In the last five years, Geosyntec supported

200+ CLIMATE CHANGE AND SUSTAINABILITY PROJECTS

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Climate Resiliency Planning

- Climate risk modeling and resiliency planning (transportation, critical infrastructure, and natural, cultural and historical resources)
- Stakeholder engagement to identify resilience goals and tailor climate resiliency plans
- Assess and identify mitigation and adaptation measures: planning, policy, engineered solutions, implementation, and monitoring
- Benchmarking of planning and implementation (governmental entities), as well as leading industries (chemical plants, mining, and power sector)

Urban Flood Assessments & Mitigation

- Surface water hydrologic and hydraulic modeling, inundation mapping, and impact assessment
- Analysis of extreme storm events (cyclones, hurricanes, and storm surges)
- Climate and precipitation escalation modeling
- Engineered and natural infrastructure system design
- Financial impacts and costs

Infrastructure Planning, Design, & Construction

- Capital improvement planning, program management, and implementation
- Cost estimates (direct and indirect)
- Implementation planning, construction management, and quality control
- Grant opportunities, management and compliance

Geosyntec consultants

Global environmental consulting firm with capabilities and experience delivering science-based planning and engineering solutions for climate change resilience and adaptation.

Protecting coastal infrastructure from **climate change impacts**

Fujairah, Gulf of Oman, UAE

Recent extreme floods necessitate infrastructure design changes

Significant warming over the Arabian Peninsula during the past four decades has triggered increases in the frequency and magnitude of heavy precipitation events. Geosyntec conducted a climate-change flood risk evaluation for a proposed LNG plant. The work involved hydrologic and flood modeling, climate change evaluation, flood risk evaluation, and engineering feasibility. The risk to various infrastructure associated with the plant were evaluated. Multiple potential solutions were developed to reduce flood risk, and the feasibility of each solution was considered through stakeholder input. The selected solution will raise the level of the plant by a certain elevation to provide appropriate risk reduction.

1. **Climate Change Modeling**
2. **Design Criteria Evaluation**
3. **Hydrologic & Floodplain Modeling**
4. **Flood Risk Evaluation**
5. **Stakeholder Engagement**
6. **Design Change Alternatives and Feasibility**

Integrating equity into **flood resilience investments**

Cook County, Chicago, Illinois

Regional flash floods highlight need to mitigate urban flooding

A severe rainstorm on July 2, 2023, inundated Cook County, with nearly nine inches falling in the City of Berwyn, the Town of Cicero, and Chicago's Austin neighborhood, causing significant flooding. The resulting rainfall in certain areas ranged between 100-year (1 percent chance of happening) and 500-year (0.2 percent chance) flood levels. Research shows that significant rainfall events are increasing across the state due to climate change. A storm of this magnitude is likely to cause flooding anywhere in northeastern Illinois; for these majority Black and Latino working-class communities, the impacts are devastating.

1. **Strategy 1**
   Use equity-related data to inform investments
2. **Strategy 2**
   Collaborate with community groups to understand on-the-ground conditions
3. **Strategy 3**
   Maximize project benefits and reduce unintended Consequences
4. **Strategy 4**
   Provide equitable maintenance and operations of infrastructure
5. **Strategy 5**
   Reduce barriers for municipalities to access funds

Geosyntec Partnered with Center for Neighborhood Technology in preparing this guidance document for Chicago Metropolitan Agency for Planning