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Regional Planning of the Netherlands

— Transfer and Transformation of Polder Planning into Japan —

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オランダの地域計画

——わが国における干拓計画の受容と変容——

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1. Introduction

It is said that, "God created the World and the Netherlander the Netherlands". The Netherland people created the new land to make the larger extent into the polder. And the Netherlander created a new idea of the national and regional planning under the distressful shortage of land.

In this paper, we will describe the history of polder planning, Zuiderzee polder planning and the fundamental idea of comprehensive planning of the Netherlands. Next, we will clarify the transfer and transformation of this idea into Japan's polder planning, especially the Hachirogata polder planning.

2. The Polder Planning of the Netherlands

In this chapter we describe the history of the first stage polder and the circumstances of Zuiderzee polder planning and delta planning of the Netherlands.

2.1 The History of the First Stage Polder[1)]

The first inhabitants of the country had to contend constantly with flooding and at the beginning, knew no other way of dealing with the occurrences than to build artificial mounds to which they could retreat with their livestock in times of danger.

Becoming larger social organizations, they adopted more elaborate means of defending their land against the water. They joined forces and built dikes, earth walls which held back the water.

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They were thus able to enclose tracts of land which consequently remained permanently dry. Initially, this was only applied to small areas, but later it also included the bigger areas. This became possible through the establishment of waterschap. The administrators of these bodies regulated water management, managed the dikes, levied taxes for them and in times of emergency, were able to call upon the inhabitants of an artificially protected area, a polder, to tender services. When the outer water level was in low tide, the sluices opened and the surplus water was discharged through a network of ditches and canals. When the outer water level was in high tide, the sluices remained closed and no water could enter. By this means, only those areas would be drained which lay higher than the lowest level of the sea depending on gravity.

In the 16th century, it became possible to move water from the low lying areas to higher areas with the aid of wind energy, converted by windmills into power which could drive pumps and to drain lands which were permanently below sea level and to keep them drained.

Becoming rich from overseas trade, it became practicable for drainage of lakes in Northern Holland. Polders were then created covering areas of up to 7,000 ha with soil better suited to agriculture.

In the 19th century, when steam power replaced the windmill, the inhabitants wished to be rid of the ever present danger of the big lakes bursting around the countryside. The Haarlemmer Meer [18,000 ha] near Amsterdam was considered to be a major danger.

In 1852, for the first time in the history of the Netherlands, the State itself, compelled by necessity, emerged as a land reclaimer. Although on the technical side great progress was recorded, this state venture was from a social and economic point of view anything but a success.

After the drainage, the land was quickly sold to private holders and further development was left to the inhabitants of the area. However, the most elementary facilities were lacking; housing for the workers was totally inadequate. Many inhabitants left the area destitute and disillusioned.

Furthermore, large storm inundations wrought up in 1825, 1916 and 1953. In the inundation of 1825 the flooded area was 370,000 ha in the area around the Zuiderzee, depriving 800 persons and 46,000 cows. In the inundation of 1916, the flooded area was 61,000 ha and this inundation was the decisive factor of the Zuiderzee polder plan. In the inundation of 1953, the flooded area was 129,000 ha in the delta area of Zeeland, depriving 1,835 persons and 47,000 cows.

2.2 The History of the Zuiderzee Polder[2)]

The Zuiderzee was not deep, hardly in any place, deeper than 5 metres. But it was vast, and in stormy weather a danger to the low lying area around it.

The traditional land reclamation produced the plan of the Zuiderzee polder, but it was technically impracticable.

In 1893, the engineer Cornelis Lely prepared a plan which later proved to be a practical proposition. It was a plan of great simplicity to close the Zuiderzee at

the neck by a 30 km long dam. The enclosed area, supplied with fresh water by the River Ijssel, a distributory of the Rhine, would eventually become a fresh water lake, since sea water would no longer enter it. This lake is called the Ijssel Meer and has 5 polders with a combined of 225,000 ha. of which could be used for agricultural purposes; and the remainder would continue to exist as a fresh water basin to contend with salination problems.

This plan is greatly simplified, but far reaching and costly, and is not executed for a long period of time.

In 1918, the Parliament decided to adopt the Closure and Drainage of the Zuiderzee Act. The first important factor for this was that the engineer Lely, the propounder of the plan, evolved into a statesman of great stature and as Minister of Public Works, presented the plan a number of times to the Second Chamber as a bill.

