

NATURAL DISASTER ECONOMIC RECOVERY STRATEGY



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Left: Small Business Toolkit Resources

Right: FEMA Community Meeting in Pāhoa on November 13, 2014

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Abstract

This Hawai'i Natural Disaster Economic Recovery Strategy (NDERS) addresses pre-disaster business continuity planning and post-disaster recovery actions for both public and private sectors. This strategy especially focuses on small business and economic recovery since small businesses are the major driver of Hawai'i's economy.

The process to develop a strategy sought input from multiple stakeholders. The input process included an Advisory Group whose members represented disaster management and economic development agencies, disaster experts, large businesses, and critical infrastructure agencies. Input from Hawai'i businesses ranging from sole proprietors to large companies with over a hundred employees was obtained through a series of focus groups and an electronic survey.

The NDERS development process included an analysis of existing plans, policies, and programs aimed at small business. This analysis, coupled with input from the Advisory Group, focus groups, and statewide survey led to identification of strengths and gaps in the current state of small businesses natural disaster preparedness and recovery. Based on the analysis, eight goals and objectives were identified to support business continuity, preparedness, and post-disaster recovery for Hawai'i's small businesses.

Forty nine recommended implementation strategies to achieve the goals and objectives are offered to government agencies and nongovernmental organizations (NGOs), trade associations and businesses interested in disaster preparedness, response, and recovery. The recommendations are grouped in four types: (1) State or Federal legislative action is needed to change statutes and ordinances, or provide funding; (2) State government agency action could change administrative rules, policies, or programs; (3) public-private partnerships; and (4) private sector initiatives and actions.

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Executive Summary

Introduction and Approach to Developing This Strategy describes the purpose and approach used to develop this Natural Disaster Economic Recovery Strategy (NDERS). The State of Hawai'i initiated the NDERS project with support from the Economic Development Administration. It addresses pre-disaster operations continuity planning and post-disaster recovery actions for both public and private sectors, with a focus on small business and economic recovery.

The NDERS process sought input from multiple stakeholders. These included an Advisory Group comprised of disaster management and economic development agencies, experts, large businesses, and critical infrastructure agencies. The project team conducted individual interviews with key disaster management agencies about their programs and initiatives. Finally, Hawai'i businesses ranging from one to hundreds of employees were reached through a series of focus groups and an electronic survey.

This Strategy report is the final work product of the NDERS project. It includes summaries of existing conditions in disaster preparedness and recovery, analyzes strengths and gaps, presents goals and objectives, and finally recommends implementation measures for both public and private sectors.

Existing Conditions describes existing pre-disaster continuity planning and post-disaster recovery programs and services in Hawai'i, with an emphasis on small business and economic recovery. It describes standards, programs, and resources available to assist businesses with their business continuity planning. It summarizes key findings from seven focus groups, stakeholder interviews, and a statewide online survey of small businesses.

Plans at the Federal level and policies such as FEMA's National Disaster Recovery Framework (NDRF) provide a framework for coordination of efforts at all levels of government. The State of Hawai'i has a number of disaster mitigation, response, and recovery plans. These are not specific to economic recovery, but they do address aspects of the infrastructure for preparedness, response, and recovery that is essential for businesses to survive. Each County has its own emergency operation plan and hazard mitigation plan. These plans are primarily made for continuity of the county government services and public assistance during an emergency.

A handful of community level and private disaster preparedness and recovery plans are prepared by community groups with support from disaster management agencies and organizations. Community Emergency Response Teams (CERT) are a growing initiative. The City and County of Honolulu Department of Emergency Management (DEM) has trained more than 2,000 residents of O'ahu. The neighbor islands have multiple CERTs that continue to grow in number. Public-private coalitions to support preparedness and continuity include Contingency Planners of The Pacific and the Pacific Risk Management Ohana.

Lists of the many resources available to assist businesses with continuity planning, information resources on disaster preparedness, response, and recovery, and sources of recovery assistance are expanded upon in Appendix A.

A description of the state of small business knowledge, preparedness, and recovery in Hawai'i is based on the NDERS focus groups and survey of small businesses.

Strengths and Gaps in Small Business Preparedness, Response, and Recovery inform the development of Goals, Objectives, and Strategies, and ultimately the final NDERS recommendations. "Strengths" include those existing conditions, plans, and practices that have resulted in stronger business preparedness and continuity in Hawai'i. "Gaps" are the conditions that pose challenges or barriers to business preparedness, response, and recovery in Hawai'i. Strengths and gaps are identified in eighteen key areas:

1. Business continuity planning
2. Networks and interdependencies
3. Partnerships
4. Employees
5. Business records
6. Insurance
7. Critical infrastructure
8. Supply chain
9. Information sources
10. Community preparedness
11. Post-disaster recovery resources
12. Business operations post-disaster
13. O'ahu -specific concerns
14. Neighbor islands
15. Agriculture
16. Tourism and the military
17. Hard-to-reach populations
18. High risk hazard areas

Strengths

Large businesses, the military, and the tourism industry are generally well prepared for natural disasters. Large businesses often have contingency plans and preparedness networks in place. There are many established business, ethnic, and community networks that potentially can be a resource for natural disaster preparedness.

There is a large amount of free or low cost information and tools available to assist businesses with preparedness, continuity planning, and recovery. This information is disseminated through websites, business associations, disaster management agencies, property managers, and community events.

Small businesses have the potential to contribute to community recovery. Partnerships with other businesses and the public sector can bolster recovery efforts and ensure a continued role for businesses following a disaster. Public and private sectors can work together to change behaviors, strengthen food and fuel stores, and make arrangements for distribution of goods.

Gaps

Small businesses, particularly those with less than 25 employees, are not well informed or prepared. Some depend on land owners or property managers for recovery. Some lack planning awareness of available resources and the benefits of preparedness. Employee preparedness training is not common, and most do not have emergency supplies at their office location. Data back-ups are often on-site and are not regularly updated.

Interruptions of critical utility functions and the supply chain are the major impacts felt by Hawai'i businesses. These are magnified by Hawai'i's dependence on imported resources, including fuel and food.

The loss of customers resulting from closures of airports and harbors could have a devastating effect, especially for the visitor industry. Neighbor islands are concerned about the vulnerability of O'ahu's infrastructure since their supplies come through harbors on O'ahu.

There is a demand for reliable, credible, and accessible information on preparedness that is tailored to small business. There is also a need for localized, up-to-date information on road closures and the status of recovery efforts. Businesses in high risk hazard areas need critical support in their preparedness, evacuation, response, and recovery.

Many businesses anticipate insurance as their primary means of recovery assistance. However, less than half have business interruption insurance and many have incomplete or no disaster coverage. Some have difficulty finding recovery assistance and resources, or complying with the documentation requirements for insurance claims. This is intensified for those that do not speak English or that have other barriers to receiving information and support.

Agricultural businesses are especially vulnerable. Many agricultural businesses operate on leased land and therefore do not qualify for certain types of recovery assistance. Agricultural businesses can have difficulty insuring some of the key physical assets required to run their business.

Strategic Issues, Goals, and Objectives build upon existing programs, plans, and policies to respond to the challenges of addressing business preparedness, response, and recovery in Hawai'i. They address major themes or strategic issues that emerged from strengths and gaps, including the need to Educate, Regulate, Incentivize, Engage, and Plan in order to strengthen business continuity and economic recovery in Hawai'i. Goals and objectives are targeted at addressing the most vulnerable segment of small businesses in Hawai'i, those with 25 or less employees, which constitute a majority of businesses in the state.

There are eight goals in the Natural Disaster Economic Recovery Strategy:

Goal I: Increase knowledge of and motivation to implement natural disaster preparedness and business continuity planning by small businesses as well as in Hawai'i.

Goal II: Forge partnerships between large and small businesses with government agencies to promote coordinated efforts for disaster preparedness, response, and recovery.

Goal III: Ensure adequate response planning for business districts in high risk areas.

Goal IV: Provide post-disaster recovery financial and technical assistance programs for small businesses which is linked to pre-disaster preparedness.

Goal V: Expand response and recovery coordination between Hawai'i small businesses and the communities where they operate.

Goal VI: Increase resilience of statewide utilities and infrastructure, which critically impact small businesses.

Goal VII: Provide centralized and user friendly information about preparedness, response, and recovery which is tailored to small business.

Goal VIII: Increase each island's self-reliance and ability to sustain itself following a natural disaster.

Each Goal has several Objectives that define possible benchmarks and implementation steps to attain the Goals, and these steps lead into the recommendations contained in Chapter 5.

Recommended Implementation Strategies are offered for government agencies, nongovernmental organizations, private sector groups and businesses interested in disaster preparedness, response and recovery. These recommendations are grouped and prioritized by: (1) State or Federal legislative actions to change statutes and ordinances, or provide funding; (2) State government agency actions to change administrative rules, policies, or programs; (3) public-private partnerships; and (4) private sector initiatives and actions.

Acknowledgements

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Survey Distribution

- Chamber of Commerce of Hawai'i
- Filipino Chamber of Commerce
- Hawai'i Aquaculture and Aquaponics Association
- Hawai'i Agriculture Industry & Ranchers United
- Hawai'i Floriculture and Nursery Association
- Hawai'i Forest Industry Association
- Hawai'i Island Chamber of Commerce
- Hawai'i Island Economic Development Board
- Hawai'i Leeward Planning Conference
- Hawai'i Lodging and Tourism Association
- Ka'u Coffee Grower's Corp.
- Kaua'i Economic Development Board
- Kaua'i Chamber of Commerce
- Kona-Kohala Chamber of Commerce
- Maui Chamber of Commerce
- Retail Merchants of Hawai'i
- Waikiki Improvement Association

Acronyms

ARC – American Red Cross	ESF – Emergency Support Function
ASIS – American Society for Industrial Security	FAA – Federal Aviation Administration
BIA – Business Impact Analysis	FDRC – Federal Disaster Recovery Coordinator
BOMA – Building Owners and Managers Association	FEMA – Federal Emergency Management Agency
CDFI – Community Development Financial Institutions	GIS – Geographic Information System
CEDS – Comprehensive Economic Development Strategy	GOHSEP – the Governor’s Office of Homeland Security and Emergency Preparedness
CERT – Community Emergency Response Team	GSA – General Services Administration
CIKR – Critical Infrastructure and Key Resources	HAZUS - Hazards U.S
CLEAN – Campbell Local Emergency Action Network	HECO – Hawaiian Electric Company
CNCS – Corporation for National and Community Service	HELCO – Hawai’i Electric Light Co. Inc.
COG – Continuity of Governments	HEMA - Hawai’i Emergency Management Agency
CONPLAN – State of Hawai’i All-Hazards Concept Plan	HHA – Hawai’i HAZUS Atlas
COOP – Continuity of Operations	HHS – Department of Health and Human Services
CPP – Contingency Planners of the Pacific	HHVISA - Hawai’i Hotel and Visitor Industry Security Association
CZM – Coastal Zone Management	HMGP – Hazard Mitigation Grant Program
DA – Disaster Assistance	HoLIS – Honolulu Land Information System
DBEDT – Hawai’i Department of Business, Economic Development & Tourism	HRS – Hawai’i Revised Statutes
DEM – City and County of Honolulu Department of Emergency Management	HUD – Department of Housing and Urban Development
DHS – U.S. Department of Homeland Security	HWH – Hanalei Watershed Hui
DOC – U.S. Department of Commerce	IBHS – Insurance Institute for Business & Home Safety
DOD – U.S. Department of Defense	IRS – Internal Revenue Service
DOE – U.S. Department of Energy	ISO – International Organization for Standardization
DOI – U.S. Department of the Interior	LA BEOC – The Louisiana Business Emergency Operations Center
DOJ – U.S. Department of Justice	LED – Louisiana Economic Development
DOL – U.S. Department of Labor	LDRM – Local Disaster Recovery Manager
DOT – U.S. Department of Transportation	LTCR – Long-Term Community Recovery
DUA - Disaster Unemployment Assistance	LTDRO – Long-Term Disaster Recovery Office
ED – Department of Education	MCBRC – Maui County Business Resource Center
EDA – Economic Development Administration	MFI – Mass Fatality Incident
EOP – Energy Emergency Preparedness Program	
EOC – Emergency Operations Center	
EPA – U.S. Environmental Protection Agency	

MHMP – The State of Hawai‘i Multi-Hazard Mitigation Plan
MOU – Memorandum of Understanding
NCP – National Continuity Plan
NDERS – Natural Disaster Economic Recovery Strategy
NDPTC – National Disaster Preparedness Training Center
NDRF – National Disaster Recovery Framework
NDRP – National Disaster Recovery Planning
NDRPD – National Disaster Recovery Program Database
NEG – National Emergency Grants
NFPA – National Fire Protection Association
NFIP – National Flood Insurance Program
NGO – Non-Governmental Organization
NIMS – National Incident Management System
NIPP – National Infrastructure Protection Plan
NLRB – National Labor Relations Board
NOAA – National Oceanic and Atmospheric Administration
NPPD – National Protection
NRF – National Response Framework
NWS – National Weather Service
OED – Office of Economic Development
OFAs – Other Federal agencies
OPLAN – Hawai‘i Catastrophic Hurricane Operations Plan
POC – point of contact

PPD-8 – Presidential Policy Directive 8: National Preparedness
PRiMO – Pacific Risk Management Ohana
PTM – Pacific Tsunami Museum
RCUH – Research Corporation of the University of Hawai‘i
RISC – Regional Interagency Steering Committee
RSF – Recovery Support Function
SBA – Small Business Administration
SBDC – Small Business Development Center
SCD – Hawai‘i State Civil Defense
SCO – State Coordinating Officer
SDMI – Stephenson Disaster Management Institute
SDR – State Disaster Recovery Coordinator
SEO – Hawai‘i State Energy Office
SME – Subject Matter Expert
SOEST – School of Ocean and Earth Science and Technology
SOP – Standard Operating Procedure
TDRC – Tribal Disaster Recovery Coordinator
TREAS – U.S. Department of the Treasury
USACE – U.S. Army Corps of Engineers
USDA – U.S. Department of Agriculture
USGS – United States Geological Survey
VOAD – Voluntary Organizations Active in Disaster

CHAPTER 1.0 Introduction and Approach Used to Develop this Strategy

1.1. Introduction & Project Background

The State of Hawai'i is creating a *Natural Disaster Economic Recovery Strategy* (NDERS) to address pre-disaster operations continuity planning and post-disaster recovery actions for both public and private sectors, with a focus on small business and economic recovery.

Small business is too often a casualty of natural disasters. Small businesses with less than 50 employees are the lifeblood of Hawai'i's economy and account for 94% of all businesses in the state.¹ One in four of those businesses that close because of a disaster never reopen, according to an estimate from the Insurance Institute of Business and Home Safety.² Businesses that have a business continuity plan and implement it typically sustain less damage, loss, and downtime than those that do not.³

Particularly vulnerable small businesses include businesses with less than 20 employees, those who speak multiple languages, and those who work from home. According to the Department of Business, Economic Development & Tourism, 86% of Hawai'i businesses have less than 20 employees.⁴

Hawai'i has special needs for preparedness and recovery because of its isolation. Nearly all food, fuel, and building materials are imported. Critical infrastructure is self-contained. As the most isolated island chain in the world, transportation travel times and costs are significant. Further, much of the development where businesses are located is along the coast and subject to coastal hazards.

The remainder of this chapter identifies key terms and definitions used throughout the report, describes the approach used to develop the NDERS, and provides an overview of the tasks and deliverables undertaken to complete this strategy.

1.2. Key Terms and Definitions

This section defines key terms used throughout the NDERS. These terms frame the scope of the project, define the target population, and guide the framework for resulting recommendations.

Small Business: The U.S. Small Business Administration (SBA) generally defines a small business as less than 500 employees for most industries.⁵ The great majority of businesses in Hawai'i fall under the SBA definition of a small business, even those that are part of a national corporation.

¹ DBEDT Research & Economic Analysis, 2012

² Insurance Institute of Business and Home Safety

https://www.disastersafety.org/commercial_maintenance/commercial-vulnerability-assessment_ibhs/

³ FEMA, "Businesses With Preparedness Plans More Likely To Survive Disasters," September 2010

⁴ DBEDT Research & Economic Analysis, 2012

⁵ Small Business Administration <https://www.sba.gov/content/summary-size-standards-industry-sector>

The DBEDT Research & Economic Analysis⁶ assesses the following statewide business breakdown:

- In December 2012, there were 36,652 businesses in the State of Hawai'i.
- 98% of the businesses in Hawai'i have less than 100 employees, which is 35,857 businesses.
- 95% of the businesses in Hawai'i have less than 50 employees, which is 34,726 businesses.
- 87% of businesses in Hawai'i have less than 20 employees, which is 31,781 businesses.
- 57% businesses in Hawai'i have less than 5 employees, which is 20,705 businesses.

Eighty seven percent of Hawai'i businesses have less than 20 employees, therefore this Strategy is aimed at identifying and assessing the needs and vulnerabilities of these smaller employers.

The *State of Hawai'i DBEDT 2013 Data Book* provides employment data by sector (based on U.S. Census Bureau 2012 American Community Survey statistics and the North American Industry Classification System):

- In 2012, there were 649,050 employed civilians on an annual average in Hawai'i.
- In 2012, the sector with the most employees was educational, health, and social services with 124,549 employees or 19.2% of the employed population.
- Arts, entertainment, recreation, accommodation, and food services followed second with 105,153 employees or 16.2% of the employed population.
- The sector with the third most employees was the retail trade with 80,414 employees or 12.4% of the employed population.
- The agriculture industry sector employed 10,961 people or 1.7% of the employed population.

Natural Disaster for the purposes of this project are disasters specific to Hawai'i including hurricanes, high wind events, tropical storms, earthquakes, lava flows, wildfires, floods, and tsunamis. Manmade disasters such as blackouts, acts of war, terrorism, disease epidemics, or acts of violence are not included in the definition of natural disaster.

Disaster Preparedness supports readiness when a natural disaster occurs. It would address equipment, practices, and procedures. A preparedness policy typically includes:

- Protection of the safety of employees, visitors, contractors, and others at risk from hazards at the facility. This includes planning for persons with disabilities and functional needs.
- Maintenance of customer service by minimizing interruptions or disruptions of business operations.
- Protection of facilities, physical assets, and electronic information.
- Prevention from environmental contamination.
- Protection of the organization's brand, image, and reputation.

⁶ <http://files.hawaii.gov/dbedt/economic/databook/db2013/section12.pdf>

Disaster Response are those activities that begin during the event and continue immediately after the natural disaster occurs. The first priority is always life safety, and the second priority is the stabilization of the incident. Response includes damage assessment, salvaging property, protection of undamaged property, and cleanup. A business continuity plan would include these steps.

Recovery involves dealing with the aftermath of a natural disaster. Recovery is a lengthy process which can be aided by a Business Continuity Plan. While physical safety is the most important, mental well-being is also a critical issue. Knowing how to access assistance for a business while balancing owners' and employees' needs for recovery are all key to coping with the natural disaster and business continuity. Recovery also includes restoring damaged infrastructure essential to business operation. Examples are water, electricity, roads, and shipping.

Business Continuity is the strategic and tactical capability to plan for and respond to business disruptions, and to continue business operations at an acceptable predefined level. Business continuity consists of five phases: 1) preparation; 2) response; 3) recovery; 4) restoration; and 5) resumption of normal business operations.

Business Continuity Planning is advance preparation to improve and expedite recovery capabilities of a business following a natural disaster. A business continuity plan typically involves four steps:

- 1) Conducting a Business Impact Analysis (BIA) to identify time-sensitive or critical business functions and processes and the resources that support them;
- 2) Identifying, documenting, and implementing recovery of critical business functions and processes;
- 3) Organizing a business continuity team to manage a business disruption following a natural disaster through the use of the business continuity plan; and
- 4) Conducting training for the business continuity team through testing and exercises to evaluate the plan, providing a feedback loop.

1.3. Approach and Methods Used to Develop this Strategy

1.3.1 Stakeholder Involvement & Input

The project team sought input from multiple stakeholders in preparing the Natural Disaster Economic Recovery Strategy. This included an Advisory Group comprised of disaster management agencies, disaster planning experts, large businesses, and critical infrastructure agencies. The project team conducted seven focus groups of representatives from small businesses on O'ahu, Maui, Kaua'i, and Hawai'i Island. Individual interviews with key disaster management agencies and organizations to learn more about their programs and initiatives. Finally, an electronic survey was distributed to more than 3,000 businesses statewide.

Advisory Group

The State Office of Planning convened an Advisory Group comprised of government agencies, disaster experts, economic development organizations, key infrastructure and utility companies, and selected large businesses. The Advisory Group's role was to share best practices for pre-disaster operations

Figure 1: Advisory Group Meeting*Photo: SSFM*

continuity planning and post-disaster recovery. They also helped identify strengths and gaps, and provided input on the project activities. Neighbor island participants conference called into the meetings.

Five Advisory Group Meetings were held at the State Capitol: August 25, 2014, September 8, 2014, October 30, 2014, November 19, 2014, and December 2, 2014. A list of the members is included in the Acknowledgements section at the front of this report.

At the first meeting on August 25, 2014, the Advisory Group provided guidance on the scope and definitions used for the project, including the definition of small business, the scope of natural disasters to be included in the strategy, and the meaning of preparedness, continuity, response, and recovery. These resulted in the Key Terms and Definitions presented in the preceding section. The Advisory Group also shared programs, references, and resources from each of their respective organizations to include in the Existing Conditions analysis in Chapter 2. Finally, the group provided input into the approach and composition of the focus groups. Advisory Group members suggested that the focus groups target not only businesses' knowledge and practices, but also their perceptions on disaster preparedness, vulnerabilities, and recovery. This input was incorporated into the focus group questions.

At the second meeting on September 17, 2014, the Advisory Group reviewed the focus group results and discussed the content and methodology for the proposed survey to test the focus group findings with a wider sample. The Group suggested that the survey include questions on prior experience with recovery from natural disasters, including impacts to the business, loss of income, and recovery resources utilized. The group also wanted to hear businesses' perceptions on first responders and their ability to respond to business needs during disasters.

At the third meeting on October 30, 2014, the Advisory Group reviewed the survey results and discussed the key takeaways from both the survey and the focus groups. Strengths and gaps were summarized, and attendees participated in a group exercise to identify goals and objectives. The Advisory Group felt that it is important to acknowledge that business readiness is a spectrum and that it is necessary to meet businesses where they are in their level of preparedness in order to serve their needs. Many small businesses can be reached through existing networks such as business associations, insurance agents, and property managers. The Group emphasized the need to incentivize businesses to be prepared and make partnerships to support readiness. This can be accomplished through financial incentives as well as real-life stories of challenges and successes from businesses in the community. Regulation was also mentioned as a possible means of improving preparedness and recovery efforts.

At the fourth meeting on November 17, 2014, the Advisory Group reviewed the draft report of Goals, Objectives, and Strategies. They suggested consolidating several of the goals that had overlapping objectives, and helped refine the scope and focus of the objectives and strategies from the perspective of their respective agency or business. Based on the group's input, the goals were reduced from ten to eight, and the objectives and strategies took into account the various agencies' initiatives and perspectives.

At the fifth and final meeting on December 2, 2014, the Advisory Group reviewed the outline for the final Strategy and the recommended implementation strategies. The primary recommendation that emerged was to designate a State level position or office dedicated to small business preparedness and economic recovery. This position would be charged with working with the various agencies, businesses, and the legislature to implement the recommendations.

Focus Groups

Seven focus groups were held across the state over a two week period starting September 4, 2014. They were held on O'ahu (3), Kaua'i (2), Maui (1), and Hawai'i Island (1). Focus group sizes ranged from five to twelve people and represented a wide range of business sizes and sectors. Participants were promised anonymity. Several participants whose stories represented best practices in preparedness and recovery granted permission for their name and experiences to be shared in the NDERS document.

The purpose of the focus groups was to hear directly from owners and operators of small and medium-sized businesses (as well as some representatives of associations of small businesses and government agencies in economic development) about the strengths and gaps in their level of knowledge and the extent of actions small businesses have taken to prepare, respond, and recover from natural disasters to ensure the continuity of their small business operations. The focus group participants were asked about their perceived risks and vulnerabilities; information available to them for continuity planning; the level of preparedness of infrastructure and public services, and their experience accessing recovery resources and assistance. Focus groups included representatives of companies from each of the industrial sectors. The focus groups were moderated by a professional facilitator from MCS International. What was learned in the focus groups is summarized in Section 2.4.1.

Stakeholder Interviews

In-depth interviews were held with the following agencies:

- City and County of Honolulu Department of Emergency Management (DEM)
- State of Hawai'i Emergency Management Agency (HEMA)
- U.S. Small Business Administration (SBA), Hawai'i District
- Federal Emergency Management Agency
- Hawai'i Medical Assurance Association (HMAA)
- National Incident Management Systems & Advanced Technologies (NIMSAT), Louisiana
- Building Owners and Management Association (BOMA) Hawai'i

These interviews gave key agencies an opportunity to discuss their existing programs, initiatives, and priorities and identify strengths and gaps from their agency's perspective. Anecdotes and information

from stakeholder interviews are incorporated in the Existing Conditions chapter and in call-out boxes throughout the document.

Statewide Survey of Small Businesses

A statewide online survey of businesses was conducted in October 2014. The NDERS survey instrument was developed by SMS Research with guidance from the SSFM project team and with the input of the Advisory Group. The Advisory Group assisted with survey distribution through their business networks, and the survey was sent to 3,363 businesses across the state. The surveys were directed to the business owner, the CEO, or the primary decision maker of each business.

