NATIONAL Sciences
ACADEMIES Medicine

Medicine

Supply Chain Disruptions: Impacts on Vulnerable Communities - A Workshop





Panel 4: Preparations: Lessons Learned & Getting Ready for Future

- Erick Jones, Dean, College of Engineering, University of Nevada Reno
- Collin M. Arnold, Director, New Orleans Office of Homeland Security & Emergency **Preparedness**
- Jarrod Goentzel, Director, MIT Humanitarian Supply Chain Lab
- Patrick Branco, Director of External Relations & Communications, Hawaii Green Growth
- Felicia Jefferson (Committee Member), Department of Biochemistry and Molecular Biology at the University of Nevada, Reno





The Homeland Security Enterprise

New Orleans Office of Homeland Security & Emergency Preparedness



Crisis & Consequence Management



Emergency Operations Center



































NOHSEP Coordinates Recovery with our Partners



State of Louisiana



Federal Government



Volunteers & Donations

COVID-19 NOLA Ready PPE Donation Project







COVID-19 Mass Feeding Program



Over 30,000 resident fed daily for 12 months.

30M dollar investment from FEMA and City of New Orleans

Over 600 local restaurants provided meals

Together New Orleans - Community Lighthouse Program



CrescentCare Health Center

Together New Orleans - Community Lighthouse Program



Bethlehem Lutheran Church

Broadmoor Community Church





The Homeland Security Enterprise

New Orleans Office of Homeland Security & Emergency Preparedness

Workshop on Supply Chain Disruptions: Impacts on Vulnerable Communities

Jarrod Goentzel September 12, 2023





https://humanitarian.mit.edu



https://ctl.mit.edu

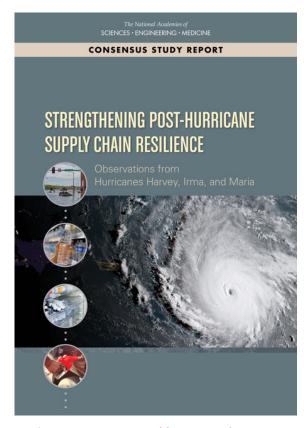
2020 study on supply chain disruptions

<u>Recommendation 1</u>: Shift the focus from pushing relief supplies to ensuring that regular supply chains are restored as rapidly as possible through strategic interventions.

<u>Recommendation 2</u>. Build system-level understanding of supply chain dynamics as a foundation for effective decision support.

<u>Recommendation 3</u>. Support mechanisms for coordination, information sharing, and preparedness among supply chain stakeholders.

<u>Recommendation 4</u>: Develop and administer training on supply chain dynamics and best practices for private-public partnerships that enhance supply chain resilience.



Shift the focus to reaching vulnerable communities and further recommendations still apply: system-level understanding, support for co-operation, and training.

