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## Een kleine dijk met een groot doel

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## SUMMARY

For centuries, the Holland-Utrecht peat area has been protected by a dike along the Zuiderzee against its salty waters. Flooding of the area potentially led to loss of human lives, but especially to economic damage. This dike was called the Diemerdijk. This relatively small dike protected a hinterland of several tens of thousands of hectares. It was a little dike with a big responsibility.

The main subject of this study is an aspect that received relatively little attention in the historiography of water management, namely the financing of the construction, the maintenance and the improvement of dike protection. The key question of this study is therefore: 'How did the financing of the Diemerdijk develop and how can this development be explained'. In the study is based on a model in which four aspects, natural environment, technology, governance and finance, are studied in each of the chronological periods. This has resulted in the following general view and seven specific conclusions.

Somewhere between 1000 and 1300, a quay was erected along the banks of the Zuiderzee against the intruding waters. Further protection was needed, due to cultivation of the peat areas behind the dike causing oxidation and consequently lowering of the land, which measured some three metres between 900 and 1450. The damaging St.-Elisabeth Flood of 1421 threatened the existence of the area between Amsterdam and the higher lands in the east (Gooi area). This storm surge resulted indirectly in the establishment of the Water Board of the Diemerdijk. The flood caused the formation of the deep pool of Nieuwe Diep, which left the governors of the Water Board of the Diemerdijk faced with a serious problem. Instead of moving the dike further inland, it decided to take drastic measures, which would determine the character of the Diemerdijk for centuries. The sections of the dike without any foreshore were strengthened with poles. For the so-called dike-duty landowner (*dijkplichtige* in Dutch), covering some 3,700 *morgen*, this probably would have caused unsustainable financial burden. In any case, it was then decided by the Count of Holland that those costly sections of the dike would be maintained by villages and towns in the surrounding areas, which could tax the land owners in their respective jurisdictions. The rest of the dike, made of earth as before, remained under the ordinary maintenance of dike duty landowners, all of them being citizens of Holland, whereas the 'waalplichtigen', covering some 20,000 *morgen*, were mostly citizens of the neighboring sovereign province of Utrecht. This usually implied manual work and hardly any cash transactions. Any extraordinary maintenance (such as after a flood) as well as the expenditure of the Water Board was paid for through taxing the so-called *waalplichtigen* – landowners with property further away, but still dependent upon a strong Diemerdijk (divided into eight districts). In the mid 1450's, the respective charges were probably relative to each district's respective interest. Next to the ordinary supervision of the local jurisdictions of Muiden and Diemen (each in their own jurisdiction), the dike reeve and governors (*heemraden*) of the Water Board had specific supervisory rights over the maintenance intensive pole dike, as well as overall supervision rights, controlling the whole length of the dike. Amsterdam, by far the most influential city in the area, was allocated an influential role in the Water Board. Thus was created a quite complex system of maintenance and finance, ensuring proper maintenance and therefore security for the area's inhabitants.

After another serious flooding, the All Saints Flood of 1570), it was decided to extend the pole dike drastically and again after the storm surges of 1609-1616. In the same period, attempts were also made to reach an agreement between Holland and Utrecht on the construction of a sluice near the mouth of the river Vecht at Muiden (and removing the one lying some 10 kilometers down the river at the border of Holland and Utrecht). According to the States of Holland, moving the existing sluice at Hinderdam to Muiden would result in important improvements. It would cause the shortening of the dike length considerably and it would increase the possibilities of inundation of the area in face of

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military threat. At the time the United Provinces were at war with Spain and any inundation would protect the province of Holland. The province of Utrecht however was against as it would lose the sluice taxes as well as the control over the river. After the military battles at the Vecht in 1629, new attempts were made by Holland (in vain) to move the sluice. The new sluice was completed as late as 1673, when the province of Utrecht was occupied by the French invaders. Consequently Utrecht could no longer influence decisions of the now enemy, Holland. This ended a several decade-long conflict.