The questions included basic characterization of the business, such as the number of employees, zip code, and type of business using categories the project used to organize focus groups. The survey asked questions using the same basic questions and approach used in the focus groups. The results from small businesses throughout Hawai'i demonstrate the strengths and gaps in business' level of knowledge and the extent of actions they have taken to prepare, respond, and recover from natural disasters to ensure the continuity of their small business operations. Survey results are summarized in Section 2.4.2, and a copy of the survey instrument and response breakdown is in Appendix B.

1.3.2 Project Tasks & Deliverables

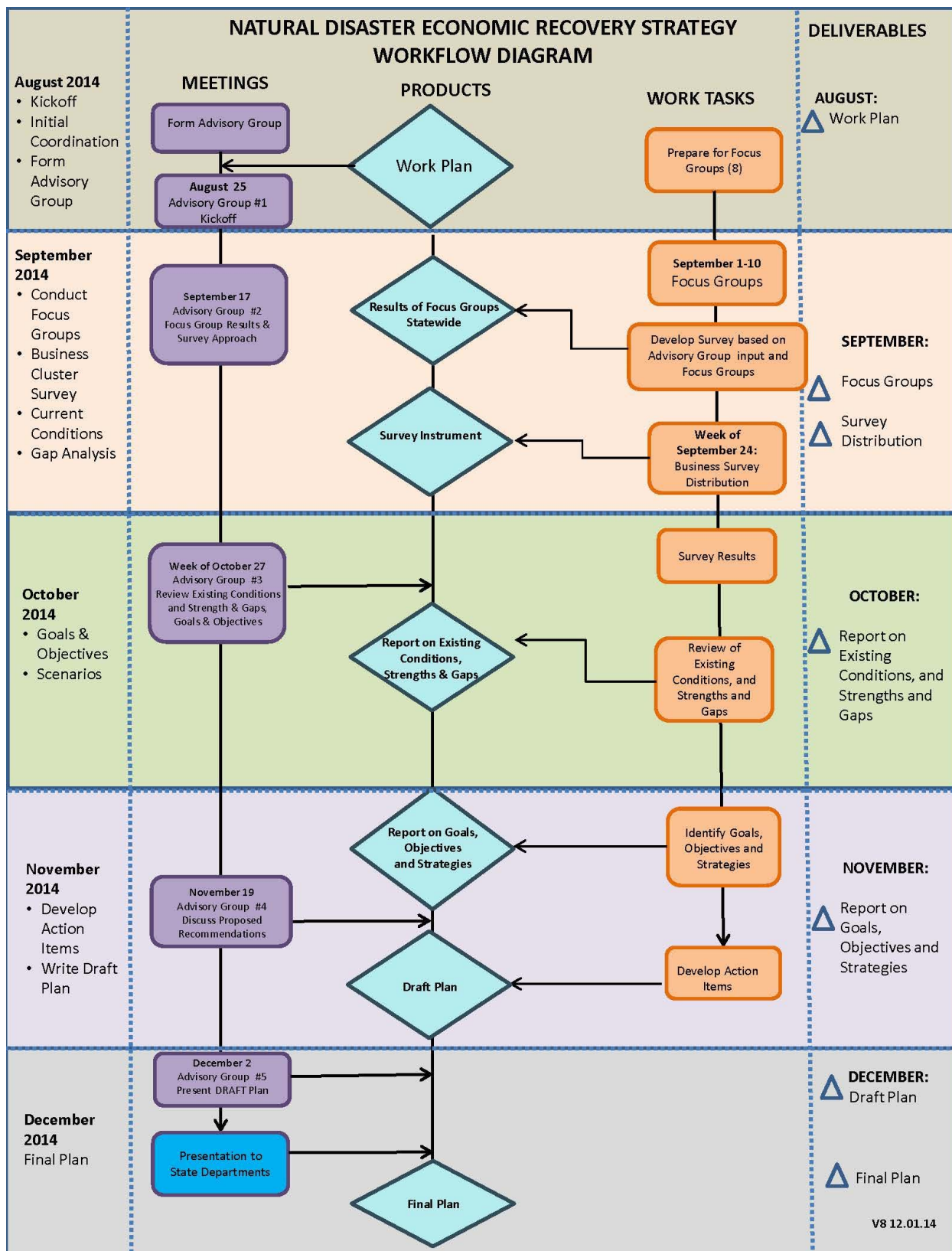
The project team drafted and submitted six deliverables to State of Hawai'i Office of Planning. These deliverables include the project Work Plan; Existing Conditions Report; Focus Group Report; Survey Report; Strengths and Gaps Analysis; and the Goals, Objectives, and Strategies Report. These reports informed this Strategy and they are synthesized herein. See Figure 2 for the project schedule and key deliverables.

1.4. Organization of this Report

Following this introductory chapter, the report is organized as follows:

- Chapter 2 reviews existing plans, policies, and programs for small business disaster preparedness, response, and recovery and summarizes key findings from the NDERS Focus Groups, survey, and stakeholder interviews.
- Chapter 3 discusses the strengths and gaps that emerged from the analysis of existing conditions, focus groups, surveys, and stakeholder interviews.
- Chapter 4 presents the strategic issues that emerged as themes from the analysis and the goals and objectives that were developed to address gaps in business continuity and preparedness.
- Chapter 5 recommends implementation strategies by various entities to strengthen small business preparedness and resilience in Hawai'i.
- Chapter 6 lists references cited throughout this document.
- Appendix A provides resource lists for practical information on small business natural disaster preparedness, continuity planning, and recovery.
- Appendix B includes a copy of the survey instrument administered to businesses statewide.

Figure 2: Natural Disaster Economic Recovery Strategy Project Overview



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CHAPTER 2.0 Existing Conditions of Small Business Preparedness, Response, and Recovery in Hawai'i

This chapter describes the existing conditions related to natural disaster risks, preparedness, response, and recovery in Hawai'i with an emphasis on small businesses. It summarizes the existing plans, policies, and programs in Hawai'i that pertain to natural disasters, and lists resources available to assist small businesses with preparedness, response, and recovery. This chapter also presents key findings on the state of small business natural disaster preparedness in Hawai'i. These are based on the results of the NDERS focus groups and statewide survey.

The review of existing conditions was further informed by input from the Advisory Group as well as a series of stakeholder interviews with agencies and organizations engaged in disaster preparedness. Anecdotes and information from stakeholder interviews are incorporated where relevant throughout the document.

2.1. Types of Disasters that Affect Hawai'i

Hawai'i experiences many types of natural disasters including hurricanes, tropical storms and depressions, earthquakes, lava flows, wildfires, floods, and tsunamis. In Hawai'i, the natural disaster most likely to affect life, property, and loss of business is a hurricane. According to the Hawai'i Multi-Hazard Mitigation Plan (2010), five hurricanes have caused serious damage to the state since 1957. Hurricane 'Iniki was most damaging (see Figure 3). Figure 4 shows the paths of major named storms in the vicinity of Hawai'i between 1950 and 2013. Three named storms crossed near or over the islands in 2014: Hurricane Iselle, Hurricane Ana, and Tropical Storm Julio.

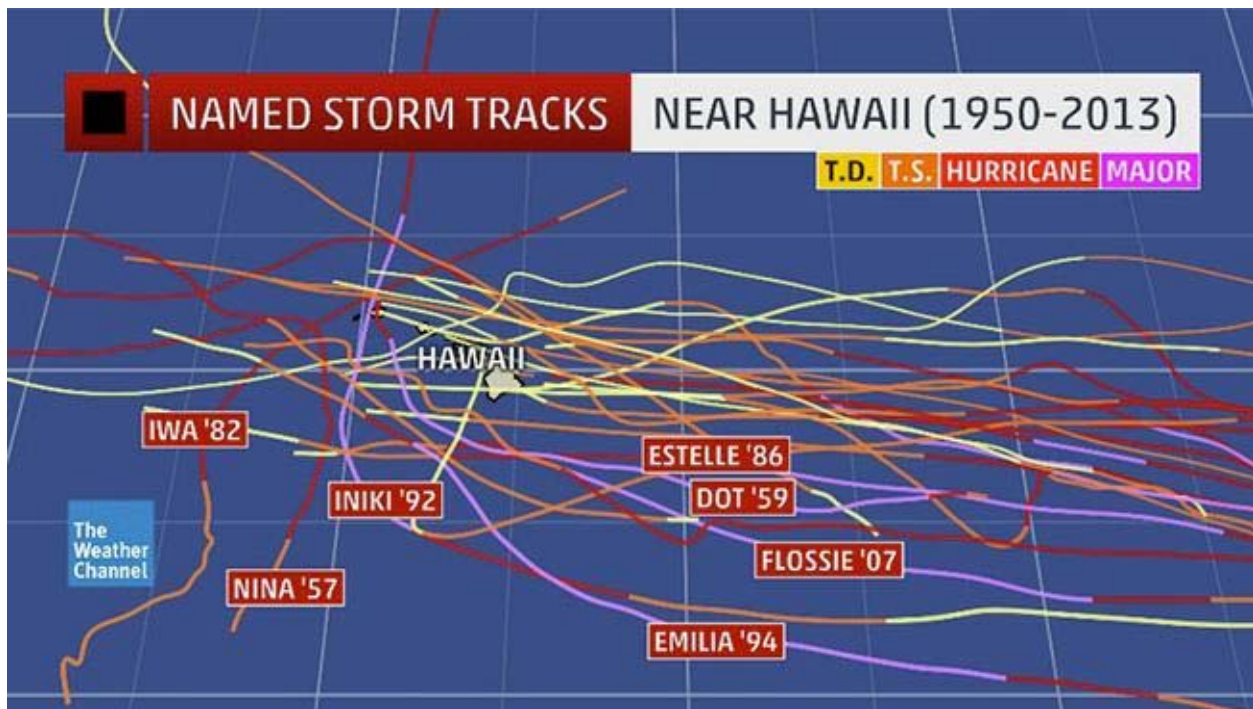
Figure 3: Damage by Hurricane 'Iniki in Puhi, Kaua'i, 1992



Source: City and County of Honolulu Department of Emergency Management

High wind events have been recorded in Hawai'i since 1871. There are over one hundred recorded high wind events on record. All islands have sustained damage such as fallen utility lines, trees, and fences; power outages; roof damage; school and road closures. While the damage is more localized for high wind events, their ability to affect the operations of business is significant.

Figure 4: Named Storm Tracks near Hawai'i Between 1950-2013



Source: The Weather Channel (<http://m.weather.com/news/weather-hurricanes/hawaii-hurricanes-history-typical-tracks-20140804?page=3>)

Earthquakes have been recorded in Hawai'i since 1868. A total of 26 earthquakes over the magnitude of 6.0 have occurred in Hawai'i. The 6.7 Kīholo Earthquake on October 15, 2006 caused extensive damage to hotels, historical buildings, residences, and public infrastructure with damages of \$100 million.

Kīlauea Volcano has been erupting continuously since 1983, for more than 30 years. Prior to this eruption, Kīlauea erupted nearly every year since 1960. At the time of this writing, businesses in the town of Pāhoā are preparing for the slow advance of its lava flow (see Figure 5).

Multiple recorded wildfire events have occurred on all islands. In addition to the direct damage to structures and property from wildfires, an active wildfire restricts access to that area for an extended period of time.

Stream floods usually follow heavy rains or tropical storms. Records indicate all islands have several hundreds of incidents of stream floods, flash floods, and flooding dating back to 1900. Floods not only cause water damage to a structure and its contents, but can affect roads and access to businesses.

Tsunamis in Hawai'i have been recorded since 1812. The deadliest tsunami was in 1946, generated by an earthquake in the Aleutians. That tsunami caused 159 deaths in Hilo. While tsunamis in Hawai'i are less frequent than other natural disasters, their potential for damage and loss of life is extensive.

Figure 5: Active Lava flow in Pahoia, Hawai'i, 2014



Source: FEMA

2.2. Existing Plans, Policies, and Programs

There are existing plans, policies, and programs for disaster preparedness, response, and recovery in place at the federal, state, and county level. Some plans have been prepared by non-governmental organizations, private sector groups, and communities as well. Table 1 summarizes existing plans, policies, and programs throughout Hawai'i. These are explained further in the following sections.

Table 1: Summary of Existing Plans, Policies and Programs by Level of Government

Existing Conditions: Existing Plans, Policies and Programs			
Plans, Policies, and Programs	Federal	<ul style="list-style-type: none"> • National Disaster Recovery Framework (NDRF) • National Preparedness Goal (Implements PPD-8) • National Response Framework (NRF) • Presidential Policy Directive 8: National Preparedness (PPD-8) • Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707 • United States Department of Labor National Emergency Grants 	
	State of Hawai'i	<ul style="list-style-type: none"> • Energy Assurance program • Energy Emergency Preparedness (EEP) Program • Hawai'i Catastrophic Hurricane Operations Plan (OPLAN, 2009) • Interagency Action Plan for the Emergency Preparedness of People with Disabilities and Special Health Needs (2009) • State of Hawai'i All - Hazards Concept Plan (CONPLAN, 2009) • State of Hawai'i Multi-Hazard Mitigation Plan (2013) 	
	County	City and County of Honolulu	<ul style="list-style-type: none"> • Emergency Operations Plan Basic Plan (2007, 2014) • Hurricane Response Framework (2013) • Hurricane Response Logistics Concept of Operations (2013) • Mass Fatality Management Field Operations Guide (2013) • Multi-Hazard Pre-Disaster Mitigation Plan
		County of Hawai'i	<ul style="list-style-type: none"> • County of Hawai'i Multi-Hazard Mitigation Plan (August 2010)
County of Kaua'i		<ul style="list-style-type: none"> • County of Kaua'i: Multi-Hazard Mitigation Plan (2009) 	
County of Maui		<ul style="list-style-type: none"> • Maui Multi-Hazard Mitigation Plan (2010) 	
Community-Based Plans	City and County of Honolulu	<ul style="list-style-type: none"> • Aina Haina Emergency Action Plan 2014 Draft • Be Ready Mānoa - Family Disaster Preparedness Plan • 'Ewa EPC All Hazards Plan 2012 • Foster Village Neighborhood Disaster Plan • Hau'ula Coastal Community Resilience Plan • Hau'ula Community Family Emergency Plan • Hau'ula Emergency Guide • Kailua Emergency Preparedness Plan • Kailua Emergency Response Plan • Lā'ie Emergency Plan • Lā'ie Emergency Planning Brochure • Mānoa Disaster Preparedness Plan 	
	County of Hawai'i	Hawai'i Pacific Tsunami Museum	
	County of Kaua'i	Hanalei Watershed Hui	

2.2.1 Federal Level Natural Disaster Management Policies and Plans

The federal level lead role in natural disaster preparedness and response is primarily oversight and coordination through the Federal Emergency Management Agency (FEMA) and the Department of Homeland Security (DHS). However, at least 14 federal departments and agencies are responsible for administering dozens of recovery-related programs. Many of these rely heavily on active participation by state and local government for their implementation.⁷ Because parties are dependent on each other to accomplish recovery goals, sustained focus and effective coordination and collaboration are essential. Therefore, many of the policies and programs at the federal level focus on establishing shared goals and facilitating effective coordination of disaster preparedness, response, and recovery efforts. This section summarizes those federal plans and policies that relate to small business and economic recovery.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707 constitutes the statutory authority for most Federal disaster response activities especially as they pertain to U.S. Department of Homeland Security and FEMA programs.

The National Preparedness Goal is guided by Presidential Policy Directive 8: National Preparedness (PPD-8). Introduced in September 2011 by the Department of Homeland Security, the National Preparedness Goal envisions “A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.” The NPG describes 31 activities, called core capabilities, which address the greatest risks to the nation. These are grouped into five mission areas: Prevention, Protection, Mitigation, Response, and Recovery, as shown in the text box at right.⁸

National Preparedness Goal Core Capabilities and Mission Areas

All Mission Areas

- Planning
- Public Information and Warning
- Operational Coordination

Prevention

- Forensics and Attribution

Protection

- Access Control and Identity Verification
- Cybersecurity
- Physical Protective Measures
- Risk Management for Protection Programs and Activities
- Supply Chain Integrity and Security

Prevention and Protection

- Intelligence and Information Sharing
- Interdiction and Disruption
- Screening, Search, and Detection

Mitigation

- Community Resilience
- Long-term Vulnerability Reduction
- Risk and Disaster Resilience Assessment
- Threats and Hazard Identification

Response

- Critical Transportation
- Environmental Response/Health and Safety
- Fatality Management Services
- Mass Care Services
- Mass Search and Rescue Operations
- On-scene Security and Protection
- Operational Communications
- Public and Private Services and Resources
- Public Health and Medical Services
- Situational Assessment

Recovery

- Economic Recovery
- Health and Social Services
- Housing
- Natural and Cultural Resources

Response and Recovery

- Infrastructure Systems

⁷ U.S. Government Accountability Office, 2014

⁸ FEMA, National Preparedness Goal Core Capabilities, <https://www.fema.gov/core-capabilities>

The National Response Framework (NRF) and National Disaster Recovery Framework (NDRF) outline the roles and responsibility of recovery coordinators and other stakeholders, and provide guidance for pre- and post- disaster planning as well as coordination between multiple sectors. The NDRF states that the private sector plays a critical role in restoring public confidence immediately after a disaster. The private sector is critical since because it owns and operates the vast majority of the nation’s critical infrastructure. The NDRF recommends that local leadership to work with the private sector to develop post-disaster strategies as well as recovery plans.

FEMA’s National Response Framework (NRF) includes recommendations for the private sector to support response, including:

- Address the response needs of employees, infrastructure, and facilities;
- Protect information and maintaining the continuity of business operations;
- Plan for, respond to, and recover from incidents that impact their own infrastructure and facilities
- Collaborate with emergency management personnel to determine what assistance may be required and how they can provide needed support;
- Contribute to communication and information sharing efforts during incidents;
- Plan, train, and exercise their response capabilities;
- Provide assistance specified under mutual aid and assistance agreements;
- Contribute resources, personnel, and expertise; help to shape objectives; and
- Receive information about the status of the community.

The FEMA National Disaster Recovery Framework (NDRF) provides responsibilities of sectors in the long-term, including stabilizing the community. NDRF recommends that local, and state governments appoint a disaster recovery coordinator. In the case of a federally-declared disaster (explained in the text box), the Federal Disaster Recovery Coordinator (FDRC) operates Recovery Support Functions (RSFs), for the following six categories:

1. Community Planning & Capacity Building;
2. Health and Social Services;
3. Housing;
4. Infrastructure Systems;
5. Natural and Cultural Resources; and
6. Economy.

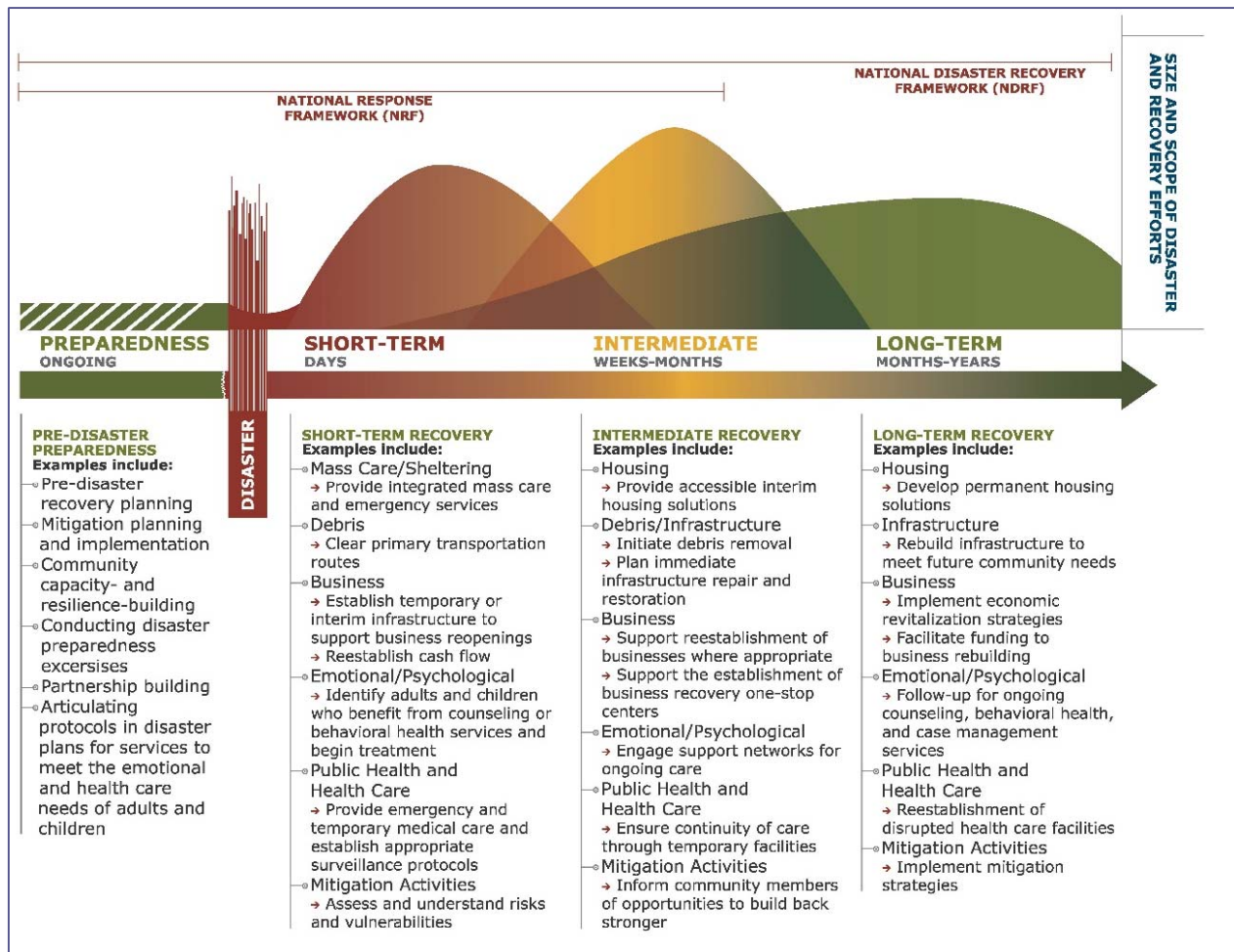
Figure 6 shows the recovery continuum with a description of activities to be undertaken by each sector, including business.

The Recovery Support Functions’ (RSFs) purpose is to support local governments by facilitating problem solving, improve access to resources, and foster coordination among State and Federal agencies, nongovernmental partners, and stakeholders. The RSF for Economy is coordinated by U.S. Department of Commerce (DOC). Participating agencies include Department of Homeland Security (DHS)/FEMA, Department of Labor (DOL), SBA, Treasury, and United States Department of Agriculture (USDA).

Additional support is provided by Corporation for National Community Service (CNCS), Department of Interior (DOI), US Environmental Protection Agency (EPA) and Department of Health and Human Services (HHS). The mission of the RSF for Economy is to apply the expertise of the Federal Government to help local and State governments and the private sector sustain and rebuild businesses and employment, and develop economic opportunities that result in sustainable and resilient communities after large-scale, catastrophic incidents.

The NDRF states that the private sector plays a critical role in restoring public confidence immediately after a disaster. The private sector is critical since it owns and operates the vast majority of the nation’s critical infrastructure. The NDRF recommends local leadership to work with the private sector to develop post-disaster strategies as well as recovery plans.

Figure 6: NRF Recovery Continuum—Description of Activities by Phase



Source: FEMA, NDRF, 2011, Figure 1

United States Department of Labor National Emergency Grants (NEGs) temporarily expand the service capacity of the Workforce Investment Act Dislocated Worker training and employment programs at the state and local levels by providing funding assistance in response to large, unexpected economic events which cause significant job losses. NEGs generally provide resources to states and local workforce investment boards to quickly reemploy laid-off workers by offering training to increase occupational skills. After the President declares a natural disaster, States can apply for funds to use for programs to put people to work immediately following a disaster. The disaster declaration process is explained in the text box at right.

The Hazard Mitigation Grant Program (HMGP), funded by FEMA, provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. HMGP funds are administered by the Hawai'i Emergency Management Agency (HEMA), formerly known as State Civil Defense (SCD). Local governments and eligible private nonprofit organizations or institutions are eligible to apply to FEMA for assistance as sub-applicants.

Federal Disaster Declaration Process
<p>The Stafford Act (PL 100-707, signed into law November 23, 1988) requires that: "A request for a declaration by the President that a major disaster exists shall be made by the Governor of the affected State."</p> <p>The Governor's request is made through the regional FEMA office. Hawai'i is located in FEMA Region IX. Before the formal request is made, State and Federal officials conduct a Preliminary Damage Assessment (PDA) to estimate the extent of the disaster and its impact on public facilities and individuals. Sometimes, due to the severity of the natural disaster, the Governor's request may be submitted prior to the PDA.</p> <p>As part of the request, the Governor must take appropriate action under State law and direct execution of the State's emergency plan. The Hawai'i State Law for declaration of a disaster is included in Hawaii Revised Statutes (HRS) Sections 127-11, 128-7, 128-10(5), 121-30, 209-2, and Parts II and III of HRS Chapter 209.</p> <p>The Governor needs to certify that, for the current disaster, State and local government obligations and expenditures (of which State commitments must be a significant proportion) will comply with all applicable cost-sharing requirements.</p> <p>Based on the Governor's request, the President may declare that a major disaster or emergency exists, thus activating an array of Federal programs to assist in the response and recovery effort. Not all programs are activated for every disaster.</p>

2.2.2 State of Hawai'i Plans

The State of Hawai'i has a number of disaster mitigation, response, and recovery plans, which are summarized below. These plans do not address economic recovery, but they do address aspects of preparedness, response, and recovery that are essential for businesses to survive. There is presently no plan at the State level that is dedicated exclusively to private sector disaster management or economic recovery. The NDERS seeks to help fill that gap and provide a framework that can be incorporated into future plans and programs. Table 2 shows the agencies and organizations involved in hazard mitigation and disaster management in Hawai'i and their respective roles.

