

Indicator 27 Natural, human and economic assets at risk

- *Number of people living within the zone at risk from tidal flooding*
- *Area of protected sites within the zone at risk from tidal flooding*
- *Value of economic assets within the zone at risk from tidal flooding*

Key Message

- More than 1.16 million people live in the area at risk of flooding from the sea in the sub-regions of Kent, Essex and Greater London.
- In West-Vlaanderen, 33% of the population lives in the low-lying polders prone to flooding by the sea, while Zeeland consists almost entirely of lowland and its entire population (378,000 inhabitants) lives below sea level.
- The area of statutory designations protected for cultural and natural heritage amounts to 1243km² in the area at risk from flooding.

Why monitor the natural, human and economic assets at risk?

Sustainable development in coastal lowlands requires appropriate coastal risk management. Coastal risk management implies the planning and building of coastal defences, flood forecasting and warning, and the preparation of evacuation and emergency plans. In most countries, planning authorities are responsible for ensuring that flood risk is taken into account in development planning. The mapping of annual probabilities of flooding, population numbers and economic values is a key element in achieving this objective.

The consequences of flooding are increasing since population numbers in the coastal zone of the SAIL sub-regions are rising and the economic assets increasing. Since coastal zones are of relatively higher importance for habitats and species of community interest, tidal flooding is also an issue for the loss of biodiversity.

Research shows that public awareness of coastal risks is insufficiently developed. There is a need to translate technical jargon of safety levels into everyday language.

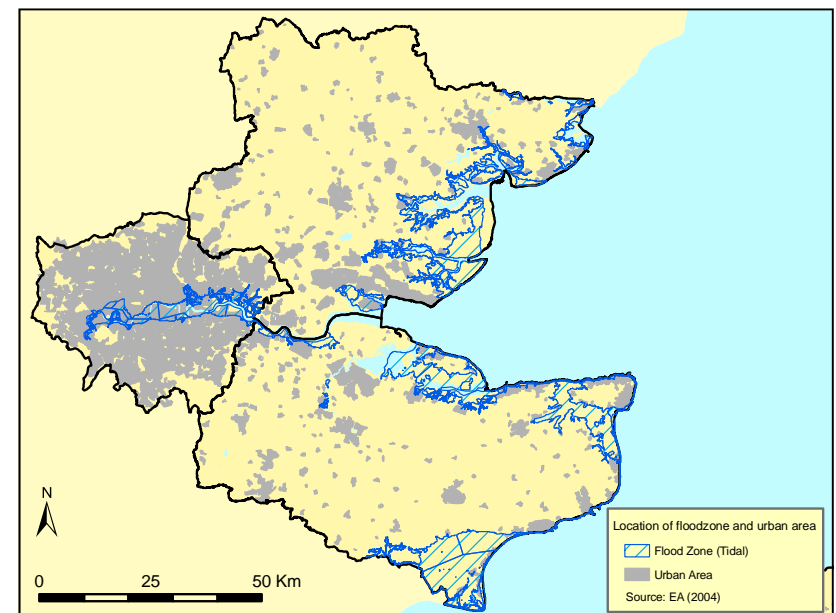
Where do the data come from?

In The Netherlands, risk management in coastal zones is mainly the responsibility of the Ministry of Transport, Public Works and Water Management. The project 'Veiligheid van Nederland in Kaart' delivers revised methodologies for the evaluation of flood risks and the estimation of economic assets outside flood defence systems and dunes (www.vnkproject.nl). The 'Plan Littoral d'Actions pour la Gestion de l'Erosion' (PLAGE), coordinated by the Syndicat Mixte de la Côte d'Opâle, provides similar maps for the coastal area of Nord-Pas de Calais. The 5m contour lines for the low-lying polders prone to flooding in West-Vlaanderen are provided by a detailed map on eco-districts (2002, Ghent University). The Flood Zones for England were actualized by the Environment Agency (EA, 2004).

What does the indicator show?

Flood maps were produced for England (Environment Agency) showing the 1 in 200 and the 1 in 1,000 chance of flooding from the sea in any given year.

An estimated population of 1.16 million people live in the flood zone of Kent, Essex and Greater London, including 7% of the total Kent population and 10% of the Essex population.



