



Potential Adaptation Criteria for Florida

Context

This report defines a set of criteria that could be used by the State of Florida's Adaptation Technical Work Group (TWG) to facilitate thoughtful discussion of adaptation policy options. The criteria will work best if the goals or objectives of policy action are defined prior to the ranking exercise. The document titled "Draft Policy Framing Template" appears to facilitate an identification of objectives prior to an evaluation of strategies, and thus the criteria would work well under this structure. Furthermore, several of these criteria align closely with the criteria suggested in the "Ratings for Catalog Options" document by Veith and Colburn (2007).

Adaptation Option Criteria

The following criteria have been designed to help people rank adaptation policy options relative to one another and typically to address a particular vulnerability. For example, these criteria could be used to help assess which policy option for reducing vulnerability to coastal storm surge is better than others.

- **Note on Scoring:** Criteria such as "benefits" and "costs" can often be expressed quantitatively or in a common metric such as dollars, as per a traditional benefit cost analysis. It would be preferable to use an ordinal scale, such as "high," "medium," and "low," for several reasons. First, it may be time-consuming and difficult to develop quantitative estimates for all adaptation options. Second, criteria such as "feasibility" or "adaptive capacity" are difficult to quantify and thus difficult to compare with monetized criteria. Finally, a qualitative ranking will likely prove easier to implement under time and resource constraints as well as allowing for the participation of non-technical experts in an adaptation policy ranking exercise.
- **Benefits:** This criterion addresses the extent to which the adaptation policy reduces vulnerability and provides other benefits. Essentially, this criterion compares vulnerability without adaptation and vulnerability with adaptation. This difference in vulnerability can be thought of as the primary benefit of the adaptation option. Ancillary- or co-benefits should explicitly be considered if the adaptation option provides benefits to other sectors or for other policy objectives. This criterion can indicate relative differences in effectiveness between multiple policy alternatives. For example, creating water markets to promote more accurate accounting of the real value of increasingly scarce water resources may not be as effective at reducing demand as incentivizing water efficiency measures (i.e., more benefits may be realized under the latter scenario). This criterion also includes the concept of flexibility, narrowly defined as a policy option that provides benefits (or can be adjusted to provide benefits) under different plausible climate scenarios. For example, building a dam exactly 15-foot-tall provides no flexibility should increasing precipitation require a 20-foot-tall dam,

while designing a 15-foot-tall dam to allow for relatively inexpensive incremental increases to its height increases its flexibility.

- **Costs (or Capital Intensity):** This criterion concerns whether an adaptation is relatively expensive or inexpensive to implement. Typically, costs include the initial funds needed to implement an adaptation policy. However, costs over time, such as operation and maintenance, administration and staffing, expected frequency of reconstruction, and so forth should also be considered. An accounting of costs should include non-economic and non-quantifiable costs, as well as economic and quantifiable costs. For example, costs, such as a reduction in viable habitat for significant species or an increased impact on human health, should be considered alongside more traditional costs.
- **Feasibility:** This criterion addresses whether the action can be implemented. Do the necessary legal, administrative, financial, technical, and other resources exist, and are they available for use on this policy option? This typically means adaptations that can be implemented under the current operational framework will be favored over adaptation options that require new authority, new technology, changes in people's preferences, or other significant changes in the operational context. Feasibility also includes the concept of a "window of opportunity." For instance, most planning decisions undergo a periodic review, such as, every 10 or 20 years. If one of these planning documents is up for reconsideration, then a window of opportunity exists that makes the adaptation option more feasible. Windows of opportunity can also be created when the political landscape is propitious or when response is required following a disaster.

The three criteria listed above may be sufficient for use in ranking adaptation policy options. They will work best when applied to adaptation options designed to meet similar goals. The following are additional criteria that may also be useful in the process:

- **Adaptive Capacity (or Capacity):** Adaptive capacity describes the ability of a human or natural system to cope with the consequences of climate change. Some systems can accommodate changes in climate without significant intervention while other systems cannot. For example, most hard infrastructure (e.g., roads, bridges, coastal buildings) cannot alter their alignment, elevation, or structural foundation to accommodate coastal erosion or increased flood risk. On the other hand, farmers have historically responded to natural climate change by modifying farming practices or planting different crops. Consequently, adaptive capacity is lower for hard infrastructure than for agriculture. Some policy options will increase adaptive capacity, such as developing emergency management plans, while other policy options may decrease adaptive capacity, such as developing infrastructure in a floodplain. Notably, increases or decreases in adaptive capacity are typically independent of future changes in climate: developing emergency management plans increases adaptive capacity under all plausible future climate conditions and developing infrastructure in a floodplain decreases adaptive capacity under all plausible future climate conditions.
- **Timing (or Urgency):** Some climate impacts are not expected to occur for many decades, while others are already being observed or are likely to become apparent within a few decades. For example, sea level is projected to rise slowly over the course of many decades, while the frequency and intensity of coastal storms and heavy precipitation events is

projected to increase in the short term. Policy options that address impacts already occurring or projected to occur in the near future may merit greater consideration than policy options to address longer term impacts.