Visioning Hawai‘i’s Adaptation to Climate Change
Hawai‘i Ocean Resources Management Plan (ORMP) Partners

Waikiki Beach Marriott Hotel
2552 Kalakaua Avenue, Honolulu, Hawai‘i
August 22-23, 2011

Large Group Facilitators:

James Dator, Ph.D., University of Hawai‘i,
Hawai‘i Research Center for Futures Studies

and

Donna R. Ching, Ph.D., University of Hawai‘i,
College of Tropical Agriculture & Human Resources

Small Group Facilitators/Recorders:

Lisa Kettley, CH2MHILL
Paul Luerson, CH2M HILL

Fiona Langenberger, Hawaiian Islands Humpback Whale National Marine Sanctuary
Joe Paulin, Hawaiian Islands Humpback Whale National Marine Sanctuary
Paul Wong, Hawaiian Islands Humpback Whale National Marine Sanctuary

Miki Lee, Leeway Enterprise

Ruby Edwards, Office of Planning
Ann Ogata-Deal, Retired from Office of Planning, Coastal Zone Management Program

Heather Frey, University of Hawai‘i, Hawai‘i Research Center for Futures Studies
Aubrey Yee, University of Hawai‘i, Hawai‘i Research Center for Futures Studies
SeongWon Park, University of Hawai‘i, Hawai‘i Research Center for Futures Studies
Scott Yim, University of Hawai‘i, Hawai‘i Research Center for Futures Studies
Bumchul Shin, University of Hawai‘i, Hawai‘i Research Center for Futures Studies
John Sweeney, University of Hawai‘i, Hawai‘i Research Center for Futures Studies
Rex Troumbley, University of Hawai‘i, Hawai‘i Research Center for Futures Studies

This project was funded in part by the Hawaii Office of Planning, Coastal Zone Management Program, pursuant to the National Oceanic and Atmospheric Administration (NOAA) Award No. NA09NOS4190120, funded in part by the Coastal Zone Management Act of 1972, as amended, administered by the Office of Ocean and Coastal Resource Management, National Ocean Service, NOAA, U.S. Dept. of Commerce. The views expressed herein are those of the author(s) and do not necessarily reflect the views of NOAA or any of its sub-agencies.

This project was also was funded in part by the USACE Honolulu District's Silver Jackets Initiative.

Table of Contents

List of Acronyms

AARP	American Association of Retired Persons
BMP	Best Management Practices
BWS	Honolulu Board of Water Supply
CDC	Center for Disease Control
CIP	Capital Improvement Projects
CZM	Coastal Zone Management
DLNR	Department of Land and Natural Resources
DOA	Department of Agriculture
DOE	Department of Education
DOH	Department of Health
DOT	Department of Transportation
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GHG	Greenhouse Gas
HCEI	Hawai‘i Clean Energy Initiative
HNL	Honolulu Airport
HIHWNMS	Hawaiian Islands Humpback Whale National Marine Sanctuary
HTA	Hawai‘i Tourism Authority
ICAP	University of Hawai‘i Center for Island Climate Adaptation
IEK	Indigenous Ecological Knowledge
MACZAC	Marine and Coastal Zone Advocacy Council
MPA	Marine Protected Area
NGO	Non-Governmental Organizations
NOAA	National Oceanic and Atmospheric Administration
OCRM	Office of Ocean and Coastal Resource Management
OHA	Office of Hawaiian Affairs
OP	Office of Planning
ORMP	Ocean Resources Management Plan
OTEC	Ocean Thermal Energy Conversion
O‘ahu MPO	O‘ahu Metropolitan Planning Organization
PaCIS	Pacific Climate Information System
Pacific RISA	Pacific Regional Integrated Sciences and Assessments
PacIOOS	Pacific Islands Ocean Observing System
PICCC	Pacific Islands Climate Change Cooperative
PSC	Pacific Services Center
SCD	State Civil Defense
SLR	Sea Level Rise
SOEST	School of Ocean and Earth Science and Technology
TEK	Traditional Ecological Knowledge
TNC	The Nature Conservancy
UH	University of Hawai‘i
UHM	University of Hawai‘i at Mānoa
UHSG	University of Hawai‘i Sea Grant College Program
USACE	U.S. Army Corps of Engineers

Executive Summary

Background
In the course of implementing the legislatively-mandated Ocean Resources Management Plan (ORMP), the multi-stakeholder ORMP policy group and working group recognized a need for policy guidance to frame and effectuate a coordinated effort to adapt to the expected impacts of climate change. In 2009, the ORMP working group partnered with the Center for Island Climate Adaptation and Policy (ICAP) at the University of Hawai'i at Mānoa to develop *A Framework for Climate Change Adaptation in Hawaii.* The desired outcome of the process outlined in the *Framework* is for Hawai'i to adapt successfully to the impacts of climate change.

In order to move implementation of the *Framework* forward, the ORMP partners agreed that a multi-stakeholder workshop focused on developing a collective vision to inform policy related to climate change adaptation was a logical next step. This report, and the accompanying report titled, *Hawai'i 2060: Visioning Hawai'i's Adaptation to Climate Change; A Final Report of the Alternative Futures Exercise at the 2011 Planning Meeting with the Hawai'i Ocean Resources Management Plan Partners,* detail the results of this effort.

Process
On August 22-23, 2011, the State of Hawai'i Coastal Zone Management (CZM) Program, the National Oceanic and Atmospheric Administration (NOAA), and U.S. Army Corps of Engineer's Honolulu District's (USACE) Silver Jackets initiative sponsored a workshop to facilitate the development of the foundation for a statewide climate change policy. Sixty participants engaged in the unique workshop, which combined a futures approach with appreciative inquiry to think "outside the box" and develop a common vision for moving forward.

Participants were selected by identifying representative stakeholders from larger constituencies, thus resulting in a group that was not so large as to compromise the effectiveness of small group participation but still include the broadest scope of interests. Participants represented a wide array of interests, including federal, state and county agencies, academia, Native Hawaiians, environmental non-profits, community organizations, business associates, insurance companies, and youth. The list of participants is attached as Appendix A.

First, the workshop co-sponsors wanted to help participants get outside of their day-to-day budget constraints, time pressures, staff shortages, and vast to-do lists so that they could think bigger and for a larger purpose: re-framing climate change as an opportunity rather than an overwhelming problem for Hawai'i. In order to achieve this goal, the State of Hawai'i Office of Planning (OP) contracted the Hawai'i Research Center for Futures Studies at the University of Hawai'i at Mānoa under Jim Dator, Ph.D., to lead the group through an Alternative Futures Exercise.

This approach is uniquely suited to developing resilient and adaptive policy guidance in the face of high uncertainty. Among other things, it allowed participants to test their normative understanding of the present, under alternative future constructs that account for various multi-sector climate change impacts under various political, cultural, and physical constructs. Dr. Dator and his team transported participants into the year 2060 to experience four different futures based on archetypes of continued growth, discipline, collapse, and transformed societies. The

participants were asked to "live" within these scenarios, accept them as their reality, and evaluate the pros and cons. These experiences enabled participants to articulate aspects of the futures they wished to retain or prevent. Broadly, this process encourages participants to think creatively when developing policies.

For a complete description of the methodology, the alternative futures experienced and discussed, and reactions and results, please see the accompanying report titled, *Hawai'i 2060: Visioning Hawai'i's Adaptation to Climate Change; A Final Report of the Alternative Futures Exercise at the 2011 Planning Meeting with the Hawai'i Ocean Resources Management Plan Partners.*

After the participants experienced the alternative futures for Hawai'i in 2060, Donna Ching, Ph.D., from the University of Hawai'i College of Tropical Agriculture and Human Resources, led the group through an Appreciative Inquiry (AI) session in order to focus attention on how we would like climate change to be addressed in Hawai'i. Rather than focusing on problems and gaps, which can inadvertently create more problems, AI searches for what is *working* in order to lead the group to success and generate new possibilities from a foundation of priorities articulated through a process of collective agreement. The complete AI process followed and outputs from the workshop are included in this report immediately after this Executive Summary, under *Meeting Summary: Group Memory.*

Workshop Results
Participants first worked together to conduct an "environmental scan" of the trends, stakeholders, contributors, competitors, and collaborators that may influence climate change adaptation in the state. Then Dr. Ching facilitated a discussion on the group's values. The group collectively agreed upon the importance of the following **value clusters**:

A. Equity, Diversity, Justice, Socio-Cultural
B. Innovative, Resourceful, Adaptive, Progressive, Bold
C. Collaborative, Community, Cooperation, Inspiration
D. Don't waste, Efficiency, Pragmatic, Discipline, Achievable
E. Economics, Value Ownership, Maximum Economic Value
F. Responsible, Stewardship
G. Sustainable
H. Knowledge, Science-based, Education, Wisdom

The list identifies the values participants agreed to specify with concrete actions because of their importance in a preferred vision for Hawai'i. These values are detailed in the group memory.