The second factor was that during the First World War the Netherlander had become painfully aware of the extent to which they were dependent on foreign countries for their supplies of food. As such there was a strong feeling for more food to be produced domestically.

The third factor was a storm inundation in 1916 which wrought havoc in the area around the Zuiderzee.

In 1919, a Zuiderzee Project Department was attached to the Ministry of Waterworks with the task of carrying out hydraulic engineering works. This department started in 1927 with the construction of the 30 km long Barrier Dam, which gave rise to the Ijssel Meer and which was completed in 1932. In 1930, the same department also drained the first polder, the Wieringer Meer with an area of 20,000 ha.

2.3 The History of Delta Planning[3)]

The decisive factor for the delta planning was a storm inundation in 1956.

The Delta committee presented the final report of the Delta Planning in 1960. It planned for the delta to be closed at the dam and the enclosed area to become fresh water lakes; all by the calculation of cost-benefit analysis.

With the future completion of Delta Planning, the sea water can enter only into the Rotterdam after the completion of 4 dams and 3 subdams. And all the islands of the delta are connected to the Randstad in the Netherlands by the highways. This created a comfortable environment for recreational activity.

3. The Zuiderzee Polder Planning

In this chapter, we will present the 3 polder plannings in the Zuiderzee, the Wieringermeer, the North East and Flevoland. Figure 1 shows the Zuiderzee polder planning.

3.1 The Wieringer Meer Polder[4)]

The primary aim of the scheme was to create a farming area which would bring about an increase in the volume of agricultural production in the Netherlands.

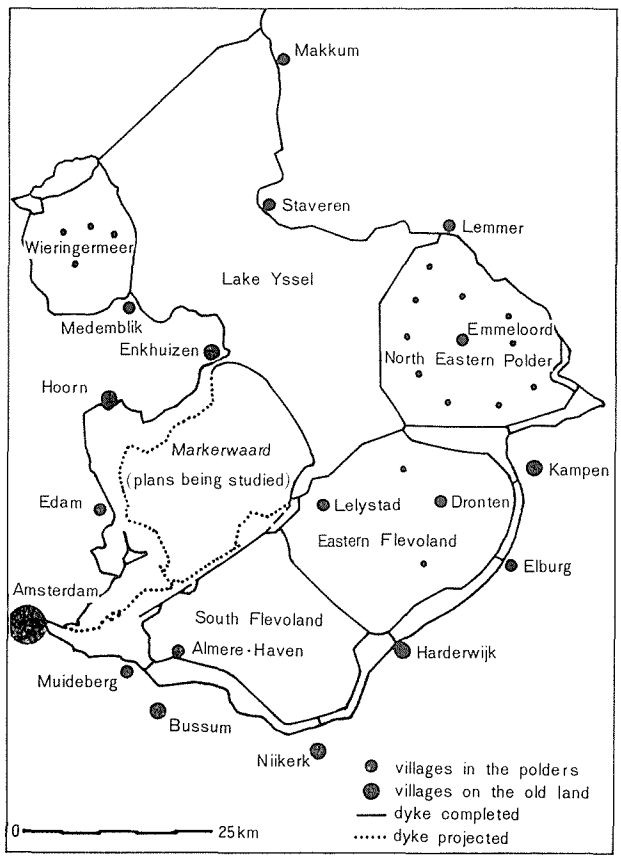

Fig. 1. The Zuiderzee Polder Planning Map.

The intention was to organise the area in such a way that agriculture would be placed on as modern a footing as possible, but certainly nothing really new, as no social or economic experiment was envisaged. The same crops were to be grown as in other coastal areas of the country, comparable in soil and climate: potatoes, sugar beet, cereals, pulses and flax fibre. Grazing land which was widespread in the contiguous would also be included.

The producers had to be farmers, who would rent the land from the State and who would have self-contained holdings of an area which was proved by experience on the old land to be the optimum size and on which there was good scope for further modernization. The areas envisaged were 40–60 ha for arable holdings and 20–40 ha for holdings based on pastures. The land was to be distributed under short term leases [12 years] and no sale was allowed. This meant that the Government itself had to erect the farm buildings, provide the housing and manage them.

The Government, as has been pointed out, did not want the first inhabitants to lead an arduous and precarious existence, as had happened in the older polders.

Thus the Development Authority decided to build villages at three places in

accordance with an urban development plan. The villages were to be good service and supply centres, with shops, schools, churches and dwellings for the people who worked as labourers in the farms and for staff employed in the services sector.