State Disaster Preparedness, Response, and Recovery Plans

The Hawai'i Emergency Management Agency (HEMA) is the primary agency at the State level dedicated to disaster preparedness, response, and recovery. Formerly called the Hawaii State Civil Defense Agency, HEMA is responsible for administering and maintaining the statewide Emergency Alert System (EAS) that is part of the national network used by the President of the United States during times of national emergency. The Federal Communications Commission allows the EAS to be used by state and local authorities during local emergencies. The State of Hawai'i EAS Plan (2003, last updated in 2006) establishes guidelines and procedures for its use. Hawai'i's EAS network is comprised of AM, FM, and TV broadcast stations; cable TV providers; participating common carriers; and other non-government industry entities operating on a voluntary organized basis to disseminate warnings and/or instructions to the general public during times of emergency.

The *State of Hawai'i Multi-Hazard Mitigation Plan (2013)* (MHMP) aims to reduce and mitigate the impact of natural disasters and other hazards. The Stafford act required states and counties to have approved hazard mitigation plans in order to receive Pre-Disaster Mitigation funding, and to update plans every three years. These are supported by Multi-Hazard Mitigation Plans for each County, discussed in Section 2.2.3. The MHMP identifies economic recovery under Goal 5:

Goal 5: Minimize post-disaster recovery disruption and rebuild businesses and restore economic activity to ensure the long-term sustainability of the State's economic base

- 5.1: Assess economic risk and vulnerability for multiple hazards
- 5.2: Develop strategies to ensure that financial institutions and other critical businesses can operate during crises
- 5.3: Develop small business strategies and contingency plans to help businesses reopen quickly following crises
- 5.4: Develop reconstruction and rehabilitation plans to ensure rapid recovery from disasters.
- 5.5: Make plans with the Hawai'i Visitors and Convention Bureau to ensure the operability of the visitor industry to prevent long-term repercussions to the tourism industry, which is critical to Hawai'i's economy.

State of Hawai'i All-Hazards Concept Plan (2009) (CONPLAN) provides a protocol for the integration and coordination of State, Federal, local, NGO, and private sector capabilities during the response to catastrophic incidents. This plan is scalable to incidents of lesser severity and may apply to any response under the Stafford Act.

Table 2: Hazard Mitigation and Disaster Risk Management Network in Hawai'i

State of Hawai'i Hawai'i State Hazard Mitigation Forum		Partnering Organizations	Federal	State	County	Private/NGO
		Earthquake Advisory Committee	PRiMO Data Mgmt., Decision Support Tools, Post-Disaster Evaluation, Traditional Knowledge, Public Awareness & Education, Communications, Coastal & Ocean Observations, Climate Risk Mgt., Seismic & Tsunami Risk Mgt., Human-Induced Hazard Risk Mgt.	NOAA NWS FEMA, Reg. IX, Pacific Area Office (Dept. of Homeland Security) NOAA PSC	SCD Dept. of Defense Hawai'i National Guard, Civil Defense, Homeland Security DOE	County Disaster Mitigation Committees
Public Awareness and Education Sub-Committee	State of Hawai'i Geographic Information Coordinating Council (HGICC)	USACOE	Dept. of Transportation	Civil Defense Agency	HECO	
	Ocean Resource Management Plan Coastal Hazards Working Group	USGS Hawai'i Volcano Observatory	DBEDT – Energy	Public Works – Building, Engineering, Solid Waste, Wastewater	Pacific Disaster Center	
Building Codes & Standards	Clean Island Council & Area Committee	US Coast Guard	Office of Planning-GIS, Land, Hawai'i CZM	Data Systems, IT & GIS	Home Depot	
	Structural Engineers Association of Hawai'i	International Tsunami Information Center(NOAA, NWS)	Dept. of Land & Natural Resources	Real Property Tax Services		
Planning Sub-Committee	Building Industry Association	NOAA IDEA Center	University of Hawai'i	Parks & Recreation		
	Pacific Climate Information System		Department of Health	Transportation		
Hawaii Drought	Pacific Island Climate Conservation Cooperative (PICCC)			Natural Resources		
Hurricane Advisory Committee	Hawai'i Climate Change Task Force			Planning & Permitting		
				Public Safety (Police, Fire, Emergency Services, etc.)		
				Water Systems & Board of Water Supply		

Source: State of Hawai'i Multi-Hazard Mitigation Plan, 2010

Hawai'i Catastrophic Hurricane Operations Plan (2009) (OPLAN) outlines the intended response to a category 4 hurricane that makes landfall on O'ahu, the most populated island in the State of Hawai'i. The plan is scalable to address response to hurricanes of lesser severity or landfall impacting neighbor islands. It describes anticipated damage to critical infrastructure and outlines specific roles and responsibilities of state and emergency management agencies in response and recovery.

Interagency Action Plan for the Emergency Preparedness of People with Disabilities and Special Health Needs (2009), is a plan for accommodating people with disabilities and special needs in emergency situations. The action plan describes goals and objectives to improve the ability of agencies to provide for this population's needs during and after natural disasters.

State Economic and Energy Plans

Small business is a major pillar of the State's economy, and natural disasters challenge the State's short and long term economic development strategies. It is critical that economic development planning take into account the possible effects of natural disasters and consider the measures necessary to quickly restore the economy and conduct repairs and rebuilding in a manner that is consistent with the State's economic goals.

The *Statewide Comprehensive Economic Development Strategy (CEDS)* is the primary economic planning document for the State, and is complemented by CEDS for each County. Last updated in 2010, the CEDS will be updated in 2015. The CEDS identifies the state's economic drivers and analyzes strengths, challenges, and opportunities for Hawai'i's economy in the long-term. Although natural disasters are not specifically addressed, they are identified as a challenge to food security.

Energy in the form of electrical power and fuel are critical to business operations. The Hawai'i State Energy Office (SEO) within DBEDT is responsible for coordinating the protection of critical energy assets and assisting federal, state, and county governments with disruption preparation, response, and mitigation through its Energy Assurance Program. SEO works closely with many government and industry emergency management and security partners to lower vulnerabilities, deter threats, minimize the consequences of energy disruptions, and enhance recovery of Hawai'i's energy systems. The program's roles and responsibilities include:

1. Provide organization and general planning guidance for emergency management.
2. Coordinate rapid restoration of Hawai'i's energy systems (electricity & gas utilities, fuel, renewables, coal):
 - Collect information on energy system damage, energy supply, demand, and requirements to restore systems.
 - Assist State agencies, local governments, and other ESFs to obtain emergency fuel for critical facilities, transportation, communications, and emergency operations.
 - Provide assistance, if needed, to energy suppliers to obtain emergency resources to repair and restore energy systems.
 - Administer, if necessary, statutory authorities for energy priorities and fuel allocation.

- Administer public information, education, and conservation guidance to the general public via State Civil Defense.

The SEO is also instrumental in the following initiatives aimed at diversifying and increasing the resilience of Hawai‘i’s energy sources:

- The Hawaii Refinery Task Force convened in 2013 by Governor Neil Abercrombie to ensure a reliable and competitive fuels market in Hawai‘i
- The Hawai‘i Clean Energy Initiative, a federal-state-private partnership aimed at charting a course towards energy independence for the state to reduce its reliance on imported fossil fuels

2.2.3 County Level Disaster Management Plans

City and County of Honolulu

The City and County of Honolulu has multiple plans detailing emergency operations for the government. The City and County Department of Emergency Management (DEM) is the lead agency responsible for coordinating emergency management plans, programs, and initiatives with that of the city, state, federal, private, and corporate entities.

The *Emergency Operations Plan Basic Plan (2007, 2014)* is a comprehensive plan for state and emergency management agencies to coordinate efforts and provide services during emergencies, including natural disasters.

The *Multi-Hazard Pre-Disaster Mitigation Plan (2004)* provides a strategy to reduce or eliminate loss of property or life caused by natural hazards affecting the City and County of Honolulu. It assesses possible impact and damage costs from natural disasters such as strong winds, tropical cyclones, landslides and rock falls, earthquakes. It also includes lists of priority mitigation projects.

The *Hurricane Response Framework (2013)* describes a response plan for County departments and agencies in the event of a major hurricane. Tasks includes ongoing operation efforts, actions to be taken five days before a hurricane makes landfall, and actions to be taken after landfall with respect to 15 Emergency Support Functions (ESF), shown in the text box at right. The Department of Budget and Fiscal Services (BFS) is tasked with the ESF for Long-Term Community Recovery.

Emergency Support Functions for the City and County of Honolulu from the Hurricane Response Framework (2013)
<ul style="list-style-type: none"> • ESF #1 – Transportation (Department of Transportation Services) • ESF #2 – Communications (Department of Emergency Management - DEM) • ESF #3 – Public Works and Engineering (Department of Design and Construction) • ESF #4 – Firefighting (Honolulu Fire Department – HFD) • ESF #5 – Information and Planning (DEM) • ESF #6 – Mass Care, Emergency Assistance, Temporary Housing, and Human Services (American Red Cross) • ESF #7 – Logistics (Budget and Fiscal Services – BFS) • ESF #8 – Public Health and Medical Services (Honolulu Emergency Services Department) • ESF #9 – Search and Rescue (HFD) • ESF #10 – Oil and Hazardous Materials Response (HFD) • ESF #11 – Agriculture and Natural Resources (DEM) • ESF #12 – Energy (Honolulu Board of Water Supply) • ESF #13 – Public Safety and Security (Honolulu Police Department) • ESF #14 – Long-Term Community Recovery (BFS) • ESF #15 – External Affairs (DEM)

The *Hurricane Response Logistics Concept of Operations* (2013) outlines important factors in operations related to hurricanes. The plan also identifies necessary resources for operation.

The *Mass Fatality Management Field Operations Guide* (2013) covers tactical information during the activation of a mass fatality incident (MFI) response to any disaster or emergency situation.

County of Hawai'i

The County of Hawai'i Civil Defense Department has prepared an *Emergency Operations Plan* (2011), a *Multi-Hazard Mitigation Plan* (2010), and a *Hurricanes Preparedness Guide* (2010). The *Multi-Hazard Mitigation Plan* is scheduled to be updated in 2014 and recognizes businesses as a resource provider to the county's operations. These plans are generally written for continuity of County government operations and public assistance in emergency situations.

County of Kaua'i

The *County of Kaua'i: Multi-Hazard Mitigation Plan* (2010 Update), prepared by the Kaua'i Civil Defense Agency, includes a detailed risk assessment, a review of current mitigation practices and policies, and a proposed mitigation strategy. Economic recovery is not an explicit focus, but it is supported by the overall mitigation and recovery measures described in the Plan.

County of Maui

The *Maui Multi-Hazard Mitigation Plan* (2010), prepared by the Maui County Civil Defense Agency, is a general description of emergency management for the County. One of the County's responsibilities is to minimize post-disaster recovery disruption by developing systems for efficient clean-up, documentation of damage and injury, and processing of appropriate aid to rebuild businesses and the economy. Recommended measures include educating businesses on the need for business interruption planning, incentives for businesses to retrofit their structures, Visitor Industry Disaster Preparation Training, and conducting public meetings on all hazards.

2.2.4 Community and Private Sector Plans, Programs, and Resources

Community Initiatives

Some communities have their own plans for natural disasters. These plans are generally intended to organize and inform individuals and families within a specific geographic area, ranging from a small neighborhood to a larger community. The content of these community plans varies in detail and scope, from general information to operations and community coordination planning.

According to the City & County of Honolulu Department of Emergency Management, there are 14 known Community Preparedness groups in O'ahu in Aina Haina, 'Ewa, Foster Village, Hau'ula, Hawai'i Kai, Ka'a'awa, Kailua, Kāne'ohe, Lā'ie, Mānoa, Nānākuli, Hale'iwa, Wai'anae, and Waimānalo.⁹

⁹ <http://www.honolulu.gov/demvolunteer/communitypreparedness.html>

Be Ready Mānoa is an example of a volunteer-based community initiative. It has a disaster preparedness plan in place and actively pursues collaboration with FEMA, State Civil Defense, Department of Emergency Management, Red Cross, and other organizations. In September 2014, the group hosted the Be Ready Mānoa Disaster Preparedness Fair (see Figure 7).

Figure 7: Be Ready Mānoa Disaster Preparedness Fair Advertisement



Credit: Be Ready Mānoa (<http://bereadymanoa.org/>)

On the island of Kauaʻi, the Hanalei Watershed Hui (HWH)¹⁰ is a community effort to manage the area using the concept of ahupuaʻa, and to increase resilience to natural disasters, especially floods. HWH has a Watershed Based Plan, Mauka Makai Watch Program, and a Disaster Resiliency Plan. Their efforts are recognized as best practices in the *Kauaʻi Multi-Hazard Mitigation Plan*. The HWH website provides updates on weather, tides, surf, water quality, and river flooding to ensure that community members are safe and informed about local conditions. Their strategies include integrating science with traditional practices to reduce flooding, increase food security, and improve the environment.

On Hawaiʻi Island, the Pacific Tsunami Museum (PTM)¹¹ performs community outreach on disaster preparedness. PTM's mission is to promote public tsunami education for the people of Hawaiʻi and visitors, preserve Hawaiʻi's social and cultural history, and serve as a living memorial to those who lost their lives in past tsunami events.

Community Emergency Response Team (CERT) Training

Community Emergency Response Team (CERT) training classes are provided by each County's Civil Defense Agency free of charge. The CERT program is to educate and make communities more resilient to

¹⁰ <http://www.hanaleiwatershedhui.org/>

¹¹ <http://tsunami.org/index/index.html>

emergency situations. The classes are available to individuals, community groups, and also businesses, and the encompass disaster preparedness, fire suppression, and medical emergencies. The program is a 20-hour course with a final field exercise, completed over three weekends. Training for visually and hearing impaired persons is also available.

According to the City and County of Honolulu Department of Emergency Management (DEM), more than 2,000 residents of O‘ahu have completed the CERT Training. To promote the CERT program and encourage community awareness and self-sufficiency, DEM conducts outreach efforts with business associations, neighborhood boards, and community fairs. The outreach/training schedule can be found on the websites of the CERT program for each county.

On Hawai‘i Island, there are nine District CERTs, with a total of 21 communities trained. The districts are in: Hāmākua, Ka‘u, North Kohala, North Kona, Puna, South Hilo, South Kohala, South Kona, and one islandwide district team lead by HELCO. Training is provided by the County of Hawai‘i Civil Defense Agency.

On Kaua‘i, there are seven District CERTs in: Anahola, Kīlauea, Kōloa, Princeville, Waimea & Kekaha, Kalāheo, and Kapa‘a. Training is provided by the County of Kaua‘i Fire Department and the Civil Defense Agency.

In Maui County, the CERT program is sponsored by the County of Maui Civil Defense Agency and CERT Classes are taught by Maui Fire Department instructors. The County of Maui includes the islands of Maui, Lāna‘i, and Moloka‘i. On Maui there are branches in West Maui covering from Lahaina to Napili; Central Maui covering Kahului, Wailuku, Pu‘unēnē, and Kahakaloa; South Maui covering Kīhei, Wailea, and Mākena; and Upcountry covering Pukalani, Makawao, Ha‘ikū, and Pā‘ia. The Civil Defense Agency is working on certifying a CERT for Hāna and East Maui in 2015. There is one CERT on the island of Lāna‘i. Training for a CERT on the island of Moloka‘i is ongoing, and they are working towards branch leadership.

Private Sector Initiatives

Many businesses that provide critical infrastructure or services such as hospitals, financial institutions, utilities, and waste disposal, as well as hazardous materials facilities are required to have contingency plans in place to anticipate disasters of all kinds. Property managers and building owners are also required to complete emergency planning and conduct regular drills. In Hawai‘i, there are several businesses and private sector coalitions that have engaged in disaster preparedness planning by partnering with disaster management agencies. Examples of these are listed below.

Contingency Planners of The Pacific (CPP) is a non-profit, mutual benefit association of public and private industry professionals who are responsible for, or participate in, the contingency planning industry. It is a growing multi-disciplinary network that includes representatives from the State, military, police, utility managers, transportation, non-profits, cultural institutions, and insurance.

Pacific Risk Management Ohana (PRiMO) is a coalition of organizations with a role in hazard risk management in the Pacific region. The agencies, institutions, and companies that comprise PRiMO recognize the value of collective action and are committed to enhancing cooperation, coordination, and collaboration to strengthen and sustain hazard resilient communities.

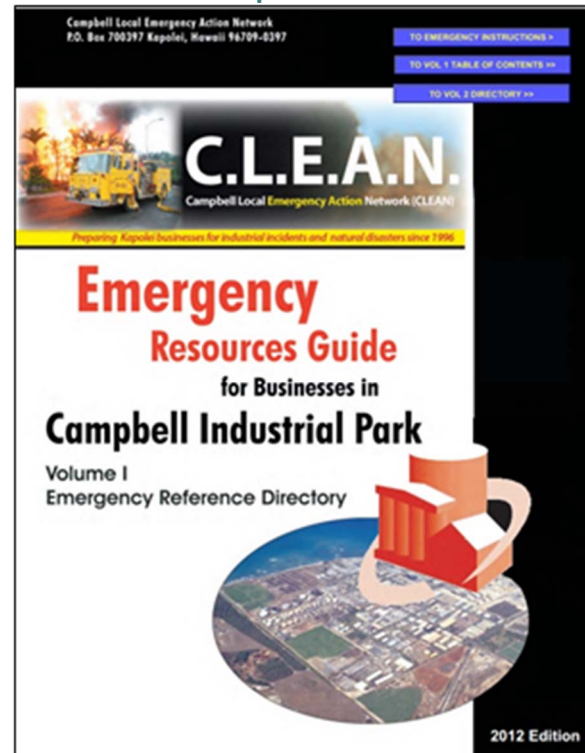
Campbell Industrial Park businesses have banded together to form the Campbell Local Emergency Action Network (CLEAN). CLEAN's *Emergency Resources Guide for Businesses in Campbell Industrial Park* (see Figure 8) serves as a preparedness and response guide for workers and businesses in the Campbell Industrial Park area.

Hawaiian Electric Company (HECO) produces an annual *Information Handbook for Emergency Preparedness*. This handbook is a general resource to inform the community about disaster preparation, what to expect during a disaster, and how to access disaster-related information and resources. The booklet is available in English, Cantonese, Ilocano, Korean, and Vietnamese.

On May 16, 2012, Retail Merchants of Hawai'i announced a partnership with the Counties for the Get Ready Hawai'i disaster preparedness campaign¹². Throughout the month of May 2012, retailers such as City Mill, K-Mart, Wal-Mart, and Times Supermarkets displayed information on how to develop a disaster plan, how to pack a disaster kit, and how to stay informed.

The Hawai'i Hotel and Visitor Industry Security Association (HHVISA) has its own information sharing system that covers natural disasters such as hurricanes, tsunamis, and earthquakes in addition to extended power outages and terrorist acts. HHVISA coordinates with the City & County of Honolulu's DEM and hotel industry members to coordinate response and recovery efforts such as damage assessments, information on accessibility to the area, and workers with special needs. HHVISA also

Figure 8: Emergency Resources Guide for Businesses in Campbell Industrial Park



Source: Campbell Industrial Park
(<http://www.cleanhawaii.org/erg/erg-2012.pdf>)

¹² <http://www.honolulu.gov/cms-dem-menu/site-dem-sitearticles/813-site-dem-getreadyhi-cat/18262-media-pressrelease-campaign.html>

provides a messenger service in case the communication system fails. There are seven locations for messengers in the Waikīkī area, and the messenger drops off damage assessments to the Hawai'i Tourism Authority.

The Building Owners and Managers Association (BOMA) of Hawai'i hosts annual disaster preparedness and scenario planning workshops for its members, many of whom own and operate buildings that house numerous small businesses.

2.3. Resources for Business Continuity Planning and Preparedness, Response, and Recovery

2.3.1 Business Continuity Planning & Preparedness Resources

Business continuity planning equips businesses with the tools needed to smooth the transition back to normal business operations following a disaster. Having a continuity plan in place can shorten the recovery window, minimize lost productivity, and reduce the added cost of securing recovery resources through advance planning. A business continuity plan typically includes risk analysis, description of critical business functions, alternative communication method plan, inventory, insurance coverage policy summary, data backup plan, vendor assessment, emergency team plan, and a standardized I.D. credentialing plan. Plans can be tailored to the specific needs of each business.

Standards for Business Continuity Planning

For larger businesses and those required by law to prepare business continuity plans, there is an international standard for business continuity planning administered by the International Organization for Standardization (ISO). This standard, ISO 22301 Business Continuity Management, applies to any business disruption event including natural disaster, IT failure, staff illness, terrorist threat or a disruption in supply chains. The requirements specified in ISO 22301:2012 are generic and intended to be applicable to all organizations, or parts thereof, regardless of type, size and nature of the organization. The extent of application of these requirements depends on the organization's operating environment and complexity. Businesses can be certified by this standard.

There are also national standards for business continuity. National Fire Protection Association (NFPA) published NFPA 1600, which establishes criteria to set a foundation for disaster management, emergency management, and business continuity programs using a total program approach. Provisions cover the development, implementation, assessment, and maintenance of programs for prevention, mitigation, preparedness, response, continuity, and recovery.

ASIS SPC. 1-2009 by American Society for Industrial Security (ASIS) International is a guide for organizational resilience. The standard covers four perspectives of business management: Planning; Implementation and Operation; Checking (evaluation); and Management Review.

Collectively, these three standards provide the foundation of FEMA's business continuity resources and guidance, explained later in this section.

Business Continuity Planning & Preparedness Resources

There are a wide variety of free and low-cost resources available to assist businesses in preparing continuity plans. These range from simple checklists to software programs that assist in preparing a comprehensive plan.

FEMA provides a Voluntary Private Sector Preparedness Program called PS-Prep™. One can download its Business Continuity Planning Suite software from their website www.ready.gov¹³. The suite is a comprehensive toolkit that includes a plan generator, exercise guides, and a Business Continuity Training program. This tool was developed to provide realistic requirements that satisfy international/national standards for business continuity management including ISO 22301, NFPA 1600, and ASIS SPC. 1-2009.


The Business section of www.ready.gov provides guidance for businesses in Program Management, Planning, Implementation, Testing & Exercises, and Program Improvement. The Planning section provides templates for emergency response plans that can be tailored to each business.

The U.S. Small Business Administration (SBA) has www.PrepareMyBusiness.org,¹⁴ which is dedicated to Disaster Preparedness for small businesses. The website provides tabletop exercises, checklists, and guidance to make a business continuity plan. Businesses can follow this checklist to find out how prepared they are, and make their own plan by filling out forms. The website also provides facts and preparation tips for specific disasters. A sample is shown in Figure 9 on the following page.

¹³ <http://www.ready.gov/business-continuity-planning-suite>

¹⁴ <http://www.preparemybusiness.org/>

Figure 9: SBA Prepare My Business Checklist Sample



RECOVERY OVERVIEW

Disaster planning is vital to a successful recovery. The following checklist is a comprehensive outline of the disaster recovery process. Before you begin, it is prudent to outline a schedule and budget.

<input checked="" type="checkbox"/>	Recovery Team
<input type="checkbox"/>	Determine primary and back-up Crisis Manager
<input type="checkbox"/>	Determine primary and back-up Recovery Management Team
<input type="checkbox"/>	Establish and notify employees involved in recovery and clarify roles
<input type="checkbox"/>	Communicate recovery action steps to all employees
<input checked="" type="checkbox"/>	Risks and Hazards
<input type="checkbox"/>	List natural and man-made events that may impact your business.
<input type="checkbox"/>	Rate the likelihood of occurrence for each event.
<input checked="" type="checkbox"/>	Alternate Location
<input type="checkbox"/>	Locate and confirm an alternate recovery location and back-up location.
<input type="checkbox"/>	Develop relationship with recovery vendor and/or neighboring businesses.
<input type="checkbox"/>	Assess suitability of other branches or locations for recovery.
<input type="checkbox"/>	Set aside space for an emergency command center.

SBA's participation in this cosponsorship does not constitute an express or implied endorsement of the views, opinions, products or services of any cosponsor or other person or entity. All SBA programs, services and cosponsored activities are extended to the public on a nondiscriminatory basis. Reasonable arrangements for persons with disabilities will be made if requested at least two weeks in advance.
Cosponsorship Authorization #10-2110-16

V100312

Source: SBA
 (<http://www2.agilityrecovery.com/assets/SBA/recoversba.pdf>)

The *Internal Revenue Service (IRS) Disaster Resource Guide*¹⁵ explains IRS Disaster Assistance, how to reconstruct tax records, and how to calculate disaster tax losses. These instructions help small businesses and individuals to claim unreimbursed losses from a federally-declared disaster.

The Red Cross Business Readiness Evaluation Tool¹⁶ is a web-based disaster preparedness for businesses. The comprehensive program provides preparedness assessment and emergency response planner. A business owner or person responsible for disaster management can register for the program for free with full benefit.

Insurance Institute for Business & Home Safety (IBHS)¹⁷ is a membership association of insurers and reinsurers. IBHS provides DisasterSafety.org as a service to homeowners and business owners as part of its mission of reducing property losses. The website provides a business continuity tool kit, disaster preparedness and property protection guidelines, recommendations, and projects for small businesses. It also offers recommendations on repairing and rebuilding to make buildings stronger and safer.

