

Land-Nature and its Economic and Cultural Value: The Case of the Zuiderzee Reclamation



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We have to make sure, above all, that our mind is not halved by a horizon (A. Sen, Identity and Violence, New York 2006, 186)

Abstract In a country that is situated rather low in regard to the sea level and where available land has been gained from the sea, the conception of nature and landscape, forms of living and producing—and the way that it is implemented—is of fundamental importance in the creation of new land. Especially the evolution/changes in the form and function of the landscape elements can be seen and studied through the four major polders built in the Netherlands during the past century. The role of nature and its relationship with the utilitarian land has been continuously modified. Starting with a discussion surrounding the integral design approaches of Marinus Granpré Molière and Cor van Eesteren, we propose to investigate the shift of views about city, nature, countryside relationship and spatial consequences, from blueprint plan/to process planning by looking to how the Wieringermeerpolder was conceived. Then a look will be given to the North-East polder and the way that the structure was different from the Wieringermeerpolder, a unique conception of a spreading city according to models of Walter Christaller. Finally, the polders of Flevoland will be taken in regard in which among others, Van Eesteren again had a big influence. The recent historical views are of great value for how the role of nature is perceived in contemporary urban and landscape design.

Keywords Dutch-reclaimed land · Constructed new land · Production/aesthetics Dilemma's · Landscape evolution and planning · Polder politics

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1 Introduction

As is well known in the Netherlands, water is deeply and fundamentally intertwined. It is largely determined by economics, even if social issues also play a crucial role. Natural resources are scarce and the balance between both fresh and saltwater and land is a delicate one (Metz 2012). At the beginning of the past century, when the creation and reclamation of the Zuiderzee finally took place after long deliberation, elevating the productivity of the land was a primordial consideration. Intensification of agriculture and animal husbandry were the basis for many developments, considering the fact that heavy industry was not a mainstay of the Dutch economy at that time. Industrialization was never a key factor, but over the course of many years, the concept of productivity regarding the land has changed. The dimensions of productivity have augmented and profits are no longer calculated merely in terms of financial profits. Other factors such as cultural intentions and sustainability have come into play. The use and designation of polders illustrate this in a clear manner. In their struggle against the water, the Dutch population has reclaimed extensive territory from water throughout the centuries. Particularly during the twentieth century, there were several big government initiatives for reclamation projects. Not all of them came to be, but several large water bodies such as the Zuiderzee, an arm of The North Sea and part of the Rhine Delta, were turned into land after long debates and planning processes. They encompassed approximately 165.000 ha. of new land currently known as the IJsselmeerpolders due to fact that this North Sea arm was enclosed by the Afsluitdijk, the long dyke between Western and Eastern sides of Holland. The waters behind this new dyke became a freshwater lake—the IJsselmeer. The long time required for the effectuation led to a continuous fine-tuning in the objectives and the methods. From a site of mere production, the polders increasingly became a petri dish where experiments were introduced that had to do both with landscape architecture and town planning as with the creation of natural habitats. It is interesting to see how the various polders illustrate, through time, different goals and procedures on a local, regional, and national scale. Of the five planned polders, Wieringermeerpolder, Noordoostpolder, Eastern Flevoland, Southern Flevoland, and Markermeerpolder, only the first four came to be and were officially declared reclaimed from the sea waters of the Zuiderzee in 1930, 1942, 1957, and 1968, respectively (Fig. 1). The fifth never was realized although several plans were made throughout the years. Most recently, artificial islands have been built in the area that function as natural reservations for flora and fauna.

For the sake of clarity, the polders discussed in this chapter will be handled two by two, the first two polders (built in 1930 and 1942) followed by the two last built polders (built in 1957 and 1968) since they show clear conceptual differences, proceeded by a short discussion around the role of the town planners, Cornelis van Eesteren and Granpré Molière, to better contextualize the momentum caused by the Zuiderzee reclamation project. Whereas the first two polders were directly connected to the existing land causing drainage problems, the other two were conceived.



Fig. 1 Map of the Plan C. Lely, 1891 showing the original five planned polders, Wieringermeerpolder, Noordoostpolder, Eastern Flevoland, Southern Flevoland and Markermeerpolder (never realized) (Batavialand Archive, Lelystad)

They were divided as separate areas, divided from the existing provinces and shorelines but well connected with to their surroundings by bridges. Additionally, the first two polders are distributed around a central point and built as planned, while the other two polders are examples of extensive negotiation and the specific planning methods of the seventies. The different polders also show great differences in their

planning related to the amount of land dedicated to the different activities or scopes. This is fettered to the changing views on productivity, the well-being of inhabitants, the role of nature and urban planning over the course of the century.

The polders, as a human creation, are an illustration of the evolving perspective on new production needs and environmental problems, as well as on issues regarding the relocation of people and an illustration of discussions about landscape compositions and aesthetics. Whereas initially, the inhabitants of the first two polders were to be farmers or people involved in agrarian productivity (and were therefore carefully selected and chosen), this slowly altered and ultimately the new settlers were meant to ease the pressure on the Randstad and in particular on Amsterdam. A different demographic became dominant and there was room for more variation in population. The reclaimed land shifts from being used as farmland (approximately 85%) and just 1% as settlements in the case of the Wieringermeerpolder (1930), to less than 50% dedicated as farmland on the final polder (1968) in Zuidelijk Flevoland. This ratio of farmland to urban settlement has continuously changed due to the dynamic character of the Dutch planning approach, and will be clarified and discussed throughout the chapter.