Participants then developed climate change adaption "visions" built upon these shared values. **Common themes from the visions** included the following:

- Educated, informed, and aware public that initiated movement;
- Hawai'i as a leader in adaptation technology and practice;
- Adopted ecological-based land use;
- Cross-jurisdictional collaboration;
- Resilient communities and economy;
- Sustainability and self-reliance (related to agriculture, energy, water, waste, etc.);

- Adaptive management and implementation;
- Involvement of research and education system to adapt and capitalize on opportunities;
- Planning for the next "phase" in policy; and
- Removal of jurisdictional barriers.

These common themes provided the foundation for the draft climate change legislative bill that the State of Hawai'i Office of Planning drafted after this session, with continued input from workshop participants and additional stakeholders.

The group then identified two priority strategic issues and developed action plans for each. They are briefly described below.

1. **Strategic Issue #1: Educated Public and Political Will**
    a. Goal: Influence political will regarding climate change through educational efforts.
        i. Action Item/Result: A group formed to create a plan to implement the various objectives developed to achieve the goal for this strategic issue.

2. **Strategic Issue #2: Integrated Planning and Collaboration**
    a. Goal: Better integration of planning among all agencies—county, state, and federal.
        i. Action Item/Result: Group agreement for the ORMP working group to determine who will be responsible for implementing this goal and the associated activities identified.

    b. Goal: Create a better balance of the built and natural (e.g., reforestation) infrastructure to respond to the effects of climate change.
        i. Action Item/Result: Group agreement for ORMP working group to flush out this goal and associated objectives further. Volunteers surfaced to join the ORMP working group to achieve this effort.

After the Workshop

Several next steps from the workshop were implemented immediately. Companion measures Senate Bill 2745 and House Bill 2483 were introduced by the Twenty-Sixth Legislature of the State of Hawai'i 2012 as part of the governor's legislative package. Based on the common themes developed in the workshop, the bills add a priority guideline to the Hawai'i State Planning Act. If passed, climate change adaptation will be integrated into county-adopted general and development plans and implemented through land use permitting and county zoning. State agencies will be required to consider climate change adaptation as part of their decision-making as it relates to programs, budget priorities, and land use actions. In addition to these direct statutory requirements, this would be Hawai'i's first statute on climate change adaptation. The policy supports further work in the area of climate change adaptation through implementation strategies. Workshop participants as well as additional stakeholders were invited to provide input on OP's draft. At the completion of this report, one bill was still alive in the State Legislature as SB2745 SD1 HD1.

Other next steps identified at the workshop for the ORMP working group to move forward have also gained traction and are currently being implemented. These include the formation and subsequent work of two subcommittees on integrated planning and outreach/education, which were created to address the two priority strategic actions identified above. Meeting summaries of the ORMP working group are available online at http://www.state.hi.us/dbedt/czm/ormp/working_group.php.

Conclusion

Overall, the two-day workshop allowed leaders to develop a shared understanding of the inevitable impacts of climate change in Hawai‘i along with a common foundation for a desired future for Hawai‘i’s people, systems, businesses, and resources. Strategies for adapting to the adverse impacts of climate change require a multi-disciplinary, integrated planning approach that takes into account other stressors such as population growth, economic realities, and Peak Oil. The futures exercise allowed diverse stakeholders to experience alternative futures together, which stimulated more comprehensive strategies to address future climate change impacts. The appreciative inquiry approach enabled participants to reach collective agreement on a common vision for Hawai‘i. The end results of the workshop provided a strong foundation for the development of priority guidelines for climate change adaptation, which are being proposed by the Governor of Hawai‘i as an addition to the Hawaii State Planning Act in the 2012 state legislative session.

Meeting Summary: Group Memory

The following Sections 1 through 10 comprise the group memory from the two-day *Visioning Hawai'i's Adaptation to Climate Change* session conducted on August 22-23, 2011. A list of participants is available in Appendix A.

Section 1. Agreement to Plan

After a review of the agenda (Appendix B), the group discussed and agreed upon the ground rules for the two days.

1A. Ground Rules

- You are personally responsible for working toward future solutions/aspirations with our valuable time by:
  - actively listening
  - keeping an open mind
  - maintaining a positive attitude
  - being creative
  - making sure everyone has an equal opportunity to express their ideas (i.e., adhere to time suggestions)
  - being fully present by turning off or silencing all electronic equipment e.g., cell phones and laptops; take all calls/texting outside
  - keeping side conversations to a minimum
- It's OK to disagree as long as we are respectful of each other
- Silence means agreement

Section 2. Alternative Futures Exercise

The workshop co-sponsors wanted to help participants get outside of their day-to-day budget constraints, time pressures, staff shortages, and vast to-do lists so that they may think bigger and for a larger purpose: re-framing climate change as an opportunity rather than an overwhelming problem for Hawai'i. In order to achieve this goal, OP contracted the Hawai'i Research Center for Futures Studies at the University of Hawai'i at Mānoa under Dr. Jim Dator to lead the group through an Alternative Futures Exercise.

For a complete description on this methodology, the alternative futures experienced and discussed by the participants, and the reactions and results, please see the accompanying report titled, *Hawai'i 2060: Visioning Hawai'i's Adaptation to Climate Change; A Final Report of the Alternative Futures Exercise at the 2011 Planning Meeting with the Hawai'i Ocean Resources Management Plan Partners.*

Section 3. Appreciative Inquiry

After experiencing two different alternative futures for Hawai'i in 2060, Dr. Donna Ching, led the group through an appreciative inquiry session in order to focus the attention how we would like climate change to be addressed in Hawai'i.

Section 4. Environmental Scan

As a small reality check, the group quickly conducted an environmental scan of current trends, stakeholders, competitors, and collaborators that may affect the group's efforts related to climate change adaptation.

4A. Trends in the external environment that may affect the group's efforts related to climate change:

- Political discord
- Economic downturn
- Aging population
- Less federal funding
- Greater international donor support
- Energy efficiency
- Corporate greed
- Some alternative energy
- Community movement
- Climate change skepticism
- Aging human built infrastructure
- Social networking technology
- Growing population
- Less resilient natural systems
- Sea level rise
- Growing economic power in places like China
- Decreasing rainfall
- Political log jams at all scales
- Absence of political will
- Globalization
- Widening achievement gap
- Failure to improve education in math and science
- Increasing air temperature
- Growth in racial inequity in regards to income
- Failing infrastructure
- Growing religious intolerance
- Growing reliance on tourism
- Proliferation of pests and diseases moving around the planet
- Decrease in literacy
- Military realignment
- Changing availability and quality of fresh water
- Food dislocations
- Increasing extinction of indigenous species
- Growing reliance on government funding
- Decrease in climate monitoring stations
- Increasing permit complexity
- Changes in society based on emigration related to climate change
- Growing concentration of wealth in a smaller group of people

- Decreasing access to healthy food sources
- Rising obesity in industrialized nations
- Fast increase in computer technology
- Aging satellite network
- More frequent and more severe storms
- Poor education and less prospects for education
- Increased awareness of indigenous culture
- Declining access to education

4B. Stakeholders of efforts related to climate change:

- Farmers
- Citizens at large
- Consumers
- Land owners
- Water systems
- Future generations
- Local, state, and federal government
- Voters
- Corporations – Shareholders, management, employees
- Cultural practitioners
- Local Hawaiians who aren't land owners
- Transient population – snowbirds
- Military
- Other Pacific Island communities
- Tourists
- Environmentalists
- Plants and animals in protected areas
- Fishermen
- Business community
- Homeless
- Elderly
- Scientists & researchers
- Politicians
- Nations
- Private foundations
- Non-profits
- Non-governmental organizations
- Taxpayers
- Recreationalists
- Beneficiaries (tax)
- Educational institutions
- Lawyers
- Vulnerable populations
- Maritime community

4C. Competitors that may have an impact on efforts related to climate change:

- Any policies related to the economic crisis
- Uniformed public
- Health care
- Stakeholders are competitors against each other when interests don't align
- Global economic paradigms
- Religious right
- Climate change deniers
- Countries competing for same resources
- Continued narrative of Hawai'i as tourist destination
- Developing countries
- Secular Humanists
- Vested programs at risk of losing monetary or political support

4D. Collaborators (current and potential) in the eternal environment for efforts related to climate change:

- Oil companies
- Military
- Other Pacific Islands
- Insurance companies
- Business
- Government
- Educators
- Youth & students
- Researchers
- *Kupuna* (elders) and cultural practitioners
- Lobby groups
- Landowners
- Media
- Legislators
- Renewable energy industry
- Engineers
- Public health sector
- Lawyers
- Emergency responders & managers
- Building industry
- Architects
- Tourism industry
- Planners
- *Ali'i* trusts
- The stakeholder list
- University
- Social scientists
- Farmers & ranchers
- Artist community

- Maritime community
- Environmental organizations
- Other countries doing great things
- Community stewardship groups
- FEMA
- Department of transportation
- Journalists
- Watershed partnerships
- Faith based groups
- Federal agencies
- AARP
- State & federal Departments of Defense

Section 5. Values

5A. Our Core Values

The values you have drive the work you do. What are your most important values related to climate change adaptation? Like items have been clustered together and participants voted to indicate the values of highest priority. **Winning value clusters are shown in blue bold.**

Value Clusters	Votes
A. Justice – Equity – Diversity – Socio Cultural	**23**
B. Adaptive – Innovative - Progressive – Resourceful - Boldness – Fearless	**22**
C. Collaborate – Cooperation – Sharing – Community – Inspirational -	**20**
D. Don't waste – Efficiency – Pragmatism – Stick-to-it ness	**19**
E. Ownership – Economics - Maximization of economic value	**17**
F. Responsible – Stewardship	**17**
G. Sustainable	**15**
H. Knowledge – Wisdom – Science based – Education	**12**
I Proactive – Actionable – Urgency/Timeliness	8
J. Respect	8
K. Honorable – Honesty – Authenticity	6
L. Environment – Valuing Species	6
M. Open minded – Inclusionary/Holistic	4
N. Health	4
O. Sharing (generosity) – Compassion – Shared Sacrifice	2
P. Agency – Free will	2

Discussion of Importance of Core Value Clusters

- Value Cluster A: Disparity between communities was most uncomfortable aspect of scenarios for many
- Value Cluster J: All problems stem from lack of respect
- Value Cluster B: Climate change requires us to be adaptive and bold in our thinking
  Value Cluster K: Speaks to the whole issue of integrity of action
- Value Cluster G: Whatever approach or solution we take has to come from within our own resources

- Value Cluster B: Critical that we think expansively and in new ways. Flexibility of thought. Need many options and creativity to address the climate change issue. Issue has many possibilities.
- Value Cluster I/P: By being proactive, you enhance your ability to have free will in the long run
- Value Cluster E: How do we address needs of owners in a way that is acceptable?

4B. Underlying Assumptions

Given the values you have, you develop underlying assumptions about how the world operates. These assumptions determine how you behave and how you expect others to behave.

At this point in the process, participants divided into small groups representing each of the priority value clusters, and they defined behaviors indicative of that cluster. Each group was told to make sure that the behaviors listed were concrete (i.e., behaviors that can be seen) and that each member of the small group could live with and support each behavior. If a member of the group could not live with one of the behaviors, the group would initially try to wordsmith the statement to make it acceptable. If this effort was not successful, the behavior was struck from the list.

When the larger group reconvened, the lists were shared and members of the larger group were asked to indicate their agreement for all items on each of the lists. As with the small groups, if a member of the large group could not live with one of the behaviors, the group would initially try to wordsmith the statement to make it acceptable. If this effort was not successful, the behavior was struck from the list. The final lists below represent behaviors everyone in the room could live with and support (i.e., this is how they will behave in the future and expect others to do the same). *The list below is given in order of the most popular first (A).*

Underlying Assumptions of Core Values:

A. Equity, Diversity, Justice, Socio-Cultural

- Ensuing the policy provides an equitable distribution of benefits and impacts to the people of Hawai‘i
- In development / implementation of policy, respect the viewpoints and the cultures of the people of Hawai‘i
- Be inclusive in mapping risks and vulnerability of many areas (social justice)
- Be respectful of diverse population and activities that occur in Hawai‘i (also raise awareness of climate change induced migrants and visitors
- Include different types of knowledge / full spectrum of knowledge, from cultural practices to engineering and technology
- As sea level rises, ensure equitable and just redistribution and resettlement of land
- Consider equity of bio-diversity (for the sake of bio-diversity), because people depend on natural environment (subsistence, enjoyment, cultural, etc.)
- Recognize the full value of ecological systems and services State and local businesses, communities, and the environment (evaluate the impacts qualitatively and quantitatively)
- Commit to transparency – ensure that everyone has an opportunity to contribute to process

- Implementation of policy is transparent, predictable (you know in advance how you will be treated), and consistent

B. Innovative, Resourceful, Adaptive, Progressive, Bold

- Approach to community
  - come first to learn; come with respect for host culture
- Open minded
- Willingness to learn from each other (e.g., donors ask community what they want – seek respectful relationship / reciprocal relationship with community)
- Have community at the table from the beginning
- Calculated risk-taking: willingness to embrace uncertainty
- Identifying benchmarks that community / agencies use to monitor / assess where we are
- Agencies have internal adaptive management measures to ensure that external adaptations benchmarks are being achieved (e.g., Pacific RISA) (capacity building)
- Permitting is more dynamic – may change as conditions change
- Use of futures-based thinking / analysis to guide policy implementation
- More cross-section interagency, intergovernmental programming and implementation
- Scenario planning; structured decision-making
- Safe process for sharing / reassessing core values and articulate actions and collective agreement on actions across sectors
- Listening org / institution (based on respect)
- Offering alternatives and choices
- Iterative / as learning organization
- Demonstrate "in-their-shoes"
- Provide leadership in terms of articulating alternatives / choices
- Resilient organizations and community
- Actively supporting integration of indigenous knowledge; more intensive research in recovering knowledge base
- Engaging / incorporating state-of-art technology to advance climate change implementation
- Needs to be give and take at the table
- Willingness to accept successes from other places / other communities / other voices – replaces the "it won't in Hawai'i" attitude
- Encourage institutional investment to co-develop knowledge
- Demonstrate success through pilot projects
- Building incremental changes / adjustments, based on demonstrating success
- Response to "clear and present danger"
- More youth leaders at all levels of decision-making
- Integration of values / climate change information into education
- Plan and build on long-term planning horizons for infrastructure + built environment . technology
- Integrating climate change into all planning / sectors
- Plant the seed that change is going to come
- Institutionalize change

- developing mechanisms that / to institutionalize change within and across institutions / organizations/ groups / communities – breaking down barriers to achieving value set
- Acknowledgement of historical exclusion and respects all cultures

C. Collaborate, Community, Cooperation, Inspiration

- Provide multiple opportunities for community involvement
- Include a diverse representation of stakeholders
- Provide continuous education and outreach to include new agency partners
- Demonstrate that community input is incorporated in the decision-making process (listen to understand)
- Lead by example to encourage others to embrace change
- Develop comprehensive policies that serve as role models and inspire implementation at all levels that is adaptable and measureable
- Empower community stewardship groups to participate in the implementation of climate change policy
- Provide opportunity for open dialogue of conflicting views to be woven into a more effective outcome
- Create a forum of stakeholders to encourage participation and continued momentum

D. Don't waste, Efficiency, Pragmatic, Discipline, Achievable

- Exercise good planning to efficiently pool resources, including:
  - financial
  - data
  - labor and expertise
- An outcome would be a "SMART" central clearinghouse
- Assess vulnerability of important infrastructure {by/to} prioritize and focus limited resources
- Craft achievable metrics that are understood by the community and acceptable to Legislature, and compels them to act
- Create a long-range (vision, goals and objectives) that can result in concrete, achievable, incremental actions (show how individual actions affect the whole)
- Adapt to climate change (don't stop it; but do our part)

E. Economics, Value Ownership, Maximum Economic Value

- Ensure plan is economically viable
  - develop triggers / thresholds
- Demonstrate impact of climate change
  - landowners
  - consumers
  - government
- Encourage local businesses (buy local / grow local)
  - lower operating costs for businesses
- Encourage tax system that supports adaptation to climate change (e.g., incentives for landowners to contribute to solution

- Encourage regulatory system that supports adaptation to climate change (e.g., zoning, land use, permitting)
- Encourage adaptation to climate change as a priority in government investment and policy (e.g., require State agencies to plan for adaptation

F. Responsible, Stewardship

G. Sustainable

Discussion of what 'sustainable' means

- Economic, financial, political, environmental, social, has to last
- Can change over time
- Emerging doctrine existing within ecological limits
- Multi-generational life / existence
- Turning over resources and increasing their value
- Human focused, perpetuity, overall picture
- Balance – environment, economic, cultural
    - triple bottom line
- History of Hawai'i = good model
    - functional ecosystems, not natural but existed generation to generation, kapu system
- Affordable – economically sustainable

