⁷

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GAME DESIGN AS INTEGRATION OF RESEARCH, TEACHING, AND PRACTICE

Help

Lincity Help

This is the Lincity help system. Please choose a topic by clicking on one of the blue words below. Blue words generally indicate a link to another document.

- [Keyboard commands](#)
- [List of all buildable entries](#)
- [Help on the minimap](#)
- [Help on information tabs](#)

While playing the game, you can get context sensitive help with most things using the help button.

Press this button to show statistics

ports field: Cost to build 7720\$, to bulldoze 1000\$.

Report

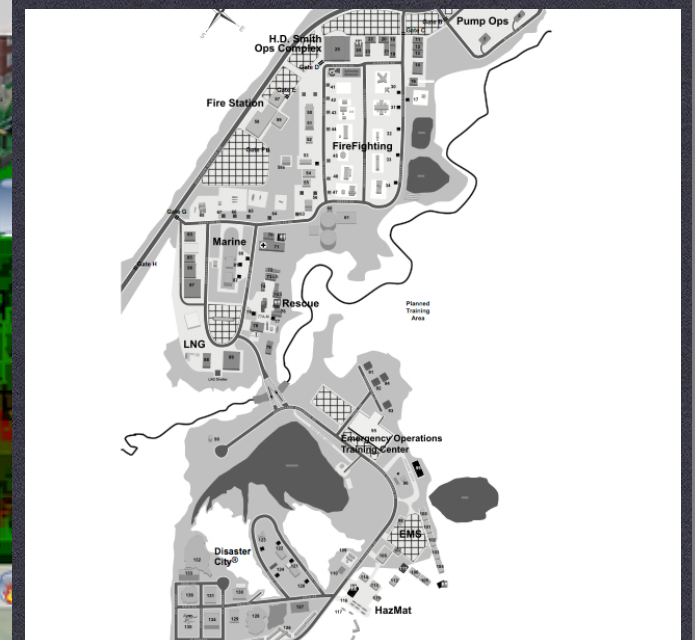
Energy
Food
Smog
Resource
Waste
Recycling

Producers:		Consumers:	
Coal	x 0 → 0	Fortre:	x 1
Natural Gas	x 1 → 50	Farm	x 1
Nuclear	x 0 → 0	Lab	x 0
Geo-thermal	x 0 → 0	Coal Mine	x 0
Wind	x 0 → 0	Metal Mine	x 0
Solar	x 0 → 0	Oil & Gas W	x 0
		Garbage Truck	x 0
		Engine	x 0

ides "super" power plants on favorable terrain

PRODUCED = 50 CONSUMED = 10

NET = 40



GAMES AND DISASTER STUDIES

Thank you!
Questions?

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CEI - DONUTS AND DISASTERS - FEB 21, 2014

References and Image Credits

Slide 1

The Stormwater Footprint Quiz logo was designed by Emily Zechman Berglund. A participant from my study of information management at the NRC created the flow chart. Paul Sommer created the network diagram as part of our work on the Fort Bend County Chemical Hazards Planning Assessment Network Analysis.

Slide 2

The photos of Emily and Alex come from their websites. Dr. Emily Zechman Bergman (formerly of TAMU Civil Engineering and now on the faculty at NC State University) <http://www.ce.ncsu.edu/faculty/emily-berglund/> and Dr. Alex Sprintson (Electrical and Computer Engineering at TAMU) <http://cesg.tamu.edu/faculty/spalex/>. The team took the group photo during the EPA P3 Competition in Washington, DC.

Slide 4

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Slide 5

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Slide 6

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Scott, T. J.,* White, A.,# Politte, A.,# Collard, S.,# Saathoff, S.,# Baltensperger, A.,# Zechman, E.M., Barbour, J. B. Sprintson, A. (in press). A test of the Stormwater Footprint Calculator for improving knowledge and changing attitudes about design for sustainability in stormwater management. *Sustainability: Science, Practice, & Policy*.

Slide 8

The Stormwater Footprint Quiz logo was designed by Emily Zechman Berglund.

Slide 9

Scott, T. J.,* White, A.,# Politte, A.,# Collard, S.,# Saathoff, S.,# Baltensperger, A.,# Zechman, E.M., Barbour, J. B. Sprintson, A. (in press). A test of the Stormwater Footprint Calculator for improving knowledge and changing attitudes about design for sustainability in stormwater management. *Sustainability: Science, Practice, & Policy*.

Slide 10

The group photos were taken by Avery White during our weekly meetings and by Emily Zechman Berglund at the EPA P3 competition in Washington, DC.

Scott, T. J.,* White, A.,# Politte, A.,# Collard, S.,# Saathoff, S.,# Baltensperger, A.,# Zechman, E.M., Barbour, J. B. Sprintson, A. (in press). A test of the Stormwater Footprint Calculator for improving knowledge and changing attitudes about design for sustainability in stormwater management. *Sustainability: Science, Practice, & Policy*.

Slide 11

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