2 City-Countryside Debate at the Turn of the Twentieth Century and the Dutch Protagonists

The countryside and the city have always been on difficult terms. The relationship has been tense and the boundary between the city and its surroundings has often been problematic. At the end of the nineteenth century, and at the beginning of the twentieth century, green areas became a fundamental topic in town planning for the first time, leaving the space for production outside of the urban borders. In 1898, Ebenezer Howard gave space to green zones in the diagrams in his book *Tomorrow: A Peaceful Path to Real Reform*. A year later Camillo Sitte extended his book *City Planning according to Artistic Principles* from 1889 with a chapter on 'big city green'. Leberecht Migge and Max Lauser talked about the radical reform of the garden (Haney 2010). The first one, Migge, gave also together with Alfred Lichtwark an impulse to the planning of a Volkspark in Hamburg. Lauser had made a design but the park would be realized under the supervision of the building director Fritz Schumacher who became one of the most influential town planners in Germany and beyond. In the Netherlands, Schumacher would make a name for himself with his remarkable plans for Cologne in which he tried to introduce green spaces to the city. The book which he wrote with Wilhelm Arntz was considered a major publication on urban planning (Meynen 1999). In September 1922, an exhibition of his plans was held in the rooms of the Art Circle in The Hague. Shortly after he was asked to give a talk at the International Town Planning Conference in Amsterdam in 1924. His topic was on 'the system of open spaces in large towns'. Although not present due to illness, Schumacher in his paper pleads for 'lay-outs of a landscape design'

that 'will penetrate the body of the town as a net of open spaces and will establish a connection with outlying points' (Schumacher 1924, 105).

The opening lecture at the conference was held by Marinus Granpré Molière and was entitled 'The Modern City'. According to him, town planning 'will seek to reunite town and country, civilisation and nature; it will introduce nature into the town and will guide in orderly ways the ebb of the crowd towards the country' (Granpré Molière 1924, 14). Granpré Molière had a natural, organic approach to town planning and the city, as was acknowledged by Fritz Schumacher who had been jury member with Granpré Molière in a competition in 1926 in Zürich and remembered that Granpré Molière had 'as much feeling for the design of nature as for the design of buildings' (Schumacher 1936, 174). This can be seen in Vreewijk, a new neighborhood in Rotterdam South where he had developed a town plan in the style of a garden city. Soon after its completion, Granpré Molière would become the chairman of the newly installed Urban Planning Council that fought for more attention to aesthetic problems related to the new embankments of the Zuiderzee. The influence of Granpré Molière would be particularly considerable. At the conference, Piet Bakker Schut discussed the 'twelfth province'. Like many others at the conference, he pleads for a regional planning approach in which the beauty of the landscape would be considered as a crucial factor. The conservationist and town planner Cleynert already coined the term 'productive parks' (Cleynert 1924, 267). The implications of the term would subsequently be expanded and have gained importance and have a contemporary impact.

During an excursion to Hilversum, the 200 conference participants were met by W.M. Dudok who led them around and showed him his newest work. He told them that he wanted to transform Hilversum into a garden city with a well-defined circumference. A young attendee of the town planning conference in Amsterdam was Cornelis van Eesteren. During his Prix de Rome traveling through Germany, Van Eesteren had encountered many city officials and architects, but he particularly admired Fritz Schumacher whom he visited in Cologne in October 1922. They would regularly exchange letters and when Schumacher died in 1947 Van Eesteren published a 'memoriam' in a Dutch journal (Eesteren 1948). In 1929, Van Eesteren would be appointed as head of the then established Urban Development Department of the Public Works Department in Amsterdam. Until that time, he participated in competitions, taught at several schools, had become a teacher of urban planning at the university in Weimar (Staatliche Bauhochschule) and gave lectures. In one of the lectures, he showed the 'green belt' extension plan for Kiel, made by Leberecht Migge in 1927 (Haney 2010, 151–154). Migge had combined biological urban planning and modernist open space in an interesting plan. A green belt was designed around the historical city and provided recreation areas. Yet the green fringe did not really penetrate the historical core. The planning examples of Schumacher and Migge were important parameters for Van Eesteren, who not only put his mark on the extension of Amsterdam but also on the new polders of the Zuiderzee.

The growing attention of academics for the realization of the polders: a literature review.

A considerable number of books have discussed the reclamation of the Zuiderzee and the planning of the new lands. All the projects, urban areas, and protagonists have been studied in depth. Historical and analytic studies overlap each other and hardly vary in perspective. However, few were in English. An exception is the doctoral thesis of the physical planner Coen van der Wal, *In praise of common sense. Planning the ordinary* (Wal 1997). He focuses mainly on the physical planning of the towns and considers them as a result of the typical Dutch sobriety. The continuity that Van der Wal indicates as being the result of the logic with which the Dutch proceeded is yet all but naturally and is due to the intrinsic discussions and conflicts that accompanied the work of reclamation and the planning of the polders. The broadest picture has recently been painted by architectural historian A. van de Woud in his study of the changing landscape during the period of 1850–1940 in which he affirms that by 1940, the Dutch landscape had been rendered more beautiful, ‘Really according to our own ideal, everything neatly in drawers and boxes’ (Woud 2020). The motto of his book is ‘What is agriculture? A big food factory’ Van der Woud explains how, in the Netherlands, the changing of the landscape was a result of making it more useful and higher in productivity. His book paints the bigger picture of the landscape in the Netherlands in general but for our topic, the book of Geurts is the most extensive as it deals with the ideas, the discussions, the decision-making and the protagonists who were involved in all issues regarding the design principles of the landscape, from the allotment plan to the distribution of barnyards, to the implementation of new forests, and the location of land art projects (Geurts 1997). Yet, in general, the production of all these studies about the recent history of the polders is an indication that there is a need for reflection on how all the interventions came to be. A proudness has been substituted by indecisiveness and criticism if the way in which the polders came about was the right way. Being built under the sea level and under the pressure of seepage and subsidence processes, the water in the polders needs to be continuously pumped out and higher dykes and other measures are necessary to safeguard the land against the rising sea level. However, despite this, the Zuiderzeepolders can be regarded as a good alternative for the green heart of the Randstad—the area between Amsterdam, the Hague, Rotterdam, and Utrecht that has been slowly sacrificed for urban development.