Behaviors

- Promote public-private partnerships. Government partnering with private interests – business and/or NGOs
- Promote intellectual honesty – about financial constraints / reality
- Incentivize efficiency and conservation – future technology (e.g., save energy – save water – food production)
- De-incentivize inefficient / irresponsible practices / technologies
- Be responsible to others / shared responsibility to future generations
- Engage in a long-term, holistic, multi-disciplinary thought process
- Encourage density and efficient land use – best land management practices
- Promote economically and socially inclusive and integrated communities (e.g., live where you work (near))
- Incentivize innovation and production (e.g., energy, water)
- Encourage out of the box, unorthodox thinking
- Encourage transportation alternatives (e.g., telecommuting, trains, walking, biking)
    - Honolulu as bike-friendly city
- Not limited to tax credits

H. Knowledge, Science-based, Education, Wisdom

- Support grant and award programs (including research and long-term monitoring)
- Improving the baseline / general awareness and understanding of climate issues

- Implement "No regrets strategy"
- Educate the Legislature and decision-makers
    - present information in an actionable manner
    - "worst-case" "most probable case"
- Coordinated public engagement strategy (e.g., carpool to work day)
- Integrate a variety of knowledge types.
- (Explore) Qualitative, indigenous, traditional / IEK or TEK
- Public service announcements
- Mainstream adaptive management (BMPs)
    - (consider long-term implications)
- Explore international strategies (Japan, etc.)
- Make climate information accessible and useable

Section 6. Visioning Exercise

6A. Vision 2031 (The group brainstormed elements of a vision for the adapting to climate change in 2031. They also indicated the strengths they maintained or enhanced, opportunities they fostered, and challenges they had to overcome to achieve the vision.)

Group 1 Discussion

Circumstances in 20 years

- 20 years is a short-term for climate change
- Long-term (100 years?) considered
- Minimum change

Key Elements of their Vision for 2031

- Performance or criteria-driven (not a technology)
- Vulnerability assessments already completed and incorporated in planning
- Funding directed toward implementation
- Training provided
- Integrated into existing processes
- Procurement streamlined
- Infrastructure preserved or sited well
- Counties' plans constantly updated

Strengths they maintained or enhanced

- Adaptable
- Technology-neutral (re: incentives)
- Considered impacts on sectors, agriculture, rail, etc.
- Provided communication, education, public relations of why important to one and to all
- Agencies, NGOs collaborated
- Considered a range of probable (reasonably foreseeable) outcomes

Opportunities they fostered

- Federal funds
- Military already implementing ⇨ Partner

- Hawai‘i is leader for islands
- The Ocean – re-embrace the ocean, our streams
- Collaboration = embracing new ideas
- Major groups in agreement
- Living in an island state

Challenges they overcame
- Money – not enough to climate change
- Slow or low economic growth
- Keep the momentum going
- Hard to plan for long-term when faced with current issues, problems
- Making policies adaptable

Group 2 Discussion
Discussion about 2031:
Protect

(1) State has identified areas of greater value and critical infrastructure (Waikiki, Pearl Harbor, Airports)

Move

(2) Other areas with less development – allow natural processes

Retrofit

(3) Accommodate climate change in transition areas (raise buildings, retrofit)

Diversified economy
- Heavily reduced dependence on fossil fuels / more renewable energy
- Decentralized systems (less central critical systems)
- Tourism still strong components, but altered to focus of areas protected for bio-diversification, climate change

To do so, have capitalized on the following strengths/opportunities:
- Access to government and ability to healthy discourse and continuing tradition of innovation
- Knowledge and general support of population for environmental protection
- Land use system that allows coastal setbacks
- Promoting more education
- Connection between brand, people and tourists
  Redefining brand/grow the brand to continue tourism
- Major challenges that we have overcome but will need to continue addressing
- Finite land
- Political will

Key elements of their vision for 2031

- Figured out carrying capacity – future identified infrastructure needs and built to those needs
- Change in economic engine to allow implementation
- Some attrition (not only relocation)
- Migration from coast
- Buy out/condemn to allow shoreline movement
  neighbor islands / less developed areas
- Wall / dikes to preserve some shoreline areas
  * Waikiki
  * Economic value
- Create development districts in areas with economic value (to be preserved with sea walls)
- Sand replenishment?
- Beach creation?
- Tourism still important
- Pearl Harbor / HNL Airport
  * areas of value

Strengths they maintained or enhanced

- Heavily promoted / invested in renewable energy
- Strong brand
  - not as many entrepreneurs
- Local agriculture
  - development of niche crops
- Environment
  - knowledge of population
  - support for protection
- Adopted setbacks system
- Encourage underground development for protection, multi-use
- Building codes adaptable
- No government building in coastal areas (not harbors)
- Maximize use of water resources
  - all resources e.g., catchment, recycling wastewater
- Building in areas where resources meet needs
- Decentralizing utilities / self contained
- Less infrastructure needed to support development
- Support / allow more native architecture
  - smaller footprint
- Healthy discourse regarding climate change
- Recognition of risks
- Mixed use development
- Enhanced education system / tech-savvy population
  - knowledge / skills
- Reduced dependence on fossil fuels

Opportunities they fostered

- Took advantage of public-private partnerships
  - win-win situations; everyone benefits
- More research through the University to become leader in adaptability
  - geography technology
  - alternative energy
- Private party allies to promote policy implementation
- Conserving open areas, important areas (foresight)
- Leverage Military presence
- Underwater tourism
  - changes in tourism to respond to new conditions
- Take advantage of climate change conditions to market tourism and identify new tourism opportunities
- New fish areas / thriving agriculture

Challenges they overcame

- Economy / lack of funding
- Reliance on tourism; need for more diversification
- Lack of open space
- Uncertainty in future change
- Timeliness
- Need for localized technology (e.g., tropical cyclones for sea level rise)
- Political will
- US land use laws = hindrance (e.g., takings)
- Where to relocate coastal inhabitants
  - infrastructural support?
  - density
- Finite land
- Changing mindset of people
  - getting people to pay for their impact
- Identifying right level of needed infrastructure

Group 3 Discussion

Key elements of their vision for 2031

- Hardened assets that need to be hardened (e.g., seawalls)
- Finding alternatives to hardening the shoreline
- Relocate where we can
- Restore eroding beaches
- Clear idea of the problem and the scale of the problem
- Better idea of impacts of climate change and better prepare for the next phase of it
- Informed public
- Planning for the long-term
- Reduced green house gases
- Trends in data – create a baseline
- County / State/ Federal agencies have adopted climate change policy

- Efficient and sustainable use of resources (e.g., space, water, electricity, land)
- Continuing research into climate change and behavior that mitigate impacts we have on climate change

Strengths they maintained or enhanced

- Clear idea of the problem of the scale
- Brainstorming alternatives and mitigation actions
- University is a resource for more knowledge about climate change (take advantage of that)
- Continued collaboration, think broadly (agencies, communities)
- Needs to be part of a global discussion
- Have time to plan
- Risk and vulnerability assessments
- We have assessments available to work on it right now (e.g., University and an understanding in government)
- Engaging businesses and tourism industry on potential impacts and get their ideas about mitigation or actions to be taken

Opportunities they fostered

- Availability of University and science
- Informing the public about the situation
- Take advantage of the Internet for communication and sharing information
- Take advantage of technology, and use it to be connected to the world
- Implementing lessons learned from other places
- Working closely with military on their efforts
- Opportunity to increase interagency collaboration
- Pooling of resources, even when applying for funding opportunities
- East-West Center at UHM could be a vehicle for an international discussion
- Take advantage of opportunities to restore coastal areas, wetlands, not wasting water – doing what we can individually – pick the low hanging fruit
- Have a climate change agency on State level (generate revenue somehow)
- Establish better dialog with FEMA and Army Corps
- Seek out available funding for projects

Challenges they overcame

- Funding
- Political will (dealing with election cycles, 2 and 4 years)
- Public acceptance
- Misinformation
- Landowners involvement
- Change how we do things
- Denial of the science that climate change is happening
- Science continues to change, it's hard to tell where we'll be in 50 years because methodology/data/predictions keep changing

- Competition for land (relocating homes, businesses, agricultural land, conservation, and infrastructure)
- Communication of science (public, political leaders, all non-scientists)
- Planning time-frame

Structure for narrative of vision

1. Hawai‘i
   Better idea of what the problem and impacts are associated with climate change and informed public which has led to
2. Identification and implementation of sustainable/sound planning and asset management.
3. Continuing research into climate change and behavior that mitigate impacts we have on climate change.