The SBA funds Small Business Development Centers,¹⁸ which provide consultation free of charge to small businesses and disseminate information about the SBA's disaster recovery and loan programs.

Hawai'i Disaster Preparedness (Get Ready Hawai'i) is a public awareness campaign that provides tips for natural disaster preparedness. This is a local offshoot of the nationwide Ready (www.ready.gov) Campaign. The website provides disaster preparedness information specific to Hawai'i, guidance for disaster kit preparation, and a family emergency plan template. It does not provide information specific to businesses, but directs businesses to the ready.gov and SBA websites.

2.3.2 Natural Disaster Information & Resources

A number of resources exist for businesses and the public to assess potential risks and vulnerabilities from natural disasters before they strike, as well as to obtain real-time information on the status of impending natural disasters, response, and recovery efforts. These are described further below.

Risk and Hazard Assessment Tools

Businesses may consult the following resources in advance of a natural disaster to help determine their level of risk for flooding, tsunami inundation, and other potential hazards. These tools may also be used for decision-making on where to locate business operations and assets.

¹⁵ <http://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Preparing-for-a-Disaster-Taxpayers-and-Businesses>

¹⁶ <http://www.readyrating.org>

¹⁷ <http://www.disastersafety.org/>

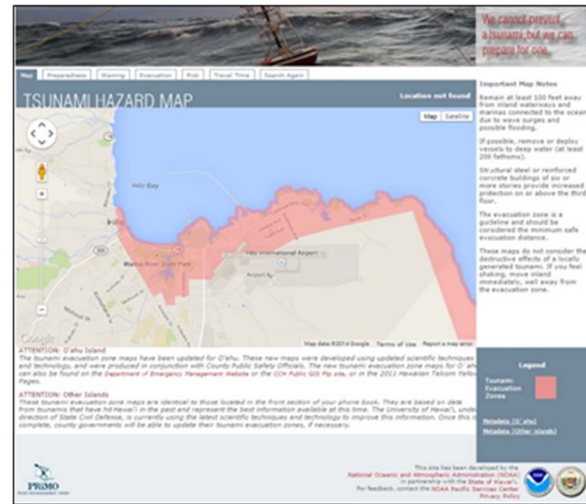
¹⁸ <http://www.hisbdc.org/>

Hawai'i Emergency Management Agency (HEMA)¹⁹ provides disaster preparedness information on its website. This includes fact sheets, preparedness brochures, emergency plans for families, and continuously updated disaster related news. HEMA's website includes a Tsunami Evacuation Zone Mapping Tool. (See Figure 10.)

The Flood Hazard Assessment Tool²⁰ by the National Flood Insurance Program allows individuals and businesses to identify if their business or home location is at risk of floods.

The Statewide Geographic Information System Program²¹ provides maps of emergency shelters, fire response zones, lava flow hazard zones, and other hazard areas.

Figure 10: Tsunami Evacuation Zone Mapping Tool Example



Source: Tsunami Hazard map by NOAA (<http://tsunami.csc.noaa.gov/map.html>)

All counties in Hawai'i maintain a Geographic Information System (GIS) system. As an example, the City and County of Honolulu's GIS system is called Honolulu Land Information System (HoLIS)²². HoLIS enables users to map flood zones and other hazard areas around the island. It does not provide real-time information on natural disasters.

Hawai'i HAZUS²³ Atlas (HHA)²⁴ allows users to browse multiple scenarios if an earthquake over 6.0 hits Maui and the County of Hawai'i. It also shows detailed estimation of the aftermath casualty, economic losses and utility damage.

Response: Natural Disaster Information Resources

General information about natural disasters can be sought from multiple agencies such as National Weather Service Honolulu Forecast Office, Pacific Disaster Center, Hawai'i State Civil Defense, National Oceanic and Atmospheric Administration (NOAA) Weather Radio All Hazards. Push notification systems sent directly to mobile phones through emergency communication systems are also available, such as "Disaster Alert" and "DisasterAWARE."²⁵

¹⁹ <http://www.scd.hawaii.gov/>

²⁰ <http://gis.hawaiiinfip.org/fhat/>

²¹ <http://planning.hawaii.gov/gis/>

²² <http://gis.hicentral.com/>

²³ HAZUS - Hazards U.S

²⁴ <http://apps.pdc.org/hha/html/hzshome.jsp>

²⁵ See appendix A.

Figure 11: Nixle Mobile Application Flier by Honolulu DEM



The mobile application from the Pacific Disaster Center, www.Nixle.com, provides statewide disaster alerts by zip code. (See Figure 11.) For up-to-date road closures and other current information, the Go Akamai web tool and mobile application is available for O‘ahu. County of Maui has an email/SMS Active Advisories, Watches & Notifications service, as well as Road Closure Notifications.

American Red Cross has mobile applications that assist with disaster preparation, information about on-going disasters, first aid, and shelter. Applications for specific natural disasters, namely for floods, earthquakes, hurricanes, and wildfires are also provided.²⁶ These applications are available in English and Spanish.

Research centers and USGS have real-time information and updates available regarding natural disasters:

- Pacific Tsunami Warning Center has the latest updates about tsunami conditions.
- Hawai‘i Beach Safety provides flood advisories, tsunami information, and also ocean safety related alerts such as box jellyfish statements.
- Earthquake Track is a tool that tracks all earthquakes happening in the Hawai‘i an Islands.
- USGS Current Water Data for Hawai‘i visualizes daily stream flow conditions.
- USGS Water Watch is a map of current flood and high flow conditions with detailed information.
- Central Pacific Hurricane Center provides information about current hurricanes, storms, and tropical depressions.
- USGS Hawai‘i an Volcano Observatory has eruption updates, current status of volcanoes, and maps of lava-flow Hazard Zones for the Island of Hawai‘i.
- Hawai‘i Short Term SO₂ Advisory shows the air quality of the day in the County of Hawai‘i.

National Weather Service Fire Weather provides current fire related hazards in the United States.

The use of social media, particularly Facebook and Twitter, is becoming increasingly popular to spread real time information about natural disasters. FEMA (See Figure 12), USGS, State and County Civil Defense Agencies, and many more disaster-related organizations maintain social media accounts on Twitter and Facebook. Social media provides an informal forum for people to source news and share information about conditions on the ground. Following these social media accounts as well as following disaster-

Figure 12: FEMA Safety Tips on Cell Phones



²⁶ <http://www.redcross.org/prepare/mobile-apps>

related hashtags can be utilized to receive location-specific information about natural disasters. Social media pages of key businesses, associations, and utilities are also used to disseminate information to the public such as Hawaiian Electric Company and the Honolulu Board of Water Supply.

2.3.3 Post-Disaster Recovery Resources for Businesses

This section describes resources that are available to businesses following a natural disaster. Links to these and additional resources are included in the Reference List at the end of this paper.

The website www.DisasterAssistance.gov²⁷ is an efficient way to find appropriate financial support available from federal agencies. The website covers 70 forms of assistance from 17 federal agencies including SBA and USDA. One can also find FEMA Disaster Recovery Center, evacuation center, and other disaster related information.

In the SBA's annual Small Business Resource²⁸ and on their website, small business owners can find SBA's disaster assistance programs. SBA provides Physical Disaster Loans and Economic Injury Disaster Loans. Physical Disaster Loans are the primary source of funding for permanent rebuilding and replacement of uninsured or underinsured disaster-caused damages to privately-owned real estate and/or personal property. Economic Injury Disaster Loans provide the necessary working capital after a declared disaster until normal operations resume.

FEMA funding and assistance sources for businesses are administered through FEMA Disaster Recovery Centers,²⁹ which are set up following a disaster. They are the place to go for individuals and businesses who seek recovery assistance. Some of the services provided may include:

- Guidance regarding disaster recovery
- Clarification of any written correspondence received
- Housing Assistance and Rental Resource information
- Answers to questions and referrals to agencies that may provide further assistance
- Status of applications being processed by FEMA

Figure 13: FEMA Check-In Sign at FEMA's Pacific Area Office Distribution Center in Hawai'i



Source: FEMA

²⁷ <http://www.disasterassistance.gov/>

²⁸ <http://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/disaster-loans/disaster-loans-fact-sheets>

²⁹ <http://www.fema.gov/disaster-recovery-centers>

- SBA program information if there is an SBA Representative at the Disaster Recovery Center site
- Literature regarding FEMA recovery resources

Red Cross Hawai'i State Chapter³⁰ provides general information for post-disaster situations, including homes, utilities, emotional, and financial recovery.

Salvation Army – Hawaiian & Pacific Islands³¹ provides shelters, food, and other needs to communities following a disaster.

Maui County Business Resource Center (MCBRC) is an extension project of the County of Maui's Office of Economic Development (OED). The MCBRC serves as an entrepreneurial resource for new or existing business owners who need business assistance for operations within Maui County. The Center was established to improve public access to government resources and increase the reach of non-profit partners that provide business assistance and consultation.

Additional sources of Federal and State funding and technical assistance are listed in Appendix A under the following categories:

- General emergency management grants, loans, and assistance;
- Floods/flood control grants, loans, and technical assistance;
- Earthquake grants, loans, and technical assistance;
- All-hazard mapping grants, loans, and technical assistance;
- Ancillary flood and natural resource projects grants, loans, and technical assistance;
- Basic and applied research/development grants; and
- Other planning resources: Demographics, societal data, and transportation, agricultural, industrial, and economic statistics.

2.4. Findings About Small Business Preparedness, Response, and Recovery in Hawai'i

The NDERS project sought to assess the current state of preparedness, knowledge, and resilience among Hawai'i's small businesses. This was accomplished through the NDERS focus groups and a statewide survey. The key findings that informed the assessment of strengths and gaps are discussed in the following sections.

2.4.1 NDERS Focus Group Key Findings

There were seven focus groups: 3 on O'ahu, 2 on Kaua'i, and one each on Maui and Hawai'i Island. The purpose of the focus groups was to hear directly from owners and operators of small and medium-sized businesses. Some of the focus groups included representatives of business associations and government

³⁰ <http://www.redcross.org/hi/honolulu/programs-services/disaster-preparedness>

³¹ <http://www.hawaii.salvationarmy.org/>

agencies in economic development. Discussions revolved around the strengths and gaps in their level of knowledge and the extent of actions that small businesses have taken to prepare, respond and recover from natural disasters to ensure the continuity of their small business operations. The focus group members were asked about their perceived risks and vulnerabilities; information available to them for continuity planning; the level of preparedness of infrastructure and public services, and their experience accessing recovery resources and assistance. Focus groups included representatives of companies from each of the industrial sectors. The focus groups were moderated by a professional facilitator from MCS International.

Figure 14: Maui Focus Group



Photo: SSFM

Key Systems and Assets

Most of the small businesses said that their employees are their most important asset, and their safety is a top priority. Most businesses have a plan for contacting all the employees in the event of a natural disaster and keeping them informed about the business operations after a natural disaster. However, this depends on the cell phone system being operational. Most business owners say that the employees will be told to stay home during a natural disaster and take care of their families. Very few businesses have sufficient food and water stored on site to provide for their employees for an extended time. The businesses generally depend on their employees to be self-reliant and have sufficient hurricane supplies of food and water at home for themselves and their family members.

In order of priority, the most vulnerable assets for small businesses in Hawai'i include the physical plant or facility, inventory of products for delivery, information technology

Employees are very important to our business. We train them about preparing, responding and recovering from a natural disaster at our business as well as at home with their family. We have a good communication system to inform them, as long as we have phones. We give our employees half a day paid time to go prepare their family with a plan and supplies to take care of their family during a hurricane. --Kaua'i Agriculture Business

equipment (such as computers and hard drives), inventory of merchandise for sale, and corporate or financial records. For commercial agricultural production businesses, the most vulnerable assets included crops, shade-houses, fencing, and irrigation systems.

In order of priority, the most vulnerable systems for small businesses in Hawai'i include electrical power, cellular phone system, land-based telephone and internet cable, computers and electronic records, supply chain for import of supplies and materials, and delivery system for export of goods, access to fuel, access to potable water and access to food. For commercial agriculture businesses producing cut flowers, fresh fruit and vegetables, a breakdown in the delivery system can delay shipment of these very perishable products, which could result in significant losses if the delay is too long.

Perceived Risks and Vulnerabilities

When asked about the greatest impacts on their businesses from natural disasters, participants consistently cited loss of power, loss of communications, and loss of road access. These have immediate consequences for business owners and restoration of access to these systems is key.

Hawaii Kai is at risk of isolation if a storm surge or tsunami hits. We wouldn't be able to get to town or Waimanalo with the road washed out, and we are not prepared for seven days with no supplies. We also have a private sewer system that is within the tsunami inundation zone. The community is starting to take ownership of these problems, that's why we formed Hawaii Kai Strong with participation from residents and businesses. –O'ahu Focus Group Participant

Businesses were asked about consequences they would face if airports and harbors were damaged from a disaster. The greatest impact from airport damage was said to be loss of visitors, as many businesses rely directly or indirectly on tourism. Damage to seaports would create concerns about delayed shipments of food, fuel, and supplies. Supply chain vulnerabilities are a concern for those producing products locally or relying on local suppliers for materials, goods, or necessary inputs.

Insurance Coverage

Most companies feel they do not have sufficient insurance coverage for these assets in the event of a natural disaster, primarily because of the high cost of that coverage. Businesses also cited a learning curve for understanding what is covered and what is not covered under various types of disaster policies.

Preparedness Measures

Most of the representatives of small businesses in the focus groups felt that their own business was not well prepared or only somewhat prepared for continuity after a natural disaster. The facilitator presented a list of best practices for business preparedness and asked participants to identify what measures they have implemented. Key findings are listed below.

Our most vulnerable assets are the visitor center and farm. The visitor center uses power, water, phone, and without visitors we are out of business. We lose most of our income. Damage to the farm would have the largest financial impact and will take time to recover. – Maui Farm and Agri-Tourism Business

- Business Continuity Planning: Most companies do not have a plan to prepare for or recover from a natural disaster.

- Preparedness and Recovery Information: Most companies do not know where to go for information and assistance to prepare for and recover from a natural disaster.
- Back-up Power Sources: Almost all businesses depend on the utility company for electrical power and have no back-up generators to supply power independent of the utility.
- Company Records: Most businesses do not back up their computers regularly. Businesses that do back up their database and documents usually have the backup hard drive at the same location, rather than stored in an off-site server in a different location.
- Alternate Communications: Most businesses do not have a simple phone on site to plug in if the electrical power goes down, but the phone lines still work.
- Emergency Supplies: Most businesses do not have emergency supplies of food and water at the business location for all the employees to last during the time of a natural disaster.

When asked about their plans for human resources, payroll, financial recordkeeping, and other key functions, many businesses stated that they contract this out to another business, including accountants, HR service providers, and property managers. Most businesses were unaware whether those supporting businesses were well prepared for disasters.

Information Sources

Most business owners and operators do not feel well informed during recovery efforts after natural disasters and said that it would be helpful to have one centralized website which consolidates all the credible sources of information on resources, technical services and other assistance.

Because they are busy with day-to-day business operations, small businesses said it would be helpful to have a simplified, step-by-step guide for a disaster preparedness plan that is disseminated through business associations with periodic reminders throughout the year.

Businesses would benefit by having a centralized on-time source of information, perhaps using social media, with status updates on road closures, utility repairs, phone line repairs, port and harbor closures, and repairs to other public infrastructure. This would supplement general Civil Defense updates.

Response and Recovery

The greatest vulnerabilities expressed during recovery were access to capital for recovery, and loss of business and clients following a disaster.

Most businesses feel that the first responders are well prepared to respond to a natural disaster, including civil defense, fire, police and EMS. They felt that the public roads, commercial harbors and airports were somewhat prepared, while small boat harbors, electrical utility systems and potable water systems were not well prepared. Businesses also expressed concern that there not enough emergency shelters and not enough post-disaster recovery assistance and financing available from federal, state and county agencies.

Businesses are aware that the inventory of food and fuel on each island is very limited, and felt that the community in general was not well prepared for a lengthy closure of seaports preventing the import of food, goods, supplies and fuel. The State and Counties' ability to move quickly to restore power, clear

roads, and restore communications is compromised because of limited fuel storage, electrical grid stability, and labor to deploy.

Figure 15: Hilo Focus Group



Photo: SSFM

Agricultural Concerns

The most vulnerable assets for production agriculture businesses are the crops, shade-houses, fences and irrigation systems. Many of these assets are not able to be insured. For those producing fresh flowers, fruits and vegetables, the loss of shipping services through airports and seaports is the major concern.

Most agricultural businesses are cash-strapped and may not qualify for traditional loans. The long time window for recovery assistance, coupled with potential barriers to qualification, make it impractical for agricultural businesses to rely on recovery assistance. Most feel that they must finance recovery themselves, and for many this burden is too much to shoulder. Many live in rural areas where neighbors, family and friends are their primary sources of outside assistance.

The papaya industry in Puna was really hit hard by Iselle because the trees were heavily laden with fruit ready to be picked in what would have been the first harvest in six years. Some of these papaya farmers have lost everything. Those who had losses in excess of 15%, and are willing and able to finance the replanting of trees within twelve months, are applying for the Tree Assistance Program funding through the Farm Service Agency, to seek reimbursement to the farmer for 70% of the replanting costs. But it could take years to get the money. --Hilo Focus Group Participant

Neighbor Island Concerns and Trends

Neighbor island focus groups were very different from those on O'ahu in that many of the participants have recent memory of a natural disaster. Hawai'i Island had just experienced Hurricane Iselle and was bracing for an impending lava flow. Maui also felt the effects of Hurricane Iselle, and Kaua'i residents retained vivid memories of Hurricanes 'Iwa and 'Iniki. These experiences cemented a neighbor island sentiment of self-sufficiency and a heightened awareness of the need to be prepared. Neighbor island

residents and businesses are acutely aware that should O‘ahu be affected by a disaster, they will be impacted as well, and that most resources will be focused on O‘ahu in the event of a statewide event.

In Kaua‘i, when there’s no help from outside, people take care of each other. When power went out, retailers, hotels and restaurants decided to give away the food in their refrigerators before it spoiled. One hotel gave away over 3,000 lbs. of food. Looting is not an issue here on Kauai.
–Kaua‘i Focus Group Participant

Hawai‘i Island and some Maui participants recently impacted by Hurricane Iselle were still in recovery mode and able to speak to their feelings of vulnerability and experiences seeking assistance. Many cited lessons they had learned in seeking recovery assistance that will change their behaviors for the future. Kaua‘i participants shared many stories of recovery following Hurricane ‘Iniki, and felt that their island was strong and self-sufficient as a community as a result of that experience.

The focus group results informed a set of survey questions that were refined and then distributed to more than 3,000 businesses statewide. The questions were intended to test the focus group conclusions and validate and add to the understanding of strengths and gaps in natural disaster economic recovery in Hawai‘i. Survey results are summarized in the following section.

2.4.2 Survey Results

The NDERS statewide survey of businesses was distributed electronically to 3,363 businesses across the state. Distribution was accomplished with the assistance of business associations and professional organizations. The surveys were directed to the attention of the business owner, CEO, or the primary decision maker for natural disaster preparedness. The survey question results were categorized by business size (measured by number of employees), zip code, and type of business. Questions were modeled after those posed to the focus groups and were aimed at assessing business’ level of knowledge and preparedness, as well as their perceptions on vulnerabilities, response efforts, and recovery. Businesses were also asked to describe their prior experiences with natural disasters and any impacts to their business. Appendix B includes a copy of the survey instrument with a breakdown of responses.

A total of 269 businesses completed the NDERS survey. Half of were based on O‘ahu, and the other half on neighbor islands. The survey results provide a margin of error of +/- 5.6% at a 95% confidence interval, indicating a representative sample. Key findings are summarized below. A full report is available in the project files.

Prior Experience with Natural Disasters

The survey found that the majority of Hawai‘i businesses have experienced one or more natural disasters. Only 18 percent state that they have not experienced any natural disaster in the past decade. The businesses that had not experienced a natural disaster event were the smaller businesses in the state, and ones that have not been in business long.

Primary Impacts and Concerns from Natural Disasters

Loss of electrical energy and loss of communications are the primary impacts to businesses during a natural disaster. The impact of natural disasters on businesses is high, with an average loss of 23 business

days lost due to natural disasters. Businesses are most concerned about the safety of their employees during such disasters, followed by concerns about loss of technology equipment, damage to their facilities, and road access.

On the neighbor islands, the loss of production crops or animals ranked higher than on O'ahu. Twenty nine percent of neighbor island business ranked this as a concern, and none of the O'ahu businesses responding did. Just six of the respondents on O'ahu identified themselves as agricultural businesses, but these could be businesses associated with other aspects of agriculture besides farming.

Perceived Level of Community Preparedness

Businesses believe that first responders, shelters, and evacuation routes are well prepared for natural disasters. Businesses see airports as prepared, but commercial harbors less so. A shortfall is also perceived in the availability of post-disaster recovery assistance.

Preparedness Measures and Best Practices

When reviewing a detailed list of possible preparedness measures, a majority of businesses have surge protectors, on-site back up, hurricane insurance, and means of communicating with employees. However, business continuity plans and off-site data storage are less prevalent. The primary reasons stated for not having this type of disaster preparedness was that the businesses viewed the plans as too costly or not necessary due to the low number of employees.

Information and Resources

Civil Defense Agencies in each county as well as the State of Hawai'i Emergency Management Agency are the primary sources of information about natural disasters for businesses, followed by radio and television. Family and friends as well as business associates are also sought after for help after the disaster in addition to Civil Defense. These family and neighbor means of support were more prevalent with the neighbor island businesses. Insurance is the primary source of resource following a disaster and will continue to be in the future, along with FEMA.

Six out of 10 businesses state that they have enough information to know how to respond in case of a natural disaster. The smaller the business, the more likely that business is to not have enough information about natural disasters.

Anecdotal Comments

Below are some stories businesses shared in the open-ended "Additional comments" section of the survey.

- *Hurricane Iselle damaged more than 50% of our shade houses resulting in our having to shut down our business. Our age, work force, and financial burden prevented continuation of our business.*
- *I'm a pharmacist and own 3 retail pharmacies on Kaua'i. I think the state should get a team together on each island to plan how we would address medication needs as an island and state wide team, and address how we would increase our supply for a medication like Cipro.*

- *Kaua'i is extremely vulnerable to hurricanes due to power lines on telephone poles. Long-term planning dictates that we should move our power lines underground, no matter what the investment. This could be easily accomplished through a phased investment.*
- *Our business is inside a large office tower. Some of the emergency planning and insurance depends on the building management/landlord.*
- *State and county government needs to come up with a plan to address Albizia Trees.*
- *Farmers really have little to no support from the Hawai'i state government.*
- *As a food bank we are actively involved in disaster relief efforts, but cannot perform any such assistance without road access.*

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CHAPTER 3.0 Strengths and Gaps in Small Business Preparedness, Response, and Recovery

Strengths and gaps in small business disaster readiness in Hawai'i were assessed by comparing the results from the focus groups and survey with existing plans, policies and programs, as well as known best practices for disaster readiness. These best practices were sourced from available resources described in Chapter 2, and were used to target focus group and survey questions to assess businesses' level of readiness, perceived risks and vulnerabilities, and areas for improvement. The following sections are organized by topic and summarize the strengths and gaps that emerged from the comparison of best practices to the results of the NDERS focus groups and surveys.

Findings are grouped by the following key areas:

1. Business continuity planning
2. Networks and interdependencies
3. Partnerships
4. Employees
5. Business records
6. Insurance
7. Critical infrastructure
8. Supply chain
9. Information sources
10. Community preparedness
11. Post-disaster recovery resources
12. Business operations post-disaster
13. O'ahu -specific concerns
14. Neighbor islands
15. Agriculture
16. Tourism and the military
17. Hard-to-reach populations
18. High risk hazard areas

Strengths and gaps in each of these areas are expanded upon below.

Business Continuity Planning

Strengths

Business continuity plans are important for minimizing losses and damage following a natural disaster, and for helping to smooth the transition back to normal business operations. According to the NDERS survey of small businesses, 68 % of businesses have a disaster response plan, and 62% of the survey respondents have a Business Continuity Plan. Larger businesses in general tend to be better prepared: 78.4% of those with more than 25 employees have a continuity plan, compared to 41.4% of those with less than 25 employees. Larger businesses in the tourism industry are generally well prepared. There are many resources available free or at low cost to assist businesses in developing continuity plans. A business owner can acquire these resources from agencies such as FEMA, American Red Cross, and SBA websites for free.

Gaps

38% of the survey respondents do not have a Business Continuity Plan. These tend to be smaller companies of less than 25 employees. The primary reasons given for not having a Business Continuity Plan were that businesses didn't know about it or felt they had too few employees to warrant one. Among those who answered the survey and who did not have a Business Continuity Plan, 36% of them did not know what a Business Continuity Plan is, and 29% of them felt they did not have enough information.

Given the large amount of free and accessible resources available to educate and assist with business continuity planning, this gap indicates that there is a barrier to small businesses receiving this information. In addition, many of those who are aware, have not implemented a business continuity plan, indicating a further barrier to implementation.

Networks and Interdependencies

Strengths

Most businesses are connected to networks, including associations, tenant groups, or professional service providers. Many small businesses rely on these larger businesses for important functions including property management, human resources, insurance, and financing. There are many associations and organizations that actively engage with small businesses, and these can provide a useful conduit for education, resources, and communications. The more networks that a small business is part of, the more opportunities there are to reach that business to provide information and resources to support their business continuity.

