Climate Adaptation and Hazard Management in East Honolulu
Workgroup Meeting #1
January 28th, 2016, 6:30pm-8:30pm
‘Aina Haina Elementary School Cafeteria

1. Welcome and purposes of the meeting, Kem Lowry, UH facilitator
   - Provide basic information about the potential impacts of climate change on O‘ahu
   - Relate climate adaptation to other community planning activities;
   - Discuss examples of potential “low regrets” adaptation activities;
   - Identify information gaps to explore;
   - Identify possible next steps.

2. Presentation: Climate Change and Sea Level Rise, Dolan Eversole,
   University of Hawaii Sea Grant Program

Climate Change and Sea-Level Rise
East Honolulu Climate Change and Coastal Hazard Adaption Workshop
January 28, 2016

Dolan Eversole-
University of Hawaii Sea Grant Program
Several key studies and reports provide the technical justification for climate adaptation action in Hawaii:

- **Intergovernmental Panel on Climate Change** (IPCC) is widely accepted compilation of scientific findings on climate change
- The National Oceanic and Atmospheric Administration (NOAA) **National Climate Assessment** (NCA) is the primary U.S. government compilation
- **Climate Change Impacts** report quantifies the potential costs if we don’t adapt
- **PIRCA 2012** is Hawaii’s version of the NCA in Hawaii prepared by the UH Sea Grant Program

- **Hawaii Act 83, 2014 (Hawaii Climate Adaptation Initiative Act)** established the Interagency Climate Adaptation Committee led by the State Department of Land and Natural Resources (DLNR) and the State Office of Planning (OP) and charged with the responsibility to develop a sea-level rise vulnerability and adaptation report to the 2018 State Legislature.

- Sea level rise (SLR), storm surges and groundwater inundation will result in more frequent episodic flooding and coastal erosion
- Adaptation to increased flooding in terms of accommodation, protection and relocation of structures will be necessary.

3. **Q&A response to Dolan Eversole Presentation**

- The ‘Coral Triangle’, which includes the Marshall Islands, is the most threatened country by increased inundation in Southeast Asia. They are experiencing 10x what we are currently seeing here.
- SLR is calculated from tidal gauge data close to real-time by the US Army Corps of Engineers (USACE) [online tool](#).
- SLR is going to begin to have observable impacts potentially by mid-century, but we have bigger problems to worry about first. Preparing for the increased likelihood of Category 3 or Category 4 hurricanes should be a high adaptation priority. The Aulani Hotel is the only structure built to withstand a category 3 hurricane. We need to play our part along with the rest of the world in mitigating global climate change by reducing greenhouse gas emissions. Regardless of how well the worldwide effort to control greenhouse gas emissions goes, we in Hawaii will have to decide how to adapt to the climate change impacts on Hawaii’s weather, sea levels, rainfall and temperatures that global warming is already causing and will cause for years to come.

4. **Participant Self-Introductions**
5. **Presentation:** Types of Climate Adaptation Projects for Coastal Flooding, Dr. Kem Lowry

- Adaptation: projects/programs intended to reduce community vulnerability to the impacts of climate change such as flooding, heat waves, coastal erosion, and improve community resiliency (how quickly and economically the community recovers from destructive impacts).
- The types of climate adaptation strategies:
  - **Accommodation:** Adapting in place by flood-proofing existing or planned structures, diverting flooding, etc.
  - **Protection:** Building dikes, berms or other hard structures to protect valued infrastructure or other community assets; using wetlands or other green infrastructure to absorb floodwaters or divert from flood prone areas.
  - **Relocation:** Moving valued infrastructure or other community assets away from areas affected by flooding or other climate related impacts.
  - **Urban systems resilience.** Rather than focus just on projects, develop strategies for making entire urban systems, such as drainage or energy, more resilient.
  - **Prevention:** Develop hazard maps and associated zoning, and building codes for specific climate threats such as flooding.
  - **Procedural:** Develop checklists and guidelines that make it easier to examine potential climate impacts on specific development projects prior to construction.

6. **Q&A response to Kem Lowry Presentation**

- Do we have adequate data and models to predict potential climate impacts?
- The scientific community is working to collect the data needed to understand what is happening and to refine the models that are used to project future conditions. Observed outcomes match or exceed what the models project would happen. Our ability to project likely outcomes should improve with time.

7. **Discussion on Information Needs and Priority Topics and Resource People for Future Meetings**

- How are people are getting permits for new development in the flood zone? We need to know how regulations and permitting can improve climate resilience.
- Why are we developing around the rail line where there are areas exposed to SLR?
Why are the sites exposed, and how are we incorporating this vulnerability into long-range planning?

How is the USACE dealing with the Manoa Watershed with regard to green infrastructure? What can we learn from this example?

How do SLR and climate adaptation issues overlap with flooding in Maunalua Bay? There is a major siltation problem in the Bay, where the water becomes all brown. How can we use green infrastructure to reduce the turbidity and sedimentation in the bay?

How are coastal setbacks defined and regulated?

What are legal vs. illegal protective shoreline structures (i.e. sanctioned seawalls versus unsanctioned)?

How do we better prepare our infrastructure for hazard events (preemptively)?

We need more planning at the watershed level.

Our wastewater treatment plant is right on the shoreline in East Honolulu. How can we better plan for its long-range location? All of our power plants are on the shoreline.

I’m interested in the Kuapa Pond and the restoration and protection of our cultural resources for the long term, not just 30 or 50 years. Values are different between planning for your lifetime and your children’s children. How do we identify and prioritize projects that will have important future impacts?

All of our commercial development is on the highway in major “hit” [vulnerable] zones. How can we encourage developers, realtors, and the business sector to participate in this process?

How do active transportation modes fit into climate adaptation and sea level rise planning? How do we design in ways that increase pedestrian and bicycle infrastructure in Hawaii Kai?

How does urban design and landscape architecture fit into disaster resilience?

How can we encourage groundwater recharge?

BWS is a major player in all of this (future water supply questions). How do we involve them?

Is desalination an option for water supply? Is gray water recycling an option?

There was some group sentiment to use one of the next meetings to examine the use of green infrastructure to address storm water management in East Honolulu watersheds.

8. Workshop adjourned at 8:30pm