A misinformed public, a result of the nature of science – and the inherent challenges of Hawai‘i such as high comp. for land, funding, and unknown planning timeframes were overcome.

This was achieved through broad participation and collaboration, use of science, global discussion, identifying and using resources, clear communication.

Group 4 Discussion

Key elements of the vision for 2031

- Funding / reliable tool to implement the statewide climate change framework
- Institutionalize ability to keep adapting in response to climate change
- Consulting (making money) internationally in training others in how to adapt to climate change
- Integrate all levels of community in climate change decision-making
- Official and multiple stats for community leaders / cultural practitioners in climate change decision-making
- On going mechanism for legislators / policy makers to develop consistent climate change policies
- Framework that reduces our contributions to climate change and addresses the impacts of climate change to the local
- No longer facing droughts / mastering droughts
- Successful mass transit on each island
- Defined and reduced carbon footprint
- Maximum used agriculture lands / agriculture production can sustain population; protect so it does not become urban
- Rehabilitating natural ecosystems, including coastal / marine
- Improved understanding / community educated and understands their individual actions collectively achieve climate change goals
- Stream rehabilitation for human / animal consumption
- New coastal development must be set back

Strengths they maintained or fostered

- Strong community networks

- Growing collaboration among agencies
- Desire to address the issue
- Government support
- Traditional resources / knowledge
- Not underwater ….Yet
- Diversity on an island. Must work together
- Growing acceptance that climate change is real due to being in island
- Creative minds working on climate change
- Extensive planning infrastructure, local and State
- Examples of development "gone bad"
- Growing community of young leaders
- Strong scientific community

Opportunities they fostered
- Planning infrastructure (integration, collaboration)
- Learning from development mistakes
- Knowledge - increased use of watershed management
- Managing important agriculture land
- Act more quickly on feedback information / data
- Linking health issues to food security
- Large landowners that could make a difference

Challenges they overcame
- Greater climate change education in all levels
- Existing development on coastline
- Collaboration among agencies
- Difference and opposing views
- Because we are islands, we have more immediacy / urgency for climate change adaptation
- Funding for ongoing research and implementation
- Overcome lack of access to healthy foods in underserved communities
- Overconsumption of everything
- Resources not valued in way that will protect them long-term (e.g., inland sand)
- Jurisdictional issues at county level and of development effects of offshore water ecosystems
- Largest landowners aren't supportive of climate change adaptation planning / implementation
- Not willing to pay for climate change; not all can afford to pay

Hawai‘i in 2031 has successfully adapted to climate change in Hawai‘i.
1. In doing so, it is a world-class model and leader in adapting to current impacts and in position to address future climate change issues.
2. We have successfully reduced Hawai‘i's carbon footprint.
3. Our agricultural production now sustains our population.
4. We have rehabilitated our natural ecosystems, including local streams
5. We have developed equitable funding mechanisms to support research, community-based adaptation and implementation of climate change policies and plans.
6. Climate change and adaptation is taught in every classroom because we're islands, and an island society.

Revised the vision….

1. Hawai‘i has tapped its world-class research base and incorporated traditional knowledge and innovated policies to be a world-class model.
2. We've shifted our patterns of over consumption and the way we plan / construct our built environment to reduce our carbon footprint.
3. Our agricultural production sustains our population by empowering communities, and decentralizing Ag production through cooperatives.
4. We built on watershed management principles / practices in early 21st century to protect and rehabilitate ecosystems, including local streams.
5. We've eliminated jurisdictional barriers and increased collaboration among agencies to protect and conserve our coastal zones.

Group 5 Discussion

Key elements of the vision for 2031

- Enforceable land use policies and building codes for long-term SLR and other climate change impacts
- Achieved Hawai‘i Clean Energy Initiative (HCEI) 70% of non-reliance on fossil fuels
- Increased reliance on OTEC for air conditioning of buildings + soil moisturization
- Increased food security
- Formalized process for incorporating new scientific information
- Ocean Resources Management Plan (ORMP) completely integrated into federal, state, and county planning
- Climate change accepted as a hazard and priority to address (with consensus on needs)
- Established thresholds and trigger points for action
- New and innovative technology for conserving fresh water and using alternative sources (gray and salt water)
- Established scientific authority
- Not waiting for complete certainty to make decisions
- Using / basing decisions on widely accepted assumptions and recognizing that these assumptions / predictions change with new data / information
- Reduced / control of GHG emissions
- Have harnessed available options for alternative energy (diversified energy supply)
- Strong financial commitment from all levels of government
- Strong network of Marine Protected Areas (MPA)
- Strong, comprehensive statewide plan

Strengths they maintained or fostered

- Well written ORMP
- Access to research
- Many collaborative partners working together to address this issue
- Alternative energy options abound in Hawai‘i
- Have strong financial commitments at federal, state, and county levels to address this
- Well established MPAs in the State; thus healthiest ecosystem in nation

Opportunities they fostered

- Alternative energy options
- Business-friendly state government
- Incubate technologies that can be exported to the rest of the world
- World leader in eco-tourism
- Existing infrastructure in agricultural lands (e.g., irrigation systems)
- Private sector – create environment to encourage private-public partnerships [also a challenge]
- Can quantify risk and vulnerability through assessments
- Identifying climate change as a hazard opens up opportunities
- Proven technology that have worked in the past (bagasse → waste from sugar cane in mills)
- Maximize utilization of available land
- Established proven techniques in *ahupua'a* management system – founded in our history
- Still have viable aquifers (e.g., Central O'ahu)

Challenges they overcame

- Making energy infrastructure resistant to climate change impacts
- Isolation / remote location makes us vulnerable (e.g., reliance on imported fuel)
- Isolation raises overall costs
- Infrastructure and access is mainly coastal; and is aging
- Structure of state government – ineffective because not formed by function
- Inability of elected officials to address climate change
- Economic impact of all we must do; effect on land ownership; requires buy-in – not only government
- Resistance to pay for adaptation
- Policies of incentives don't capture large landowners
- Potential back lash from landowners / others/ counties
- Lack of clear solutions to address climate change
- Making energy infrastructure resilient to climate impacts
- Maximize utilization of available land
- Reliance on tourism – vulnerable industry (especially in light of fuel costs)
- High costs due to geographic isolation (imports / livelihoods overall)
- Enforce land use policies – may have winners and losers – resistance to abide by policies [how to make enforceable and consistent]
- Still have viable resources – don't want to rely on them too much (long-term planning)

Potential Impacts of Climate Change by 2031

↑ SLR (approximate 7 inches)

↓ Rain

↓ Freshwater available
Saltwater intrusion
More severe storms
Ocean acidification

↑ Temperatures
Terrestrial species moving *mauka*

Group 6 Discussion

Key Elements of Vision in 20 years (2031)

- Take care of our own waste
- Elevated reef runway; secured or relocated coastal infrastructure
  - Priority
- Integrated and solutions
- Adapt to less rain; healthy forests; incentivize water catchment and retention [individual and government action]
- Restored *lo'i* (taro field) and fishpond
- Educated and informed and engaged public
- Effectively managed invasive species threats
- Engaged in new energy, water, and food measures and technologies
- Treatment
- Potable water
- Work.Play.Live communities
- Communities have smaller "footprint"
  - Transition towns
  - Implementation of smart growth strategies
- Readapted roadways – new transportation alternative
  - Less individual transportation, more group; people powered
- Social justice achieved – not just pilot project, ubiquitous
- Hawai'i not a net contributor to climate change
- Effective and integrated disaster plan

Strengths they maintained or fostered

- *Ahupua'a* tradition
- Successful collaboration across sectors and jurisdictions
- High level of local engagement
- Leader in using and developing alternative energy
- Leader in bioengineered solution
- Strong research and scientific community
- Use a deep ocean water – for energy generation and efficiency
- Taken advantage of our natural resources
- Pro-active government
- Distributed alternative energy – not centralized or dependent on one entity
- Consistent, diverse funding
- Government incentives for transformation
- Not risk driven
- Compressed watersheds
- Diverse, island-based ecosystems
- Sense of individual and collective responsibility

Opportunities/Challenges

- Funding
- Defined geography continues to be a challenge (isolation) + opportunity
- Finite amount of space – increased population
- Energy, water, food, waste
- More adaptive
- Political will

Effectively telling Hawai‘i’s unique story

- Multi cultural
- New impacts of climate change exist
- Unanticipated by-products of recent actions realized (20 years)
- Reliance on out-of-state sources for manufacturing
- Will never be totally self-reliant

6B. Small Groups Visions for 2031: Narratives

Each group then developed a narrative to succinctly articulate their visions for Hawai‘i in 2031 based on their discussions above.