With the construction of the sluice and the lowering of dikes along the Vecht River, the dike further east along the shores of the Zuiderzee gained greater importance. Whereas before this was merely a quay, now it rose to the importance of a sea dike, expensive in maintenance while still maintained by a small number of land owners. This dike also protected part of the land behind the Diemerdijk. It seemed logical to combine the two Water Boards. It also seemed logical to centralize maintenance in the hands of the Water Board and charge the costs evenly among all land owners. This so-called 'communalisation' would become an issue of discussion with every crisis. It proved impossible to reach an agreement on this. As this would result in higher charges to the citizens of Utrecht, the province refused. After every eruption of the sea Holland would reiterate the need for greater financial coverage.

The storm surge of 1675 marked the beginning of an era of frequent storm surges. The dike was heightened considerably to resist the ever increasing water levels of the Zuiderzee. This caused costs to the dike duty land owners to increase considerably. Especially after the economic crisis of the early 1700's, the increased dike charges resulted in many land owners leaving the area. In accordance with medieval regulations, land owners could relieve themselves of their dike duties when handing over their land (*spadesteken*). Around 1730, about 40% of the dike had been handed over to the Water Board, whereas in 1675 that had been almost nil. In the States of Utrecht there was great concern about continued *spadesteken*, causing an ever larger part of the dike being maintained by the Water Board. This would result in higher charges for the *waalplichtigen*, as mentioned before, mostly citizens of Utrecht. Utrecht applied all judicial methods to avoid this.

Around 1730, the pile worm was discovered in the poles of the Diemerdijk. This posed an immediate danger to the dike as the damaged poles would easily break with the next storm surge. After several failed attempts to kill the pole worm, it was decided to replace the wooden poles by stone ones. This costly decision proved effective. Since then, there were several storm surges (causing serious damage) but never any flooding. The new dike could technically no longer be maintained by individual dike duty land owners. Handing over the task of maintenance to the Water Board would have been an answer to the problem, but this was refused by Utrecht for financial reasons, it would imply higher charges for its citizens. Therefore, it was decided to equalize the financial burden among all dike duty land owners in each of the six dikes stretches (*parken*). While this was far from sharing the cost over the much larger area of *waalplichtigen* (eight times in size), it did decrease individual financial risk and it did result in the desired unified maintenance of the dike. After 1750, no land owner was financially forced to leave his land, indicating a significant financial burden.

The revolution of 1795 resulted in increasing difficulties in governance of the dike. The medieval regulations were insufficient to meet the new institutional challenges, among others the increasing role of central and provincial government. The old regulations were based on the premises of independent Water Boards, governed by co-opted governors. After the introduction of the Province Law and subsequently general provincial 'Water Board Constitutional Regulations', a constitution for the Diemerdijk was drafted. The most significant part of the new constitution was the formal communalisation of maintenance and finance, governed by elected representatives of the taxed land owners.

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Having researched the historical development of the Diemerdijk in the areas of environment, technology, governance and finance, this study came to the following seven conclusions, which are expanded below.

### *1. Lack of knowledge was not the cause for dike bursts.*

The literature on water management usually attributes dike bursts largely to contemporary lack of knowledge on dike construction and dike maintenance. In the case of the Diemerdijk, it appeared that as a result of effective transfer of knowledge with other Water Boards, the States of Holland and the city of Amsterdam, sufficient knowledge was available to meet the technological challenges. The improvements in time, the pole dike around 1450, the sluice of Muiden around 1673 and the stone dike around 1740, indicate that technological knowledge was not the limiting factor. The fact that the Diemerdijk broke several times can largely be explained by warfare and social unrest, which resulted in laxer dike maintenance. Under normal conditions, the dike would have withstood the storms surges.

### *2. Communalisation did not occur suddenly, but was a process.*

Communalisation was a very important phase in the historical development of dike maintenance. This study shows that communalisation was a long-term process, during which maintenance works, as well as financial taxation, expanded in volume. In the case of the Diemerdijk the process of communalisation was seriously impaired as decision making depended on two sovereign provinces. The provinces of Holland and Utrecht had conflicting financial interests. Utrecht, that would have then carried a larger financial burden, managed to block any such decisions.