In the initial period there were too few inhabitants for an elected local authority to be set up straight away. So it was decided to make the Director of the Development Authority chairman of an appointed council which would temporarily assume the task of local government. Thus the Southern Ijsselmeer Polder Board came into being as the local authority, but with the council having only advisory functions and no decision-making authority. Physical planning remained entirely the responsibility of the Development Authority.

Eleven years after the drainage of the Wieringermeer, in 1941, the Development Authority could regard the development work as completed and an autonomous authority was set up.

Not only were the planners able to leave behind a prosperous and flourishing community, but they had the benefit of an organization which had evolved from this experiment, and which was better adapted to dealing with the tasks which awaited them in the second polder, the North East Polder, 2.5 times as bigger [48,000 ha] which had in the meantime been drained.

3.2 The North East Polder[5)]

The second polder, the North East Polder was started in 1936 and this polder of 48,000 ha was drained in 1942.

The plan for this polder was much less experimental in character than the first but the polder area was twice as large as the Wieringermeer polder. The technical research for the soil map of the bottom of the lake and soil improvement was surveyed, and the location of the polder and the land use of the polder was planned before the settlement of the farms. And more attention could now be devoted to the aspect of the settlement patterns and the associated patterns of roads and water courses.

In the settlement pattern, the hierarchical pattern was developed with a regional centre in the middle, as exemplified by Emmeloord and the ring of ten villages in the surrounding area. Emmeloord had the adequate support for the servicing and supply functions which had been assigned to it.

This polder turned out to be a successful project like the wieringermeer, both economically and socially. The agriculture production is among the highest in the world, and a viable community of great vitality has developed.

The selection of the tenants at the same time proved to be instrumental for the use of the polders as a means of finding solutions to problems in other areas. By giving priority to applicants from areas in which the number of farmers had to be reduced because of land organization designed to produce a large average holding, or to farmers whose land was needed for urban expanison or industrial development, losses of agricultural land could be offset. Gradually a new objective made its appearance; not only land reclamation to increase agricultural production, but especially land reclamation in order to provide scope for new development in

a densely populated country caught up in the process of urbanization.

In 1962, the local authority for the North East Polder was set up. The Ijsselmeer Polder Development Authority was able to hand over an area to the normal local government body.

3.3 Flevoland[6]

The polder Flevoland is drained into two parts : an Eastern part and a Southern part. The eastern part [Eastern Flevoland, 54,000 ha] was drained in 1957, the southern part [Southern Flevoland, 43,000 ha] in 1968. Work on the enclosing dikes of Flevoland started in 1950. The final gap in the dike of Eastern Flevoland was closed in 1956. More than 10 years later, in 1967 the dike of the Southern Flevoland was completed. The Wieringermeer polder and the North East polder have become typically agricultural areas. This is also true of the greater part of Eastern Flevoland. However the increasing shortage of space in the densely populated country and the fact that Southern Flevoland and the Maberwaard will be situated close to the northern wing of the Randstad brought about a change in ideas for utilising the new polderland. Urbanization, recreation and nature conservation have become very important. Eastern Flevoland can be considered a turning point in the change to these new types of land use. The new town Lelystad, designed for about 100,000 inhabitants, is an example of this change.

In Southern Flevoland more land will be put to non-agricultural uses than in Eastern Flevoland. According to present plans only about half the area will eventually become agricultural land, about 25% for urban development, industrial sites, etc.

The polders will also become important for long distance traffic. Several trunkroads and a railway have been projected that will eventually cross the polder area and thus shorten the distance between various parts of the country. The Table 1 shows a clear shift from agricultural to non-agricultural land use.

Three organizations have been set up to execute the drainage, rechamation and development of the Lake Ijssel Polders.

(1) The "Directie Zuiderzeewerben" [Zuiderzee Project Authority] is responsible for integrating the polders at a physical planning level within the surrounding area, carrying out the civil engineering works, such as the construction of dikes,

Table 1. The Land Use in the Polders.

	Wieringermeer Polder	North-East Polder	Eastern Flevoland	Southern Flevoland
Farmland	87	87	75	50
Residential Areas	1	1	8	25
Woods and Nature Reserves	3	5	11	18
Canals, main ditches, dikes and roads	9	7	6	7

The land in the polders will be divided according to its various uses, in the following manner, in percentages of the total area.

canals and roads, pumping stations, sluices, locks, bridges, etc. The Authority is also responsible for the management and upkeep of existing works and for monitoring the quality and quantity of the surface waters in the polders, Lake Ijssel and the peripheral lakes.

