



FIGURE 1.3 One of two Sny River aqueducts transports floodwaters and sediment to settling basins.

2. ***There are many external drivers of change.*** Climate, population growth, settlement patterns, agriculture, industries, changing markets and economies, new technologies, and new scientific knowledge about water and soil and their interactions within river ecosystems exert pressure and present challenges and new opportunities.
3. ***Soil and water resources are essential assets but are highly vulnerable in modern-day river systems.*** Soil and water are the geologic legacies of the river landscape and represent the assets upon which past and current social, economic, and ecological well-being are built. How these resources are managed affects future opportunities and vulnerabilities.
4. ***Contested views make managing river landscapes difficult.*** People differ in their social values and what they consider the best functional uses of rivers and their floodplains. Managing river landscapes based on engineering and biogeophysical sciences alone will fail to reduce vulnerability and unforeseen risks. The diversity of social values, land use preferences, and human relationships with rivers and their floodplains must be better understood and made part of the management processes.
5. ***Resilience management can improve capacities to adapt and adjust to system disruptions and change.*** Effective management for future unknown risks and catastrophes will need new approaches beyond the confinement-dispersion strategies that current levee, floodway, and reservoir structures represent. While many river floodplains are likely to never be fully restored,

the purposeful placement of wetlands and engineered structures can improve floodplain functionalities and rebalance competing human values and preferences for land uses with the natural behavior of the river ecosystem.

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