3 The Two First Polders, Wieringermeer and Noordoostpolder. Food Production as Condition *Sine Qua Non*

After years of deliberation, political complications, and preparations at the end of the second decade of the twentieth century, the reclamation works for the Wieringermeerpolder began. One of the most important events was the flood of 1916 when the coasts of the Zuiderzee were hit and a large part of the provinces along the coastline disappeared under the sea. Civil engineer C. Lely, for the second time nominated as

Minister of Water Management made the decisive argument to carry out his plan to close the sea arm, the Zuiderzee, by building the Afsluitdijk (the long dyke between Frisia and the province North-Holland) and the first IJsselmeerpolder. Another decisive argument for the reclamation was that the Netherlands needed more agricultural area to feed its population during and just after the first World War. The destination of the new polders was to be agrarian, its population would be chosen according to strict procedures, its layout and how to harmonize rural and urban issues gave way to significant controversies. By 1915, J.P. Thijsse had advocated for an approach that was different from before: ‘We hope that the allotment of the new polders will not take place according to the block square system, that the land will not be exploited to the last square meter to generate monetary value. The quarter of a million people who will be living there still need something other than material prosperity and it must be protected against boredom and one-sidedness. The polders must be beautiful and, let’s say, amusing’ (Bosma 1993, 218–219). There was the fear for monotony and many voices asked for aesthetic consideration. The polders should not be reclaimed simply for agricultural purposes but should be thought of in an integral way, taking into consideration the people who would live there and their needs for public facilities, recreation, transport, and nature. The big question was, thus, how to organize productive land alongside urban areas in an aesthetic way, pleasant and efficient at the same time. A challenge that was part of the reclamation and design of all four polders.

3.1 Aesthetic Advisor Granpré Molière and the Future Landscape of the Zuiderzeepolders Rapport

After many discussions and interferences without direct results through the influence of D. F. Hudig, M. J. Granpré Molière was appointed aesthetic advisor of the Zuiderzee Works Department in 1927. Granpré Molière became the most influential figure in the planning of the polders. As an architect and town planner, he had become a professor at the Technical University of Delft in 1924 and from 1926 onwards, was the aesthetic advisor for the planning of these new lands in the Northwest of the country. Although the new land was a tabula rasa on which everything was possible, the power of Granpré Molière was limited. The Department of Zuiderzee Works had already established the allotment plans and initially, Granpré Molière had to deal only with the aesthetics of the bridges and villages. The advisor continuously had to fight uphill battles against the different authorities, ranging from ecological and professional institutions to bureaucrats at all levels.

Granpré Molière could, to a certain degree, realize what he already professed in his inaugural speech of 1924: ‘It is a peace of mind to know that all form is a limitation and that the rapid speed of development usually concerns the upper stream of society; under the moved surface a being maintains itself, a movement takes place slowly through time; each area into which we penetrate more deeply shows us a

sustainable life, a long-term growth; there is no innovation that does not include a return of values that a previous generation has carelessly ignored'. His attitude has been perceived as anti-urban but that is maybe too shortsighted. It was, after all, a project aimed at creating new agrarian lands and not new cities. The flatness and emptiness of the new land was striking and within that land, different urban 'growth centers' were planned. The fact that Granpré Molière dedicated much attention to the green side of the polder was certainly innovative because, until that moment, the polder was only considered as a place of production. This did not mean that there was much biodiversity, but this is not what received much criticism. Radical modernists disliked the fact that Granpré Molière had a view that was both directed towards the future and towards the past. Among those we can count is A.D. van Eck who was appointed in 1932 by the management of the Wieringermeer as leader of the construction office. Predictions for the polder were made on the survey that Th.K. van Lohuizen had made, but according to architectural historian K. Bosma, one of the main features in the planning by Granpré Molière was that he search for a closed townscape (Van Bergeijk 2015). He also did not wish to have long roads between villages because he would have found them aesthetically unpleasant.

He was however helped by the report *Het toekomstig landschap der Zuiderzeepolders* (The future landscape of the Zuiderzeepolders), which was published in 1928 by the Dutch Institute of Housing and Town Planning. The report investigates suitable layout principles, necessary functions, and their relationship and the form they could take, also based on the long tradition of Dutch land-making. The premise of the commission D. Hudig, who wrote the report, was that modern people should be able to experience the beauty of the utilitarian landscape, not necessarily because of its variation but also its sobriety, as a healthy environment and because of the care put in each of its elements. The elements proposed were mostly spatial landscape elements needed to shape this, otherwise a flat and homogeneous landscape, into a landscape with a human scale. They were also meant to connect the farmyards with the surrounding cropland and the villages among them. Ditches, waterways, planting plans, and the definition of the agrarian program all became part of the strategy to create a productive landscape that would contribute to feeding a growing population.

3.2 Composing Urban Settlements, Agrarian Allotments, and Landscape Elements

The idea in the planning of Wieringermeer and later in the planning of the Noordoostpolder was to create a series of villages closely related to each other and to the central village to support and complement each other in terms of facilities and social engagement. The farmyards standing along these roads formed green clusters. The farms, built with standardized concrete elements, had to look 'traditional' (Elpers 2019). One of the driving forces behind this report was P. Verhagen, a partner in the firm of Granpré Molière. Granpré Molière was capable of putting his distinct mark on



Fig. 2 Aerial View of Slootdorp in the Wieringermeerpolder. The original plan was made by M.J. Granpré Molière (Historisch Genootschap Wieringermeer)

the location and design of the various new villages and farms that had to be founded (Fig. 2). He also took care that the main roads of which one was from Amsterdam to the northeast of the country, did not go through the villages but passed them on the edge by slightly altering their course as well of the waterways and canals that served as drainage and for transportation ends (Van Woensel 1999).

He changed the monotonous and economically determined land allotment of the whole polder and made it so that the main villages were the focus. These four villages (in his former plan 12 small villages in a wreath) formed a triangle from where the roads led off into the surrounding land. Small areas, often leftover areas, were destined to be turned into woodland with high trees that could function as a wind-shield. However, the farmyard plantings and the ones along the road were minimal with hardly any variation. Everything, also the efforts of human work, was aimed towards the maximization of production. Productive qualities of the green zones were never regarded as of any importance. Only small patches of unsuitable ground for agricultural production gave some opportunities to create small forest pockets.

As an alternative, the landscape architect J. T. P. Bijhouwer was asked to present a planting plan. Bijhouwer, who later became a professor at the agricultural college in Wageningen, had travelled to the United States and had been deeply influenced by Lewis Mumford and the American parkways (Andela 2011). What he presented in 1937 was, in fact, a landscape structural plan based on four precepts: the habitability

of the new land had to be increased by providing shelter and shade, the enormous vastness of the landscape had to be reduced to dimensions measurable to the human eye, and simple and ordered planting along the roads and the tree assortment had to be chosen in harmony with the soil type to express the landscape the best. Not much was built from his plan, instead, the usefulness of the planting was paramount and dictated the results; the only planting allowed were trees for wind protection along the roads and farms and a few small forests for short strolls on soil less suitable for farming (Aten 2007). More successfully were the designs for the different farmyards; the arable land, the meadows/grasslands, and the mixed farms as they were classified. Each was designed according to their business, creating a clear distinction in their internal layout, stables sizes, the water surrounding the yards, and planting choices. For instance, the planting of the meadows/grasslands and mixed farms had to connect with the planting of roads giving access to them and creating a visual continuity (Andela 2011). Food production in big quantities was still a major issue. Slowly that would change and especially in the Flevoland polder, biological diversity became a new target.

