Flood in Frankfurt, am Main.
WWF. H. Jungius

These measures rely on building structures to change the regime of the river in some way to reduce inundation of the flood plain. They include dykes, levees, bunds or stopbanks (the terms are synonymous) to keep the river off the flood plain; upstream storage reservoirs to contain flood waters and to release them slowly; and river training (channel improvements) to evacuate the flood as quickly as possible.

Structures, particularly dykes, are the traditional way of dealing with floods and historically were the first used. They remain very popular with the inhabitants of flood-prone areas and with local politicians that represent them. The structures provide physical evidence that something is being done about the flood problem and they allow increased use of the flood plain which is also popular for reasons that have been described in chapter 3. However, structural measures can give a false sense of security. They are designed to protect against a flood of a certain size, called the design flood, and, inevitably, this will be exceeded at some time. When this occurs the population may not have had any recent experience in coping with floods, leading to more deaths and property damage. Recent floods on the Rhine in Germany gave an illustration of this effect or rather of its converse. Cologne and other regions in the lower Rhine suffered two nearly identical high floods in December 1993 and in January 1995. Estimated damages in the second flood were only half those of the first and this was put down to the better state of preparedness of the authorities and the population after the "rehearsal" 13 months earlier.