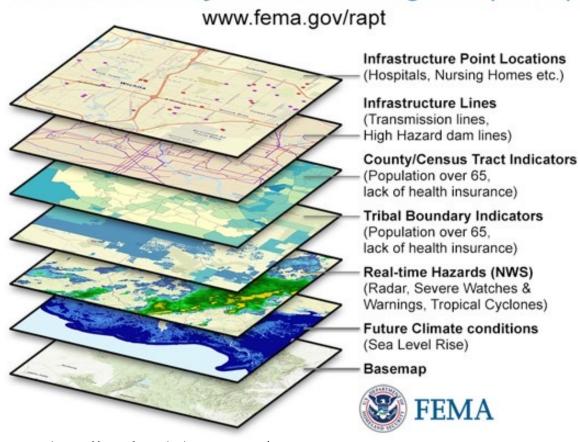


Understanding vulnerability



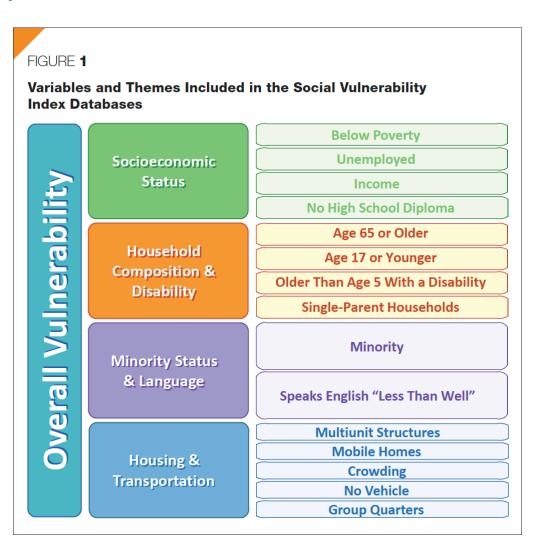
Domestic: extensive demographic data

Resilience Analysis and Planning Tool (RAPT)



Source: https://rapt-fema.hub.arcgis.com/





Source: Flanagan, B. E., Hallisey, E. J., Adams, E., & Lavery, A. (2018). Measuring community vulnerability to natural and anthropogenic hazards: The Centers for Disease Control and Prevention's Social Vulnerability Index. *Journal of Environmental Health*, 80(10), 34–36.

Domestic: extensive demographic data



Hurricane Idalia: affected population of 181,985 defined by hurricane winds (64 kn)



- 35.6% of households have one or more people 65 years and over
- 17.3% of households participated in SNAP in the past 12 months
- 7.5% of households have no vehicle available
- 20.4% of the population has income below the poverty level
- 57.7% of the structures were built before 1990





International: field-based needs assessment



Source: Stephanie Kayden. Needs Assessment in Disasters. Presentation in MIT SCM.283 course, February 22, 2021.

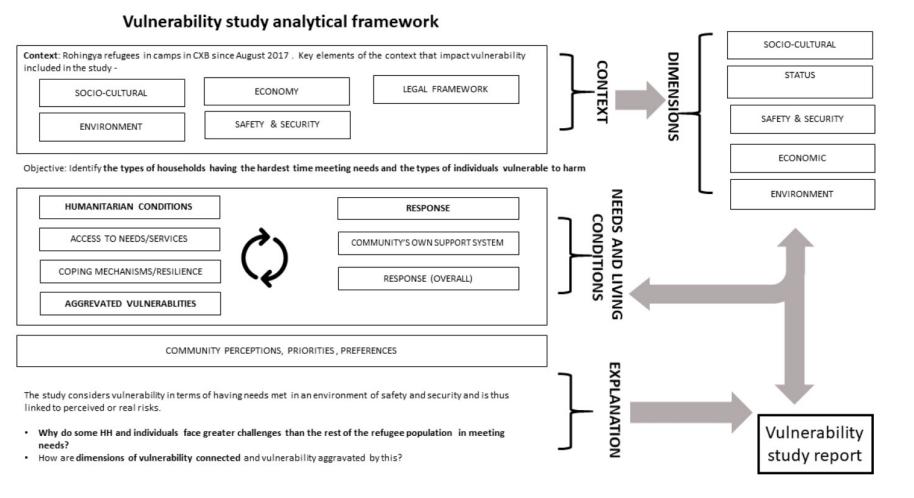






Reference: IASC Needs Assessment Task Force. *Multi-sector Initial Rapid Assessment Guidance*. InterAgency Standing Committee (IASC). July 2015. Available at https://interagencystandingcommittee.org/system/files/mira manual 2015.pdf

Contextual analysis for system-level understanding



Overall the study found that individuals and households often experience multiple vulnerabilities at once, and that being vulnerable in one way often leads to another form of vulnerability, resulting in an inescapable and vicious circle.

