

Flood risk management: Experiences from the Schelde Estuary case study

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ABSTRACT: As part of the FLOODsite research project a case study was executed in the trans-national Schelde Estuary region bordering Belgium and the Netherlands. The objective was to apply and test the FLOODsite approach to flood risk management. We hypothesised that active involvement of citizens can contribute to knowledge development for a flood risk assessment. We used modelling and scenario analysis, semi-structured interviews, workshops and a questionnaire in our study. Individual perceptions and knowledge regarding flood risk were explored of three actor groupings in the region: the scientists, local citizens and regional and local policy makers. We found that local citizens were realistic and knowledgeable with respect to a possible failure of the flood control system. This enabled fruitful discussions with scientists on the modelling results and preferred measures. Many viewpoints expressed during these discussions were also reflected in the questionnaire results. Our experiences offer insights on the benefits of using science and engineering in a participative approach to flood risk management. We also derived valuable discussion points with respect to: the importance of trust, the use of local knowledge and social learning in the communication process.

1 INTRODUCTION

1.1 *A history of floods*

The trans-national Schelde estuary extends from the upper reaches near Gent in Belgium to the lower reaches and the mouth at Vlissingen in The Netherlands (Fig. 1). In its Dutch part, called “Westerschelde”, the estuary is a meandering multiple channel system, with intertidal islands and areas on the inner side of channel bends. In its Belgian part, called “Zeeschelde”, the estuary is a single meandering channel with intertidal areas along the channel margins. The higher parts of the intertidal areas host fauna and flora-rich salt marshes. The lower intertidal flats are important feeding grounds for birds and resting areas for the increasing population of seals.

The study area is home to around 300,000 people in the Netherlands and less than 1 million people in Belgium (Zeeschelde area). This includes the city of Antwerp with a population of around 450,000 (2003). The estuary is of economic importance as a major shipping artery, hosting the harbour of Antwerp, as

well as providing an access route to the harbour of Rotterdam via the Rhine-Schelde canal. In 1999 to 2001, breaking with a 300 year tradition of conflict over the Schelde, the Dutch and Flemish authorities developed a joint long term vision for the Schelde estuary (Zanting et al. 2002). In this broad policy document (LTV 2001) the triple functions of shipping, safety from flooding and the ecosystem are emphasized. Since then many activities have been undertaken under the auspices of a joint Dutch-Flemish project bureau tasked with the implementation of the measures necessary to achieve this long term vision.

In 1953 the Dutch part of the Delta area experienced a disastrous flood, which inundated about 136,500 ha of land and caused a total of 1836 fatalities. Tens of thousands livestock perished and approximately 100,000 people had to be evacuated. The damage to buildings, dikes and other infrastructure was enormous (Gerritsen 2005). The majority of the flood defence structures that failed were not high enough for the water level and waves at the time.