The entire population of Zeeland (378,348) lives in low-lying areas behind the dike rings. An estimation of the economic assets outside flood defence systems is available for 12 Dutch coastal towns, including Vlissingen (€23million) and Cadzand (€3million) in Zeeland. The estimation of economic assets is based on the value of built property, infrastructure (roads and railways), land use functions, and the yearly direct and indirect added value of the industry. Estimates of the total economic assets for the area inland from the flood defences in Zeeland are not available from this study; these are subject of current research (VNK project). The total value of property in Zeeland is estimated at €5,733million, of which €8,284million refer to housing (VLIZ, based on data from CBS-StatLine 2005).

A substantial part (ca. 400,000 people) of the population of the area covered by the Syndicat Mixte de la Côte d'Opale lives in the lower-lying areas. Risk management schemes have been worked out for individual properties. In West-Vlaanderen, 33% of the population lives in the low-lying polders. No estimations of economic assets in this area are available. However, based on statistics for the number of dwellings and the average price of property for 2003, our rough estimate of the total value of residential property in this area is €5,311million.

The area of statutory designations protected for cultural and natural heritage cover 156km² in Kent, 55km² in Essex and 4km² in the Thames area. The largest area of protected sites is located in Zeeland (845km²), while in Nord-Pas de Calais and West-Vlaanderen, respectively 90 and 92km² of Natura 2000 and other statutory designations are located in the area at risk from flooding.

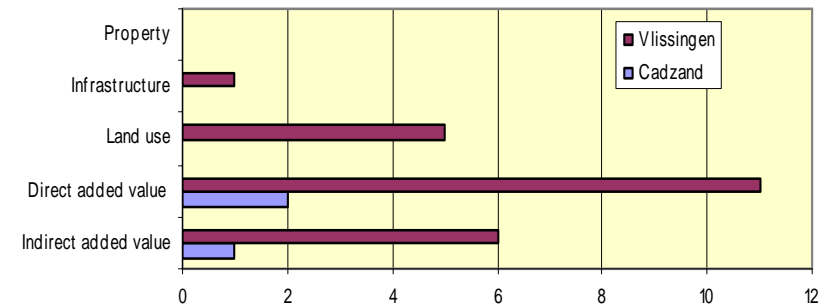
What are the implications for planning and managing the coast?

The lowlands in the SAIL region are threatened by flooding during severe storm surges. In the absence of dike rings, daily water level in one of the lowest points would be nearly seven metres high. Contradictions are observed between planning policy which permits building new structures in the coastal flood plain and the advice given by the protection agencies. In many countries, the conflict is likely to come with the increasing reluctance of insurance companies to insure properties which have been built in at-risk areas. Another important issue related to flooding refers to sites of importance for biodiversity; are we going to save wildlife from natural processes?

A thorough assessment of the safety levels of defence systems against flooding is concluded for the Belgian coast (2005). The safety levels of flood defences and the entire system of dike rings have been recently reassessed in The Netherlands (zwakke schakels). In Kent, the South East Coastal Group works to encourage an integrated, strategic approach to shoreline management.

Different safety levels apply in each country. Since the severe storm surge of 1953 in which

Economic assets outside of the flood defence system - Zeeland 2005 (m In Euro)



nearly 2,000 lives were lost, statutory safety levels are laid down in the Act on Water Defences in The Netherlands. In Zeeland, the highest safety level for flood protection structures in Europe applies (1 in 4,000 chance of flooding).

The SAIL countries use different approaches in managing coastal risks, but efforts are underway to work towards common policies and strategies where feasible. The EU INTERREG funded projects COMRISK, SAFECOAST and NARROW ESCAPE, deal with the issue of international coordination.

How reliable is the indicator?

The differences in approaches do not allow for a comparison. COMRISK is a common project of North Sea Region coastal defence authorities that aims i.a. to evaluate common methodologies where feasible and desirable. The project is co-financed by the Community Initiative Programme INTERREGIII B North Sea Region of the European Union. One of its objectives is to integrate coastal risk management into strategies for a sustainable management of the coastal zones in the North Sea Region.

http://www.comrisk.org/COMRISK_SP3_final_report.pdf