3.3 From Polder to Polder; Learning from Each Other. The Noordoostpolder Experiment

Wieringermeerpolder, considered a partially failed experiment was, however, fruitful. The other nascent Zuiderzeepolder, also known as the Noordoostpolder borrowed from the lessons gained in the planning and the persuasiveness of its predecessor for a better landscape composition. The planning of the Noordoostpolder initially took place more or less along the same lines as the Wieringermeerpolder, although there was a greater amount of rationalization which would facilitate the exploitation of the reclaimed land. In 1937, Granpré Molière gave a lecture in which he explained his views and stated: 'A start has now been made with the Noordoostpolder. The surface is larger and more even, the soil is a bit better and the operation cheaper. And as here the phase of searching has largely made way for knowing, the character will probably also become tighter and more powerful. Construction paid more attention to aesthetics, it can be hoped, partly in view of better economic relations, that something will be achieved with this polder in many respects, which was not the case with the Wieringermeer' (Westfriesch Dagblad 1937). With this Granpré Molière indicated that the views had changed and that the planning of the Noordoostpolder would be more convincing. It was definitively a process of learning by doing. Even as wartime planning did not come to a halt but continued in what had to become a mainly agricultural production project. Only gradually the space for other functions increased; the Wieringermeerpolder expended about 3% on forest and recreation, the Noordoostpolder about 6%. Over the course of time, some procedures and methods were perfected and the one-sidedness of the design of the Wieringermeerpolder, which had been criticized by architects of the modern movement, led to changes.

3.3.1 Villages

The planning of villages was based on the ideas of the German geographer Walter Christaller, who was in the Netherlands for an international congress in 1938. The different villages were planned in a concentric manner with the main urban nucleus in the middle. From the beginning of the allotment plan, a place for the ‘urban care cores’ (verzorgingskernen), as the villages were called, was considered, forming together with the roads and layout of the farm plots an important structuring element in the plan. For everyone, a village should be reachable at an accessible distance by bicycle or car of 7 to 8 km. In the end, the plan included ten villages around a central one, Emmeloord. The villages were meant as residences for mostly agricultural workers, servants at the farms, and other caretakers. To arrive at this decision, a discussion took place between the proponents of reducing the social distance between farm owners and farm servants. This discussion took place between Granpré Molière, his pupil C. Pouderoyen, and members of the Agricultural Department as well as those arguing for ways in which to maintain this social hierarchy. The consequence of the discussion was a plan including housing for the ‘first farm worker’ outside but at a close distance of the farmyard. Houses which were later, from the 60s on, becoming popular as vacation/second houses, B&Bs, retired farmers, or even permanent houses for people who wanted to move to the countryside to grow their own food as a healthy alternative.

3.3.2 Farms

Despite the fact that other functions were taking more space, the sizes of the agrarian parcels had increased considerably. The dimensions were based on the requirements to keep arable plots dry, as well as on the mechanization tools to work the land and the economically desirable size of the parcel. In the Wieringermeerpolder, the standard parcel size is 250 by 800 m, in the Noordoostpolder it has increased to 300 by 800 m. Technology had its impact. The standardized parcels formed clusters of four farmyards to assure a minimal social life for the farmers and their families showing a clear preoccupation with the well-being of the farmers who would be even more distanced from each other because of the increasing parcel sizes (Feddes 2004). The clusters themselves were a structuring element giving a certain rhythm to the perception of the landscape. Not all farm plots were, however, very big: with the introduction of fruit production, smaller plots were added near to the villages, forming a rhythm along the roads between two villages—from smaller parcels fronts, to bigger ones, to smaller ones again.

3.3.3 Planting Plan and Country Relaxation Tendencies

There were discussions around planting plans made by L. Brands Buys, C. Pouderoyen, and J. T. P. Bijhouwer during the II World War, a period when the further

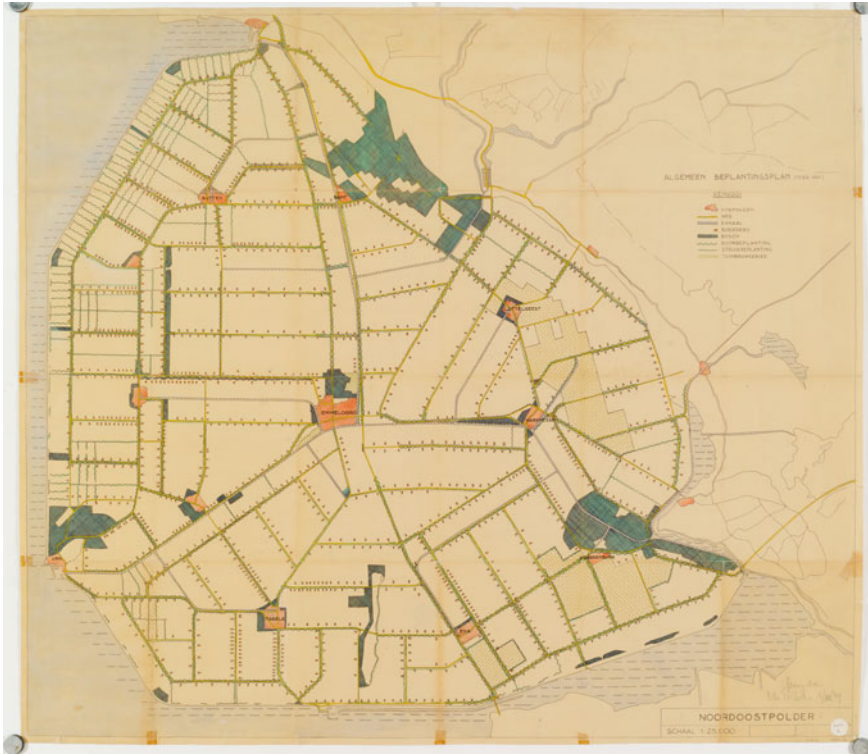


Fig. 3 Planting Plan Noordoostpolder, C. Pouderoyen and J. T. P. Bijhouwer, 1947 (Het Nieuwe Instituut, Rotterdam)

construction of the Noordoostpolder was stopped, but none of them were totally approved by the Forestry Commission because they would take up too much arable land (Fig. 3).