Gaps

Dependencies can also be a major vulnerability if the level of preparedness is lacking or unknown amongst the individuals and companies upon which a small business relies. Because of this, many businesses felt that their preparedness was in large part outside their control.

Partnerships

Strengths

Links between disaster management agencies and businesses can strengthen resilience by utilizing business services, labor, and expertise to bolster the capabilities of first responders, utility workers, distributors, volunteer groups, and others. Engaging businesses to serve specific functions in disaster planning and recovery can also ensure a continued role for businesses following a major disaster. Public and private sectors can work together to change behaviors, strengthen food and fuel stores, and make arrangements for efficient distribution of goods following a disaster. Some businesses may find themselves in a position to change their business model and provide services following a disaster. There are networks of professionals related to disaster management within the state of Hawai'i, such as Contingency Planners of The Pacific (CPP), and Pacific Risk Management Ohana (PRiMO).

Stakeholder Interview: Hawai'i Emergency Management Agency (HEMA)

Hawai'i has the Contingency Planners of the Pacific, which is supported administratively by the Hawai'i Emergency Management Agency/State Civil Defense. The focus is to build the network and get businesses to be better natural disaster planners, identify problems, and anticipate solutions.

-- From Interview with Marsha Tamura,
HEMA, October 7, 2014

Best Practices in Preparedness: Waterfront Plaza, O'ahu

Disasters are inevitable and in most cases unpredictable. The type of disaster or incident will vary in type and magnitude. At Waterfront Plaza, we have put together multiple strategies to mitigate the effects of a disaster or incident with the goal of returning to normal operation as efficiently and timely as possible.

The process of preparation begins well before a potential disaster or incident strikes. Every disaster plan should start with identifying, analyzing the causes and effects of a potential disaster or incident, and include checklists, required and needed inventoried items, and training for all on site personnel. As a commercial property, we work diligently with our tenants in rehearsing, carrying out, and improving our standard operating procedures and recommended changes to the disaster recovery plan. The goal is to stay fluid when a potential disaster or incident occurs and be open to making immediate changes should the events warrant.



-- Steven Sullivan, VP of Operations, The Shidler Group, Stakeholder Interview, November 2014

In addition, there are strong examples from other areas that demonstrate the effectiveness of bridging public and private sector efforts and may be emulated or expanded upon. These include "Big Business Small Business," a Louisiana-based organization formed following Hurricane Katrina. The initiative is funded by the University of Louisiana System through its National Incident Management Systems & Advanced Technologies University Research Division. The initiative includes a membership program, online resource directory, and mentorship opportunities for larger businesses to connect with and help smaller businesses with their preparedness. The service is provided free of charge with any training related costs coordinated by the two parties.

Gaps

Public-private partnerships typically require formal relationships to be established in advance of a natural disaster. These business arrangements need to be negotiated in advance between the public sector and private sector to ensure compliance with procurement code requirements. In addition, business-to-business relationships need to be mutually beneficial.

Stakeholder Interview: Federal Emergency Management Agency (FEMA)

FEMA Pacific Region will hold a Public-Private Sector Leadership Workshop in Hawai'i 2015, modeled after ones held in Arizona and California. The Public-Private Sector Leadership Conference affords representatives of the public, private, and nonprofit sectors the opportunity to network, share best practices, and generally benefit from the emergency management experiences of the whole community.

-- From Interview with Michael Cummings, FEMA Region 9 Private Sector Liaison, October 1, 2014

Employees

Strengths

Most businesses (75%) have an evacuation plan so employees are able to leave a site safely. Many disaster kits and supply lists are available. While most are targeted to households, they can also be utilized for businesses. Multiple disaster agencies give guidance on how to prepare emergency kits to shelter in place.

Gaps

Businesses prioritize employee safety above all else, yet most do not have emergency supplies of food and water at the business location. Most businesses are also ill-equipped to shelter employees in place for any length of time. There is a high level of confidence in the capability of first responders, which may not be realistic in the event of a larger scale disaster. While businesses generally permit their employees the flexibility to attend to their families first, many do not have a contingency plan for operations in the event that their employees are unable to return to work for an extended period.

Best Practices in Resilience: Kilauea Bakery, Kauaʻi

Thomas Pickett, the owner of Kilauea Bakery on Kauaʻi, participated in one of the NDERS focus groups and shared that the bakery has signed up with the local Red Cross to become a commissary in the event of a natural disaster. Through the process the business has acquired a generator and back-up fuel.

The bakery has become an advocate and an example of how small businesses can engage with disaster preparedness and make improvements that both increase their business’ resilience and benefit the greater community.
 – Thomas Pickett, Owner



Business Records

Strengths

Businesses tend to have electronic or print back-ups for their financial and corporate records, but many do not back up data regularly. 85% of the survey respondents back up their electric copies of financial and corporate records on-site, and 78% have data backed up off-site.

Gaps

Contrary to the survey results, the focus groups reported that most businesses do not back up their computers regularly. It is ideal if businesses regularly back up their data and also have their data stored off-site in the event of a natural disaster. However, off-site data backup may be costly and there could be security concerns. Internet access is often needed to access off-site data.

Stakeholder Interview: Small Business Administration

Many businesses don't have appropriate documentation for SBA's recovery loans. The SBA Website advises businesses that it is important for businesses to keep backed up copies of tax returns, copies of financial statements, documentation of property ownership, and assets.

-- From Interview with Jane Sawyer, SBA Hawai'i District Director, November 26, 2014

Insurance

Strengths

Insurance claims are the primary means a business would use for recovery after a natural disaster. 80 % of businesses surveyed have general liability insurance, and 70% have vehicle and structure insurance. Insurance companies have a financial incentive to educate small businesses about their products and benefits and can reach out to individual businesses using their already established networks.

Gaps

Less than half (48%) have business interruption insurance. Whereas 71% of businesses have hurricane insurance, only 60% are insured against wind damage and 56% against floods. Of the survey respondents, 52% of businesses do not have business interruption insurance. Of these, 16% did not have enough information, while another 29% said it was because they didn't know about business interruption insurance. Barriers to acquiring appropriate insurance include cost and qualifications.

Best Practices to Address Recovery: Tedeschi Vineyards, Maui

Hurricane Iselle in 2014 passed over Maui near Ulupalakua, where Tedeschi Vineyards is located. The facilities include vineyards, a tasting room and retail shop, and a manufacturing facility, all of which suffered damage from the storm. President Paula Hegele, who participated in the Maui focus group, said that finding resources, gathering documentation, and navigating insurance claims was among the greatest challenges, as was communicating to her customers and visitors information on the status of the business being closed and reopened. She found that only some of her farm equipment was insurable, while other damaged components such as fencing were not. Following a disaster, a business needs to keep running, and you need the resources and financing to fix it immediately. USDA and Department of Agriculture funds are available, but acquiring these take quite a bit of expertise, paperwork, and time.



She found that only some of her farm equipment was insurable, while other damaged components such as fencing were not. Following a disaster, a business needs to keep running, and you need the resources and financing to fix it immediately. USDA and Department of Agriculture funds are available, but acquiring these take quite a bit of expertise, paperwork, and time.

– Paula Hegele, President

Critical Infrastructure

Strengths

Although businesses do not have direct control over power, roads, transportation, and communication systems, these are all still critical for their business operations. Businesses identify the top three impacts of a natural disaster on small businesses as loss of power, loss of communications, and loss of road access. Of the survey respondents, 94% of businesses use surge protectors and uninterrupted power supply device for their computers. 78% of businesses have a communication plan to contact employees and customers before and after natural disasters. 56% of all businesses report that they own an emergency generator to produce power in the event of a black-out. 76% of businesses with more than 25 employees have an emergency generator on-site. More than 51% of companies with 6-25 employees have a back-up generator on-site.

Gaps

Disruptions of electrical power and communications have immediate consequences for most businesses. Only 34% of companies with five or fewer employees have a back-up generator on-site, and about 19% of these small businesses have fuel on site. Disruptions in the supply chain and transportation infrastructure can impede business recovery to varying degrees. Much of Hawai'i's critical infrastructure is located in coastal areas that are vulnerable to hurricanes and tsunamis (see Figure 16). There are limitations on the availability of labor

Figure 16: Road Closure Following Hurricane Iselle



Credit: FEMA

for repair crews to restore roads, power, and communications lines. Further, if O'ahu's harbors and airport are damaged, it will impact trans-shipment to neighbor islands. According to the business survey, just 21% of businesses think their electrical utility provider is well prepared for natural disasters. 83% of businesses are concerned about a prolonged power loss, and 85% of businesses are concerned about a prolonged loss of communications after a natural disaster. While many of these issues are being studied and addressed by various agencies and task forces, solutions are limited by constraints of cost, time, land use, permitting, and other factors.

Supply Chain Strengths

Many businesses depend upon an intact supply chain in order to import and export materials and goods. These goods arrive by land, sea, and air, but approximately 90% of all goods arrive by sea. Beyond the infrastructure to support shipping and transport, the supply chain includes sources and suppliers of raw materials and goods, as well as the ability to communicate with and reach the end user or customer. Supply chain is a concern for those producing products locally or relying on local suppliers. FEMA and SBA have vendor and supply chain assessment guidelines, checklists, and templates for a plan. Focus group participants provided anecdotes about increasing on-site storage capacity and inventory of critical goods and supplies in order to mitigate the negative effects of a break or slowdown in the supply chain delivery to the island.

Stakeholder Interview: Honolulu Department of Emergency Management

All container ships must first come to O'ahu to be offloaded. Anything going to the neighbor islands must be transferred to a barge. If O'ahu's harbors were to be damaged, it would take the equivalent of eighteen 18 C-17 Military Cargo Planes to the carry the amount of goods on one container ship. It takes seven days for a container ship to arrive from the west coast.

--From Interview with Robert Harter, Department of Emergency Management, City & County of Honolulu, October 6, 2014

Gaps

Many businesses’ operations are based on "just in time delivery", which makes these businesses especially vulnerable to supply chain disruptions. Businesses that produce perishable goods that need to be shipped to market may lose product if there is a prolonged interruption of transportation through commercial harbors and airports. Disasters can also result in a prolonged loss of visitors that comprise the clientele for tourism-based businesses.

Information Sources

Strengths

Businesses utilize multiple information sources to learn about natural disasters and preparedness, including NOAA, Red Cross, NIXLE, FEMA, Department of Emergency Management at the City and County of Honolulu (DEM), and State and County Civil Defense Agencies. 57% of all small businesses feel they have enough information and are well prepared. 43% of small businesses are not well prepared for a natural disaster. Of these, 17% say they have enough information, but are still not well prepared to respond (see Figure 17).

Gaps

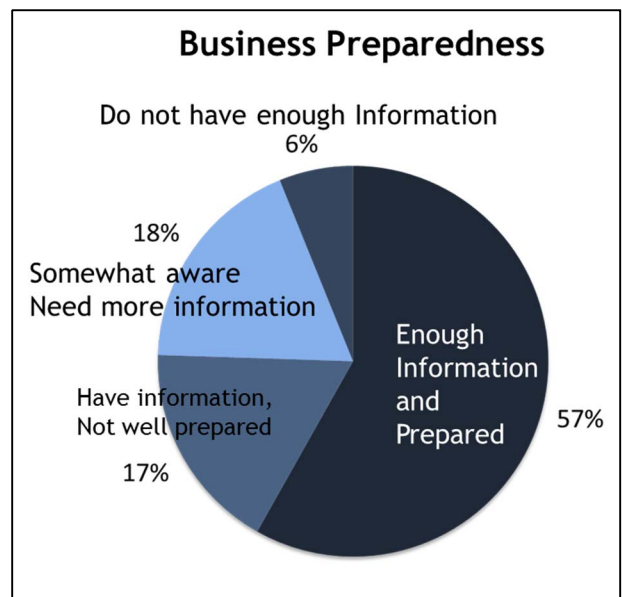
25% of small businesses say they don't have enough information to be prepared for disasters. Focus group results indicated that most business owners and operators do not feel well informed during recovery efforts after natural disasters. In addition to general Civil Defense updates, businesses indicated that they would benefit by having a centralized real time source of information using social media with status updates on road closures, utility repairs, phone line repairs, port and harbor closures, and repairs to other public infrastructure.

Community Preparedness

Strengths

There is an increasing awareness of community resilience, and some communities have formed their own preparedness teams while other have become trained as Community Emergency Response Teams (CERTs). Most businesses feel that the first responders are well prepared to respond to a natural disaster. The Kaua’i focus groups and survey participants have experienced Hurricane ‘Iniki and Hurricane ‘Iwa, and the

Figure 17: Businesses’ Knowledge about Disaster Preparedness



Source: SMS Hawai’i

feeling there is one of resilience and self-reliance. On O'ahu, there are 14 community-based emergency preparedness groups in addition to a growing number on neighbor islands.

Gaps

Although community preparedness groups and Community Emergency Response Teams are growing, it is not clear to what extent businesses are involved. Businesses are concerned about the State and Counties' road accessibility, and restoration of communications and electricity. Businesses are also concerned that government may not have enough labor to deploy following a natural disaster. Businesses with facilities and inventory are concerned with security following a natural disaster.

Post-Disaster Recovery Resources

Strengths

Following a disaster, business needs range from legal support to financial assistance and insurance claim support. Emergency monetary supports are available from agencies like SBA, United States Department of Agriculture (USDA), and IRS. The SBA's low-interest recovery and economic injury loans required a federally declared disaster, and businesses must demonstrate qualifications for the loan. The IRS provides information for tax relief for impacted businesses, but this requires advanced planning and documentation. Emergency information centers are often activated following a natural disaster, however businesses are far more likely to make informed decisions and will be better able to access the resources they need having informed themselves prior to the disaster striking.

Gaps

Small businesses face a major challenge in securing financing to recover from natural disasters. Barriers include lack of information, timeliness of assistance, red tape and paperwork hurdles, and qualifications for assistance and credit. Small businesses often do not qualify for recovery assistance or know about available resources. Many agricultural businesses operate on leased land, disqualifying them from certain types of financial assistance and reducing their ability to collateralize loans. It often takes months to years to receive reimbursements from claims following a natural disaster, requiring bridge funding in the interim. Many businesses are compelled to finance recovery themselves.

Stakeholder Interview: Honolulu Department of Emergency Management

A small business that has had CERT training can be valuable to its community. First responders may not get there for a while, and knowing what to do can help the community with resiliency and recovery. Having businesses prepared and trained enables a community to become more self-sufficient.

-- From Interview with Robert Harter,
Department of Emergency Management,
City & County of Honolulu, October 6, 2014

Stakeholder Interview: Small Business Administration

The Small Business Development Centers (SBDC) are the SBA's "boots on the ground." The SBDCs are active and well equipped with information, and they can be easily deployed to assist with recovery, including helping businesses fill out paperwork and understand their recovery loan options.

-- From Interview with Jane Sawyer, SBA
Hawai'i District Director, November 26, 2014

Best Practices for Preparedness: Hawaiian Commercial & Sugar Company, Maui

Hawaiian Commercial & Sugar Company (HC&S) is one of the largest landowners and agricultural producers on Maui, with 36,000 acres under cultivation and 800 employees. Two representatives of HC&S participated in the Maui focus group. HC&S creates its own power using mostly renewable sources, and provides an excess to the utility that amounts to 6% of the island's total annual power supply.

Large agricultural producers in the islands often have private road networks, water systems, heavy equipment, and open fields that can be utilized by first responders and the community during and following disasters. HC&S is no exception, providing alternate road access when main roads are blocked, and allowing use of fields for parking of equipment and fleet vehicles.

Understanding the need for food self-sufficiency in the event of a prolonged disaster, HC&S has begun identifying fields and crops that can be planted quickly to provide food in the event of an emergency. In this way, HC&S as a large landowner is contributing to the resilience of Maui.

– Thomas Howard & Hilary Bingman, HC&S

*Business Operations Post-Disaster***Strengths**

There are some creative ways for businesses to cope with loss of business following disasters, including adapting the business model to a role in recovery, or temporary closure. There could be Disaster Unemployment Assistance (DUA) available for those who no longer have a job or a place to work.

Gaps

Loss of business can happen because of loss of customers, injury, or critical damage to infrastructure which results in loss of business continuity, financial shortage and prolonged business closure. If businesses do not have a continuity plan in place or lack business interruption insurance, the costs of recovery and the likelihood of permanent closure increase. Many non-critical businesses will face an immediate loss in clientele or relevance in the event of a major disaster. They may be prepared and safe, but if there are no clients, they are not in business.

*O'ahu-specific Concerns***Strengths**

Honolulu is a special case due to the size of population and centralization of major ports and other facilities. The challenges for disaster preparedness, evacuation, response, sheltering, and recovery are

magnified because of the number of businesses and residents. The tourism sector, military, and larger companies are generally well prepared.

Gaps

Neighbor islands are concerned about O'ahu's vulnerability and impacts to them if a natural disaster occurs there. Because O'ahu performs all of the ship offloading, the neighbor islands are more vulnerable should O'ahu's shipyards and harbors become incapacitated. O'ahu businesses lack natural disaster experience compared to neighbor island businesses. According to the survey, the businesses that had not experienced a natural disaster event were the smaller businesses with less than 25 employees that had been in business for less than 20 years. This lack of experience correlates with a reduced sense of urgency to prepare for natural disasters.

Neighbor Islands

Strengths

Neighbor islands have different experiences with natural disasters compared to O'ahu. They have developed sustainable strategies for resiliency in disaster management, preparedness, and recovery. Some communities are beginning to organize themselves to be more self-reliant by getting trained by the local fire department in coordination with the county civil defense agency as Community Emergency Response Teams (CERT) to respond right away after a natural disaster, even before the first responders arrive. CERT teams are actively training and expanding on all islands.

Gaps

On the neighbor islands, almost 45% of small businesses indicate they are not well prepared to respond to a natural disaster. There is a neighbor island perception that O'ahu takes priority and that disaster resources and information sources are O'ahu-focused.

Agriculture

Strengths

The USDA Farm Service Agency and Rural Development Authority administer some financial assistance programs for farmers and ranchers to assist with clean-up and replanting crops or replacing livestock. An Emergency Loan Program is available through State of Hawai'i Agricultural Loan Division. The Emergency Loan program may be activated by the Hawai'i Board of Agriculture with approval from the Governor in response to periods of hardship that affect farmers.

Figure 18: Proteas at Farmers' Market



Photo: SSFM

Gaps

Small-scale agricultural businesses are among the most vulnerable in Hawai'i because their major assets are easily damaged and difficult to insure. Most agricultural businesses are not well insured and rely on their own resources to recover from a natural disaster. Only 14 % of those who need crop insurance have it. Neighbors, family, and friends are their sources of outside assistance. Of the agricultural businesses that completed the NDERS survey, only 36% have business continuity plans. Comments from the survey and from focus group participants in the agriculture industry indicate that the farmers and ranchers feel that the agriculture industry has little to no support from the Hawai'i State Government. There are also language barriers for some farmers and agricultural workers.

Tourism and the Military

Strengths

According to the *DBEDT State of Hawai'i Data Book 2013*, three of the top five largest private employers in Hawai'i are related to the visitor industry. Leisure and Hospitality account for nearly 18% of all jobs in Hawai'i. Armed forces represent 5% of those employed, but this does not include civilian employees in government and private employment related to the armed forces in Hawai'i. Both of these sectors are generally well prepared for natural disasters. Both will look after their own first, but in many cases can support response and recovery in the greater community. The military controls Pearl Harbor and its own airports, sharing runway capacity with Honolulu International Airport on O'ahu. The Hawai'i Hotel and Visitor Industry Security Association (HHVISA) has its own information sharing system that covers natural disasters such as hurricanes, tsunamis, and earthquakes and sets a good example for other industries to follow.

Gaps

A significant disaster could damage the tourism sector, resulting in damage to the islands' economy, and it could take months, even years, to recover. This business loss would be compounded on the neighbor islands, where there is heavier reliance on tourism in their economies.

The public may overestimate the priorities and amount of support that the military installations on-island could provide to civilians in the event of a major disaster. If military installations are damaged, it may take time for the National Guard and military outside Hawai'i to mobilize aid.

Hard-to-Reach Populations

Strengths

Hawai'i's multi-cultural heritage has resulted in the creation of many ethnic Chambers of Commerce and business associations and networks, including Chinese, Korean, Portuguese, Japanese, Filipino, Native Hawaiian and Vietnamese American. Some disaster preparedness resources are available in multiple languages. Hawaiian Electric Company (HECO) produces an annual Information Handbook for Emergency Preparedness available in English, Cantonese, Ilocano, Korean, and Vietnamese.

Best Practices for Preparedness: Wasa Electrical Services, Inc.

Wasa Electrical Services, Inc. is the largest electrical contractor in the state. Their Assistant Vice President of Administration, John McGuire, participated in an O'ahu Focus Group. He shared that Wasa Electric coordinates closely with Hawaiian Electric Company (HECO) to make repairs and restore power during and following natural disasters.

As part of their natural disaster preparation, Wasa purchased approximately twenty two-way radios for backup communications and use public and emergency radio channels to communicate during disasters. The company has two large generators with transformers at their facility.

-- John McGuire, Assistant Vice President of Administration



The State of Hawai'i Emergency Management Agency makes an effort to have interpreters on-site after a natural disaster when the affected community communicates in a language other than English. The State and County Civil Defense Agencies identify isolated communities prior to a natural disaster and make efforts to work with other government agencies and utilities to restore access.

Gaps

Hawai'i has a considerable population of immigrants that do not speak or read English well. Some small companies might not belong to any business organization or chamber of commerce due to the cost, their physical isolation, or they may not see any benefit to doing so.

Hawai'i has a large amount of land that is considered rural and in some cases difficult to reach, especially on the neighbor islands. Communities may be physically isolated like Kalaupapa on Moloka'i, or a several hours drive away from major facilities and infrastructure such as Hāna on Maui. Other communities become even further isolated after a natural disaster due to flooding, washed-out bridges, earthquake damage to infrastructure, or lava flows blocking a road. While efforts are made to get to isolated or landlocked communities following a natural disaster, sometimes agencies and utility companies are dealing with more than one of these special circumstances at one time, stretching time and resources.

*High Risk Hazard Areas***Strengths**

Efficient evacuation planning and execution is crucial to ensure preservation of life and safety in high risk hazard areas. Tools available to assess whether a business is in the tsunami evacuation zone, flood zone, fire response zones, or lava flow hazard area are described in Chapter 2.0 of this Strategy. Some business communities have developed disaster plans, notably Campbell Industrial Park. More commonly, residential communities organize grassroots disaster preparedness plans through community organizations and Neighborhood Boards.

Gaps

Most of Hawai'i's population is concentrated along the coast, as are many of the commercial centers and popular tourist attractions and destinations. Particularly in the urban core of Honolulu, there are many businesses located in coastal tsunami inundation areas and flood zones. The majority of O'ahu's high density commercial areas do not have plans in place for disasters. People tend to prepare when the natural disaster is approaching. If a business has not done risk analysis or evacuation planning as part of a business continuity plan, they might not realize the degree of the risk they have. Effective evacuation planning means identifying the best timing to close the business, dismiss the employees and secure safe route to leave the high risk area.

Best Practices for Preparedness: Trilogy Excursions, Lāna'i



Hurricane Iselle in 2014 passed near Manele Small Boat Harbor on the island of Lāna'i, where Trilogy Excursions sails to Maui. Riley Coon, Director of Operations, participated in the Maui Focus Group discussion and shared some best practices. Because of the harbor's size, there are not enough slips for each boat to tie up to in order to ride out a big storm. Pictured above are all three boats tied up together. During preparations for a tsunami, the safest place for the boats is out in deep water. All vessels are taken about one to three miles from shore to wait out the tsunami. Sometimes the captains have to stay on board for more than 24 hours to wait for the tsunami and accompanying surges to pass.

-- Riley Coon, Director of Operations

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CHAPTER 4.0 Strategic Issues, Goals & Objectives

This Chapter presents the strategic issues, goals and objectives that frame the recommended implementation strategies in Chapter 5. Strategic issues, goals and objectives address major themes that emerged as strengths and gaps, including awareness and education; cultural and language barriers; public/private partnerships; business to business partnerships; continuity planning; preparedness; response; recovery; community self-sufficiency; infrastructure; information; and vulnerability. The goals, objectives, and strategies identified here were formulated to build upon those outlined in existing programs, plans, and policies.

4.1. Strategic Issues

The NDERS goals and objectives were framed using the themes and strategic issues that were identified by the business outreach and by the Advisory Group. As recommended by the NDERS Advisory Group the following principles are incorporated into the strategies:

- Utilize and build upon existing resources, plans, policies and programs
- Utilize and strengthen existing networks, including business-to-business, public-private, cultural/ethnic groups, and communities
- Encourage learning from each other and from best practices
- Clarify roles and responsibilities of each sector

These include the need to:

- **Educate** – Build awareness and provide information tailored to meeting businesses where they are and improving their readiness. Also educate at the agency and legislative levels to support implementation. Provide easily accessible centralized information tailored to small business.
- **Incentivize** – Make preparedness an easy and attractive choice for businesses and create mutually beneficial opportunities for large and small businesses to collaborate. Implement financing programs to make planning and recovery easier. Work with partners to provide rebates and discounts on equipment and services that support preparedness.
- **Advocate** – Incorporate requirements for preparedness and resilience into key systems including business registration, insurance, and public infrastructure. Create a state level position for small business economic preparedness and recovery supported by an ongoing Advisory Group. Advocate for legislative, statutory, and funding measures to improve resilience. Use existing regulation to reinforce best practices with proven results.
- **Engage** – Establish partnerships and programs tailored to small business and economic recovery. This includes public/private partnerships, mentorship program, and partnerships with associations and business resources. Provide platforms for sharing real life stories and solutions.
- **Plan** – Align Hawai‘i’s long term priorities for food, energy, economic development, infrastructure, and other key areas with measures for preparedness and recovery. Adopt “build it back better” values and programs. Set benchmarks and metrics of success.

