RIVER FLOOD MANAGEMENT **HARD ENGINEERING** **PROS AND CONS**

Method	Purpose	Advantages	Disadvantages
Dams and Reservoirs	Controls the river flow by blocking the river and letting water in a controlled way. This creates a reservoir behind the dam	• Multi-purpose can be used for energy production (HEP) and water storage as well as flood control • Provides opportunities for recreation: Water sports, fishing	• Expensive • Loss of farmland and homes due to reservoir creation • Displacement of people • Affects on ecosystems: can affect fish breeding • Reservoir silts up over time

Embankments / levées	Artificially raise the banks of the river, increasing channel capacity	• Increased river capacity means it is less likely to flood • New river bank habitats may be created	• Expensive • Visually unattractive particularly if made from concrete • May fail and lead to more serious flooding
Straightening Channels	Straightening the river channel by removing meanders	• Speeds up the movement of water over a short distance • Allows easy navigation for boats	• May increase flood risk downstream as the discharge reaches those areas more quickly • Expensive • Affects river ecosystems due to changes in velocity

Flood Relief Channels	Channels built to allow excess water to flow around high value areas	• Effective in reducing the flood risk in high value areas • New habitats may be created • Insurance costs may be reduced for people living nearby	• Expensive • Regular maintenance is needed • Disruption to existing habitats • Can be visually unattractive