Pouderoyen did not subject himself to the allocation plan of the lots but dedicated much room to woodland areas and to broad wedges that would penetrate deeply into the polder and towards the central city. His plan is often overlooked or dismissed as being unimportant, but it is certainly interesting. He was the first one that clearly introduced landscape scenery elements and did not accept the polder only as an agrarian production machine. His alternative plan was rejected, leading to some minor effects. Slowly, more surface was designated to become part of the green structure but there was still much resistance, also from the farmers themselves who didn't want their agricultural plots to be shadowed by the trees along the roads and water channels. They were still totally focused on maximizing their harvest and were less interested in ecological or recreational aspects. Based on research directed by Bijhouwer, a forest of 20 ha was considered necessary for each settlement to provide the villagers space for sport, play, and other forms of relaxation. The forests, bound to the central core of Emmeloord, would be 50 ha. Half of the forest area would be used

as a walking route, the other half as a recreation area with plenty of space for sports and games. An important additional function of these green pockets was to provide shelter from the wind and to create intimacy for the villages in the otherwise empty polder land. The effectively realized village forests are usually located to the west or north of the villages, and are eventually between 10 ha at Luttelgeest and 90 ha at Emmeloord. Emmeloord, the most important one in the polder, located centrally in the polder, was mainly designed by Pouderoyen (Bruggenkamp 1994).

Although during the war and shortly after a ‘shaking hands’ mentality was present, soon conflicts between modernists and architects with more traditional views rose to the foreground. To a large extent, the views of the traditionalists, of which Granpré Molière was the main exponent, still were the dominant factor but the modernists were able to put their mark on the village of Nagele, that forms an exception in comparison to all the other villages built in the polder. With Nagele’s plan, the modernist 8 en Opbouw group wanted to arrive at openness and conceived the village as consisting of units. Wide green zones divided the small clusters of habitations that all had flat roofs, indicating their modernist pedigree. During this period C. van Eesteren slowly came into the picture. For a long period, he would oversee the design of the Flevoland polders as the most influential advisers to the responsible board. The landscape of the polders became a concern of primary importance. Different principles became the guidelines along which the new polders had to be designed. Van Eesteren continuously came into conflict with many ideas that the leaders of the agency of the IJsselmeerpolders, who were factually in control of the whole operation.

4 The Experience of the Flevopolders—Eastern Flevopolder and Southern Flevopolder, Van Eesteren and the Urbanization Ideas of the 70s. Dismissing Agricultural Use for Other Forms of Production

The reclamation of land that had to form the Flevopolders occurred in two phases. After the dykes were made, the east part was laid dry. Later the south side was reclaimed. The basis of the allotment plan was formed by cities, forests, green corridors, and land for agricultural production (mostly as compensation for the loss of agricultural areas in other parts of the country). Even though the farmland, housing, recreation, and nature development may seem to be designed as separated, individual parts, there is a high degree of interweaving among them because of the integral approach of this multifunctional landscape wherein even land-art objects along with farmland where possible. The plan organizing the different uses can be qualified as an ‘open plan’ or process planning, meaning it is made to give a direction to the future development different to the plans made for the first two polders, which were called ‘blauwdruk’ (blueprint) planning or final design planning. The experience with the first two polders had shown that it was sometimes difficult to predict the development

in time, men, therefore, wanted to prevent clear-cut goals and create a more flexible and global approach along with some practical rules and a code of conduct. The other important approach was the one introduced by both Van Eesteren and Dudok, who had advocated for a more open-minded attitude towards landscape elements. They believed that the development plan should adopt a more holistic approach from the start and that the farming allotment division should be adapted to the requirements of the landscape design. Dudok visualized the interests of the standing committee and came up with a map and the recommendation to not only plan living, working, and traffic conditions but also take into account recreational areas. He also argued for parkways or recreational roads. Important was Dudok's contribution to the system of forest strips, which he saw as American parkways leading through and along the edges of the polder. He suggested that these green belts would be laid out throughout the polder more or less like veins and that the land itself would be wavy. Van Eesteren and the other advisors were charmed by this idea. This is especially important because it indicates that the differences between Van Eesteren and Dudok were not that big. Initially, Van Eesteren had been an advocate of an analytical town planning based on surveys, whereas Dudok was in favour of a more creative approach. That Van Eesteren followed the opinion of Dudok regarding the green zones is illuminating. In addition to forest belts, the Working Group proposed a range of village woodlands, very large (production) forests with irregular edges and more open spaces and ponds. In 1942, during the Monumentendag (Monument study day) on the IJsselmeerpolders, Dudok presented a memorandum on the landscape of the IJsselmeerpolders. To this memorandum, a drawing was added showing a system of massive elongated forest belts over the future Southern Flevoland. The standing committee had estimated a minimum forest at 5% of the total area, approximately 7500 ha with a width of 2 km. This would amount to a total of 35 km. That is approximately the sum of the length of all forest strips designated by Dudok in his presentation. His proposal was critiqued and Dudok responded by saying: 'The niggling on a small forest strip means that we don't have a culture like old Hellas; that specialists have too little cultural insight to venture beyond their remit. But then there must be a government that is aware of its great task' (Van Dissel 1991, 206). In general, his proposal found fertile ground. The forest belt of Dudok can be seen as a means of limiting the scale and bringing it more into line with that on the old land where recreation is the benchmark. In 1943, a memorandum on recreation, natural beauty, and tourism was published by the urban development department of Amsterdam, where Dudok's plan was further elaborated with a few differences; instead of 5% afforestation, 10% is used based on the example of the Twente landscape, an area in the East of the Netherlands. More attention was given to the landscape with a wooded character instead of just recreational value.

4.1 Modernization of Production. Up and-Downscaling

Nevertheless, all changes in approach, the farm sizes were continually under scrutiny and increased to 300 by 1000 m in the Eastern Flevoland. The layout of Southern Flevoland saw a big leap in scale with a basic module of 500 by 1700 m (Fig. 4).