4.2. Goals & Objectives

Definitions

Goals are aspirational. They define what Hawai'i aims to achieve through a Natural Disaster Economic Recovery Strategy. Goals are long term and represent ways that the public and private sector can strengthen natural disaster preparedness and recovery for small businesses.

Objectives define implementation steps to attain the NDERS Goals, and these steps lead into the recommendations contained in Chapter 5. Each goal has several objectives. They may be tackled incrementally or in a package.

There are eight goals in the Natural Disaster Economic Recovery Strategy:

Goal I: Increase knowledge of and motivation to implement natural disaster preparedness and business continuity planning by small businesses as well as in Hawai'i.

Goal II: Forge partnerships between large and small businesses with government agencies to promote coordinated efforts for disaster preparedness, response, and recovery.

Goal III: Ensure adequate response planning for business districts in high risk areas.

Goal IV: Provide post-disaster recovery financial and technical assistance programs for small businesses which is linked to pre-disaster preparedness.

Goal V: Expand response and recovery coordination between Hawai'i small businesses and the communities where they operate.

Goal VI: Increase resilience of statewide utilities and infrastructure, which critically impact small businesses.

Goal VII: Provide centralized and user friendly information about preparedness, response, and recovery which is tailored to small business.

Goal VIII: Increase each island's self-reliance and ability to sustain itself following a natural disaster.

The objectives for each goal are presented in the remainder of the chapter.

GOAL I:

Increase knowledge of and motivation to implement natural disaster preparedness by small business as well as in business continuity planning.

OBJECTIVES

Objective 1: Clearly define roles and priorities for agencies and the private sector in improving business preparedness and continuity planning in Hawai'i.

Objective 2:

Establish conduits for information and outreach through key business organizations, associations, and professional service providers that work with small businesses to expand the audience for disaster preparedness and recovery information.

Objective 3:

Develop a community-based approach to disaster preparedness that utilizes community leaders and residents to develop context-sensitive programs and solutions.

Objective 4:

Utilize and disseminate real-life stories and examples that can be shared online and within the community to increase the awareness and sense of urgency to be prepared.

Objective 5:

Provide easily accessible and affordable resources that enable businesses to craft and implement a business continuity plan

Objective 6:

Increase the awareness number of businesses business interruption insurance and natural disaster insurance coverage, particularly in high risk areas.

Objective 7:

Provide the financial motivation to the small businesses in Hawai'i to have and implement a business continuity plan and natural disaster plan through state tax rebates, discounts on permit fees, and mandated insurance premium discounts to those businesses who have a business continuity plan and natural disaster recovery plan and supplies to implement these plans.

GOAL II:

Forge partnerships between large and small businesses with government agencies to promote coordinated efforts for disaster preparedness, response, and recovery.

OBJECTIVES**Objective 1:**

Establish a framework for partnerships between large and small businesses to promote a coordinated natural disaster economic preparedness and economic recovery.

Objective 2:

Strengthen bridges between disaster management agencies and small businesses by supporting and expanding existing outreach programs and developing messaging, collateral, and tools that can be used across agencies for consistent communications to the private sector.

Objective 3:

Support the creation or expansion of an ongoing “hui” of public and private sector stakeholders that meets regularly to share experiences and engage the topics of disaster preparedness, response, and recovery.

GOAL III:

Ensure adequate response planning and recovery for business districts in high risk areas.

OBJECTIVES**Objective 1:**

Develop plans at the community and neighborhood level that support preparedness, response, and recovery in high-risk and commercial areas.

Objective 2:

Develop response plans and priorities targeted to high risk areas and commercial districts across the islands.

Objective 3:

Ensure that large industrial facilities, hotels, and other large businesses are well prepared and supported.

GOAL IV:

Provide post-disaster recovery financial and technical assistance programs for small businesses which is linked to pre-disaster preparedness.

OBJECTIVES**Objective 1:**

Support funding for programs such as FEMA and SBA that offer low-interest disaster loans for property damage and economic injury, and technical assistance to small businesses during recovery efforts.

Objective 2:

Provide the necessary technical assistance to equip small businesses in Hawai'i with financing tools like bridge loans to pay for disaster recovery costs over the short term.

Objective 3:

Explore government-supported funding and technical assistance at the County and State Level that can support small business recovery efforts.

Objective 4:

Expand the insurance coverage of Hawai'i's small businesses to improve their business continuity capacity, including business interruption insurance and natural disaster insurance.

GOAL V:

Expand response and recovery coordination between Hawai'i small businesses and the communities where they operate.

OBJECTIVES**Objective 1:**

Increase participation of small businesses in Community Emergency Response Training (CERT).

Objective 2:

Educate business associations about the CERT program to encourage their members to participate in CERT programs and get trained.

Objective 3:

In areas prone to specific natural disasters, increase the number of communities working together to plan to better prepare for a natural disaster, and to better respond and recover.

Objective 4:

On O'ahu, encourage Neighborhood Boards to disseminate information about the CERT program to their residents and businesses and recruit neighborhoods to get trained.

GOAL VI:**Increase resilience of statewide utilities and infrastructure which critically impact small business****OBJECTIVES****Objective 1:**

Develop and implement policies, goals and regulations that will result in increased resilience for Hawai'i's critical infrastructure, including electricity, communications, roads, water, and sewer.

Objective 2:

Reduce supply chain vulnerabilities for Hawai'i's small businesses by encouraging them to decrease complete reliance on "just in time" shipping.

Objective 2:

Increase businesses' level of accountability and readiness for extended interruptions in communications, roads, and power.

Objective 3:

Prioritize efforts to harden the state's critical infrastructure to mitigate natural hazards and ensure faster return to service.

Objective 4: Support implementation of the State's Energy Emergency Response Plan and energy resilience efforts.

Objective 5: Prioritize and support the development of locally-based sources of food, fuel, and energy generation. Support existing goals for Hawai'i energy independence and food security.

GOAL VII:

Provide centralized and user friendly information about preparedness, response, and recovery which is tailored to small business.

GOAL VII: PROVIDE CENTRALIZED AND USER FRIENDLY INFORMATION ABOUT PREPAREDNESS, RESPONSE, AND RECOVERY WHICH IS TAILORED TO SMALL BUSINESS.

OBJECTIVES**Objective 1:**

Identify and establish centralized and resilient platforms for disseminating information about agencies and resources with plans and best practices for Hawai`i small business preparedness, response, and recovery after a natural disaster.

Objective 2:

Develop a system for vetting information sources and Hawai`i-based businesses and organization which provide resources and services for recovery operations.

GOAL VIII:

Increase each island's self-reliance and ability to sustain itself following a natural disaster

OBJECTIVES**Objective 1:**

Improve the self-sufficiency of food production on each island.

Objective 2:

Increase the percentage of energy production powered by a fuel source produced on each island.

Objective 3:

Increase the amount of food, fuel, and supplies stored on each island to increase self-sufficiency and support the population for a longer duration following a disaster.

CHAPTER 5.0 Recommended Implementation Strategies

Forty-nine recommendations in this chapter are offered as suggested strategies to government agencies, nongovernmental organizations, and private sector groups and businesses involved in disaster preparedness, response, and recovery. These recommendations are grouped by lead implementing entity: (A) Nine strategies for State or Federal legislative action to change statutes and ordinances, or provide funding; (B) Eighteen strategies for State government agency action to supplement administrative rules, policies, or programs; (C) Fourteen strategies for public-private partnerships; and (D) Eight strategies for private sector initiatives and actions.

Implementing measures are proposed for each lead entity. Measures that relate to one another are grouped together within a defined category of strategies. Within each category of strategies, the implementing measures are listed in priority order based on what best fills the gaps found in existing conditions, follows the recommendations from businesses and the Advisory Group, and takes into account possible constraints to implementation such as funding, staffing, and political support. Implementing measures are ultimately the purview of the responsible agencies and nongovernmental organizations. They will be the decision-makers to select which strategies to implement based on priorities and constraints.

5.1. State Legislative Action to Change a Statute or Ordinance, or Appropriate Funding

5.1.1 Strategies to establish the institutional and regulatory framework to support and motivate private sector preparedness for economic recovery after a natural disaster

- A-1 Establish a position or role at the State level that is dedicated to natural disaster economic recovery with a focus on small business. Place this Recovery Coordinator position in the DBEDT and support it with a team of professionals on loan from other agencies, such as Hawai'i Civil Defense or UH Sea Grant. The position could work with an Advisory Group that works closely with disaster management and economic development agencies as well as utilities and businesses of all sizes. The mission would be to define metrics, establish programs, and improve the state of economic preparedness and recovery in Hawai'i.
- A-2 Create financial incentives such as tax rebates, discounts on permit or business registration fees, or mandated insurance premium discounts to those small businesses who have a business continuity plan and natural disaster recovery plan and supplies to implement these plans.
- A-3 Allow for subdivision improvement districts, similar to a community facilities district, which could include Albizia Tree removal. This land use policy change would require a limited allocation of administrative support and would allow private entities to access loan funding for disaster preparedness measures at favorable interest rates.
- A-4 Appropriate public funds to support existing programs to monitor high risk areas before, during, and after natural disasters. Aerial drones can collect imaging to provide valuable data for

scientists, first responders and the community. The University of Hawai'i at Hilo administers a successful program with FAA approval to utilize drones provide technical support to Hawai'i County Civil Defense. This technology is being applied currently to monitor the lava flow in Puna.

5.1.2 Strategies to strengthen financing mechanisms to support post-disaster business recovery efforts

- A-5 Advocate for amending the U.S. Agricultural Act to expand insurance coverage and financing for small farmers with vulnerable assets like trees and shade-houses, and green-houses. A State legislative resolution supporting this federal legislative proposal could help Hawai'i's Congressional delegation secure sufficient support to pass the federal bill.
- A-6 In Hawai'i, establish and fund a government-financed loan revolving fund to provide no-interest or low-interest bridge loans to small businesses to pay for recovery efforts in partnership with local banks and other financial institutions. This legislation may seek to use limited public funds, and leverage them significantly to attract substantially more private investment funds from philanthropic investors.

5.1.3 Strategies to provide regulatory relief to streamline permits and land use approvals for post disaster recovery

- A-7 Establish a State "Build it Back Better" program for urban commercial areas to aid in swift recovery and improved vitality and resilience following a disaster. The legislation could authorize the Departments of Planning and Public Works in each County to establish a rapid repair permit system with expedited processing for repairing and rebuilding structures after a natural disaster. The program should also align with County and State priorities for infrastructure and economic development to repair and rebuild public facilities, parks, and infrastructure in a manner that furthers these goals and increases resilience to future disasters.

5.1.4 Strategies to establish the statutory framework to support development of micro-grids, retail wheeling, and increased resilience of utility grids

- A-8 Expand the development of a distributed energy production infrastructure using micro-grids and retail wheeling of the public utility grid to improve local energy self-reliance. This legislation would support the resilience of the State's electrical grid and reduce the likelihood of extended power disruptions and would require legislation to direct the Public Utilities Commission accordingly.
- A-9 Have the Public Utilities Commission set up a process for the utilities to complete a resilience review to upgrade or reconstruct facilities, and in some cases consider alternative placement and undergrounding of utilities.

5.2. State or County Government Agency Action to Change Administrative Rules, Policies, or Programs

5.2.1 Strategies to create incentives for business continuity planning in Hawai'i

- B-1 Implement incentives for continuity planning at points where business interfaces with government: the Department of Commerce and Consumer Affairs (business licenses), Department of Accounting and General Services (State vendor registration), and Department of Taxation, including the following:
- Provide discounted business registration fees to small businesses that have a business continuity plan.
 - Require businesses to complete a preparedness checklist in order to complete their filings.
 - Require business continuity planning for certain types of loans or recovery assistance.
- B-2 Work with insurance agents and brokers to educate small businesses about insurance products such as business interruption insurance and natural disaster insurance. Include information on the advance and post-disaster documentation needed to file an insurance claim, tax loss, or tax deduction.
- B-3 Increase the frequency of inspections at certain businesses such as care homes, schools, and healthcare facilities to ensure compliance with existing requirements for them to prepare disaster response plans, maintain supplies, and ensure readiness through regular drills.

5.2.2 Strategies to expand educational programs about business continuity for small businesses in Hawai'i

- B-4 Develop high quality educational and marketing materials that disaster management agencies can utilize for outreach and education of small businesses. Develop audio and video PSAs (Public Service Announcements) for TV, radio, and internet; develop a panel display at state agency facilities where small business operators would go; develop a video telling the local story about two businesses – one prepared and the other not.
- B-5 Incorporate information tailored to small businesses into existing disaster preparedness websites and resources.
- B-6 Assign a programmatic role to a State-level small business natural disaster coordinator to work with entities such as Small Business Development Centers, the Chamber of Commerce, insurance providers, property managers, and other key networks utilized by small businesses to disseminate education, information, and training on preparedness and business continuity.
- B-7 Engage advocacy and outreach organizations such as Pacific Gateway Center who have multiple language speakers on staff to assist with outreach to non-English speaking businesses.
- B-8 Request the UH and Community College system to offer a class about business continuity planning for small businesses. Use consistent training messages and material (e.g., FEMA's Continuity of Operation Planning training program), and build on the work of the Natural Disaster Preparedness Training Center at UH Mānoa.

5.2.3 Strategies to enhance financing options for small businesses to recover after a natural disaster

- B-9 Research and evaluate financing and technical assistance tools in other states for small business disaster recovery loans and grants to inform the development of recommendations and programs for Hawai'i.
- B-10 Expand use of U.S. Department of Labor Emergency Grants to support economic recovery, and design recovery programs to maximize efficient use of those funds.
- B-11 Expand use of Community Development Block Grant Disaster Recovery funds from the U.S. Department of Housing and Urban Development to assist small businesses with natural disaster preparedness training, structure hardening, or technical assistance.

5.2.4 Strategies to support planning efforts relating to small business economic recovery after a natural disaster

- B-12 Establish a position or role at the State level that is dedicated to natural disaster economic recovery with a focus on small business. Place this Recovery Coordinator position in DBEDT and support it with a team of professionals on loan from other agencies, such as Hawai'i Civil Defense. The position can be supported by an Advisory Group and work closely with disaster management and economic development agencies as well as utilities and businesses small and large to define metrics, establish programs, and improve the state of economic preparedness and recovery in Hawai'i.
- B-13 Coordinate with the State Energy Office and other stakeholders to ensure that energy planning efforts support the goals of economic recovery.
- B-14 Work with disaster management agencies to develop strategies for response and recovery for commercial districts in high risk areas statewide, including commercial harbors, small boat harbors, and airports.
- B-15 Encourage creation of a Food Self-Sufficiency Baseline by island to quantify food production and consumption in the County. Utilize existing plans such as the *Hawai'i County Food Self Sufficiency Baseline 2012* and the *State's Increased Food Security and Food Self-Sufficiency Strategy* as a framework.
- B-16 Encourage each County to track local food production and consumption as a report card every five years.

5.2.5 Strategies to increase use of all available Communication tools including sirens, radio, TV, internet, text messaging, and other electronic and social media to distribute information on natural disaster preparedness, and real-time information updates on disaster response and recovery efforts

- B-17 Ensure that civil defense warning sirens and alert systems are working, well-maintained, and have adequate reach.

- B-18 Develop a natural disaster information and marketing strategy targeted toward small businesses. It should utilize multiple platforms, including an information clearinghouse for preparedness and continuity planning, as well as real-time updates on response and recovery efforts. Incorporate crowd-sourcing and social media tools to allow residents and businesses to share information on the ground.

5.3. Public-Private Partnerships

5.3.1 Strategies to establish public-private collaborations to create and sustain partnerships to better prepare Hawai'i's business continuity capacity

- C-1 Utilize and strengthen existing events and initiatives that bring together the public and private sector for disaster response, such the Pacific Risk Management Ohana, Contingency Planners of the Pacific, FEMA's regional workshops. Establish a regular schedule of meetings and events through these outlets.
- C-2 Facilitate collaborations between FEMA, Hawai'i Emergency Management Agency, financial institutions, and business associations to identify how existing federal financial assistance programs can be better utilized by the small business community.
- C-3 Build a partnership with SBA Small Business Development Centers to provide personalized technical assistance to small businesses that is specific to the island where they operate, and builds on existing partnerships and associations.
- C-4 Work with Oahu-based and neighbor island-based disaster preparedness planning groups to develop resilience strategies for small businesses, by modeling what the Hawai'i Hazards Awareness and Resilience Program (HHARP) and others have already done for homeowners and communities. Develop incentives and marketing materials to engage small businesses to participate in Community Emergency Response Team (CERT) programs. Utilize business associations, Rotary Clubs, and Chambers of Commerce to increase participation and reach in CERT and HHARP, including multilingual outreach efforts.
- C-5 Conduct a feasibility study for creating a virtual platform for networking, communications, and real-time response similar to the Louisiana Business Emergency Operations Center.
- C-6 Work with the private sector to identify and support business development opportunities in disaster preparedness, continuity planning, and recovery.
- C-7 Develop a framework for business-to-business partnerships that can be supported and complemented by disaster management agency efforts. This could include efforts to:
- Develop a directory of local providers of natural disaster recovery services, listing those businesses which have been vetted as credible recovery service providers;
 - Strengthen and maintain lines of communication with large landowners, associations, property managers, and others in charge of managing large facilities;
 - Regularly share knowledge, experience, and best practices for preparedness and contingency planning;

- Coordinate a National Preparedness Month summit in September or an annual session on business disaster preparedness;
- Involve building managers in natural disaster preparedness information for tenants; and
- Create a mentorship program to pair large and small businesses, using the National Incident Management Systems and Advanced Technologies (NIMSAT) Institute at the University of Louisiana at Lafayette Big Business-Small Business Emergency Management Mentorship Program as a model.

5.3.2 Strategies to establish public-private collaborative programs to improve self-reliance and resilience of communities

- C-8 Implement pilot programs for developing community-driven natural disaster plans in select mixed commercial and residential areas on each island. For those areas vulnerable to wildfire, work in collaboration with the Hawai'i Wildfire Management Organization to develop Community Wildfire Protection Plans.
- C-9 Develop a critical infrastructure task force on each island to develop scenarios and a comprehensive contingency plan for disaster mitigation and recovery. Include members of the agriculture, energy, transportation, military, communications, and other economic sectors.
- C-10 Work with the National Renewable Energy Laboratory and others to develop and implement programs that equip utility companies, electrical grids, communities and businesses with technological solutions for resilience.
- C-11 Educate Hawai'i's small businesses about the realities of extended interruptions in power and communications. Work with utilities and suppliers to create discounts and incentive programs to purchase back-up power generators and other equipment. Encourage businesses to secure post-disaster fuel delivery contracts, use alternate means of communication, and increase their on-site storage capacity and inventory of critical goods and supplies in order to mitigate supply chain interruptions.

5.3.3 Strategies to establish public-private arrangements to maintain readiness for disaster preparedness and to engage businesses in post-disaster recovery operations

- C-12 Encourage the Hawai'i DOT Airports, Harbors, and Highways, DOH, as well as County agencies responsible for Civil Defense, Emergency Management, Public Works, Wastewater, Water, Solid Waste Management, and other critical operations on each island to create agreements with on-island businesses to provide goods and services that support disaster recovery efforts. Prioritize these business partners with utilities and suppliers to repair their power systems and deliver fuel to them during the post-disaster response period.
- C-13 Convene a workshop on each island to create scenarios for natural disaster response and recovery operations. Include public, private sector, and government stakeholders. Hold meetings during evening hours or weekends.

- C-14 Develop partnerships between businesses and emergency shelters to service and maintain generators and other emergency equipment and improve sheltering amenities and conditions.

5.4. Private Sector Initiatives

5.4.1 Strategies to increase the role of business associations and professional networks in natural disaster preparedness and recovery

- D-1 Designate a point person or committee for disaster preparedness and recovery that can work with disaster management agencies and administer information and educational programs to members, staff, and clients.
- D-2 For businesses invested in their small business clients' preparedness, such as insurance agents and brokers, property managers, and others, develop incentives and educational materials to encourage and reward client preparedness and accountability.
- D-3 Establish a certification program for businesses that take preparedness measures like a business continuity plan and consider private sector opportunities to administer it, using Sustainable Jersey as a potential model (www.sustainablejersey.com).
- D-4 Explore business models and for-profit opportunities to support business preparedness, continuity planning, and recovery.

5.4.2 Strategies to encourage business-to-business partnerships to enhance business continuity in Hawai'i

- D-5 Seek out mutually beneficial businesses relationships to provide complementary information, resources, and support in the event of a disaster.
- D-6 Actively involve and engage other businesses in individual business continuity planning.
- D-7 Consider a mentorship relationship with other businesses to share information and experiences in disaster planning and recovery.

5.4.3 Strategies to establish business-community partnerships to enhance a neighborhood's resilience and self-reliance after a natural disaster

- D-8 Work with other businesses, residents, neighborhood boards and community associations to develop a community natural disaster strategy, form a disaster readiness committee, and prepare a community emergency response plan. Emulate the examples of preparedness efforts in communities such as Hawai'i Kai, 'Ewa Beach, and Hau'ula.

Table 3: NDERS Recommended Implementation Measures

	RECOMMENDED IMPLEMENTATION MEASURES	GOALS							
		I	II	III	IV	V	VI	VII	VIII
A	LEGISLATIVE ACTION TO CHANGE STATUTES, ORDINANCES OR APPROPRIATE FUNDING								
A-1	Establish a position or role at the State level that is dedicated to natural disaster economic recovery with a focus on small business. Place this Recovery Coordinator position in DBEDT and support it with a team of professionals on loan from other agencies, such as Hawai'i Civil Defense or UH Sea Grant.		X						
A-2	Create financial incentives such as tax rebates, discounts on permit or business registration fees, or mandated insurance premium discounts to those small businesses who have a business continuity plan and natural disaster recovery plan and supplies to implement these plans.	X			X				
A-3	Allow for subdivision improvement districts, similar to a community facilities district, which could include Albizia Tree removal.						X		X
A-4	Appropriate public funds to support existing programs to use drones to monitor high risk areas before, during and after natural disasters.		X	X					X
A-5	Advocate for amending the Farm Bill to expand insurance coverage and financing for small farmers with vulnerable assets like trees and shade-houses, and green-houses.				X				
A-6	Establish and fund a government-financed loan revolving fund to provide no-interest or low-interest bridge loans to small businesses to pay for recovery efforts in partnership with local banks and other financial institutions.				X				
A-7	Establish a "Build it Back Better" program for urban commercial areas to aid in swift recovery and improved vitality and resilience following a disaster.		X	X			X		X
A-8	Expand the development of a distributed energy production infrastructure using micro-grids and retail wheeling of the public utility grid to improve local energy self-reliance.		X				X		X
A-9	Require the Public Utilities Commission to set up a process for the utilities to complete a resilience review to upgrade or reconstruct facilities, and in some cases consider alternative placement and undergrounding of utilities.						X		X

	RECOMMENDED IMPLEMENTATION MEASURES	GOALS							
		I	II	III	IV	V	VI	VII	VIII
B	STATE OR COUNTY AGENCY ACTION TO CHANGE ADMINISTRATIVE RULES, POLICIES, OR PROGRAMS								
B-1	Implement incentives for continuity planning at points where business interfaces with government such as the Department of Commerce and Consumer Affairs, Department of Accounting and General Services, and Department of Taxation, including the following: 1. Provide discounted business registration fees to small businesses that have a business continuity plan. 2. Require businesses to complete a preparedness checklist in order to complete their filings. 3. Require business continuity planning for certain types of loans or recovery assistance.	X						X	
B-2	Work with insurance agents and brokers to educate small businesses about insurance products such as business interruption insurance and natural disaster insurance. Include information on the advance and post-disaster documentation needed to file an insurance claim, tax loss, or tax deduction.	X			X				
B-3	Increase the frequency of inspections at certain businesses such as care homes, schools, and healthcare facilities to ensure compliance with existing requirements for them to prepare disaster response plans, maintain supplies, and ensure readiness through regular drills.	X							
B-4	Develop high quality educational and marketing materials that disaster management agencies can utilize for outreach and education of small businesses. Develop audio and video PSAs (Public Services Announcements) for TV, radio, and internet; develop a panel display at state agency facilities where small business operators would go; develop a video telling the local story about two businesses – one prepared, and the other not.	X						X	
B-5	Incorporate information tailored to small businesses into existing disaster preparedness websites and resources.	X						X	
B-6	Assign a programmatic role to a State-level small business natural disaster coordinator to work with entities such as SBA, the Chamber of Commerce, and others to develop business continuity education and training opportunities and consultations for small businesses.	X						X	
B-7	Engage advocacy and outreach organizations such as Pacific Gateway Center who have multiple language speakers on staff to assist with outreach to non-English speaking businesses.	X			X				