Group 1

State and counties have integrated climate change planning in all our major functions. We have educated our people on climate change. Businesses price their products to reflect climate change risk. Our infrastructure is adapted to the effects of climate change. Government encourages and incentivizes good choices in support of the policy. All government agencies (federal, state, counties) and the private sector continue to collaborate on coherent strategy. We have maintained momentum for implementation and to ensure the policy is adaptive (e.g., consider best practices often).

Group 2

The key elements to our strategy to adapting to climate change are to identify critical areas for protection, conservation, and accommodation. The key driver for our strategy was a resilient and diversified economic engine that allowed the growth of renewable energy and decentralization of significant infrastructure.

In order to do this, we capitalized on access to government and stakeholders through the ability for healthy discourse. We also continued a tradition of innovation, and took opportunities to capitalize on new conditions created by climate change. For example, growing the “aloha” brand by adapting for new tourism opportunities. Our effort has been supported by continued education. Challenges that we have overcome, but will need to continue to address are economics, finite land, and political will.

Group 3

Hawai‘i has a better understanding of the problems and impacts associated with climate change. Our informed public has supported the identification and implementation of sustainable and sound planning and asset management.

We overcame the challenge of a misinformed public- a result of the nature of science- and the inherent challenges of Hawai‘i, such as high competition for land, funding, and a lack of established planning timeframes. This was achieved through broad participation and collaboration, use of science, global discussion, identifying and using resources and clear communication.

Hawai‘i continues climate change research and adapts behaviors that mitigate the impacts we have on climate change.

Group 4
It is 2031. Hawai‘i has successfully adapted to climate change. In doing so, Hawai‘i has tapped its world-class research base and incorporated traditional knowledge and innovative policies to be a world-class model and leader in adapting to current impacts and is in a strong position to address future climate change issues.

We've shifted our pattern of over-consumption and the way we plan/construct our built environment to reduce our carbon footprint. Our agricultural production sustains our population by empowering communities and decentralizing agricultural production through cooperatives.

We've built on watershed management principles and practices emergent at the turn of the century to rehabilitate natural ecosystems, including local streams.

We've eliminated jurisdictional barriers and increased collaboration among agencies to protect and conserve our coastal zones.

We have developed equitable funding mechanisms to support research, community-based adaptation, and implementation of climate change policies and plans. Because we are an island society and can accept that climate change will impact us, we moved quickly to ensure that climate change and climate change adaptation are taught in every classroom so that everyone understands that their individual actions are critical to achieving our climate change goals.

Group 5
Continuous and ongoing risk and vulnerability assessments have enabled Hawai‘i to establish thresholds and trigger points for action that incorporates best available science. Hawai‘i's public accepts the hazards of climate change and agrees that they are priorities to address. Communities and individuals have made changes that elevate Hawai‘i as a model for resiliency and self-sustainability. Informed, aware, and resilient communities are driving the development of policies and mandates for climate change adaptation.

Specific results include:
- New enforceable policies and building codes (e.g., land use policies, freshwater conservation and re-use, etc.) have been developed and successfully implemented.
- Strong commitments at federal, state, and county levels to fund climate change adaptation are in place.
- Hawai‘i is poised as a potential incubator for new technologies for climate change adaptation based on our geography, climate, etc.

- Based on Hawai‘i’s successful climate change adaptation (including our use of alternative technologies, extensive MPA network, etc.) has resulted in Hawai‘i becoming an exemplary tourist destination.

Group 6
Hawai‘i is energy, water, and waste independent. Our built and natural infrastructure is adaptive and resilient to climate change. Communities – individuals, government, research, and scientific sectors – are responsible, proactive, and engaged. We have achieved a healthy balance of locally produced and imported products. Hawai‘i is a net carbon sink and leader in technology and practice of the reduction of global carbon footprint.

6C. Common Themes of Visions for 2031

After all of the above narratives were read aloud to the large group, the participants identified the common themes that they heard across multiple visions. *These common themes provided the foundation for the draft climate change legislative bill that the State of Hawai‘i Office of Planning drafted after this session, with continued input from workshop participants and additional stakeholders.*

- Educated, informed, and aware public that initiated movement
- Hawai‘i as a leader in adaptation technology and practice
- Adopted ecological-based land use
- Cross-jurisdictional collaboration
- Resilient communities and economy
- Sustainability and self-reliance (related to agriculture, energy, water, and waste, etc.)
- Adaptive management and implementation
- Planning for the next “phase” in policy
- Involvement of research and education system to adapt and capitalize on opportunities
- Collaboration across sectors
- Removal of jurisdictional barriers

5D. Other important themes mentioned

The group also identified a few other important themes that surfaced, but that were not necessarily included in multiple vision narratives.

- Priorities for protection
    - What is economically practical to protect?
    - What areas will we let go?
    - How do we turn impacts into opportunities?
- Tourism impacted in a positive way- adapting to a new form
- Funding mechanism
- Reducing our own carbon footprint
- Watershed management system – natural and built systems/infrastructure

Section 7. Strategic Issues and Goals

7A. Strategic Issues Identified, Categorized, and Prioritized. Participants were each given two sheets of paper and asked to identify the two most critical issues related to

climate change that they believe need to be addressed in the next 5-10 years in order to achieve the visions just articulated. Like items were clustered together below and a title was provided for each cluster. The number in parenthesis next to each title is the number of sheets of paper that were categorized under that heading.

1. **Educated Public (18)**
    - An informed and engaged population, from state and county decision makers to business and community leaders, to *kupuna* and *keiki*;
    - Engaged, informed, and educated public;
    - Informed and aware public/communities;
    - Educate, educate, educate;
    - Educated/Informed public;
    - An informed and aware public is critical to policies that are supported by the very people the policies will impact;
    - Educate and engage public;
    - Public awareness;
    - Educated public;
    - Community education;
    - Educate the public about the likely impacts of climate change;
    - Social acceptance;
    - Informed citizenry;
    - Public education on impacts of climate change;
    - Convince the potential businesses to be impacted;
    - Convince the public;
    - Informed public; and
    - Community buy-in on need to adapt for climate change.

2. **Collaboration (12)**
    - Collaboration of cooperation across jurisdictions (federal, state, county) and sectors (agriculture, tourism, public, health, etc.);
    - Collaboration;
    - Enable inter/intra departmental communication and cooperation;
    - Public and private collaboration;
    - Interagency collaboration and action;
    - Need for cross-jurisdictional collaboration;
    - Balance/compromise between business and environmental interests;
    - Increase stakeholder group outreach;
    - Collaboration at all levels and stages of process;
    - We need the collaboration of levels of government and the private sector to implement the policy;
    - Remove barriers to promote public/private partnerships; and
    - We need the buy in of all parts of Hawai‘i- decision makers, businesses, property owners, citizens.

3. **Sustainable (11)**
    - Energy, water, and waste independence;

- Increase local organic food production;
- Be self reliant;
- Sustainable (self reliant);
- Reduce consumption/waste (tax/incentivize);
- Uncertainty of future fresh water availability;
- Hawai‘i is energy, water, waste independent;
- Healthy, functioning environment (a.k.a. natural capital);
- Cease overconsumption;
- Increase the efficiency of energy use;
- 

4. **Integrated Planning (10)**
    - Infrastructure resiliency;
    - Develop resilient build and natural environment and infrastructure;
    - Make the city *city* -- densify existing urban areas;
    - Integrated climate change planning;
    - Long-term/cross-disciplinary planning;
    - Break down barriers/urgency;
    - More futures thinking about the place of Hawai‘i and reliance on tourism economically;
    - Multi-generational thinking;
    - Lack of foresight or integration of futures thinking at institutional level across various sectors; and
    - Property rights and government takings.

5. **Funding (8)**
    - To get “there,” federal, state, and county government must budget for the long-term those actions that mitigate climate change adaptation;
    - Encourage private investment;
    - Funding and implementing early adaptation projects;
    - Dedicated funding;
    - Funding mechanisms;
    - Funding improvements in education infrastructure;
    - Support (fund) diverse messengers to inform about climate change besides scientists so the general population will be supportive/believers
    - 

6. **Political Will (8)**
    - Political will;
    - Political will;
    - Political will;

- Political will;
- Political will;
- Politicians (and public) has the political will to adapt to climate change;
- Leadership in legislature to pass climate adaptation policy; and
- Getting majority consensus.

7. Incentives (4)

- Incentivize transportation alternatives;
- Aligning incentives to promote a resilient economy;
- Incentives for private sector innovation to lead the way; and
- Agricultural land and water use -- the availability, support for, and incentives to make agriculture viable and an integral part of the society.