In practice, this jump in size proved to be way too large, therefore a subdivision of farms was, in the end, necessary to reduce the parcel sizes. The increasing parcel sizes were possible, in part, due to the modernization of agriculture set in motion by the Dutch Ministry of Agriculture under the leadership of S. Mansholt after the second World War. The policy was also to make land equally accessible for all farmers and to render production more profitable and adaptable to constantly changing conditions (Andela 2000). The theme of urban agriculture was put forward at the moment that farmers were confronted with environmental problems among others. The necessity of the new polders for the production of goods for the national population lost its importance. At the same time, Southern Flevoland had to be considered within the orbit and the influence of the Randstad where existing cities had a decreasing possibility to expand. On the one hand, the polder became a relief of the pressure that was exerted by a growing population in Amsterdam. On the other hand, the factor of recreation and culture became even more prominent. Ecological motives were leading in a different way than they did before. The restoration of

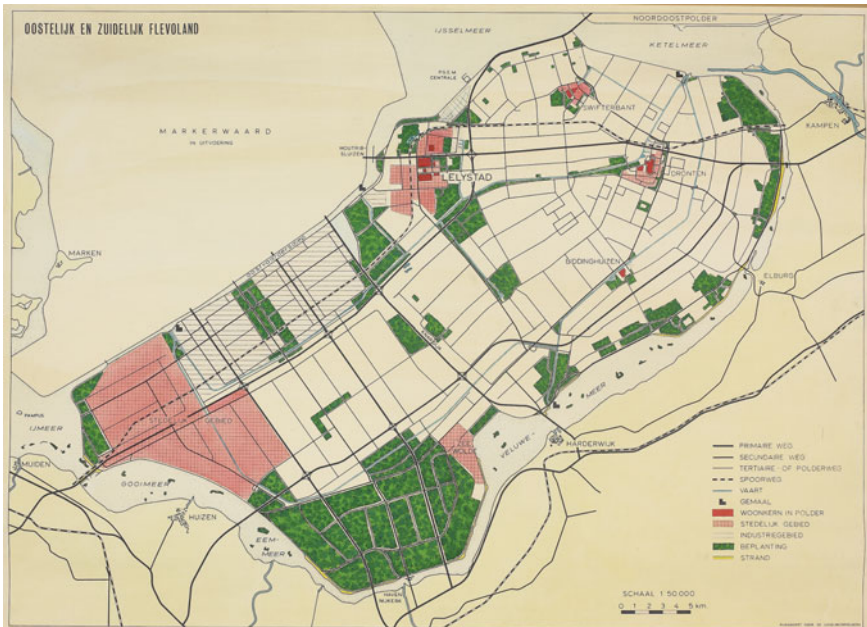


Fig. 4 Oostelijk and Zuidelijk Flevoland, 1971—Rijksdienst voor de IJsselmeerpolder (Het Flevolands Archief, Lelystad)

old and the creation of new ecosystems became one of the objectives. A network of ecological paths for wildlife that had to cover the whole country was a goal. This mentality change led the Netherlands in another direction. Territory allocated for agrarian purposes was given to other uses. Large portions of the polder were designated as parks, landscape art sites that tried to tie the local to the cosmic or natural reservations sometimes totally closed to the public, where rewilding could take place. Tourism and entertainment were new principles that provided new sources of income and better prospects of profit. The search for more variety is not only clear from the broad spectrum of different landscapes but also from the planning of the city of Almere.

4.2 *Lelystad and Almere, The Future is a Process*

The main city in the east part was Lelystad for which Van Eesteren made the plans according to the principles of the CIAM. Originally, it was conceived of as an industrial town of approximately 100.000 inhabitants, a number it never reached (Geurts 1995). His plans, which foresaw a city on a magnificent bay, were eventually altered in a radical way, mainly because they were thought to be too expensive and difficult to realize (Fig. 5).

Van Eesteren wanted to raise the roads for the cars and a monumental town centre. The city, which had to be the capital of the polder, had to be constructed in a very short



Fig. 5 Photo showing the reclaimed land with the location of the future city of Lelystad, 1957

time. The various institutions were combatting each other the whole time and, in the end, only small parts of Van Eesteren’s plan for Lelystad were realized. Attention shifted towards Almere that would also be closer to Amsterdam.

The first plan for the new city of Almere, which together with Lelystad had to become the main centres in the province, was conceived by Alle Hoesper among many others. Because the precise destination of the plots was not established from the beginning, the plots were designed as open areas and recreation was depicted in an abstract manner. Depending on future wishes, they could be filled in as space for parks, sports fields, water, or other types of recreation. Almere, now a town with a population of 215.000 inhabitants—but set to become a city of at least 400.000 inhabitants in the next decade as governmental studies predict—has become a field of experimentation for Dutch architects, just as the polder as a whole has become a playground for new insights. Almere consists of several distinct urban districts that are divided by green wedges, a landscape structure, a zone thought to serve later spatial developments. Aside from the districts of Almere City, Almere Harbor, Almere Buiten Almere Wood, and Almere Gate, the possibility of building new cores is being discussed and planned (Fig. 6).

For instance, Almere Oosterwold, where small-scale private or community-related urban agriculture and green energy resources are located beside do-it-yourself