(2) The "Rijksdients Voor de Ijsselmeer Polders" [Lake Ijssel Polder Development Authority] is responsible for preparing the new land for agricultural, urban and recreational purposes, for building residential centres and farms, for the further development of the area as well as for the management of government properties.

(3) The "Openbaar Lichaam Zuiderlyke Ijsselmeer Polders" [Southern Lake Ijssel Polder Public Authority] is the percursor of the normal municipal authority and is mainly entrusted with normal municipal affairs while the polder is being developed. The Southern Lake Ijssel Polder Authority was established by an Act of Parliament dated in 1955. The head of this executive authority is the Landdrost. The Landdrost is assisted by an advisory council, the members of which are nominated by the local electorate, with an advisory body elected from among the council members. Until 1978 the advisory council consisted of 25 members with an advisory body of 5. All meetings of the advisory council and various permanent committees are open to the public. The jurisdiction of this executive body extends to the whole of Flevoland with the exception of the municipality of Dronten established in 1972, and the Marberwaard which has yet to be reclaimed.

Between the old land and the Flevoland strips of water of varying widths, the peripheral lakes were left for water management in both the old and the new land, and for shipping. Depending on weather conditions, the water level in the Drontermeer and the Veluwemeer bordering Eestern Flevoland can be raised to 30 cm above A. O. D. 30 cm below A. O. D. is the level aimed at in winter. Ships can reach the polder through the locks. There is a lock for ships up to 1,350 tons using the Drontermeer and the Veluwemeer. The main canals are dredged while the polder is still submerged. The smaller canals and the ditches separating the plots are dugged after the water has been pumped out. Immediately after the drainage the soggy ground is sown with reed seed. Reeds stimulates the bearing capacity of the ground and prevents the development of harmful weeds. In addition, the many roots of the reed plants stimulate the ripening of the soil. In 1979, 44,500 ha were drained in Eastern Flevoland and 16,800 ha in Southern Flevoland.

The Regional Development Division of the Lake Ijssel Polder Development Authority undertakes the work of preparing the soil for a period of about 5 years by planting a selection of field crops designed to condition the soil for the normal type of arable farming. After the land is ready for farming, it is let out to the farmers on short or perpetual leases. About 69% of the holdings are let out on short lease and 31% on freehold. The area of the lease holdings totals over 33,500 ha. The size of the farms varies from 20 to about 90 ha [average about 42 ha]. In addition 107 fruit farms [average 13 ha.] had been leased in 1979.

The short lease holdings include an outbuilding erected by the Development Authority, while short lease holdings of less than 60 ha also include a farmhouse.

Much care is devoted to recreation land use projects in Flevoland, and particularly so with regard to the border of the lakes the canals and the woods. In addition to amenities for day-trippers, accomodation is provided for long term holiday makers. Between the old land and the Eastern Flevoland Polder lies the many peripheral lakes. Sandy beaches have been laid out along the polder dike skirting the lakes. A number of beach cafes have been opened. Other facilities provided are like saving equipment, public conveniences, showers, wastedisposal bins, bicycle racks, etc.

The waste water from the beaches is removed by way of the sewerage system to the polder inside of the dike and is purified in the polder.

Beaches and foreshores have been and are being laid out on a large scale along the shores of these lakes, particularly the extensive woodland which is planned for the south-eastern part of the polder. Various recreational facilities will also be provided round the Gooimeer in conjunction with the projected urban development of Almere. Near there an old land for nature reserve and a large bird sanctuary has been completed.

There are many opportunities for various kinds of water sports such as small pleasure boats, the yachting capacity being up to 3,000 boats, water ski centre, etc.

Fishing areas are provided for anglers at various places along the canals with facilities such as slipways for small boats, car-parks, children's playground and shelters.

In the neighbourhood of Lelystad a small airport has been constructed for sports and business planes and for gliders. The green areas in Eastern Flevoland fall into four categories i. e. woods parks and roadside greenery in and near the villages, orchards and plantations over the remaining agricultural land. The woods are mainly concentrated in stretches of varying width along the shores of the border lakes near Lelystad and in the southern part of Southern Flevoland. Their location was determined by the fact of the optimal integration in recreational activities. The woods are made suitable for recreation by means of good accessible roads, children's pools and picnic places.