### *3. The character of the Diemerdijk evolved from a court to a governing body.*

In the fifteenth century the Water Board was primarily a court. It supervised the dike and charged offenders according to the established regulations. In the course of time, the organisation slowly transformed to a governing body, in charge of execution of maintenance work directly or through tendering. At first, this occurred unintentionally, as a result of the above mentioned process of land abandoning (*spadesteken*). In the mid 1700's, the Water Board assumed direct responsibility for the dike maintenance, among others for technical reasons: the stone dike could not be maintained by individuals.

### *4. There was no representation of land owners in the Water Board.*

The ten governors ('*hoogheemraden*') were appointed on behalf of a town or rural area, later municipalities. Until 1864, the land owners were not represented in the Water Board. In reality, the governors did consider the consequences of decisions for the land owners in 'their' districts. The appointment of the dike reeve and governors depended to a significant extent on the city of Amsterdam. The *baljuw* of Amstelland (also being the dike reeve) was nominated by the city (and appointed by the States of Holland or the Stadtholder). The *baljuw* of Gooiland, also nominated by Amsterdam, appointed the governors for the districts of Muiden, Weesp and Weespercarspel. The jurisdictions of Loosdrecht and Loenen were purchased by citizens of Amsterdam. The Jurisdictions of Kortenhoef and Nigtevecht (both in Utrecht) were also for a long time in the hands of influential citizens of Amsterdam, but they adhered to instructions from the States of Utrecht. In 1730, Amsterdam purchased the jurisdiction of Diemen, among other reasons, to obtain the right of first supervision. All governors were under pressure to comply with the decisions of their respective States.

### *5. The province of Holland and the city of Amsterdam intervened when necessary.*

For a long time, the Water Board was not independently capable to execute large-scale works. Large-scale works were executed under management by the States of Holland directly or delegated to the city of Amsterdam. This changed with the construction of the stone dike in the mid-1700. The frequent land abandonment placed more than one-third of the dike under direct maintenance of the Water Board. This responsibility generated the necessary experience, which became useful with the dike construction. More

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important than the technical support of Holland and Amsterdam was the financial support. For a long time, the Water Board had no financial reserves and therefore unable to pre-finance restoration works or improvements. On the basis of provincial guarantees, Amsterdam was willing to pre-finance any amount. As a result of this, extremely expensive works were implemented during the periods 1672-1678 and 1735-1740, without any problems. Holland was unable to enforce (partial) restitution of the pre-financed funds from the land owners or from the province of Utrecht. In the end, the province of Holland was left with the bill. Holland and Amsterdam however intervened only when needed. Under normal circumstances, the Water Board acted independently.

### *6. The institutional framework of the Republic was more effective than expected.*

Ineffective institutional framework has for many years been pointed out by historians as one of the most significant reasons for the relative decline of the Dutch Republic. In this study it appeared that the effectiveness was far greater than one would expect based on the historiography. Even in the Year of Disaster (1672), a high technological achievement was (financially) realized. It also appeared that decision making within the States of Holland was better than expected. At crucial moments the States were able to decide rather quickly, especially when there were no financial consequences for the province. The Deputies of the cities, especially Amsterdam, had significant independent powers, which were used to reach the required consensus.

### *7. The dike charges were not exceptionally high, but unevenly charged.*

The literature on water management usually bases its financial analyses on the dike charges (omslag). As a result, a significant portion of the costs, the costs of manual work, were consequently ignored. After analyzing the costs of the Diemerdijk, it appeared that the total costs of the Diemerdijk per land unit (*morgen*) were not exceptionally high, but unevenly charged. This caused serious problems. Between 1680 and 1730 more than one-third of the land was abandoned, leading to a transfer of dike duties to the Water Board. This practically meant greater spread of financial risk. This development was reinforced after the informal communalisation in the 1740's, which spread the financial risk among groups of dike duty land owners. The complete and formal financial communalisation came with the adoption of the constitution in 1864. The Diemerdijk entered a new era.