NATURAL FLOOD MANAGEMENT
What is Natural Flood Management (NFM)?

Natural flood management (NFM) involves the implementation of measures that restore or emulate natural process within river catchments to reduce flood risk. River catchments are the standard functioning unit of a landscape: their natural functioning - which includes both the storage of water and the slowing of its flow - has been hindered by the removal of vegetation, agricultural practices, and the overlay of soil with hard surfaces that has been concomitant with human development. NFM is a way of working with nature to mitigate these impacts. Some examples of natural flood management measures are shown in the catchment diagram below:


What are the advantages of natural over traditional flood management?
To reduce the likelihood and severity of flooding in a river catchment, traditionally hard flood defences (typically made from concrete and/or metal) have been implemented. Such measures are appropriate when there is a high probability of internal flooding to a significant number of properties, and the structure will proffer resilience for decades, or even centuries to come. But where the cost-benefit analysis for this approach is unfavourable (e.g. where the number of properties at risk is low) NFM measures can be deployed. They can also be a complement to hard flood defences and are increasingly being utilised in catchments, because they are:
1. Resource Extensive – habitat creation involves minimal resources in comparison to traditional flood management;
2. Affordable – NFM schemes can be orders of magnitude cheaper than traditional schemes;
3. Offer Amenity Benefits – many NFM measures e.g. riparian woodland, or wet grassland, will feature access opportunities for communities;
4. Beneficial to Biodiveristy – The population size and species of of plants and animals should increase;
5. Carbon Sequesters – any vegetated areas created will act as a carbon sink and improvements to soil management (which can also be viewed as an NFM measure) will also limit carbon release to the atmosphere;
6. A tool in Restoring Ecosystem Processes and Services – NFM measures can provide a range of ecosystem services, for example boosting pollination (in the case of a river meadow) and improving air quality (in the case of woodlands).

When and where are NFM measures appropriate?
* Scale: natural flood management measures should be considered for a single river catchment at a minimum.
* Strategic: measures should be deployed strategically to maximise their impact and ensure they are complementary and not antagonistic. Catchment modelling is a suitable aid in this.
* Community and Landowner Buy-in: the community and landowners need to approve of the project, appreciate the benefits, and maintain measures.
* Contribute to Local Priorities to Nature: NFM measures, where possible, should help fulfil the habitat needs for local plants and animals.

Examples of Commonly Used NFM measures
* Leaky Dams or Barriers: they occur naturally when sections of trees fall into and across the channel, holding back water during high flows. This natural process can be emulated using locally sourced wood, pinned into place.
* Woodlands: trees reduce the amount of rainwater reaching the ground (by up to 45%), take up water for photosynthesis, increase soil infiltration rates, and create a rougher land surface with the plant material they drop, slowing flows.
* Floodplain Restoration: this restores hydrological connectivity between the river and floodplain, which encourages more regular floodplain inundation and flood water storage, mitigating flood risk elsewhere in the catchment.
How to fund NFM measures in your community and/or on your land?

Visit Northamptonshire County Council's Flood Toolkit funding page, which has collated many of the funding streams available within the county: www.floodtoolkit.com/risk/funding

Further Evidence, Information, and Case Studies

The Rivers Trust have produced an excellent video to explain the principles of Natural Flood Management. It is hosted on the Catchment Based Approach website: https://catchmentbasedapproach.org/learn/what-is-natural-flood-management/


65 case studies from across the UK have been collated on the gov.uk website here: https://www.gov.uk/government/publications/working-with-natural-processes-to-reduce-flood-risk

Floodline number: 0345 988 1188