

## Agenda Item 15b

### **From Martin Eade – coast protection engineer, Brighton & Hove City Council**

#### Climate change adaptation at the coast

The coastline of Brighton & Hove is divided into two distinct sections which require different strategies for adapting to climate change – the famous beaches west of the Marina and the cliffs to the east.

The west –

In coast defence the simple logic in adapting to climate change suggests that you build seawalls higher and higher. This is not always the case and not always achievable or desirable.

In the south of England sea level rise is exacerbated by the fact that the land is sinking. The combination of these two is slowly resulting in what is known as coastal squeeze where over time the rising level of the sea will narrow beaches and during storms the sea will begin to overtop defences at the head of the beach with increasing frequency.

To deal with this gradual change beaches can be made bigger or defences at the head of the beach can be made higher or set back. In Brighton & Hove the beaches are the City's principal attraction. Building high walls at the head of the beach is not an attractive option, extending groynes and importing shingle to enlarge beaches is more attractive but expensive.

Economics are an important element when applying to the Environment Agency for grant in aid towards any coast defence scheme. Whilst it will almost always be economically, environmentally and technically justifiable to continue to defend Brighton & Hove given its size and importance the additional cost of making a coast defence scheme attractive for leisure and amenity purposes may be more difficult to justify and that additional cost may fall on the Council to meet.

The east –

In the winter of 2000/2001 a series of cliff collapses mainly behind the Marina culminated in a collapse in excess of 2000 cu.m into Asda. These events started a long and continuing process of cliff stabilization works, risk assessments and monitoring. We can not say for certain what the causes of the cliff falls were but they came at the end of a very

prolonged wet period (many months) as a result of which it is likely that the saturation of the cliff face resulted in the cliff falls we experienced. As the climate changes and winters become wetter and summers dryer this intense wetting and drying process is likely to weaken the cliffs at a greater rate than previously.

Following the instability in 2000/2001 a cliff monitoring project was set up with the University of Brighton (the Inform project). The project has been going since 2006 and is aimed at trying to increase our knowledge of cliff evolution in order to give us the confidence to predict any future periods of instability and, in the longer term, the future position of the cliff edge. Work on this project is limited by the availability of funding.

At the foot of the cliffs is the Undercliff Walk and seawall which were first built in the 1930s, we have just completed a 15 year project to rebuild them, their effective and maintainable life is 50 years.

#### The policy and strategic background

Defra have put in place a process for a co-ordinated strategic approach to coast defence. They support and publish research into climate change and incorporate guidance for operating authorities such as Brighton & Hove into this process.

Local authorities active in coast defence together with the Environment Agency meet regularly in coastal groups to discuss matters relating to coast defence.

Coastal management starts with the compilation of a shoreline management plan (SMP) followed by a strategy study which recommends how the SMP policies for individual sections of coast could be put into effect. These studies and plans are reviewed at regular intervals and incorporate the latest climate change predictions. Applications for grant in aid towards coast defence schemes can then be made

For more information see [www.brighton-hove.gov.uk/coastaldefence](http://www.brighton-hove.gov.uk/coastaldefence)