Types of households	Median Ranking
Single female headed family	1.0
Family with no income	2.3
Family with many children	2.6
Family with disabled member	3.9
Family with elderly members	4.0
Normal families	6.5
Family with educated member	6.8
Families with NGO volunteer	7.5
Family with Mahjee	8.0

Table 2 - Household vulnerability ranking results



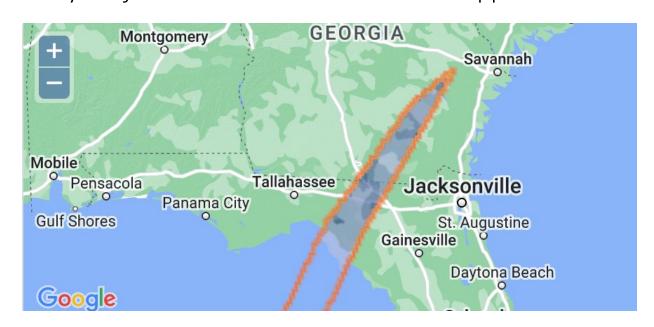


Understanding access



Study the compounding effects of spatial and temporal isolation

Hurricane Idalia assessment: opportunity for emergency managers to support relatively thin supply lines in serving communities that are *normally* isolated during a time when they are *further* isolated from essential supplies



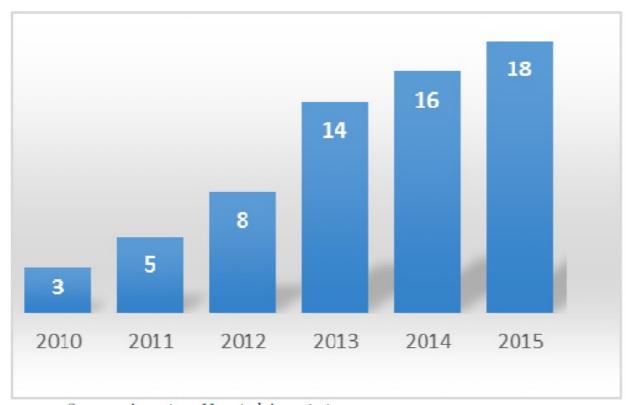


Source: https://www.publix.com/pages/publix-storm-basics/publix-store-status, retrieved 9pm on August 30, 2023.



Monitor trends and the enabling environment

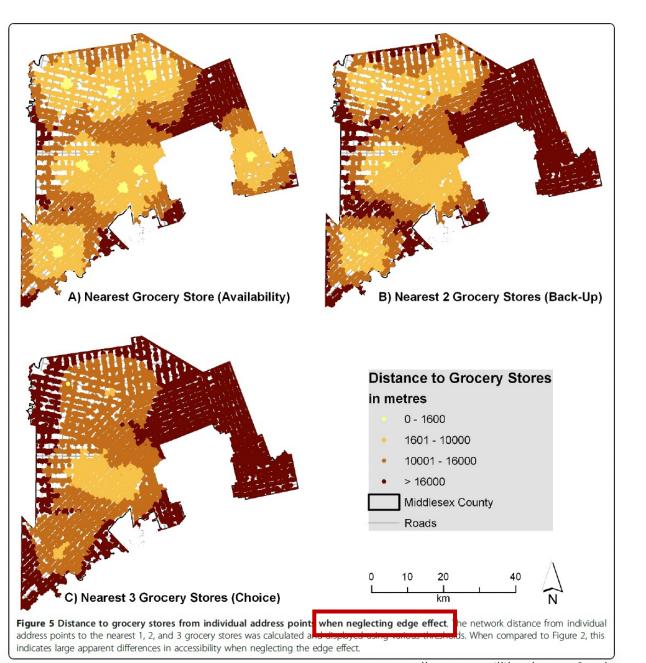
Recent changes in the healthcare industry due to the new reforms
[Patient Protection & Affordable
Care Act] are believed to have impacted certain small community and rural hospitals by putting them at risk of closure.

