

Kaare Höeg

Abstract of his lecture:

“The Asphalt Core Embankment Dam: A Very Competitive Alternative”

The asphalt core embankment dam is gaining in popularity as the advantages of this design become more apparent. Countries like Austria, Germany, China and Norway, among others, have built many of this type of dam over the last 50 years, and now new countries like Brazil, Canada, Iran and Spain are building their first ones. The construction method and a summary of recent research results and case studies are presented. There is no concern about internal erosion and strict filter criteria as is the case for dams with earth core. Laboratory tests have demonstrated the high resistance of asphalt concrete to earthquake shaking. The self-healing (self-sealing) of any cracks that may occur due to accidental loads has been demonstrated to take place very quickly. The requirements to asphalt aggregate quality do not have to be as strict as those practiced for asphalt concrete in pavement construction. This opens up the possibility for using aggregates available locally, and there is no need to transport aggregates over long and costly distances to meet the strict pavement criteria. Field experience and special field tests have demonstrated that the rate of construction of an asphalt core can be increased considerably compared to previous practice without reducing the core quality. The core may be built in rainy and cold weather, and the core construction will not slow down the construction of other zones of the embankment. Field case studies also confirm that asphalt core dams may be successfully built with lower grade compacted fill than that usually required in earlier dams of this type. The dam may be built over compressible foundations as the core, due to its ductile and viscous behavior, can accommodate differential foundation settlements without cracking.