

A river bypass to increase safety against flooding combined with urban development and new Nature - NL

1. Policy Objective & Theme

- ADAPTATION TO RISK: Preventing and managing natural hazards and technological (human-made) hazards

2. Key Approaches

- Integration
- Participation
- Knowledge-based
- Ecosystems based approach
- Socio-economic
- Technical

3. Experiences that can be exchanged

Planning for future climate change impacts by re-creating a river floodplain and incorporating urban development, recreation and creating new natural areas within the space.

4. Overview of the case

The river IJssel flows through a low-lying area that is threatened with flooding at high water. Because safety will no longer be guaranteed due to climate change impacts, innovative measures are being taken to ensure that communities can still live and work in such high-risk areas.

5. Context and Objectives

a) Context

The IJssel river is a major branch of the river Rhine and flows diagonally across the Netherlands from south-east to north-west discharging into the IJsselmeer. Predictions of climate models indicate that the river IJssel will rise up to 40cm by 2015 and by 1m in the longer term (2050-2100). Therefore, a Plan has been drawn up to ensure future safety that will return part of the previous floodplain back to the river. It is a paradigm shift in water management for the Netherlands which has a long history of taking space from the rivers (reclamation) and fighting water through hard-structure defences. Since 1850, land reclamation programmes have reduced by two thirds the flood plains of the three largest rivers. The effect of the restoration of the floodplains in the IJsseldelta is that the water levels of the river will decrease substantially during times of high river discharges as the water flows into the adjacent marsh- and reed-land.

b) Objectives

The objective is the making and implementation of an integrated development plan for the area, which is broadly accepted by the public and which will ensure safety from flooding from future impacts of climate change which are expected to see the levels of the inland rivers rising.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The Province of Overijssel is directing the planning process. The municipality of Kampen and Province of Flevoland are important partners. The Government has a decisive role and three ministries are directly involved.

b) ICZM tools

Several major spatial developments have been planned in the IJsseldelta and the Province of Overijssel initiated a sustainable development plan for the area with a strong focus on climate adaptation. A river bypass, some 840 ha. in extent, is foreseen as a key measure to increase safety against flooding. This approach is combining and integrating several spatial developments viz. housing, infrastructure, leisure activities, nature and agriculture whilst avoiding large scale developments in the north-east of the area. This bypass will follow the alignment of an old sea arm visible on maps from 1724 but long since re-claimed.

The Masterplan, in which these new ideas were developed, was published in 2006. The plan envisages that, instead of building higher and stronger dykes, a new strategy will see 350 ha. of space being added to the floodplains of the river. The bypass will feature dry grasslands at the inlet, wet grasslands and ponds in the centre and reedbeds and marshes in the sheltered areas of the new watercourse which will be able to accommodate the additional water during flooding. The newly created natural area will form an ecological corridor linking the IJsselmeer to the river IJssel. It is intended that a part of this area will be a Natura 2000 site thus fulfilling terms of both the Water Framework and Habitats Directives. Another innovative feature is the idea to develop a climate proof dyke along the river bypass. This is a kind of super-dyke that will also act as an embankment for housing development. Material for the dykes could even be provided by dredgings from the river IJssel by increasing its depth by 1.5 m as an extra measure to take up the flood-water. A new railway will be built linking Amsterdam to the north-east which will cross the bypass twice, once as a tunnel, the other a bridge. A new railway station along the bypass will give extra opportunities for industrial development. In total some 4000 houses will be built in the area. The newly created bypass will accommodate about 1100 new houses, that will be built on the climate proof dyke. It is envisaged that about 120 ha. will be used for these 1100 houses. The bypass will further allow recreation e.g. in the bypass itself (water sports) and e.g. cycling and hiking on the surrounding dyke.

A Strategic Environmental Assessment formed part of a review process that led to several modifications of the Masterplan. Currently, an Environmental Impact Assessment is being made for local land use and the displacement of the current dykes which will be necessary. During the preparation of the Masterplan (2006) the socio-economical effects of the plan have been calculated. The expectation is that there will be a financial impulse of €800-1400 m. during implementation from labour alone since 4900-8600 persons will need to be employed. It will result in 2400-3300 permanent, full-time jobs on completion. The public has been involved and many of them have accepted what was initially regarded as a very controversial idea. One reason for this is that the Masterplan is based upon a draft of the bypass that was made by the public during face-to-face meetings that were held during the consultation phase. In 2007, an agreement was reached with 11 governmental organizations with the intention to co-operate on the implementation of the Masterplan.

The final step, after the formal plan procedures, will be the application of permits and licences so that implementation can begin. Construction work to create the dykes, sluices, bridges and dams will start in 2013 and most of them will be completed by 2015 or shortly after, together with the development of the nature area. The housing development will take place during the period 2016-2030. The construction of the river bypass will probably be combined with the deepening of the summer bed of the current river, over a length of 22 km., being deepened by 1.5 m. The combination of these two measures can even be an advantage, because in that case the sediment of the river IJssel can be used to construct the dykes of the river bypass or the embankment that is needed for housing development.

7. Cost and resources

The total costs will be about €325 million in total. Already €30m. has been invested to finance the necessary adaptations of the infrastructure e.g. the construction of a new railway and the reconstruction of a motorway. The Province of Overijssel has also funded €20m for anticipatory purchases of land (on a voluntary basis) in the bypass area.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The project has been effective in that it has run smoothly and is being conducted according to the original plans.

9. Success and Fail factors

A participating public has been important to prevent protest and delay of the plan-making process. Close co-operation with the stakeholders – neighbouring municipalities and provinces, the water boards and NGOs – has been another significant factor. The Dutch government has also collaborated with the Estonian and Russian governments as they noted similarities with Lake Peipsi which has acted as a frame of reference with respect to water dynamics and nature development. There is central government commitment to increase the safety from flooding by the rivers flowing in the Netherlands and safeguard the fresh water supply. A Delta Committee was formed which gave twelve recommendations, one of which was to implement measures including the river bypass as soon as possible.

10. Unforeseen outcomes

The Project IJsseldelta has been considered as a “best practice” by The Ministry of Housing, Spatial Planning and Environment.

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13. Sources

- Climate adaptation in the IJsseldelta (2009), Arjan Otten, Province of Overijssel
- Het Masterplan in vogelvlucht: Veilig wonen, werken en recreëren in IJsseldelta Zuid (2006) Projectorganisatie IJsseldelta-Zuid, Zwolle
- Het Masterplan: Nu de kansen grijpen Veilig wonen, werken en recreëren in IJsseldelta Zuid Masterplan (2006) Projectorganisatie IJsseldelta-Zuid, Zwolle
- www.IJsseldelta.info



Climate adaptation in the IJsseldelta (3.9 MB)



Het Masterplan (1.93 MB)



Het Masterplan in vogelvlucht (2) (1.75 MB)