

SECTORS

Cherry farmers in Michigan, insurance agents in Florida, and water managers in Arizona are among the millions of Americans already living with – and adapting to – a range of climate change impacts. Higher temperatures, rising sea levels, and more extreme precipitation events are altering the work of first responders, city planners, engineers, and others, influencing economic sectors from coast to coast. Agriculture, energy, transportation, and more, are all affected by climate change in concrete ways. American communities are contending with these changes now, and will be doing so increasingly in the future.

Sectors of our economy do not exist in isolation. Forest management activities, for example, affect and are affected by water supply, changing ecosystems, impacts to biological diversity, and energy availability. Water supply and energy use are completely intertwined, since water is used to generate energy, and energy is required to pump, treat, and deliver water – which means that irrigation-dependent farmers and urban dwellers are linked as well. Human health is affected by water supply, agricultural practices, transportation systems, energy availability, and land use, among other factors – touching the lives of patients, nurses, county health administrators, and many others. Human social systems and communities are directly affected by extreme weather events and changes in natural resources such as water availability and quality; they are also affected both directly and indirectly by ecosystem health.

This report addresses some of these topics individually, focusing on the climate-related risks and opportunities that occur within individual sectors, while others take a cross-sector approach. Single-sector chapters focus on:

- Water resources
- Energy production and use
- Transportation
- Agriculture
- Forests
- Human health
- Ecosystems and biodiversity

Six crosscutting chapters address how climate change interacts with multiple sectors. These cover the following topics:

- Energy, water, and land use
- Urban infrastructure and vulnerability
- Indigenous peoples, lands, and resources
- Land use and land cover
- Rural communities
- Biogeochemical cycles

A common theme is that these sectors are interconnected in many ways. These intricate connections mean that changes in one sector are often amplified or reduced through links to other sectors. Another theme is how decisions can influence a cascade of events that affect individual and national vulnerability and/or resiliency to climate change across multiple sectors. This “systems approach” helps to reveal, for example, how adaptation and mitigation strategies are part of dynamic and interrelated systems. In this way, for example, adaptation plans for future coastal infrastructure are connected with the kinds of mitigation strategies that are – or are not – put into place today, since the amount of future sea level rise will differ according to various societal decisions about current and future emissions. These chapters also address the importance of underlying vulnerabilities and the ways they may influence risks associated with climate change.

The chapters in the following section assess risks in the selected sectors, and include both observations of existing impacts associated with climate change, as well as projected impacts over the next several decades and beyond.

