Climate Adaptation and Sustainability Planning

PORTS AND CLIMATE CHANGE

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The Intergovernmental Panel on Climate Change projections of global sea level rise due to climate change over the next century range from 0.75-1.9 meters. At the higher end of these projections, many ports will face regular inundation during storm events. A growing number of public and private entities, including a growing number of port authorities, are evaluating potential impacts from climate change and are developing procedures to incorporate financial and other risks into their investment decision-making processes regarding which adaptation strategies, if any, to take to address these risks. Much is potentially at stake— approximately 75% of all global trade by weight and 59% by value occurs by maritime transport.

Ports are a critical intersection of global commerce and are highly vulnerable to future increases in sea level rise and storminess due to climate change. In addition to their vital role in global maritime ENVIRON is currently developing a Climate Mitigation and Adaptation Plan (Climate Plan) for the commerce, port authorities are often responsible for adjacent or interrelated activities such as airports, Port of San Diego. This plan combines greenhouse gas emissions mitigation and climate change bridges, tunnels, industrial parks, natural lands, public marinas and public recreational facilities adaptation in one comprehensive plan, and is the first of its kind for a US port. The Climate Plan (beaches, parks). As stewards for all of these activities, many port authorities will face challenging will be an important tool for future planning and development of tidelands under their jurisdiction. decisions on how to manage risks for all of these activities with future increases in sea level rise resulting from climate change and how to adapt to these changes. For example, decisions on It will help the port identify, assess and develop strategies which will help reduce greenhouse gas adaptation strategies to protect existing maritime operations could have adverse effects on adjacent emissions and address local vulnerabilities to climate change. The Climate Plan will also focus on beaches and tourism income. Similarly, adjacent natural lands that support wildlife and beneficial regional climate adaptation strategies pertaining to sea level rise, water reuse and efficiency, and ecosystem functions could become entirely inundated without a coordinated planning effort to beach erosion and how these adaptation strategies can be implemented into routine port decisionmanage coastal resiliency at a regional level. making processes.



As ports consider incorporation of adaptation strategies into their planning processes, it is apparent that harmonization with existing sustainability planning, using methods such as Net Ecosystem Services Analysis (NESA), be considered. NESA is one method used for shoreline sustainability planning and relies on tools used in benefit-cost analysis to measure ecosystem service benefits over time, depending upon the nature of the decision and how the information will be used. Fundamental to this approach is the recognition that the value of natural resource assets is defined by the quality and quantity of the "service flow" generated by an ecosystem. The concept is now being applied to national and international environmental law, international finance, regional and spatial climate change planning, product stewardship, environmental damage and natural resource conservation.

CASE STUDY

CLIMATE PLAN DEVELOPMENT PROCESS

STAGE 1: Development of Climate Plan

Greenhouse Gas Mitigation

- 1. Baseline and Future Emission Inventories
- 2. Review and Categorize Mitigation Measures
- 3. Set Goals
- 4. Specify Mitigation Measures to Achieve Goals
- 5. Tracking Methods

Climate Change Adaptation

- 1. Existing Conditions
- 2. Port Vulnerabilities
- 3. Port Prioritization of Actions
- 4. Port Implementation Strategies

STAGE 2: Draft Climate Plan

STAGE 3: Final Climate Plan

STAGE 4: California Environmental Quality Act (CEQA) Process



SEA LEVEL RISE VULNERABILITY ANALYSIS





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