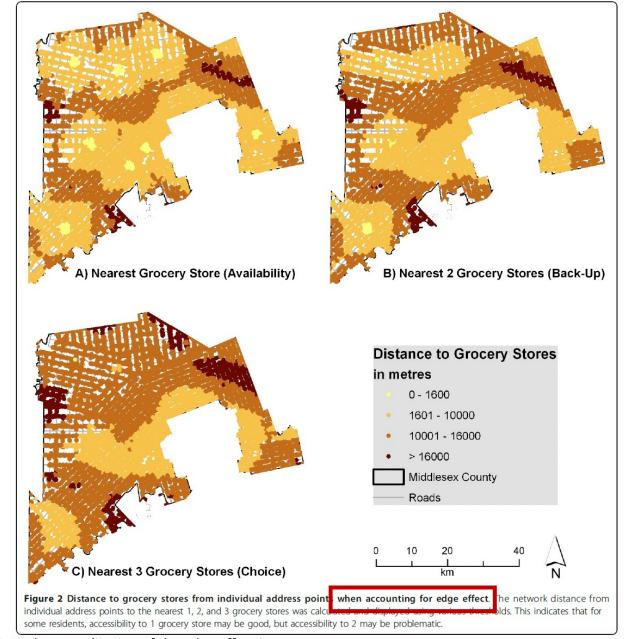


Source: American Hospital Association

Figure 1: US rural hospital closures by year since 2010.











Source: Sadler, R. C., Gilliland, J. A., & Arku, G. (2011). An application of the edge effect in measuring accessibility to multiple food retailer types in Southwestern Ontario, Canada. *International journal of health geographics*, 10(1), 1-15.

Assess access via networks not nodes and polygons

"By neglecting to consider food retailers just outside study area boundaries, previous studies may significantly over-report the actual distance necessary to travel for food"

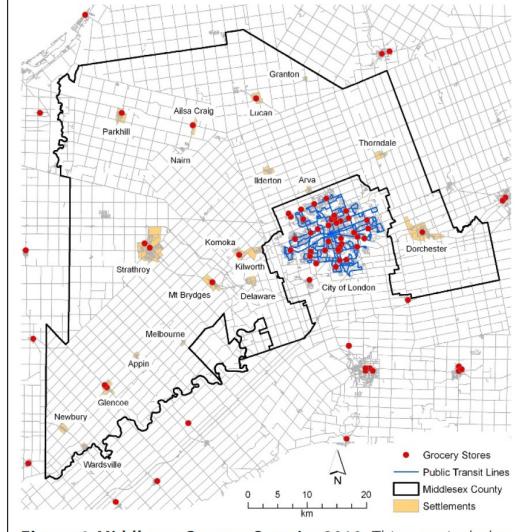


Figure 1 Middlesex County, Ontario, 2010. This map includes county boundaries, grocery stores within and outside the county, public transit lines, settlements, and roads.



Understanding stocks and flows



Understanding stocks

Facility type	Days of supply on hand in April 2021	Days of supply on hand prior to COVID
Acute care hospital	90	14
Outpatient	90	14
Skilled nursing	60	4
Assisted living	60	4
EMS	90	30
Dental	90	7
Behavioral health	90	7

Notes:

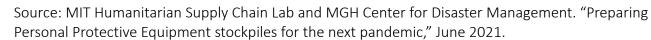
- Data sample: interview with 30 facility supply managers in April 2021
- Days of supply definition based on average daily use during COVID

Opportunity: strengthen supply chain monitoring as part of national emergency preparedness requirements for Medicare- and Medicaid-participating providers and suppliers

https://www.cms.gov/medicare/health-safety-standards/quality-safety-oversight-emergency-preparedness/emergency-preparedness-rule









Understanding flows

- USDOT Freight Logistics Optimization Works (FLOW) engages supply chain stakeholders to create a shared, common picture of the network of supply chains
- Bureau of Transportation Statistics leverages authorities in the Confidential Information Protection and Statistical Efficiency Act (CIPSEA) to collect sensitive information
- Principled support mechanism for shared, useful information encourages voluntary private sector participation

Source: Presentation by Allison Fischman, BTS, at the TRB Transportation System Resilience

Section Mid-Year Virtual Meeting, July 20, 2023



- 1. What do supply chain entities currently have visibility to?
 - Historical aggregate information
 - Future individual network information
- 2. What is FLOW providing?
 - Aggregate supply and demand information
- 3. Why USDOT?
 - Federal data confidentiality laws (not subject to FOIA or subpoena/legal discovery; cannot be used for regulatory purposes)
 - BTS is a non-competitive data steward