	RECOMMENDED IMPLEMENTATION MEASURES	GOALS							
		I	II	III	IV	V	VI	VII	VIII
B-8	Request the UH and Community College system to offer a class about business continuity planning for small businesses. Use consistent training messages and material (e.g., FEMA's Continuity of Operation Planning training program), and build on the work of the Natural Disaster Preparedness Training Center at UH Mānoa.	X							
B-9	Research and evaluate financing and technical assistance tools in other states for small business disaster recovery loans and grants to inform the development of recommendations and programs for Hawai'i.				X				X
B-10	Expand use of U.S. Department of Labor Emergency Grants to support economic recovery and design recovery programs to maximize efficient use of those funds.				X				X
B-11	Expand use of Community Development Block Grant Disaster Recovery funds from HUD to assist small businesses with natural disaster preparedness training, structure hardening, or technical assistance.				X				X
B-12	Establish a position or role at the State level that is dedicated to supporting natural disaster economic recovery with a focus on small business. Place this Recovery Coordinator position in DBEDT and support it with a team of professionals on loan from other agencies, such as Hawai'i Civil Defense or UH Sea Grant.		X						
B-13	Coordinate with the State Energy Office and other stakeholders to ensure that energy planning efforts support the goals of economic recovery.		X				X		X
B-14	Work with disaster management agencies to develop strategies for response and recovery for commercial districts in high risk areas statewide, including commercial harbors, small boat harbors, and airports.		X	X		X			
B-15	Encourage creation of a Food Self-Sufficiency Baseline by island to quantify food production and consumption.						X		X
B-16	Encourage each County to track local food production and consumption as a report card every five years.						X		X
B-17	Ensure that civil defense warning sirens and alert systems are working, well-maintained, and have adequate reach statewide.			X				X	

	RECOMMENDED IMPLEMENTATION MEASURES	GOALS							
		I	II	III	IV	V	VI	VII	VIII
C	PUBLIC-PRIVATE PARTNERSHIPS								
C-1	Utilize and strengthen existing events and initiatives that bring together the public and private sector for disaster response, such the Pacific Risk Management Ohana, Contingency Planners of the Pacific, FEMA’s regional workshops. Establish a regular schedule of meetings and events through these outlets.		X			X			
C-2	Facilitate collaborations between FEMA, Hawai’i Emergency Management Agency, financial institutions, and business associations to identify how existing federal financial assistance programs can be better utilized by the small business community.		X		X				
C-3	Build a partnership with SBA Small Business Development Centers to provide personalized technical assistance to small businesses that is specific to the island where they operate, and builds on existing partnerships and associations.		X					X	
C-4	Work with O’ahu-based and neighbor island-based disaster preparedness planning groups to develop resilience strategies for small businesses, by modeling what HHARP and others have already done for homeowners and communities. Develop incentives and marketing materials to engage small businesses to participate in Community Emergency Response Team (CERT) programs. Utilize business associations, Rotary Clubs, and Chambers of Commerce to increase participation and reach in CERT and HHARP, including multilingual community outreach efforts.	X				X		X	
C-5	Conduct a feasibility study for creating a virtual platform for networking, communications, and real-time response similar to the Louisiana Business Emergency Operations Center.		X				X	X	
C-6	Work with the private sector to identify and support business development opportunities in disaster preparedness, continuity planning, and recovery.		X						
C-7	Develop a framework for business-to-business partnerships that can be supported and complemented by disaster management agency efforts.		X					X	
C-8	Implement pilot programs for developing community-driven natural disaster plans in select mixed commercial and residential areas on each island. For those areas vulnerable to wildfire, work in collaboration with the Hawai’i Wildfire Management Organization to develop Community Wildfire Protection Plans.		X	X		X			

	RECOMMENDED IMPLEMENTATION MEASURES	GOALS							
		I	II	III	IV	V	VI	VII	VIII
C-9	Develop a critical infrastructure task force on each island to develop scenarios and a comprehensive contingency plan for disaster mitigation and recovery. Include members of the agriculture, energy, transportation, military, communications, and other economic sectors.		X			X	X		X
C-10	Work with the National Renewable Energy Laboratory and others to develop and implement programs that equip utility companies, electrical grids, communities and businesses with technological solutions for resilience.						X		X
C-11	Educate Hawai'i's small businesses about the realities of extended interruptions in power and communications. Work with utilities and suppliers to create discounts and incentive programs to purchase back-up power generators and other equipment. Encourage businesses to secure post-disaster fuel delivery contracts, use alternate means of communication, and increase their on-site storage capacity and inventory of critical goods and supplies in order to mitigate supply chain interruptions.	X					X		
C-12	Encourage the Hawai'i DOT Airports, Harbors, and Highways, DOH, as well as County agencies responsible for Civil Defense, Emergency Management, Public Works, Wastewater, Water, Solid Waste Management, and other critical operations on each island to create agreements with on-island businesses to provide goods and services that support disaster recovery efforts. Prioritize these business partners with utilities and suppliers to repair their power systems and deliver fuel to them during the post-disaster response period.		X			X			
C-13	Convene a workshop on each island to create scenarios for natural disaster response and recovery operations. Include public, private sector, and government stakeholders. Hold meetings during evening hours or weekends.		X						X
C-14	Develop partnerships between businesses and emergency shelters to service and maintain generators and other emergency equipment and improve sheltering amenities and conditions.		X			X			X

	RECOMMENDED IMPLEMENTATION MEASURES	GOALS							
		I	II	III	IV	V	VI	VII	VIII
D	PRIVATE SECTOR-DRIVEN INITIATIVES								
D-1	Business associations and professional networks should designate a point person or committee for disaster preparedness and recovery that can work with disaster management agencies and administer information and educational programs to members, staff, and clients.	X	X					X	
D-2	For businesses invested in their small business clients' preparedness, such as insurance agents and brokers, property managers, and others, develop incentives and educational materials to encourage and reward client preparedness and accountability.	X	X					X	
D-3	Establish a certification program for businesses that take preparedness measures like a business continuity plan and consider private sector opportunities to administer it, using Sustainable Jersey as a potential model.	X	X						X
D-4	Explore business models and for-profit opportunities to support business preparedness, continuity planning, and recovery.	X				X			
D-5	Seek out mutually beneficial businesses relationships to provide complementary information, resources, and support in the event of a disaster.		X			X			
D-6	Actively involve and engage other businesses in individual business continuity planning.		X			X			
D-7	Consider a mentorship with other businesses to share information and experiences in disaster planning and recovery.		X			X			
D-8	Work with other businesses, residents, neighborhood boards and community associations to develop a community natural disaster strategy, form a disaster readiness committee, and prepare a community emergency response plan. Emulate the examples of preparedness efforts in communities such as Hawai'i Kai, 'Ewa Beach, and Hau'ula.		X			X			

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Appendices

Appendix A: Resource Lists

- A-1. MAKE A PLAN: Business Continuity Plan Toolkits
- A-2. JOIN: Business Support Program & Continuity Organizations
- A-3. DOWNLOAD/SUBSCRIBE: Mobile Apps and Push Notifications
- A-4. PREPARE: Natural Disaster Preparedness Information
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- A-5a. FOLLOW AND LIKE: Social Media Accounts
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Appendix B: Survey Instrument

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Appendix A: Resource Lists

A-1. MAKE A PLAN: Business Continuity Plan Toolkits

	Resource	Description
PREPARE	Ready.gov – by DHS and FEMA Business Continuity Planning Suite http://www.ready.gov/business-continuity-planning-suite	The suite is an HTML-based guide to create, improve, or update a business continuity plan.
	Federal Preparedness and recovery http://www.ready.gov/business	Risk assessment, business impact analysis, and insurance coverage review worksheet.
	SBA Disaster Preparedness Checklists http://www.preparemybusiness.org/ http://www.preparemybusiness.org/planning	Provides simple checklists for emergencies, tabletop exercises, and specific guidance for multiple types of disaster.
	Red Cross Business Readiness Evaluation Tool *Requires free membership to be part of the program. http://www.readyrating.org	A comprehensive web evaluation tool and information resources with plan generation tool.
	“Small Business Continuity Planning” Presentation from Red Cross Emergency Preparedness Academy 2014 http://www.redcross.org/images/MEDIA_CustomProductCatalog/m38945124_SmallBusinessContinuityPlanning.pdf	An introductory presentation by Tim Bonno, Business Continuity Consultant.
	Ready NOVA http://business.readynova.com/	Web-based Business Preparedness Planner in multiple languages.
	Stay Open For Business OFB-EZ http://www.disastersafety.org/wp-content/uploads/OFB-EZ_Toolkit_IBHS.pdf	Step-by-step guide for business continuity plan including risk analysis, tabletop exercise etc.
	Open for Business Toolkit http://www.disastersafety.org/wp-content/uploads/open-for-business-english.pdf	Open for Business Toolkit with more detail, including a simple cost analysis.
	Internal Revenue Service (IRS) Preparing for a Disaster http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/Preparing-for-a-Disaster-Taxpayers-and-Businesses	Tips for recordkeeping, documenting valuables, Disaster Loss Workbooks.
RECOVER	CPA Australia - Disaster Recovery Toolkit http://www.cpaaustralia.com.au/~media/Corporate/AllFiles/Document/professional-resources/business/disaster-recovery-toolkit.pdf	A practical, realistic step-by-step checklist, financial reality check and guide for business recovery to use AFTER natural disaster.

A-2. JOIN: Business Support Program & Community Organizations

Program for Businesses, Standards
FEMA The Voluntary Private Sector Preparedness Program – PS Prep™ & Small Business preparedness http://www.fema.gov/voluntary-private-sector-preparedness-program-ps-preptm-small-business-preparedness
ISO 22301 Business Continuity Management http://www.bsigroup.com/en-US/ISO-22301-Business-Continuity/
National Fire Protection Association http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=1600&DocNum=1600&cookie%5Ftest=1
Big Business – Small Business Emergency Management Mentorship Program http://www.disasterb2bmentor.org/BBSB/Home.aspx
SBA Hawai'i District Office http://www.sba.gov/offices/district/hi/honolulu
Natural Disaster Management Communities
The National Preparedness community – Private Sector, workplace http://www.community.fema.gov/connect.ti/readycop_privatesec/groupHome
Hawai'i Small Business Development Center http://www.hisbdc.org/
The Contingency Planners of the Pacific (CPP) http://contingencyplannersofthepacific.org/members/index.php?option=com_frontpage&Itemid=1
Pacific Risk Management Ohana http://collaborate.csc.noaa.gov/PriMO/Pages/index.aspx
Hawai'i Voluntary Organizations Active in Disaster (Hawai'i VOAD) https://hivoad.communityos.org/cms/home
Community Emergency Response Team (CERT) Program
The Community Emergency Response Team (CERT) Program educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. CERT members also are encouraged to support emergency response agencies by taking a more active role in emergency preparedness projects in their community. https://www.fema.gov/community-emergency-response-teams
City and County of Honolulu http://www.honolulu.gov/demvolunteer/cert.html
County of Hawai'i http://www.hawaiicounty.gov/civil-defense-cert
Kaua'i http://www.kauai.gov/Government/Departments/FireDepartment/CommunityEmergencyResponseTeam/tabid/325/Default.aspx
Maui http://www.co.maui.hi.us/cert

A-3. DOWNLOAD/SUBSCRIBE: Mobile Apps and Push notifications

DOWNLOAD	FEMA Mobile App
	http://www.fema.gov/mobile-app The FEMA mobile app for phones and tablets contains disaster safety tips, an interactive emergency kit list, storable emergency meeting locations, and a map with open shelters and open FEMA Disaster Recovery Centers (DRCs). The app also has a Disaster Reporter feature, allowing you to take and submit GPS photo reports of disasters so they can be displayed on a public map for others to view.
	Red Cross Mobile Apps
	http://www.redcross.org/prepare/mobile-apps Free mobile apps for First Aid, Blood donation, Flood, Tornado, Earthquake, Wildlife, Hurricane, Shelter, etc. Apps for natural disaster includes alerts, notifications, preparedness information, finding help and personal safety notification (“I’m Safe” button connected to Social Medias).
	Nixle.com
	http://www.nixle.com/ Nixle enables public safety agencies to engage with their residents in a real-time information exchange allowing residents to take a collaborative role in increasing public safety. With anonymous tipping functionality, residents can directly reply to messages via SMS and web form acting as a force multiplier and playing a critical role in community-oriented policing efforts.
	National Weather Service Email and SMS Weather Alert Services
http://www.weather.gov/subscribe The National Weather Service (NWS) provides alert and warning information through official dissemination sources, including NOAA Weather Radio, NOAA Weather Wire Service, and Weather.gov to the public, and the NWS service for core partners (emergency management community, government partners of an NWS office, or members for the electronic media who need direct interaction with NWS.)	
Pacific Disaster Center Disaster Alert App	
http://www.pdc.org/solutions/tools/disaster-alert-app/ By accessing the DisasterAWARE platform, it provides users with near real-time access to data on active hazards globally—showing events that are designated potentially hazardous to people, property, or assets.	
SUBSCRIBE	County of Kaua’i – Connect-CTY (Notification service)
	http://www.kauai.gov/Kamaaina/Community/ConnectCTY/tabid/344/Default.aspx With Connect-CTY, county officials will be able to create and disseminate voice messages regarding civil defense emergencies to residents, businesses and local agencies in minutes, through a single phone call. This service will also allow officials to send text messages to cell phones, Personal Digital Assistants (PDAs), email accounts, and TTY/TDD receiving devices for the hearing impaired.
	County of Maui – Active Advisories, Watches & Notifications
	http://www.co.maui.hi.us/index.aspx?NID=983
	County of Maui – Road Closure Notifications
	http://www.co.maui.hi.us/index.aspx?NID=643
Hawai’i County Civil Defense Agency Mobile Alerts	
http://talismanlbs.net/hccd/register	

A-4. PREPARE: Natural Disaster Preparedness Information

Nationwide	FEMA Ready.gov http://www.ready.gov/
	FEMA - Protecting Your Business http://www.fema.gov/protecting-your-businesses
	FEMA - Taking Shelter From the Storm: Construction Plans and Specifications (2008) http://www.fema.gov/media-library/assets/documents/26215?id=5788
	FEMA Resources in other languages (Arabic, Chinese, French, Greek, Haitian-Creole, Hebrew, Hindi, Italian, Japanese, Korean, Laotian, Mong, Polish, Portuguese, Russian, Spanish, Tagalog, Thai, Urdu, Vietnamese, Yiddish) http://www.fema.gov/all-languages
	USDA – Emergency Preparedness and Response http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_SAFETY
	Centers for Disease Control and Prevention – Emergency Preparedness and Response http://emergency.cdc.gov/disasters/index.asp
	American Red Cross – Tools and Resources http://www.redcross.org/prepare/disaster-safety-library
	Insurance Institute for Business & Home Safety – Commercial Maintenance https://www.disastersafety.org/commercial_maintenance
	Restore Your Economy.org http://restoreyoureconomy.org/engaging-small-businesses-disaster-prep-guide/
	Insurance Institute for Business & Home Safety http://www.disastersafety.org/
	National Disaster Preparedness Training Center at University of Hawai‘i at Mānoa https://ndptc.hawaii.edu/
	Non Profit Coordinating Committee of New York Customizable Disaster Planning, Emergency Preparedness & Business Continuity Plan http://npccny.org/info/disaster_plan.htm
Statewide	State Civil Defense http://www.scd.hawaii.gov/
	Hawai‘i Disaster Preparedness (Get Ready Hawai‘i .org) http://www.getreadyhawaii.org/index.php/
	Tsunami Hazard Map http://tsunami.csc.noaa.gov/map.html
	Tsunami Ready http://www.tsunamiready.noaa.gov/
	How to Prepare Your Business for the Next Tsunami http://tsunami.org/1about/pdfs/how_to_prepare_your_business_for_the_next_tsunami.pdf
	Hawai‘i Statewide GIS Program http://planning.hawaii.gov/gis/
	National Flood Insurance Program Flood Hazard Assessment Tool http://gis.hawaiiinfip.org/fhat/
	Homeowner’s Handbook to Prepare for Natural Disaster http://www.redcross.org/images/MEDIA_CustomProductCatalog/m13740264_web_homeownershandbook_2.pdf

Statewide	<p>HECO Information Handbook for Emergency Preparedness (Available in English, Cantonese, Ilocano, Korean and Vietnamese) http://www.Hawaiianelectric.com/prepare</p>
	<p>Safety and Emergency Preparedness Checklist (Including Electrical and Generator Safety) http://www.hawaiianelectric.com/heco/Safety-and-Emergency/Storm-Center/Safety-and-Preparedness/Landing/Safety-and-Emergency-Preparedness?cpsextcurrchannel=1#tabs1</p>
	<p>SOEST UH Hurricane/Disaster Checklist http://www.soest.hawaii.edu/emergency/Hurricane%20checklist.pdf</p>
	<p>Feeling Safe Being Safe Program http://www.cds.hawaii.edu/projects/fsbs/</p>
City and County of Honolulu	<p>City and County of Honolulu Dept. of Emergency Management http://www.honolulu.gov/dem/default.html Printable Disaster Emergency Sheets http://www.honolulu.gov/demresources/printabledisasterpamphlets.html About the Honolulu Local Emergency Planning Committee (LEPC) http://www.honolulu.gov/demresources/lepc.html</p>
	<p>Honolulu Land Information System (HoLIS) http://gis.hicentral.com/</p>
	<p>Emergency Resources Guide for Businesses in Campbell Industrial Park http://www.cleanhawaii.org/index.php?option=com_content&view=category&id=39:campbell-industrial-park-cip-emergency-epdates&layout=blog&Itemid=101</p>
	<p>Hawai'i County Civil Defense http://www.hawaiicounty.gov/civil-defense Hurricane Preparedness Guide http://records.co.hawaii.hi.us/Weblink8/DocView.aspx?dbid=1&id=18319&page=1& Department of Public Works – Flood Awareness (Covers Floods, Tsunamis, Hurricanes) http://flood.hawaiicounty.gov/</p>
County of Kaua'i	<p>County of Kaua'i – Natural Disasters & Preparation http://www.kauai.gov/Government/Departments/CivilDefenseAgency/NaturalDisastersampPreparation/tabid/76/Default.aspx County of Kaua'i Civil Defense http://www.kauai.gov/Government/Departments/CivilDefenseAgency/tabid/90/Default.aspx Kaua'i County GIS http://www.kauai.gov/default.aspx?tabid=433</p>
	<p>Hanalei Watershed Hui http://www.hanaleiwatershedhui.org/</p>
County of Maui	<p>Maui Civil Defense Agency http://www.co.maui.hi.us/index.aspx?nid=70 Disaster Preparedness For Maui County: A Citizen's Guide http://www.co.maui.hi.us/documents/10/disaster.PDF Maui Ready http://mauready.org/</p>

A-5. RESPOND: Real-Time Natural Disaster Information Resources

Websites & Live Updates	General Natural Disasters
	Federal Disaster Declarations http://www.fema.gov/disasters
	National Incident Management Systems & Advanced Technologies (NIMSAT) http://www.nimsat.org/
	NOAA Watches, Warnings or Advisories for Hawai'i http://alerts.weather.gov/cap/hi.php?x=1
	National Weather Service Honolulu Forecast Office http://www.prh.noaa.gov/hnl/
	Federal Highway Administration – Hawai'i Traffic Information http://www.fhwa.dot.gov/trafficinfo/hi.htm
	Hawai'i State Civil Defense http://www.scd.hawaii.gov/
	Pacific Disaster Center (Disaster Alert App is also available on the website.) http://www.pdc.org/
	Go Akamai App and web tool for Oahu http://www.goakamai.org/Home.aspx
	County of Hawai'i – Civil Defense Messages and Alerts http://www.hawaiicounty.gov/active-alerts
	Personal Safety
	Red Cross Safe and Well (Individual safety notification portal) https://safeandwell.communityos.org/cms/index.php
	Tsunami
	Pacific Tsunami Warning Center http://ptwc.weather.gov/?region=2
	Hawai'i HAZUS Atlas (Hawai'i and Maui Counties) http://apps.pdc.org/hha/html/hzshome.jsp
	Beach Safety
	Hawai'i Beach Safety Alerts by Hawaiian Lifeguard Association http://hawaiibeachsafety.com/
	Earthquake
	Earthquake Track http://earthquaketrack.com/r/hawaiian-islands/recent
	Flood
	USGS Current Water Data for Hawai'i http://waterdata.usgs.gov/hi/nwis/rt USGS Water Watch – Map of flood and high flow conditions http://waterwatch.usgs.gov/?m=flood&r=hi&w=map
	Hurricane/Typhoon/Tropical Cyclone
	Central Pacific Hurricane Center http://www.prh.noaa.gov/hnl/cphc/?widgets Joint Typhoon Warning Center (JTWC) http://www.usno.navy.mil/JTWC/

Websites	Volcano
	USGS Hawaiian Volcano Observatory http://hvo.wr.usgs.gov/ Hawai'i Short Term SO2 Advisory http://www.hiso2index.info/
	VOG (SO2)
	National Weather Service Fire Weather http://www.srh.noaa.gov/ridge2/fire/
Radio	O'ahu
	EAS broadcasters KSSK-AM 590 EAS broadcasters KRTR-FM 96.3 NOAA Weather Radio All Hazards 162.400/162.550
	Kaua'i
	EAS broadcasters KQNG-AM 579, FM 93.5 NOAA Weather Radio All Hazards 162.400
	Maui
	EAS broadcasters KMVI-AM 550 Hawai'i LP1 NOAA Weather Radio All Hazards 162.400
	County of Hawai'i
EAS broadcasters KHLO-AM (Hilo) 850 KKBG-FM (Hilo) 97.9 KLEO-FM (Kona) 106.1 KPUA-AM (Hilo) 670 KWXX-FM (Hilo) 94.7 KAQY-FM (Kona) 106.1 NOAA Weather Radio All Hazards 162.400/162.500/162.550	
Phone	O'ahu
	O'ahu Forecast including Honolulu & Vicinity (808) 973-5286 O'ahu Forecast (808) 973-4380 or 973-4381 Marine Forecast (808) 973-4382 Surf Observations and Forecast (808) 973-4383 Coastal Winds and Buoy Observations (808) 973-6114
	Kaua'i
	Kaua'i Forecast (808) 245-6001 Kaua'i Marine Forecast (808) 245-356
	Maui
	Maui Community Forecast (808) 877-5111 Maui Marine Forecast (866) 944-5025
	County of Hawai'i
	Hilo and Vicinity Forecast (808) 935-8555 Big Island Forecast (808) 961-5582 Big Island Marine Forecast (808) 935-9883

A-5a. FOLLOW and LIKE: Social Media Accounts

Follow and Like - Social Media Accounts		
Agency	Twitter	Facebook
Disaster Information / General Announcements		
FEMA	@fema	/FEMA
FEMA Region 9	@femaregion9	
National Hurricane Center	@NHC_Atlantic	/NWSNHC
NWS Tsunami Alerts	@NWS_NTWC	
USGSted (US Earthquakes)	@USGSted	
USGS Big Quakes (Worldwide)	@USGSBigQuakes	
National Disaster Preparedness Training Center (NDPTC)	@DisasterCTR	/disasterctr
National Weather Service Honolulu	@NWSHonolulu	/US.NationalWeatherService.Honolulu.gov
Pacific Tsunami Warning Center	@NWS_PTWC	/UsNwsPacificTsunamiWarningCenter
Disaster AWARE (Pacific Disaster Center)	@disasteraware	/disasteraware
Red Cross Hawai'i Chapter	@HawaiiRedCross	/HawaiiRedCross
State Civil Defense	@HI_CivilDefense	/statecivildefense.HIgov
State Office of Planning	@PlanningHIgov	/OfficeofPlanning.HIgov
Dept. of Health	@HIgov_Health	
Dept. of Transportation	@DOTHawaii	
Get Ready Hawai'i	@GetReadyHawaii	/GetReadyHawaii
Hawaiian Electric	@HwnElectric	
City and County of Honolulu	@HonoluluGov	
Honolulu Dept. of Emergency Management	@Oahu_DEM	/oahudem
Honolulu GIS	@HNL_GIS	
Honolulu Dept. of Transportation Services	@hnlDts	
Honolulu Board of Water Supply	@BWSHonolulu	/BWSHonolulu
County of Hawai'i Public Works	@dpwhi	
County of Kaua'i		/CountyofKauai
Hawai'i Island CERT		/HICERT
Maui County	@CountyofMaui	/pages/County-of-Maui/150618851661152
Hanalei Watershed Hui		pages/Hanalei-Watershed-Hui/135535903179579
Ocean Safety	@OceanSafety808	
Hawai'i Flood Plan	@HawaiiFloodPlan	
Hawai'i Wildfire Management	@HawaiiWildfire	/pacificfireexchange
Hawai'i Wing Civil Air Patrol	@CAPHawaii	/HiWgCAPCadetPrograms

Follow and Like - Social Media Accounts		
Agency	Twitter	Facebook
Business Related Information		
Hawai'i Small Business Development Center	@HawaiiSBDC	/pages/Hawaii-SBDC-Network/161826220511526
Small Business Association Pacific Region	@SBA_Pacific	/SBAgov
Chamber of Commerce Hawai'i	@cochawaii	/pages/The-Chamber-of-Commerce-of-Hawaii/150382562634
Kaua'i Chamber of Commerce	@KauaiChamber	pages/Kauai-Chamber-of-Commerce-Inc/122154722500
Maui Chamber of Commerce	@MauiChamber	/maui.chamber
Hawai'i Island Economic Development Board	@HIEDB	/hiedb.org
Invest Hawai'i	@InvestHawaiiGov	

A-5b. JOIN AND SUPPORT: Volunteer Organizations

Join and Support - Volunteer Organizations	
Voluntary Organizations Active in Disaster (VOAD)	https://hivoad.communityos.org/cms/home
Red Cross Hawai'i State Chapter	http://www.redcross.org/hi/honolulu/programs-services/disaster-preparedness
The Salvation Army – Hawaiian & Pacific Islands	http://www.hawaii.salvationarmy.org/
Aloha United Way	https://www.auw.org/
Kaua'i Island United Way	http://www.kauaiunitedway.org/
Hawai'i Island United Way	http://hiuw.org/
Maui United Way	http://www.mauiunitedway.org/index.php

