Climate Change and Coastal Cities

Introduction

Coastal cities host over 40% of the world's population and generate a disproportionate share of global GDP. Rising sea levels, intensifying storms, and chronic flooding are reshaping the risk landscape for these urban centers.

This brief summarizes recent findings on adaptation strategies, infrastructure resilience, and equitable planning frameworks.

Sea Level Rise Projections

Under a high-emissions pathway, global mean sea level is projected to rise between 0.6 and 1.1 meters by 2100. Regional variability may push this figure higher in the western Pacific and along the U.S. Gulf Coast.

Even under aggressive mitigation, committed warming ensures continued rise through the 22nd century, forcing long-horizon planning.

Infrastructure Resilience

Hardening measures — seawalls, elevated roads, storm-surge barriers — are effective but capital intensive and can transfer risk elsewhere along the coast.

Nature-based solutions such as restored wetlands and oyster reefs provide co-benefits including habitat, water quality, and carbon sequestration.

Equitable Adaptation

Low-income and historically marginalized communities are often located in the most exposed areas. Adaptation plans that fail to center these communities risk deepening existing inequities.

Participatory planning, buyout programs with dignity, and just-transition funding are emerging best practices.

Conclusion

The next decade is decisive. Cities that pair mitigation with layered adaptation — gray, green, and social — will preserve livability. Those that delay will face escalating costs and displacement.