FL@W

FLOW Principles

- Voluntary FLOW is a voluntary program, developed and jointly ran by industry participants and the USDOT
- 2. **Participatory** To access FLOW data you provide applicable data to USDOT
- Useful A single view of aggregate supply and demand to inform logistics decisions
 - Real (not modeled)
 - Daily
 - Forward looking





Opportunities to build system-level understanding of community vulnerability

- Understanding vulnerability
 - Invest in field-based assessment to complement reliance on census-driven analysis
 - Pursue contextual analysis to build systemic insight
- Understanding access
 - Study the compounding effects of spatial and temporal isolation
 - Monitor trends and the enabling environment
 - Assess access via networks not nodes and polygons
- Understanding stocks and flows
 - Strengthen supply chain monitoring where existing policy enables it (e.g. emergency preparedness requirements for Centers for Medicare & Medicaid Services)
 - Mobilize private sector engagement by delivering value in return (e.g. BTS FLOW)









HAWAI'I LOCAL2030 HUB

GREEN GROWTH



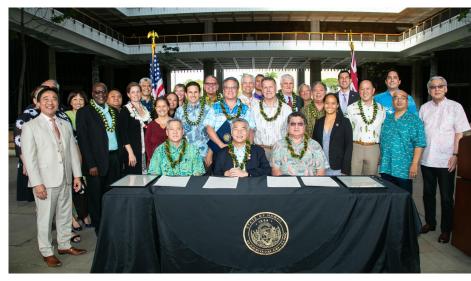
Following the 2008 financial crisis, the leaders of the Organization of Economic Cooperation Development (OECD) called for countries to 'pursue green growth strategies as part of our response to the current crisis and beyond' in the 2009 Green Growth Declaration.











2014 signing of the Aloha+ Challenge

2019 recommitment to Aloha+ Challenge

Hawai'i Green Growth

Hawai'i Green Growth (HGG) members and supporters include:











































































































































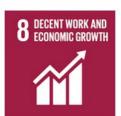


































ALOHA+ GOALS & UN SDGs















































































































Aloha+ CHALLENGE

Hawai'i's Statewide Sustainability Commitment













THE GLOBAL GOALS

For Sustainable Development

Aloha+ Challenge Dashboard

Accountability and Action on Hawai'i's Sustainability Goals



20

measuring

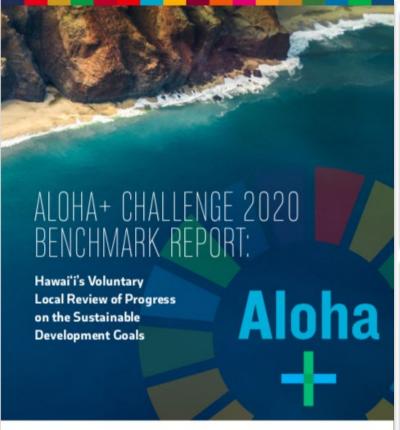
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implement these targets

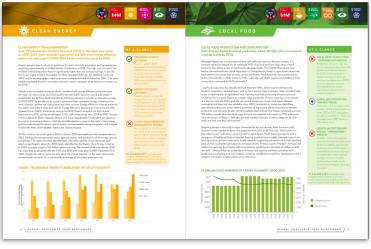
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measuring

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HAWAI'I GREEN GROWTH LOCAL2030 HUB















Håfa adai and Welcome to the G3 Action Framework Dashboard!

Aligned with the 17 United Nations Sustainable Development Goals (SDGs), the Guam Green Growth Initiative cultivates an ecosystem for transformative action to achieve a more sustainable, prosperous, and equitable future for our island.

Explore the G3 Dashboard to see islandwide progress on the G3 Categories of Action and Guam's contribution to the global SDGs.



The Guam Green Growth Action Framework is focused on five categories of action













Explore the Categories of Action webpages by navigating through each working group above.

Check out the overall progress of the Guam Green Growth (G2) Action Framework with the identified primary indicators below.



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THANK YOU FOR PARTICIPATING

Contact us at resilience@nas.edu