Many types of trees are planted including red pine, willow oak and beech. Parks and woods are being laid out in and around Lelystad and also on smaller scale, for villages.

Over 600 ha of wood have been planted in the vicinity of Almere. The fruit growing areas, with their windbreaks encircling the fruit growing farms, will stand out as separate units and become a feature of the landscape. The scattered plantations in the agricultural area can be divided into several categories, such as roadside greenery hedges, farmyard gardens, windbreaks and small recreation projects. The accomodation for weekends or longer holidays in the polder is constantly on the increase.

Towns and Villages

The development of the southern polders should be viewed against the background of a further steep increase in population and rapid urbanization taking

place in the Netherlands.

In eastern Flevoland, a town Lelystad for 100,000 inhabitants is under construction. In addition, three villages has been built. In Southern Flevoland a start has been made with the building of the future town Almere [125,000–250,000 inhabitants] and for the industrial site. Meanwhile, Almere Haven has already over 4,000 inhabitants.

Lelystad-Structure Plan

A concept structure plan Lelystad has been available since 1975 as a guiding principle for the development of the town. The total urban area will provide living accomodation for 120,000 inhabitants. A development system on a district basis with 5,000–6,000 inhabitants per neighbourhood has been envisaged. Each district has its own commercial centre, consisting of a supermarket, a sub-post office, cafe, local bank branch, community centre and a number of nursery and primary schools, located at a maximum distance of 600 m from the respective houses. It also include a central zone [town centre] with three central nuclei where the main urban facilities are concentrated with shops, stores, municipal administration office, communities centres, etc.

Separate traffic nets with paths reserved for cyclists and pedestrians, are also found outside the residential districts. These paths cross the main traffic arteries by means of viaducts and/or bridges. The main arteries are thus reserved exclusively for motorised traffic. Other important items are a railway line running through the centre of the town with two stations; a number of open air recreation areas which form the transitions between urban, rural and industrial sectors of which the latter are distributed in three main groups.

The first dwellers took up residence in 1967, and by 1978 the population exceeded 35,000. Most of the dwellings are one-family houses of various sizes catering for various income groups. Alongside and between the public sector housing rental accomodation, an area has been reserved for the buildings of owner-occupied houses. Public sector housing rents are generally fairly low. All the houses are connected to a central heating system by natural gas.

In the immediate vicinity of the centre there are several large office blocks; the municipal offices, the offices of the Lake Ijssel Polder Development Authority, the office of the Public Works Department, the Government Institute for Sewage and Wastewater Treatment, a cinema and the office for Organization for Individuals, Adult Education, Information and School Education.

There is also a health centre, hotel and a social and cultural centre called Agora. The Agora contains an indoor swimming bath, a sports hall, a theatre, accomodation for religious and youth activities, a library and a licensed restaurant. All these facilities are grouped around a roofed-in square.

Lelystad has a young population. As such high standards are required where school building and teaching are concerned. There are nursery schools, primary schools, school communities for intermediate and higher secondary school grades, as well as a training centre for working youngsters, a day centre for handicapped

children, and a school for adults with both day and evening classes. There is a sports complex, a heated open-air swimming bath, a skating rink, several keep-fit tracks, camping sites and horse-riding ground.

Three large industrial areas are planned on the edge of the town. Two of them are at present in use. In the industrial area, government workshops and warehouses, Lelystad's sewage purification plant, a factory for manufacturing pre-fabricated houses and a shipyard have been established. In 1968 the government decided under certain conditions to give enterprises being established in Lelystad a grant of fls 10,000 for any employee who also took up residence in Lelystad.

Almere

In the south-western extremity, the new town of Almere is rapidly taking shape. Just like Lelystad, Almere will play an important role by absorbing the population overflow from the northern sector of the coastal conurbation and particularly from Amsterdam. Furthermore, Almere is destined to help relieve the pressure on the Gooi district. Almere will not become simply a dormitory suburb, but a complete urban development and self-contained town where people can live, work and find the necessary recreational facilities. By the year 2000, between 125,000 and 250,000 people will be residing over an area covering about 120 km^2, spread out in a number of centres. Together with the intersecting green belt zones, these centres will constitute the town Almere. The centres will be different in size and character, but each will form a complete unit. The separating greenbelts will consists of nature reserves, recreational areas and farming zones.

