

Report by Anny Wise presented to the Strategic Policy Committee on Planning and Housing of Clare County Council.

There are four types of flooding events and each one has to have its own impact and protection.

## **Storm surge**

The winter of 2015- 2016 had 10 storms which was originally stated as being as once in 100 years of storms.

These winter storms bring about high waves that have a most destructive impact on our Atlantic shores. The normal means of protection is to have barriers, high on shore dykes and walls to protect the inland of the shores. These work very well because the waves when impacting on a wall will reverse and go back out to sea until another wave comes. The problem is that we cannot build a trump type wall all along our Atlantic coast. We need to choose what we save and what is left to nature, for nature has many an answer to the problems. Where there are dunes and sand these are washed out to sea but returned in the spring and summer. Nature protects its own sandy coasts. It also absorbs large amount of sea water in its wetland, Sera marshes and bogs. These are referred to as "soft flood protection systems" which are natural and very effective. The problem is that we have built houses, villages and even road on these types of habitats. The overall picture is that in time we will have choose what to protect of human habitation and what to allow to be left to nature as first intended before we interfered. There is another system of protection for our coastline which is very expensive and only just being considered and that is the Tetrapods which lie on the shallow sea beds and brings up the large waves before they reach the shore. But to use them would mean not more waves for surfing.

## **Sea level Rise and Coastal Flooding**

There is a significant probability that global sea level rise could exceed 1m by 2100. Sea level rise will magnify the effects of storm surges and wave patterns in coastal areas (Desmond et al., 2009). The potential consequences in terms of increased coastal flooding are extremely serious. Inclusion of climate change in flood risk assessment must be an immediate priority. Based on a review of current knowledge (included in Appendix A to this submission), and adopting a precautionary principle, An Taisce is of the view that the NAF should be based on an assumed sea level rise of 2m by 2100.

Those parts of our coastline that is under sea level or only just above it will need the same form of barriers for "Storm Surge" and again areas which are not populated should be handed over to nature.

## **River swollen due to heavy rainfall**

The Water Directive and Shannon catchment based flood areas is under the CFFRAM including the OPW, NPWS which are responsible for the SPA and SPC Waterways Ireland dealing with navigation channels and tourism and Electric Ireland in Ardnacrusha and are for the whole of the Shannon catchment area.

The flooding of our rivers have been the most destructive type of flooding to date because we have not been taking Climate Change into account and the last report was carried out in 2011. This type of flooding when reaching defences does not go away it just goes elsewhere along that river flooding new ground and causing a new area of destruction. The old style barriers and dredging the river only removes the problem from one area to another. Again we need to think differently using the Dutch system of building canals and drains to take the fresh water away from the towns and villages and releasing it on wetland or bog land where it can be more easily absorbed and assist the biodiversity at the same time. There are two other alternatives which involve planting trees and

native shrubs along the river bank increase the short further inland to protect farmland and storing the flood water of winter away until summer when the rainfall is much lower. There are several ways of doing this but it is in fact very expensive.

## **Water table flood – new when land is saturated or an overflow from an underground source.**

This is new form of flooding not normally seen outside of Limestone areas before but when the land is saturated and we pumping water out from areas and water then find its own level and starts flooding those very same areas we were trying to protect. The earth would need to be high saturated by rainfall for this is happen but this did in fact occur last time we had heavy rainfall and we need to rethinking the pumping away water to an area where is can be absorbed. An example of this is to find a wetland or bog attached to the land you are trying to protect and pump the water into that land or where there is no such habitat available you may need to give up a field or two in the right place, plant willow and elders there and then pump the water into that land. This can only work in fresh water flooding areas and the sea water will only damage the land and trees. The soil under a deciduous tree is more able to absorb flood water.

To make where you live more resilient you need to know what type of flooding you are likely to get and plan ahead with new ideas.

Shannon for instance does not have the threat of Storm Surge as the estuary dissipates the waves with its mud banks and islands. But it is under sea level but does not have the problem of flooding by heavy rainfall from the upper river because Ardnacrusha and the areas immediately after it will take all the flooding and the estuary is large enough even at high tide to be well protected by its existing Flood protection system. However in the future the town and airport may need to increase the height or include "soft protection" when the sea levels rise.