

managers and regional public bodies, organizations and regional inhabitants to take a suitable share in the role of mutual collaboration. For this reason, the provision of the basic structure for setting up conferences and formulating plans will be advanced

4.2.2 Improving the Reliability of Flood Control Facilities

To avoid destructive damage caused by breached embankments and achieve higher safety, in addition to conventional flood control methods, super embankments will be provided and the weak points of existing embankments will be strengthened to increase the floodwater discharge capacity. Emphasis being put on providing strengthened embankments that, even in the event of overflow, will resist rapid break-up, resulting in higher quality of flood control facilities to achieve improved reliability

Furthermore, a lesson learned from the destruction of river embankments during the Hanshin-Awaji Earthquake, is the fact that, while up until recently aseismic design was not considered with respect to river embankments, strengthening of embankments to resist earthquakes is urgently required to prevent flooding of the "zero meter" areas in the middle of cities due to settlement or other earthquake damage to embankments.

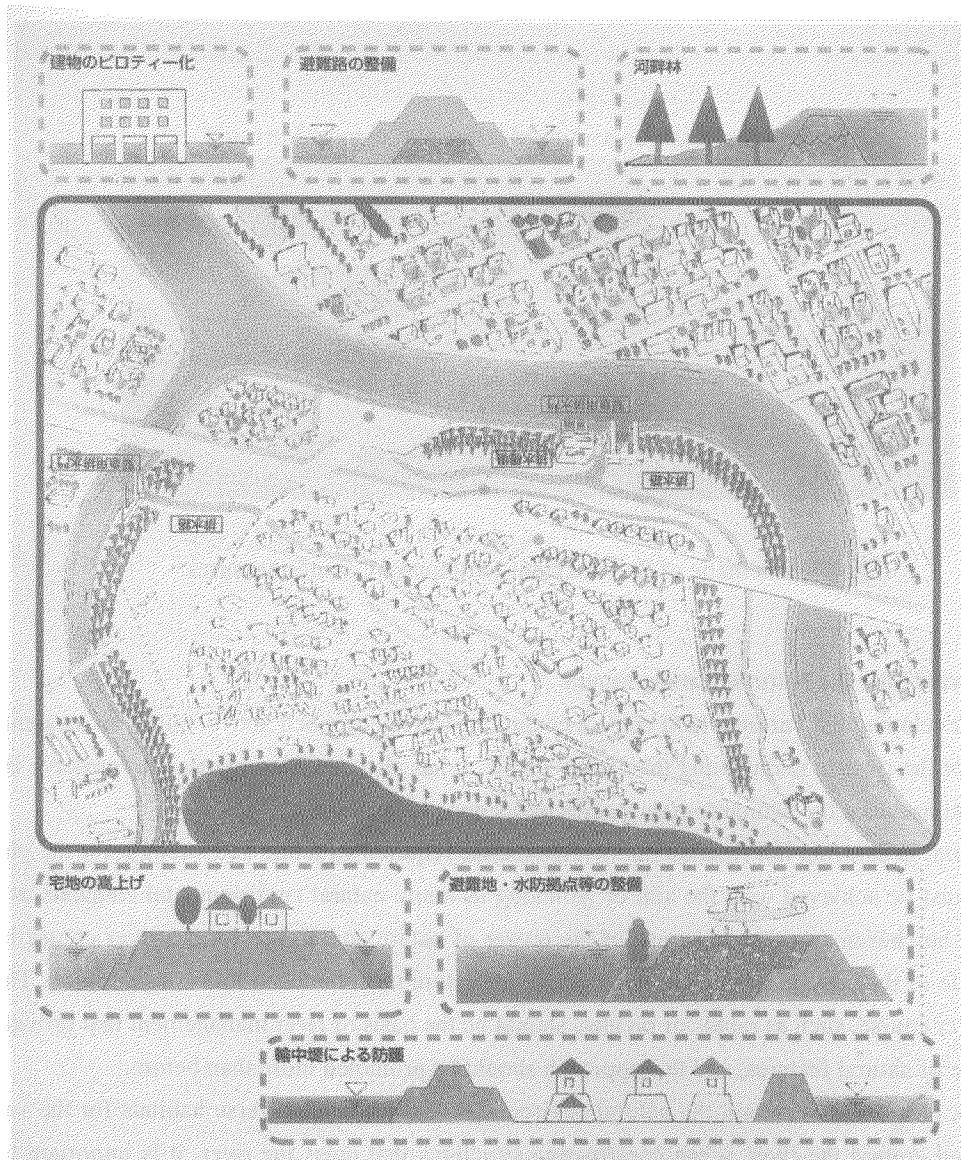


Fig. 15 Schematic of Floodwater Control Countermeasures

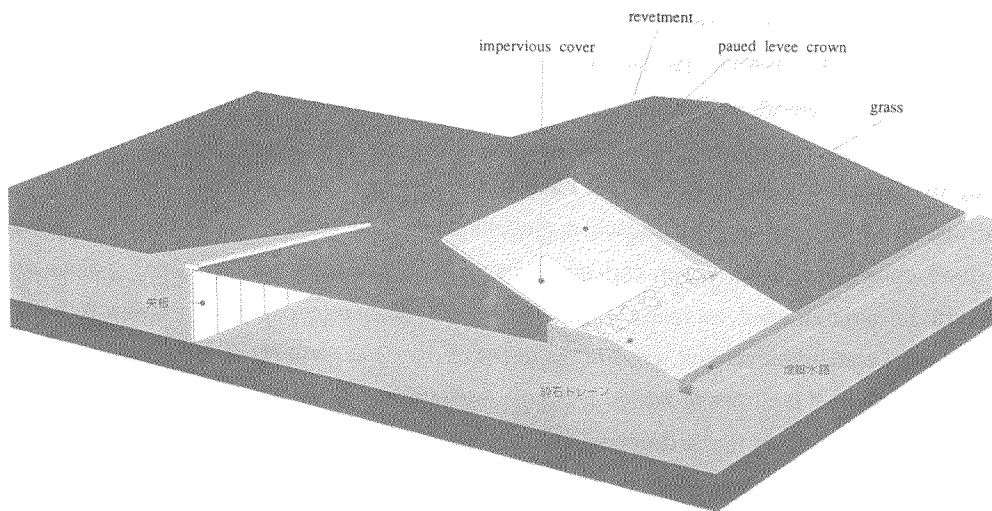


Fig. 16 Qualitative Schematic of Embankment Strengthening