4. Comprehensive Planning of the Netherlands[7]

The comprehensive planning of the Netherlands is comprised of Economic Planning, Physical Planning and Social Planning. It is very different from the comprehensive development planning of Japan concentrated in physical planning. In this chapter we will consider each planning aspect.

4.1 Economic Planning of the Netherlands

The Netherlands is very famous for the introduction of planned policy into Economic Planning. This idea is based on the planned creation of land by the polders. That is the polders are constructed by the heavy taxes of the peoples of the Netherlands, out of which the public assets are formed. Then, the public spirits of the land is based on this idea. Furthermore, the introduction of planned economic policy and the econometric approach into the economic planning of the Netherlands owe its being to the Nobel prize economist Jan Tinbergen.

Professor Jan Tinbergen graduated in Physics at Leyden University in 1929. From 1929–1965 he was engaged in statistical business cycle analysis at the Central Bureau of Statistics in The Hague, the Netherlands. After World War 11 the Dutch government charged him with the task of preparing economic plans for Holland. Until 1955 he was Director of the Central Planning Bureau. Since then he has devoted most of his time to long term planning for development policies.

In addition to this, in the modern economic policy of the Netherlands, the joint decision theory between labour and management was adopted. In other words, the Social Economic Council with the Supreme government council of economic problems consists of the representatives of labour, management and professional scholars in equal numbers for each. One of the long term economic planning projects contained the development planning of the polder and developing area.

In the Flevoland polder planning, the cost benefit analysis is adopted for the comparison of physical planning. In the developing area, the comprehensive development planning is adopted.

4.2 Physical Planning of the Netherlands

In 1851, the Expropriation of Land Act was promulgated and in 1875 the Public Hazard Protection Act of factories was also promulgated.

In the Housing Act promulgated in 1901, the housing improvement, land readjustment and urban renewal were adopted. And from 1921 the land use could be planned.

In 1941, the national planning authority was established and urban planning was done through regional planning and regional planning through national planning, and the regional planning authority was established in the country.

4.3 Social Planning

From 1950, the development planning of the social work Ministry was carried out from the point of view of social welfare. In the Netherlands, social planning has become an important consideration among economic and physical planning. The development includes the new town self-contained units located near the agricultural areas, establishing a balanced community.

In 1953, the Interdepartmental Commission for the Development Area was established with the ministries of Social Work, Economic, Agriculture and Fishery, Public Welfare, Education, Art and Science and Finance. In this Commission, the arrangement of the physical, economic and social work was planned multilaterally for the social welfare of the development area.

One of the features of social planning is community self-planning based on the grassroot of citizen participation.

5. Transfer and Transformation of Polder Planning into Japan

We will now clarify the transfer and transformation of the polder planning of the Netherlands into Japan's polder planning, especially with regard to the Hachirogata polder planning.

5.1 The History of the Polder Planning in Japan[8)]

In Japan, the polder development history is as old as that of the Netherlands. One of the oldest polder development is Ariake Sea in the Kyushu region of Southern Japan. The area of the Ariake Sea is 1,450 km^2 surrounded by the prefectures of Nagasaki, Shiga, Fukuoka, and Kumamoto. During the Edo Period, the inhabitants built artificial mounds to contend with the constant ebb and flow,

and change the small reed-melted land into granaries.

In 1933, a large scale polder planning was started and in 1955, a polder of 1,173 ha was completed after a long period of 35 years. This work arose from the fact that it was very difficult to build dikes because of the soft quality basin of the bottom of the sea.

Next, we will describe the Hachirogata polder planning. Hachirogata Lake is the second largest lake in Japan and is situated near Akita city, Akita Prefecture. This lake is very shallow and from olden times, a small polder was developed by the inhabitants.

In 1952, a large-scale polder planning research was started with the advice of the NEDECO of the Netherland and the FAO. In 1956, the Hachirogata polder planning was completed as that shown in Figure 2. In 1957, the polder development came under the direct control of the Department of Agriculture and Forestry.