7B. Top Two Strategic Issues Analyzed. After a discussion about the meanings behind the main categories listed above, the group decided to tackle the clusters of *educated public* and *political will* to create Strategic Issue #1 because one can lead to the other. In addition, the group agreed to analyze the clusters of *collaboration* and *integrated planning* together under Strategic Issue #2 because they are similar in their purposes and methods. The initial discussions and analyses for each of the top two strategic issues are below.

i. Strategic Issue #1: Educated Public and Political Will

- **Best Case Scenario (what success looks like)**
  - Everyone working together easily
  - Implementation of policies
  - Able to articulate successfully to different constituencies their stake in the issue; they successfully communicate to their decision maker
  - Important constituency to be educated = business
  - Funded legislative task force focused on climate change
  - Includes other entities – e.g., departments
  - Reflected in state budget

- **Supporting forces**
  - Business entity
  - Chamber of commerce takes active leadership role in advocating for adaptation
  - Important constituency to be educated = business
  - Continued and increased federal recognition of climate change (e.g., potential FEMA/CDC funding)
  - Hotel/tourism industry is active advocate
  - Hawai‘i Hazard Mitigation Forum as advocate
  - Military is supporting force
  - DOE should be supporting force
  - Kids should be supporting force
  - Engaging insurance industry
  - Banking/mortgage industry

- Environmental groups

- **Restraining forces**
  - Unions
  - Denial/fear
  - Lack of alternatives that people can implement
  - Too many issues that demand attention; too many big issues/calamities; lack of focus
  - Media (can be supporting or restraining)
  - Lack of funding; unallocated funding
    - Too onerous to get funding
  - Perceived timeframe (too far in future)
  - Vagueness in definition of climate change
  - Perceived need for consensus
  - Siloed bureaucracy

- **Potential Goals**
  - Enlist media as ally
  - Support scientific efforts that document climate change
  - Identify spokesperson with a lot of integrity and is accepting and trusted by the public (e.g., Nainoa Thompson)
  - Clear articulation of benefits of addressing climate change and costs of not addressing
    - Costs accrued
    - Provide real examples
    - For each stakeholder group
  - Pool resources across agencies
  - Funding public awareness campaign to enable enlisting media as ally and identifying a spokesperson with a lot of integrity and acceptance within community
  - Legislative task force (body to integrate)
  - Incorporate climate change into education system
  - Make issues personal; make emotional connection
  - Spin/focus on positive; illustrate how people will emerge on other side

ii. Strategic Issue #2: Integrated Planning and Collaboration

- **What's in our favor?**
  - DOT is already doing this…
    - HI statewide transportation plan
    - Forum, new proposed structure to integrate other agencies, county and state, and additional disciplines
    - Include section on climate change (25 year plan)
      - Proposed analysis of system
      - Existing planning process
    - O'ahu MPO – testing transportation infrastructure

- Numerous collaborative efforts are underway
  - ORMP
  - PICCC
  - HTA/Sea Grant
  - PaCIS
  - PRiMO
- New Day Plan – specifically calls out SLR as a climate change impact
- New climate change risk and vulnerability assessments (NOAA, Corps, ICAP, OP)
- Livable Cities Initiative
- Staff who know they should be collaborating
- Maui Island Plan – include climate change
- West Maui Watershed Plan
- Office of Planning & PaCIS – statewide and Pacific-wide inventories of efforts, although not everything is included yet
- Native Hawaiian Ocean Council – planning (2012)

- **Obstacles**
  - Institutional barriers
  - Permitting- doesn't account for climate change
  - Long processes (3-10+ years)
  - Development approach/attitude – we don't like it and make it hard
  - No development plan/priorities with climate change in mind
  - Private market driven
  - Economic disincentives
  - Current planning and zoning policies do not allow for climate change impacts/threats
  - Economic downturn – competition for money
  - Presumptions: economy will turn around *and* oil money will stabilize; energy independence doesn't seem to be a priority
  - Untapped alternative energy technology/exploration
  - No lead entity on climate change – many agencies working with no central framework – YET
  - Not good at integrating hard and natural infrastructure
  - Private sector not involved enough – reduce government barriers
  - Sunshine Law makes conversation/collaboration difficult – no safe place for conversation
  - Unfunded mandates

- **Potential Goals**
  - Reduce government barriers and/or increase incentives to encourage private market innovation
  - Maximize built and natural infrastructure to respond to effects of climate change = integrate planning processes
  - Ecosystem restoration and conservation projects as CIPs
  - Safe place for on-going conversation across agencies
  - Better integration among all entities/agencies

- Faster
- More Native Hawaiian involvement
- Integrated
- Across counties – better align climate change efforts for community planning/general planning – share, common language, Now!; Assumptions; education
- Develop climate change evaluation tools and guidance – for use among/between all
  - Include inventory of all activities
  - Assessment by: driver/impact
- Connect resources to activities

Section 8. Results

8A. Action Plans to Address Strategic Issues in order to move toward Vision

After the top two most critical issues to address related to climate change were identified and analyzed, each group developed the beginnings of action plans to move the issues forward. Identifying next steps and who would work on them was a major piece of this part of the workshop.

i. Action Plan for Strategic Issue #1: Educated Public and Political Will

Goal: Influence political will regarding climate change through educational efforts
Objectives/Actions:

- Create climate change forum (use energy forum as model)
- Develop elements of case (science-based knowledge)
  - Economics
  - Real life examples
- Identify stakeholder groups to be educated
- Find ways to communicate message to different stakeholders
- Identify funding for public awareness campaign
- Find resources and enlist assistance to develop compelling case
- **Develop group to use information in impacts document to create plan. **
  - Gordon Grau
  - Darren Learner
  - Carlton Saito
  - Clarence Nishihara
  - Leo Asuncion
  - Steve Frano
  - Chip Fletcher
  - Barry Usagawa
  - Bethany Morrison
  - Melissa Iwamoto
  - Identify mechanisms for education

- Use impacts document to develop a compelling case (or straw man of it, since only some of climate change impacts are covered, and there are likely holes to fill in).
- Use group as sounding board to identify mechanisms and who to focus on for compelling case, etc.
- Reach stakeholder groups with goal to encourage decisions that move us to address climate change

Other thoughts related to the Action Plan:

- Conduct market surveys and assess levels of understanding
- Utilize impacts document material to begin drafting compelling case
- Strategic-targeted groups
  - Use these groups to distribute further
- Use legislative briefing package developed for ORMP as model
- Consistent campaign
  - Simple language
  - Tailored to different groups
  - Integrate emotional ties
- Double-pronged approach:
- *If this group does the work to create this education effort, then the political will be created to implement the policy.*

ii. Action Plans for Strategic Issue #2: Integrated Planning and Collaboration

Goal 1: Better integration of planning among all agencies
Who: State planning, counties, etc.
Activities:

- Identify key agencies and ongoing efforts and resources
  - Adaptation planning (climate change)
  - General planning
  - Producers of information and tools (science, research, tools)
- Align state and county planning about climate change (many doing this in different ways)
  - Land use development and permitting
  - General plan and community plans
  - Functional plans (state and county)
- Implementing best practices for climate change adaptation
  - Customize for Hawai‘i
- Safe place to dialog on implementing climate change policies across agencies across agencies
  - ORMP
    - Monthly ORMP working group meetings
  - Continuation of this whole effort
- *****Follow up:** with ORMP working group to determine who will be responsible for implementing this goal and these activities. ***

Goal 2: Create a better balance of the built and natural (organic) infrastructure to respond to effects of climate change (e.g., reforestation)

Objective a: Reduce government barriers and/or increase incentives to encourage private market innovation

- **Action 1:** Change state and county policies and laws to incentivize natural infrastructure
- **Action 2:** Tax incentives to encourage natural infrastructure
- **Action 3:** Streamline and incentivize permit and zoning process for climate change adaptation (e.g., reforesting portions of developed areas; invasive species; ICAP monitoring example)

Objective b: Ecosystem restoration and conservation projects become drivers for government incentives

- **Action 1:** Government makes ecosystem restoration on par with capital improvement projects for built environments
- **Action 2:** Change government policy to recognize how special areas/resources provide economic and engineering services (e.g., some areas with healthy reefs may reduce need for seawalls)

Objective c: Built and engineering solutions must accommodate and account for climate change impacts

- **Action 1:** Develop government policy similar to Kauai Coastal Erosion Policy (e.g., analysis that considers x years of erosion)
- **Action 2:** Establish planning framework of future scenarios for climate change impacts (e.g., U.S. Army Corps of Engineers SLR guidance)

