

NATIONAL TECHNICAL ADVISORY GROUP ON FLOODING ISSUES

Short Discussion Paper on Risk to Life from Flooding

1. Concern about the financial consequences of flooding, particularly from insurers, may mean that the potential for floods to kill people may not be receiving full attention. It is interesting, for example, that SPP7 made no mention of risk to life.
2. While it is accepted that there have been very few deaths in Scotland attributable to flooding directly, there have been events throughout the UK where deaths have occurred – most notably the Lynmouth floods in the 1950s and the tidal surge of 1953. The Perth flooding of 1993 only narrowly avoided deaths in the Muirton area when an agricultural standard floodbank failed, while the sudden bursting of a large diameter water main in the Bearsden area in the 1980s could also have resulted in drowning of those living in a depression which rapidly filled with water to some depth.
3. I believe it is important for local authorities as flood prevention authorities to identify areas where flooding could pose a risk to life, and to take adequate steps to quantify the risk, and if necessary, take steps to reduce the risk.
4. I see risk to life affecting residential property, formal and informal recreation facilities, transport routes, and any development where persons live, work, shop, or otherwise use.
5. Death requires particular flooding characteristics, primarily a very rapid rise in water levels to give depths of say more than 1m. As rapid rises in water level are usually accompanied by high flow velocities there is also the risk of structural damage from water and/or debris, with the additional risk of injury or death from the structural failure. The rapid rise in water level could occur at night when occupants are asleep, and in areas with no flooding history.
6. I see the following as potential life threatening situations.

Flash Floods

7. Usually relatively small watercourses in steep catchments where a localised high intensity rainfall event can result in rapid rises in water level, water levels higher than previously known, and high flow velocities and debris loads. Such floods are most likely to affect individual houses, small communities and developments like chalets and caravan parks.

Flood Defence Failure

8. Structural failure of a flood defence wall or bank resulting in rapid inundation of the protected property. Not all flood defences are 1961 Act schemes, and even some

1961 Act schemes have been forgotten in terms of inspection and maintenance.

Reservoirs and Canals

9. Significant volumes of water can be stored above natural ground level with the safety of the downstream property being dependent upon the adequacy of the dam or embankment. Not all such stores are subject to the Reservoirs Act 1975.

Culverted Embankments – Upstream

10. Debris blockage at a culvert inlet during rapidly rising flow could result in flooding upstream until relief was obtained by overflow of the embankment.

Culverted Embankments –Downstream

11. There are road and rail embankments which have culverts passing through them. If the culvert blocks there is the potential for a large volume of water to accumulate behind an embankment which is not designed as a water retaining structure. There are locations where the potential storage and risk to life equates to a Category A reservoir – without the spillway!

Depressions

12. Low lying areas with no watercourse and drainage dependent on road gullies and surface water sewers where bursting of a large diameter water main could result in rapid flooding to a relief level well above development level.
13. I believe that none of the foregoing is going to be adequately described in flood maps, which will concentrate on areas where water levels will rise relatively slowly, where there is a history of flooding, and where water depths and velocities will be low. I see the collapse of a road embankment holding back 10,000 cubic metres of water after it has become saturated because a blocked culvert submerged to a depth of 15 m cannot be cleared, and located on a steep catchment above an area downstream where large numbers of people are present, as an event which could happen – and the possibility is not being addressed.

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