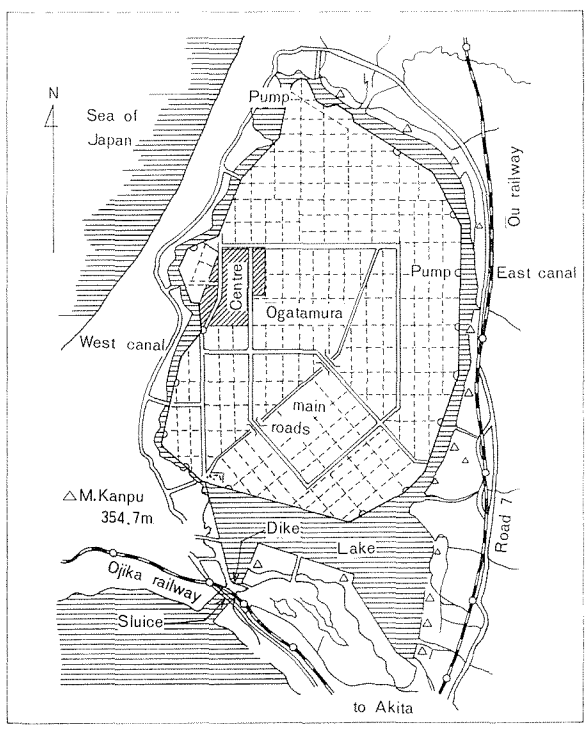

Fig. 2. Hachirogata Polder Planning Map.

5.2 Hachirogata Polder Work[9)]

Figure 2 represents the map of Hachirogata polder. The area of the Hachirogata Lake is 22,024 ha with the central polder measuring 15,640 ha and the surrounding polder of 1,563 ha with adjustment of lakes and canals. The central polder is surrounded by a 52 km dike. The farm settlement adopted a central place system with an area of 690 ha. During the first stage, farm allocation was based on the sale of 10 ha per unit for the paddy fields. In accordance to the

plan for the reduction of the paddy field under cultivation, in the second stage of the farm allocation, 15 ha per farm was sold for the purposes of mixed farming fields with half for paddy farming field.

In the case of the Netherlands polder, farm allocation was mostly short term lease holdings. This was because the government, as has been pointed out, did not want the first inhabitants to lead an arduous and precarious existence as had happened in the older polder, and therefore can establish an efficiency of land use according to the change of circumstances. However, in the Hachirogata polder, all farm allocations are sold as permanent holdings.

Up to 1979, the number of farms totalled 580. In 1976 the administrative village of Ogata was established. At present, the farms have incurred much debts from the purchase of the fields, house and agricultural machinery. According to its plan to reduce the area of paddy field under cultivation, the farms will not get enough returns from the crops either. Whereas the Netherland polder work was constructed on the basis of comprehensive planning in conjunction with various departments of the government of the Netherlands, the Hachirogata polder work was constructed only as a part of the agricultural and forestry department, with the Hachirogata land use considered only in the agricultural field.

In 1979, the population of Ogata village was only 3,290, making the establishment of administrative finance very difficult. From this we derive that the government should consider and adopt a more comprehensive administration in the planning work of the village of Ogata in order to diversify its land use, based on the example of the comprehensive planning of the Netherlands and the Flevoland polder planning.

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Summary

We have described the history of polder planning, Zuiderzee polder planning and the fundamental idea of comprehensive planning of the Netherlands. Next, we clarified the transfer and transformation of this idea into Japan's polder planning, especially the Hachirogata polder planning.

The main results are as follows:

(1) The important factors for the adoption of the Zuiderzee polder planning were that the engineer, Cornelius Lely the propounder of the plan, evolved into a statesman of great stature and as Minister of Public Works, presented the plan a number of times to the second chamber as a bill; that the Netherlander had a strong feeling against the dependence on foreign countries for supplies of food; and that a storm inundation in 1916 wrought havoc in the area around the Zuiderzee.

(2) In the case of the Netherlands polder, farm allocation was mostly short-term lease holdings. This was because the government, as has been pointed out, did not want the first inhabitants to lead an arduous and precarious existence as had happened in the older polder, and therefore can establish an efficiency of land use according to the change of circumstances. However, in the Hachirogata polder, all farm allocations are sold as permanent holdings and the farms have incurred much debts from the purchase of the fields, houses and agricultural machinery.

(3) The Wieringermeer polder and the North East polder have become typically agricultural areas, although the Flevoland was turned into a new type of land use for the urbanization, recreation and nature conservation, but the Hachirogata land use was only used as a agricultural field.

(4) The Netherlands polder work was constituted on the basis of comprehensive planning in conjunction with various departments of the government of the Netherlands, but the Hachirogata polder work was constructed only as part of the Agricultural and Forestry Department.