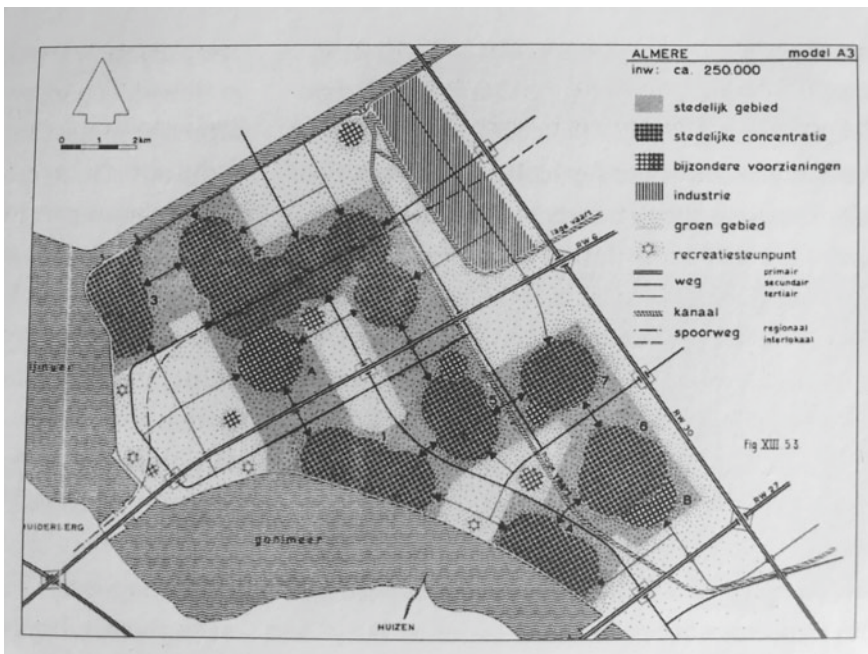


Fig. 6 Multinucleated model of Almere indicating the possible distribution of city functions intertwined among agriculture plots, from *Verkenningen I*, 1970 (Directie IJsselmeergebied, Rijkswaterstaat)

housing projects. This multi-core model, to be traced back to the layout for the villages used on the Noordoostpolder for instance, seems to be applied for Almere, however, the urban cores are bigger and closer to each other. They are also reminiscent of the garden city model of Ebenezer Howard where city and countryside should be intertwined—however, Howard’s model was seen as utopian in a crucial point, that of land ownership. For the city of Almere, half of the area was programmed as a garden city, with the same amount of inhabitants (Feddes 2008).

5 Conclusion

When we look back at the four polders, an attitude towards landscape and urban planning emerges, an attitude towards integrating farmland, settlements, recreation, and new forms of nature became explicit. Reflections made by the many authors involved in inventing this new land and how to build the next polder was not necessarily a follow-up of the already built polder, but included other influences like the availability of technology, as well as the economic, social and aesthetics needs.

Most certainly the points of view of the figures involved in the design process were of great influence; while Granpré Molière, Verhagen, Bijhouwer, and Pouderoyen among others, mostly responsible for the creation of the Wieringermeerpolder and Noordoostpolder had what is often considered a more conservative and picturesque way of designing. Having designed quite introvert enclaves, distributed around a central point, their designs were very orderly, arranged along roads, and formed a strong unity, not only in terms of layout but also in complementary functions. Where the roads were clearly meant to be part of the connection between villages, going through the farm landscape, connecting enclaves. The agricultural plots form the base, the matrix where the other functions and circulation system are built on. The focus on these two polders is to create as much as possible productive land to feed the population, making a little effort to also give spatial quality and a pleasant experience. The economic and functional values were predominant here. The landscape is open and wide, only punctuated by the farmyards and the strict pattern of ditches dividing the agriculture plots. The borders of the villages are well defined having but few landscape elements intermediating between enclosed and open. The aesthetical characteristics of the flat and wide areas were hardly appreciated. Roads and water channels were made to go from A to B, for the rapid transport of goods, trees were planted as wind protection with a few exceptions for the rows of poplars and wood production forests.

The Flevoland polders, designed in the 1960s under the advice of C. van Eesteren, W.M. Dudok, T. Koolhaas, A. Hosper, and many other experts and organizations are, on the contrary, more functional and process oriented. These two polders are set up asymmetrically, directed towards the outside world with most settlements placed along the edges, bordering the old land and water with a heavily planted road. Transverse roads are also meant as recreation paths, often integrating water as well as a recreational, ecological corridors and views over the landscape. Mostly, the Southern

Flevopolder is a model of negotiation planning of the 1970s. Agriculture is no longer the all-defining land use but a set of different programs grouped together with a clear preoccupation of creating a more articulated landscape composition. The agricultural plots still covered around 50% of the surface of the polder but are no more the underlying matrix but one of the many functions displayed together. Recreational sites, forests, natural corridors, land art projects, and more recently land use manifestations, require space too. Rather than creating a fixed plan, the idea was to create spatial conditions for different environments to shape the urban cores and the surrounding landscape allowing for flexibility in use through time. The question is if this will be the case. Looking back, we see that all the plans of the more creative architects and town planners were weakened down by professionals within the administration. Concepts continued fluctuating while, in the end, it was mostly an economic factor that determined the course that was taken. Experimentation with ideas and realization with the hand on the money purse! All plans for the future, especially the most recent bold ones for Almere—need scrutiny and a deep examination of their possible effects on all levels. The last realized plans include those for the Marker Wadden, a series of islands in the Markermeer, that was initiated in order to boost the biodiversity of the ecosystem.

So, while the agricultural plots grow in size mostly because of sowing, mowing, and other technical and scientific improvements, the amount of surface designated to accommodate the farm units decreased strongly while space for settlements, displacement, recreation, and new nature has taken its place, showing a strong shift in policy and needs. The agricultural plots are compounded together, however, forming large areas of flat land between closed zones like forests, fruit production, and settlements, distributed not only according to the most suitable soil type for agricultural production but also to create the sense of flatness as being the most intrinsic characteristic of the new land and a crucial ingredient of national identity.

In a recent research initiative, a shift of perspective is noticeable. The view from the sea has become a central issue for example. The inland sea, the IJsselmeer, the wide space hidden mainly behind high dikes get more attention and are taken as a point of departure for new developments. As well, the Afsluitdijk, the dike that was constructed and finished in 1932—an event that was celebrated with a monument designed by Dudok—has the attention of planners due to the fact it has to be redesigned in order to cope with sea level rising. Considering their proximity to the metropolitan region in the Netherlands, the consequences of climate change and the need for more recreation, the polders of the Zuiderzee will remain a topic of interest in the coming decades. It is still an ongoing project for which the strategy in the future needs to be flexible and open to ad hoc developments. Policymaking has become more difficult due to the many criteria that are at play. Planners will have to deal with this. But in the end, much remains uncharted territory.

