

community enters the “Regular Programme”, with stronger regulation required. The maps show the floodway where all development is prohibited and zones with different risks of flooding. The flood plain maps are freely available to the public (including on the Internet) thus ensuring that the risks of flood plain development are well publicised. New properties in these zones must buy flood insurance at actuarial rates (based on annual average damage) which vary with the risk zone and building elevation. The flood plain regulations under the NFIP (table 3) are minimum regulations and communities are encouraged to adopt a tighter control of flood plain development.

EMERGENCY PROGRAMME

- Permits required for all new developments in the identified flood hazard zone.
- If flood elevation data are available, new residential structure must be elevated, and non-residential structures flood-proofed, to or above the 100-year flood level.
- Water supply and sewerage systems must be safe from flooding and designed to prevent contamination of flood waters.
- Mobile homes must be anchored and evacuation plans prepared for mobile home sites.

REGULAR PROGRAMME

- The above regulations apply to the designated 100-year flood plain.
- All new residential structures must be elevated to or above the 100-year flood level. Watertight basements are allowed.
- New non-residential structures must be flood-proofed to the 100-year level.
- Drainage must be provided for subdivisions in areas of shallow flooding.
- No development is allowed in the designated floodway.

Additional requirements for coastal hazard zones.

- All new developments must be raised above the 100-year level.
- The space below the structure must be free of obstructions. Fill is prohibited.
- No new mobile homes outside of existing developments are allowed.
- Alteration of protective sand dunes and mangrove swamps is prohibited.

Table 3 Minimum flood plain regulations under the United States National Flood Insurance Programme.

It will be seen that the NFIP is really a land-use management programme and has often been criticized for this. The balance between the insurance and the land-use planning aspects has varied with amendments to the programme under different federal administrations since its inception in 1968. The programme has had considerable success in promoting flood plain management. Over 18,000 out of a total of 21,000 flood-prone communities have enrolled in the NFIP and about 2.6 million insurance policies are in force, covering about 30 per cent of flood plain properties. It is extremely doubtful whether so many communities would have adopted flood plain management without the incentive of the insurance. However, the NFIP has its problems: the regulations are of little benefit to pre-existing properties and encroachment on flood plains is continuing. Moving from the emergency programme to the regular programme incurs the loss of a subsidy for insurance premiums and this move is often resisted, with the result that the subsidized insurance premiums may make it more attractive to build on the flood plain. Finally, there is some evidence that in coastal flood zones the NFIP may have encouraged unwise development.