A-6. RECOVER: Post-Disaster Assistance / Resources

Business General	FEMA Disaster Recovery Centers http://www.fema.gov/disaster-recovery-centers
	Disaster Assistance.gov http://www.disasterassistance.gov/
	SBA – Disaster Loan Fact Sheets http://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/disaster-loans/disaster-loans-fact-sheets
	Restore Your Economy.org http://restoreyoureconomy.org/
Tax And Legal Issues	IRS - Tax Relief in Disaster Situations http://www.irs.gov/uac/Tax-Relief-in-Disaster-Situations
	IRS Disaster Resource Guide http://www.irs.gov/pub/irs-pdf/p2194.pdf
	IRS – Disaster Assistance and Emergency Relief for Individuals and Businesses http://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Disaster-Assistance-and-Emergency-Relief-for-Individuals-and-Businesses-1
	IRS – Publication 584 (06/2012), Casualty, Disaster, and Theft Loss Workbook http://www.irs.gov/publications/p584/index.html
	IRS – Publication 584-B (12/2011), Business Casualty, Disaster, and Theft Loss Workbook http://www.irs.gov/publications/p584b/index.html
	U.S. Dept. of Labor – Fact Sheet #72: Employment & Wages Under Federal Law During Disasters & Recovery [English] http://www.dol.gov/whd/regs/compliance/whdfs72English.htm [Chinese] http://www.dol.gov/whd/regs/compliance/whdfs72Chinese.pdf [Vietnamese] http://www.dol.gov/whd/regs/compliance/whdfs72Vietnamese.pdf
	U.S. Dept. of Justice – Criminal Enforcement: Disaster Recovery http://www.justice.gov/atr/public/criminal/disaster.html
	National Disaster Legal Aid Resource Center http://www.disasterlegalaid.org/
	Legal Aid Society of Hawai'i http://www.legalaidhawaii.org/
Agriculture	IRS – Crop Insurance and Crop Disaster Payments – Agriculture Tax Tips http://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Crop-Insurance-and-Crop-Disaster-Payments-Agriculture-Tax-Tips
	US Dept. of Agriculture Farm Service Agency http://www.fsa.usda.gov/FSA/stateoffapp?mystate=hi&area=home&subject=landing&topic=landing http://www.usda.gov/documents/fact-sheet-usda-programs-assist-individuals-small-businesses.pdf
	State of Hawai'i Agricultural Loan Division – Emergency Loan Program http://hdoa.hawaii.gov/agl/home/emergency-loan-program/
Other	All Hazards – Disaster assistance and your business http://www.prep4agthreats.org/Natural-Disasters/disaster-assistance-and-business
	Hawai'i Small Business Development Center – Link for Disaster Recovery http://www.hisbdc.org/Resources/DisasterRecovery.aspx

A-6a. Other Sources of Funding

Other Sources of Funding		
Program/Activity	Type of Assistance	Agency and Contact General Emergency Management
Grants, Loans, and Technical Assistance		
Emergency Management /Mitigation Training	Training in disaster mitigation, preparedness, and planning.	FEMA Region NFIP and Mitigation http://training.fema.gov/
Post-disaster Economic Recovery Grants and Assistance	Grant funding to assist with the long- term economic recovery of communities, industries, and firms adversely impacted by disasters.	Economic Development Administration (800) 345-1222 (202) 482-6225 http://www.eda.gov/
Rural Development Assistance—Utilities	Direct and guaranteed rural economic loans and business enterprise grants to address utility issues and development needs.	U.S. Department of Agriculture (USDA) Rural Development Utilities Program (202) 720-9540 http://www.rurdev.usda.gov/rhs/
Assistance—Community Facility Direct Loans/Grants	Grants, direct and guaranteed loans, and technical assistance to construct, enlarge, or improve community facilities for healthcare, public safety, and public services in primarily low- income rural areas.	U.S. Department of Agriculture (USDA) Rural Development Housing and Community Facilities Programs (202) 720-4323 http://www.rurdev.usda.gov/rhs/cf/cp.htm
Fire Management Assistance Grant Program	Grants for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster.	FEMA Region IX www.fema.gov/government/grant/fmagp/index.shtm
Floods/Flood Control Grants, Loan, and Technical Assistance		
National Flood Insurance Program	Flood insurance to residents of communities that adopt and enforce minimum floodplain management requirements.	FEMA Region IX NFIP and Mitigation http://www.fema.gov/about/programs/nfi/p/index.shtm
Flood Control Planning Assistance	Technical and planning assistance for the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources.	U.S. Army Corps of Engineers (USACE) http://www.usace.army.mil/
Nonstructural Alternatives to Structural Rehabilitation of Damaged Flood Control Works	Direct planning and construction grants for nonstructural alternatives to the structural rehabilitation of flood control works damaged in floods or coastal storms.	
Floodplain Management Services	Technical and planning assistance at the local, regional, or national level needed to support effective floodplain management.	U.S. Army Corps of Engineers (USACE) http://www.usace.army.mil/

Other Sources of Funding		
Program/Activity	Type of Assistance	Agency and Contact General Emergency Management
Floods/Flood Control Grants, Loan, and Technical Assistance (cont.)		
Land Protection	Technical assistance for run-off retardation and soil erosion prevention to reduce hazards to life and property.	U.S. Department of Agriculture Natural Resources Conservation Service (202) 720-4527 http://www.usda.gov/
Earthquake Grants, Loans, and Technical Assistance		
National Earthquake Hazards Reduction Program and Other Earthquake Hazards Reduction Programs	Technical and planning assistance for activities associated with earthquake hazards mitigation.	FEMA Region IX NFIP and Mitigation http://www.nehrp.gov/
All-Hazard Mapping Grants, Loans, and Technical Assistance		
National Digital Orthophoto Programs	Develops topographic quadrangles for use in mapping of flood and other hazards.	U.S. Geological Survey National Mapping Division (573) 308-3802 ortho@ndop.gov http://www.ndop.gov/
Mapping Standards Support	Expertise in mapping and digital data standards to support the National Flood Insurance Program.	
National Stream flow Information Program	Operation of a network of over 7,000 stream gauge stations that provide data on river flood characteristics.	U.S. Geological Survey Office of Surface Water (703) 648-5303 http://water.usgs.gov/nsip/
Earthquake Hazards Program	Seismic hazard maps.	
Cooperating Technical Partners	Technical assistance, training, and data to support flood hazard data development activities.	FEMA Region IX http://www.fema.gov/plan/prevent/fhm/ctp_m
Map Modernization Management Support	Provides funding to supplement, not supplant, ongoing flood hazard mapping management efforts by local, regional, and State agencies.	FEMA Region IX NFIP and Mitigation http://www.fema.gov/plan/prevent/fhm/mm_main.shtm
Community Assistance Program State Support Services Element (CAP-SSSE)	Provides funding to states to provide technical assistance to communities in the National Flood Insurance Program (NFIP) and to evaluate community performance in implementing NFIP floodplain management activities.	

Other Sources of Funding		
Program/Activity	Type of Assistance	Agency and Contact General Emergency Management
Ancillary Flood and Natural Resource Projects Grants, Loans, and Assistance		
Environmental Quality Incentives Program	Technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands.	U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) (202) 720-1845 http://www.nrcs.usda.gov/programs/eqip/
Watershed Protection and Flood Prevention Program	Technical assistance for designing and installing watershed works of improvement and financial assistance for cost-sharing of measures for watershed protection, flood prevention, agricultural water management, and sedimentation control, in small watersheds under 250,000 acres.	U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Watersheds and Wetlands Division http://www.nrcs.usda.gov/programs/wrp/
Soil and Water Conservation Program	Technical assistance to the general public in planning and applying natural resource conservation practices, systems, and treatment; and furnishing technical natural resource conservation information to State and local governments.	U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Watersheds and Wetlands Division http://www.nrcs.usda.gov/programs/wrp/
Watershed Surveys and Planning	Technical assistance planning activities to help solve water and related land resources problems.	
Emergency Watershed Protection Program	Provides technical and financial assistance for relief from imminent hazards in small watersheds and to reduce vulnerability of life and damaged by natural hazard events. Property in small watershed areas	
Wetlands Reserve Program	Financial and technical assistance to protect and restore wetlands through easements and restoration agreements.	
Soil Survey	Maintains soil surveys of counties or other areas to assist with farming, Conservation, mitigation or related purposes.	

Other Sources of Funding		
Program/Activity	Type of Assistance	Agency and Contact General Emergency Management
Ancillary Flood and Natural Resource Projects Grants, Loans, and Assistance (cont.)		
Project Modifications for Improvement of the Environment	Provides for ecosystem restoration by modifying structures and/or operations or water resources projects constructed by the U.S. Army Corps of Engineers or restoring areas where a Corps project contributed to the degradation of an area.	U.S. Army Corps of Engineers (USACE) http://www.usace.army.mil/
Aquatic Ecosystem Restoration	Direct support for carrying out aquatic ecosystem restoration projects that will improve the quality of the environment.	
Beneficial Uses of Dredged Materials	Direct assistance for projects that protect, restore, and create aquatic and ecologically-related habitats, including wetlands, in connection with dredging an authorized federal navigation project.	
Transfers of Inventory Farm Properties to Federal and State Agencies for Conservation Purposes	Transfers title of certain inventory farm properties owned by the Farm Service Agency to federal and state agencies for conservation purposes (including the restoration of wetlands and floodplain areas to reduce future flood potential).	U.S. Department of Agriculture Farm Service Agency Farm Loan Programs (202) 720-3467, 1632
Conservation Contracts	Debt reduction for delinquent and non-delinquent borrowers in exchange for conservation contracts placed on environmentally sensitive real property that secures Farm Service Agency loans.	U.S. Department of Agriculture Farm Service Agency (202) 720-3467, 1632

Other Sources of Funding		
Program/Activity	Type of Assistance	Agency and Contact General Emergency Management
Basic and Applied Research/Development		
Decision, Risk, and Management Sciences	Funding for research directed at increasing the understanding and effectiveness of decision making by individuals, groups, organizations, and society.	National Science Foundation Directorate for Social, Behavioral, and Economic Sciences (703) 92-8700 http://www.nsf.gov/dir/index.jsp?org=SB
Science and Society	Funding for research that examines questions that arise in the interactions of engineering, science, technology, and society.	E
National Earthquake Hazards Reduction Program	Funding for research to mitigate earthquake losses by providing earth science data and assessments essential for land use planning, engineering design, and emergency preparedness decisions.	U.S. Geological Survey External Research Support (703) 648-6716 gd-erp-coordinator@usgs.gov http://erp-web.er.usgs.gov
Structural Systems and Hazards Mitigation of Structures	Funding for research on new technologies for improving the behavior and response of structural systems subject to natural hazards.	National Science Foundation Directorate for Engineering Division of Civil, Mechanical, and Manufacturing Innovation (703) 292-8360 http://www.nsf.gov/div/index.jsp?org=CM
Infrastructure Management and Hazard Response	Funding for research on Multidisciplinary issues concerning the impact of natural, technological, and manmade hazards upon critical infrastructure systems and society.	MI
Environmental Technology	Funding for research to develop and test new technologies in the field of environmental engineering emphasizing principles underlying pollution avoidance as well as pollution treatment and remediation.	National Science Foundation Directorate for Engineering Division of Chemical, Bioengineering, Environmental, and Transport Systems (703) 292-8320 http://www.nsf.gov/div/index.jsp?org=CBE
Environmental Sustainability	Funding for research with the goal of promoting sustainable engineered systems that support human well-being and that also are compatible with sustaining natural (environmental) systems, which provide ecological services vital for human survival.	I
Behavioral and Social Research on Disasters and Health	Funding for research in the behavioral and social sciences on the consequences of natural and man-made disasters for the health of children, the elderly, and vulnerable groups, with an ultimate goal of preventing or mitigating harmful consequences.	National Institutes of Health (301) 496-4000, TTY (301) 402-9612 NIHinfo@od.nih.gov http://grants.nih.gov/

A-7. Small Business Development Centers in Hawai'i

Hawai'i Small Business Development Center Network University of Hawai'i at Hilo Mr. Darryl Mleynek, State Director 200 West Kawili Street Hilo, HI 96720-4091	(808) 974-7515 Fax: (808) 974-7683 Email: darrylm@interpac.net
Kaua'i Community College Small Business Development Center Mr. Randy Gingras, Center Director Kaua'i County 3-1901 Kaumualii Highway Lihue, HI 96766-9591	(808) 246-1748 Fax: (808) 245-5102 Email: randyg@aloha.net
Kaua'i Economic Opportunity, Inc. (KEO) 2804 Wehe Road Lihue, HI 96766	(808) 245-4077 Fax: (808) 245-7476 Email: keo@keoinc.org
Maui County Business Resource Center Ms. Karen Arakawa, Small Business Specialist 70 E. Kaahumanu Ave. Maui Mall, Unit B-9 Kahului, HI 96732	(808) 873-8247 Fax: (808) 871-9160 Email: karen.arakawa@mauicounty.gov
Maui Community College Maui County Small Business Development Center Mr. David B. Fisher, Center Director Maui Research and Technology Center 590 Lipoa Parkway Kihei, HI 96753-6900	(808) 875-2402 Fax: (808) 875-2452 Email: dfisher@maui.com
University of Hawai'i at Hilo Hawai'i County Small Business Development Center Ms. Rebecca Winters, Center Director 200 West Kawili Street Hilo, HI 96720-4091	(808) 969-1814 Fax: (808) 969-7669 Email: winters@interpac.net
University of Hawai'i at West Oahu Honolulu County Small Business Development Center Ms. Laura Noda, Center Director 1111 Bishop Street, Suite 204 Honolulu, HI 96813	(808) 522-8131 Fax: (808) 522-8135 Email: lnoda@aloha.net
Maui Community College Maui Research & Technology Center Business Research Library (BRL) 590 Lipoa Parkway, Suite 128 Kihei, HI 96753-6900	(808) 875-2400 Fax: (808) 875-2452
Leeward Satellite Small Business Development Center Mr. Michael Keltos, Consultant 94-229 Waipahu Depot Road, Suite 402 Waipahu, HI 96797	(808) 671-8837 Fax: (808) 671-0476

Appendix B: Survey Instrument & Summary

SMALL BUSINESS CONTINUITY NATURAL DISASTER SURVEY

Thank you for taking the time to complete this survey. Your answers will provide The State of Hawaii Office of Planning, Department of Business, Economic Development, and Tourism (DBEDT), with valuable information that they need to develop a natural disaster economic recovery strategy for small businesses in Hawaii. There are no wrong answers; your answers are **CONFIDENTIAL** and will be aggregated with responses from other businesses around the State.

1. Are you the person responsible for ensuring the safety and security of the business?
 - Yes.....95%
 - No (IF NO, CAN YOU DIRECT THIS SURVEY TO THE APPROPRIATE PERSON USING THE SAME LINK AND PASSWORD).....5%
2. How many people are employed at your business? (CHECK ONE ONLY)
 - Sole Proprietorship.....13%
 - 2-5.....20%
 - 6-25.....28%
 - 26-50.....9%
 - 51-100.....9%
 - 101-250.....8%
 - 251 to 500.....6%
 - 500 or more.....7%
3. Which of the following business categories most correctly reflect your area of endeavor? (SELECT ONLY ONE)
 - Agriculture, mining.....12%
 - Banking, finance, insurance.....5%
 - Business services, professional services.....12%
 - Construction.....3%
 - Defense and dual use.....1%
 - Education.....4%
 - Health and Wellness.....4%
 - Manufacturing.....3%
 - Media, communications.....3%
 - Real estate.....5%
 - Restaurant & food service.....2%
 - Retail & wholesale trade.....9%
 - Science & technology.....2%
 - Tourism.....15%
 - Transportation, utilities.....3%
 - Other (specify):.....17%
 - Refused.....0%
4. How many years have you been in business at this location? ____ years
 - Mean = 21 Median = 15
5. Is this your only business location?
 - Yes (ONE OF ____ LOCATIONS).....66%
 - No.....34%
- 5a. Number of locations Mean = 9 Median = 4
6. (IF MORE THAN ONE LOCATION) Is this your business headquarters?
 - Yes.....70%

No.....30%

7. What is this location's zip code? _____
8. Which of the following natural disasters have impacted your business in the past? (CHECK AS MANY AS APPLY)

	Ever Impacted	Impacted in Past 10 Years
Hurricane	30%	36%
High wind event	22%	39%
Flood	18%	23%
Wildfire	8%	6%
Tsunami	18%	31%
Storm surge	12%	15%
Earthquake	15%	20%
Lava flow	7%	5%
Other (specify): _____	2%	3%
None	25%	18%

9. Thinking of the most recent disasters your business has experienced, which of the following had the most negative impact on your business? (PLEASE SELECT ONLY 5 CHOICES – WITH “1” = MOST NEGATIVE IMPACT ON YOUR BUSINESS AND “5” = LEAST NEGATIVE IMPACT ON YOUR BUSINESS.)

	Rank 5	%resp
Loss of electrical power	mean = 1.9	%resp=61
Loss of land-based telephone line	mean = 3.4	%resp=30
Loss of Internet and TV cable	mean = 3.1	%resp=34
Loss of cellular-phone service	mean = 3.2	%resp=26
Limited or no road access to business	mean = 3.2	%resp=33
Property/facility damage	mean = 2.7	%resp=34
Product inventory loss/damage	mean = 3.2	%resp=15
Loss of production crops or animals	mean = 2.4	%resp=7
Lack of employee access to the business	mean = 3.3	%resp=28
Loss of clients/demand for service	mean = 3.0	%resp=23
Loss of employees	mean = 3.1	%resp=5
Personal injury or death	mean = 3.1	%resp=2
Other (specify): _____	mean = 2.4	%resp=3
Number of business days lost	mean = 23.0	%resp=55
Estimated revenue loss from disaster	Mean = \$5276776	%resp=46

10. Which of the following assets of your business are most vulnerable to natural disasters? (PLEASE SELECT ONLY 5 CHOICES – WITH “1” = MOST VULNERABLE TO NATURAL DISASTERS AND “5” = LEAST VULNERABLE.)

	RANK TOP 5	% resp
Employees	mean = 2.2	%resp= 72
Crops	mean = 1.9	%resp=13
Farm-related infrastructure such as fencing, irrigation system, internal roads, agriculture buildings	mean = 2.0	%resp= 15
Vehicles	mean = 3.5	%resp= 40
Inventory of products for delivery	mean = 2.8	%resp= 20
Inventory of merchandise for sale	mean = 3.0	%resp= 26
Office equipment and furniture	mean = 3.4	%resp= 43
Retail facility	mean = 2.7	%resp= 20
Warehouse facility	mean = 3.3	%resp= 20
Manufacturing facility	mean = 2.8	%resp= 9
Information Technology Equipment (computers, hard drives, etc.)	mean = 2.7	%resp= 78
Corporate and Financial Records	mean = 3.5	%resp= 47
Other (specify):	mean = 1.8	%resp= 15

11. What are the most vulnerable systems in your business to natural disaster? (PLEASE SELECT ONLY 5 CHOICES – WITH “1” = MOST VULNERABLE SYSTEM IN BUSINESS TO NATURAL DISASTER AND “5” = LEAST VULNERABLE.)

	RANK TOP 5	% resp
Electrical power	mean = 1.5	%resp= 95
Communications system – land-based telephone and Internet line	mean = 3.4	%resp= 83
Communications system – cellular phone	mean = 3.2	%resp= 67
Information Technology Equipment (computers, hard drives, etc.)	mean = 3.2	%resp= 81
Supply chain for import of supplies and materials for business enterprise	mean = 3.5	%resp= 33
Delivery system to ship products to customers	mean = 3.4	%resp= 20
Fuel delivery system	mean = 3.8	%resp= 28
Potable water system	mean = 3.6	%resp= 45

All of the above	mean = 0	
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12. Do you believe that your community is well prepared for natural disasters in the following areas: (CHECK THOSE THAT YOU AGREE WITH)

Public roads	42%
Commercial harbors	27%
Small boat harbors	16%
Airports.....	50%
Electrical utility system.....	21%
Potable water system	25%
Food.....	22%
Supplies	18%
Insurance	31%
Financing	14%
First Responders (police, fire, EMS).....	72%
Post-Disaster Recovery Assistance (Federal, State, County)	39%
Public Transportation System	19%
Shelters and Evacuation routes	63%
Solid Waste Disposal System	14%
Wastewater Treatment System.....	13%
Community Emergency Response Teams	43%
Other Community Based Preparation & Assistance.....	26%

13. Do you believe that you have enough information so that you know how to respond in case of a natural disaster? (CHECK ONE ONLY)

Yes, I have enough information and am prepared to respond	57%
I have enough information, but I am not well prepared to respond	17%
I am somewhat aware, but I could use more information	18%
I do not know enough information about how to respond	6%

14. From whom have you learned the most about natural disaster preparation? 15. To whom or which agency would you reach out to before, during or after a natural disaster?	Question 14	Question 15
	I have learned from... (MARK THE FIVE MOST IMPORTANT)	I would reach out to... (MARK THE FIVE MOST IMPORTANT)
Civil Defense Agencies	73%	72%
Red Cross	20%	41%
School – mine or my children’s	4%	5%
My business associates	33%	38%
Weather Service	44%	23%
Family and friends	18%	46%
Television	54%	29%
Radio	64%	33%
Newspapers	21%	7%
Nixle	12%	7%
Social Media	9%	15%
FEMA	12%	18%
Electric utility company	12%	24%
Community Emergency Response Teams	18%	39%

16. What sources of information does your business rely on to obtain information on an impending or occurring emergency? (MARK THE TWO BEST METHODS)

Civil defense sirens	42%
Radio announcements	48%
Television announcements	36%
Internet announcements	29%
Text messaging	28%
Police	3%
Word of mouth	3%
Community people knocking on our door	0%
Other ways (specify):	7%

17. For each of the following disaster preparedness measures, indicate whether you have implemented such a program or for your business or not.

	Implemented program		If not, please indicate why not			
	Yes	No	Too expensive	Too few employees	Not enough available information	Didn't know about it
Employee Training	70%	30%	1%	62%	21%	16%
Business Continuity Plan	62%	38%	3%	33%	29%	36%
Back-up of electronic copies of financial and corporate records						
On-site	85%	15%	28%	16%	36%	20%
Off-site	78%	22%	47%	12%	18%	24%
Back-up of print copies of financial and corporate records						
On-site	65%	35%	48%	10%	21%	21%
Off-site	56%	44%	53%	10%	17%	20%
Surge protectors and uninterrupted power supply for computers	94%	6%	75%	25%	0%	0%
Disaster insurance coverage for hurricanes	83%	18%	64%	11%	14%	11%
Disaster insurance coverage for earthquakes	59%	41%	61%	61%	16%	18%
Business interruption insurance to cover loss of income from natural disaster	58%	42%	47%	9%	16%	29%
Emergency Power Backup, such as generators	56%	45%	66%	26%	8%	0%
On site storage of fuel for generators	40%	60%	56%	21%	21%	2%
On-site storage of fuel for vehicles	24%	76%	56%	19%	20%	5%
On-site disaster kits and supplies	66%	34%	13%	26%	33%	28%
In-house disaster scenario planning exercise to plan how the business would respond to any particular natural disaster	58%	43%	6%	37%	41%	16%
Disaster response plan	68%	33%	5%	43%	39%	13%
Evacuation plan	75%	25%	5%	55%	28%	13%
Communications plan to contact employees and customers before and after natural disaster	78%	22%	5%	53%	24%	18%
Plan to handle payroll after a natural disaster	57%	43%	5%	38%	26%	31%
Community Emergency Response Teams	39%	61%	4%	16%	38%	42%

18. Which of the following insurance policy types does your business have?

	Yes	No	Don't Know	Not Applicable
General liability insurance	83%	9%	1%	7%
Vehicle insurance	70%	14%	7%	8%
Structure insurance	70%	14%	7%	8%
Business interruption insurance to cover loss of income to a business from natural disaster	48%	37%	11%	4%
Crop insurance	7%	38%	4%	51%
Natural Disaster Insurance (CHECK ALL THAT APPLY):				
Hurricane	71%	13%	13%	4%
Flood	56%	22%	16%	6%
Wind Damage	60%	17%	19%	4%
Earthquake	40%	29%	27%	4%
Lava flow	6%	46%	21%	26%
Wildfire	22%	36%	25%	18%

19. What are your greatest concerns after a natural disaster? (CHECK ALL THAT APPLY)

Personal safety.....	78%
Safety of employees.....	85%
Prolonged loss of electricity.....	83%
Prolonged closure of commercial harbors.....	50%
Prolonged closure of airports.....	50%
Prolonged loss of communications (phone and Internet).....	85%
Prolonged road access limitations.....	67%
Financial security.....	50%
HR/Payroll.....	28%

20. Has your businesses utilized any of the following resources for recovery?

SBA Recovery Loans.....	2%
FEMA Assistance.....	4%
Farm Service Agency.....	4%
USDA Rural Development.....	0%
Insurance claims.....	15%
Bank loan.....	4%
Other (specify):.....	2%

21. If you checked any boxes above, did these resources help you stay in business?

Yes.....	47%
No.....	25%
Don't know.....	29%

22. Would your business utilize any of the following resources for recovery?

SBA Recovery Loans.....	33%
FEMA Assistance.....	52%
Farm Service Agency.....	14%
USDA Rural Development.....	11%
Insurance claims.....	80%
Bank loan.....	40%
Other (specify):.....	6%

23. Any comments you would like to add?

Thank you for participating in this survey.