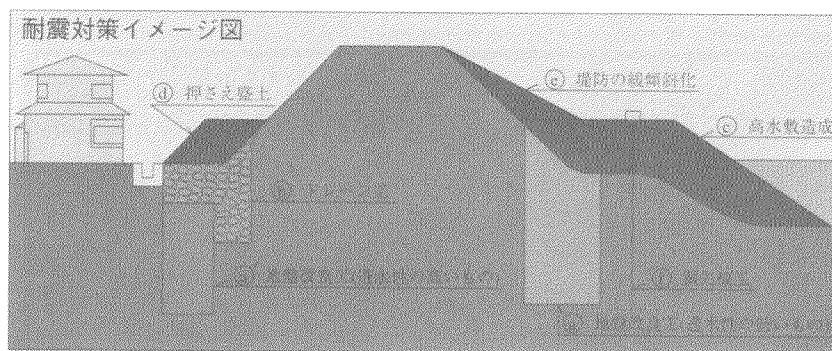


Fig. 17 Schematic of Embankment Earthquake Countermeasures

4.3 Making Rivers Suit the Natural Environment

As well as developing the various flood control countermeasures described above, out of an awareness of the important role of the river in maintaining the variety of life, it has also become important to preserve the natural environment that provides the habitat for the species indigenous to the region.

For this reason, in carrying out riparian improvements, the required structure and strength for the purposes of flood control must be achieved with the aim of including as many natural environmental elements as possible. Policies should be chosen so as to make use of the power of nature and aim to form a river course bearing in mind the wildlife of the area. In particular, the diversity of nature must be taken into consideration. The diverse forms of the river course, such as rapids or ravines, should be the basis of river management that provides a river with a multitude of natural features, and this approach should be promoted more than before.

Furthermore, in order to maintain the natural environment that provides diverse habitats for the various life that exists in and around the river, when constructing structures that cross the river, it is important to provide such things as fishways allowing passage freely upstream and downstream.