******Follow up -*** *can flush out with ORMP working group – with time. Mark Fox has volunteered to join the effort on achieving this with the ORMP working group. ***

8B. Core Group from Planning Meeting to help OP vet the Draft Policy

- Brian Gibson: O'ahu MPO
- Robin Kaye: MACZAC, neighbor island representative
- Mark Fox: TNC, NGO
- Doug Harper: NOAA PSC
- April Surprenant: County of Hawai'i Planning Department
- Sandra Rossetter: State of Hawai'i DOT Harbors
- Scott Glenn: Private Sector Planning; Environmental Council

8C. Basic Timeline Moving Forward

- OP draft policy
- Core drafting group above review/discuss/refine
- Full workshop group review/refine
- Additional stakeholders review/comment
- Final Revisions by OP
- Finalize by 9/30/11 for inclusion in Governor's 2012 legislative package

Section 9. Evaluation

Meeting Evaluation for Day 1

+ (liked)	Δ (things to change)
• Facilitators did a good job to get participants to react • Doing futures exercise • Like being a trillionaire • Open-mindedness of participants • Lunch	• Wish everyone had agreed to 3 days • Change exercise to 2021 (instead of 2060)

Meeting Evaluation for Day 2

+ (liked)	Δ (things to change)
• Got to the meat of it • Strategic issues exercise • People stuck around to the end • Liked small group discussions because they encouraged discussion • Facilitators and recorders did a good job tracking • People asking hard questions that challenge our thinking • Collective assumptions about climate change as a foundation for discussion	• Control digressions in small groups • When dealing with futures & visioning process, utilizing specifics on most probable and worst case • Transition from visions and values to specific actions was challenging (could provide more ground rules on how to approach this) • More clarity as individuals and organizations participating in the process • Better utilize expertise in room (e.g., NOAA, UH) to define parameters of discussion

Section 10. Wall Safe

Throughout the two-day workshop, a couple of broad items came up that the group wanted to keep track of and address. These items were placed on the "wall safe" and discussed as appropriate.

- Concern that value behaviors will be subsidized or required by government money, which is limited.
- Fundamental question is who is going to pay for the actions and who is going to benefit.

Appendix A. List of Participants

Affiliation	Name
Center for Island Climate Adaptation & Policy	Maxine Burkett
Center for Island Climate Adaptation & Policy	Zena Grecni
City and County of Honolulu, Department of Planning & Permitting	Jiro Sumada
City and County of Honolulu, Department of Planning & Permitting	Randy Hara
Commission on Water Resource Management	Neal Fujii
County of Hawaii, Planning Department	April Surprenant
County of Hawaii, Planning Department	Bethany Morrison
County of Hawaii, Planning Department	Bobby Jean Leithhead Todd
County of Kauai, Planning Department	Dale Cua
County of Kauai, Planning Department	Dee Crowell
County of Maui, Department of Planning	Jim Buika
County of Maui, Department of Planning	Michele McLean
Dept. of Agriculture, Aquaculture Development Program	Todd Low
Dept. of Health, Clean Air Branch	Willie Nagamine
Dept. of Health, Environmental Health Administration	Gary L. Gill
Dept. of Health, Environmental Planning Office	Maile Sakamoto
Dept. of Health, Health Resources Division	Judy Kern
Dept. of Health, Polluted Runoff Control Program	Brian Hunter
Dept. of Land & Natural Resources	William M. Tam
Dept. of Transportation, Harbors Division	Sandra Rossetter
Dept. of Transportation, Statewide Transportation Planning Office	David Shimokawa
East-West Center	Melissa Finucane
Environmental Council	Scott Glenn
Hawaii Chamber of Commerce	Jim Tollefson
Hawaii State Legislature	Clarence Nishihara
Hawaiian Islands Humpback Whale National Marine Sanctuary	Malia Chow
Honolulu Board of Water Supply	Barry Usagawa
Island Insurance	Jim Dixon
Kaʻala Farm	Eric Enos
Kākoʻo ʻŌiwi	Kanekoa Kukea-Shultz
Marine and Coastal Zone Advocacy Council	Jim Coon
Marine and Coastal Zone Advocacy Council	Robin Kaye
NOAA Office of National Marine Sanctuaries, Pacific Islands Region	Allen Tom
NOAA OCRM	Bill O'Beirne
NOAA OCRM	Steve Frano
NOAA Pacific Services Center	Adam Stein
NOAA Pacific Services Center	Doug Harper
NOAA Pacific Services Center	Kristina Kekuewa
Oahu Metropolitan Planning Organization	Brian Gibson
Oahu Metropolitan Planning Organization	Randolph Sykes
Office of Hawaiian Affairs	Jeffrey Kent
Office of Planning	Jesse K. Souki
Office of Planning, CZM Program	Leo Asuncion
Office of Planning, CZM Program	Marnie Meyer
Office of Planning, CZM Program	Melissa Iwamoto
Office of Senator Mike Gabbard	Carlton Saito

Affiliation	Name
Pacific Climate Information System	John Marra
Pacific Islands Climate Change Cooperative	Deanna Spooner
Pacific Islands Ocean Observing System	Chris Ostrander
Public Utilities Commission	Josh Strickler
State Civil Defense	Dawn Johnson
The Nature Conservancy, Hawai‘i	Mark Fox
U.S. Army Corps of Engineers, Honolulu District	Athline Clark
U.S. Army Corps of Engineers, Honolulu District	Cindy Barger
University of Hawai‘i, SOEST	Brian Taylor
University of Hawai‘i, SOEST	Chip Fletcher
University of Hawai‘i, Sea Grant College Program	Darren Lerner
University of Hawai‘i, Sea Grant College Program	Gordon Grau
Waikiki Improvement Association	Rick Egged
Youth representative	Jamaica Osorio

Appendix B. Agenda

Visioning Hawai'i's Adaptation to Climate Change

Hawai'i Ocean Resources Management Plan (ORMP) Partners*

Waikiki Beach Marriott, 2552 Kalakaua Ave. Honolulu, HI

August 22-23, 2011

Monday, August 22, 2011 – Alternative Futures Exercise & Visioning

7:30 – 8:00 am	**Registration and Coffee**
8:00 – 8:05 am	**Pule**
8:05 – 8:20 am	**Welcome and Opening Remarks** by Jesse Souki
8:20 – 9:50 am	**Introductions**
	Alternative Futures Exercise
	Dr. Jim Dator – Introduction of futures and explanation of the exercise
	Ground Rules - Jim and Donna
9:50 – 10:00 am	**Break**
10:00 – 11:30 am	Alternative Futures Exercise: Round 1
11:30 – 12:15 pm	**Lunch** on site (provided)
12:15 – 1:45 pm	Alternative Futures Exercise: Round 2
1:45 – 2:45 pm	Debrief of Futures Exercise in large group
2:45 – 3:00 pm	**Break**
3:00 – 3:20	**Transition to Visioning**
	Dr. Donna Ching – Determining our path based on where we want to be
3:20 – 4:00 pm	Environmental Scan
4:00 – 4:45 pm	Values Exercise
4:45 – 5:00 pm	**Evaluation** (+/Δ)
5:00 pm	**Pau**

*This meeting is funded in part with support from the Office of Planning/Coastal Zone Management Program (NOAA Award No. NA09NOS4190120) and the USACE Honolulu District's Silver Jackets Initiative.

Visioning Hawai‘i’s Adaptation to Climate Change

Hawai‘i Ocean Resources Management Plan (ORMP) Partners*

Waikiki Beach Marriott, 2552 Kalakaua Ave. Honolulu, HI

August 22-23, 2011

Day 2 – Tuesday, August 23, 2011

7:30 – 8:00 am	**Registration and Coffee**
8:00 – 8:05 am	**Pule**
8:05 – 8:35 am	**Review** what was accomplished on Day 1
8:35 – 8:50 am	**Supporting Remarks** by Lieutenant Governor Brian Schatz
8:50 – 10:15 am	Dr. Donna Ching - Values Exercise (con’t. from Day 1)
10:15 – 10:30 am	**Break**
10:30 – 12:15 pm	Visioning Exercise
12:15 – 1:00 pm	**Lunch** on site (provided)
1:00 – 2:15 pm	Strategic Issues
2:15 – 4:45 pm	Goals Articulated and Action Plans Developed
4:45 – 5:00 pm	**Evaluation (**+/.)
5:00 pm	**Pau**

Mahalo nui loa for your participation and input!

*This meeting is funded in part with support from the Office of Planning/Coastal Zone Management Program (NOAA Award No. NA09NOS4190120) and the USACE Honolulu District’s Silver Jackets Initiative.