In this contribution, we wanted to reflect on the ways in which the polders came into being and to illustrate how, in the Netherlands, the issue of making new land, very often by controlling water, is a seminal topic that is subject to continuous rethinking. The Dutch verb ‘polderen’ is already a testimony of an attitude in which results are arrived at through negotiating and compromising. This is a natural consequence of a

democratic society in which the wavering decision process has its pros and cons. This is clear also from the history of the Dutch Zuiderzee polders. Nature is menaced by the increase of leisure time, by economic reasons, and by industrial motives. Farmland is giving way to space for new housing and the development of ‘new’ nature. The Dutch government and the agencies responsible for the planning of the country are well aware of this. They have to reinvent the problematics connected to the reclamation projects and a way to deal with these constantly. New insights have their impact on the built and unbuilt environment. For many years, the Dutch government protected the central green zone in the Randstad, (mostly filled in with agriculture uses) the so-called Green Heart. Initially, the concept of a green heart was favored above the layout of green belts. Recently discussions have begun about the need for this. Certainly, also the ‘open areas’ in Flevoland have substituted this need. Through a system of belts, endangered animals could freely wander from one zone to the other, covering a great territory. Instead of dividing up the country among farmers, there is room for more different approaches. Respect for nature has become increasingly more important than financial gains or agrarian productivity. People appreciate more and more and want to enjoy the countryside, alongside the agrarian plots and far, low horizons. Also, the new neighborhood of IJburg, adjacent to and part of Amsterdam, has taken some pressure off the housing shortage in the capital. It came in the place of a woodland area that Van Eesteren had originally planned, the Uilenbos. It is a small step in the consideration of how land, or the Earth for that sake, can be saved for the future. If this does not work, the Dutch have a reputation for creating and demolishing the artificiality of their country. As far as the polders are concerned, in the twentieth-century nature slowly entered the picture. At the end of the century, it was more than ever recognized that nature could have esthetic and recreational benefits. The term productivity received a more comprehensive meaning, including nature in its broadest sense, new forms of agriculture that is very much downscaled and intertwined with housing, forming alternatives living options, has become possible. Short-term profit and maximum productivity were tempered by growing attention for sustainability standing next to extremely efficient, high-technology farming.

References

- Andela G (2000) *Kneedbaar landschap, kneedbaar volk. De heroïsche jaren van de ruilverkavelingen in Nederland*, Bussum: Thoth
- Andela G (2011) J.T.P. Bijhouwer. *Grensverleggend landschapsarchitect*. Rotterdam: Uitgeverij 010
- Aten D, Reh W, Steenbergen C (2007) *Sea of Land. The Polder as an Atlas of Dutch Landscape architecture*, Amsterdam: Architectura & Natura
- Bergeijk H van (2015) *Van Lohuizen & Van Eesteren. Partners in Planning and Education at TH Delft*, Delft: Bk Open
- Bosma K (1993) *Ruimte voor een nieuwe tijd: vormgeving van de Nederlandse regio*, Rotterdam NAI
- Bruggenkamp JW (1994) ‘Emmeloord, traditie en vernieuwing’, in: *Jaarboek Monumentenzorg*, 74–91

- Cleyndert H (1924) Parks and recreation grounds in the Netherlands. In: Part I (ed) International Town Planning Conference Amsterdam 1924. Papers, Amsterdam, pp 257–271
- Dissel, A.M.C. van (1991), 59 jaar eigengereide doeners in Flevoland, Noordoostpolder en Wieringermeer, Zutphen: Walburg Pers
- Eesteren C, van (1948) 'In memoriam Fritz Schumacher', in: Tijdschrift voor Volkshuisvesting en Stedebouw, no. 4
- Elpers S (2019) Wederopbouw boerderijen. Agrarisch erfgoed in de strijd over traditie en modernisering, 1940–1955, Rotterdam: NAI010
- Feddes F (2008) De Almere Principles. Voor een ecologische, social en economische duurzame toekomst van Almere 2030. Bussum: Uitgeverij THOTH
- Feddes Y (2004) 'The Designed Landscape of the Zuiderzee Polders. An Analyse of the Significance of Farmyards and Roadside Plantings', Oase, 63
- Geurts AJ (1995) Lelystad. Stedebouwkundige ontwikkeling en vormgeving, Lelystad: De Twaalfde Provincie
- Geurts AJ (1997) De 'Groene' IJsselmeerpolders. Inrichting van het landschap in Wieringermeer, Noordoostpolder, Oostelijk en Zuidelijk Flevoland, Lelystad: De Twaalfde Provincie
- Granpré Molière MJ (1924) 'La Cité Moderne', International Town Planning Conference Amsterdam 1924, Part I, Papers, Amsterdam
- Haney DH (2010) When Modern was Green. Routledge, Life and work of landscape architect Leberecht Migge, London/New York
- Hemel Z (1994) Het landschap van de IJsselmeerpolders. Planning, inrichting en vormgeving, Rotterdam: NAI Uitgevers
- Hudig D (1923) 'Stedebouw', Algemeen Handelsblad, 6 November
- International Town Planning Conference Amsterdam 1924, Amsterdam 1924
- Jarzombek M (2008) 'A Green Masterplan is Still a Masterplan', I. and A. Ruby (ed.), Urban Transformation, Berlin: Ruby Press
- Metz T, van den Heuvel M (2012) Sweet & salt. NAI Publishers, Water and the Dutch, Rotterdam
- Meynen H (1999) Die Kölner Grünanlagen, Düsseldorf: Schwann, 1979; D. Schädel (ed.), Fritz Schumacher in Köln, Schriftenreihe der Fritz Schumacher Gesellschaft, Hamburg: Christiaans
- Schumacher F (1924) 'Grünpolitik der Grosstadt-Umgebung', International Town Planning Conference Amsterdam 1924, Part I, Papers, Amsterdam
- Schumacher F (1936), Rundblicke. Ein Buch von Reisen und Erfahrungen, Berlin/Stuttgart: DVA
- Wal C, van der (1997) In praise of common sense. Planning the ordinary, Rotterdam: 010
- Westfriesch Dagblad (1937) 'De Wieringermeer—stedebouwkundige ervaringen', Westfriesch Dagblad, 21 June
- Woensel JTWH, van (1999) Nieuwe dorpen op nieuw land. Inrichting van de dorpen in Wieringermeer, Noordoostpolder, Oostelijk en Zuidelijk Flevoland, Lelystad: De Twaalfde Provincie
- Woud A, van der (2020) Het landschap, de mensen. Nederland 1850–1940, Amsterdam: Prometheus