INTRODUCTION
This is a report on the visit of the Hachirogata polder of the author from 28 February 2017 to 2 March 2017. The land reclamation is located in the prefecture of Akita in Japan. The visit consisted of a field trip to the polder accompanied by Prof. Yasunori Kitao (Kyoto Women’s University) with interviews with local people, a visit of the polder museum, a visit to the village Ogata-Mura and the Municipal Office and an interview with Mr. Miyata, who has been mayor for thirty years of the village.

BACKGROUND
The Hachirogata Lagoon was located about 40°N and 140°E. It had a surface area of 12 by 27 km with a circumference of 82 km. It was the second largest body of water in Japan. Its waters harboured seventy different species of fish (Ogata, 2016). After a feasibility study by Professor Ph. Jansen and Engineer A. Volker of the Delft University of Technology in the Netherlands in 1954, the World Bank and the UN Food and Agriculture Organization (FAO) supported the reclamation of the lagoon. The reclamation work was started in 1957 and lasted 20 years. In March 1977, at a cost of 85.2 billion dollars, the Hachirogata Lagoon had been converted into 17,203 hectares of fertile land: the Hachirogata polder (Figure 1).

Figure 1: The Hachirogata Lagoon (left), and the Hachirogata polder (right) (images: Hachirogata impoldering project office, 1969)

The land of the Hachirogata polder is about 4.5 metres below sea level. The water level is regulated by the tidal gate, the central drainage channel, and the northern and southern pumping stations. Each of the pumping stations has a capacity of 40 metric tons of water per second (Hachirogata impoldering project office, 1969; Nedeco, 1958).
The first pioneers settled on the barely dry land as early as 1964, and after a nationwide campaign the name chosen for the new village was "Ogata-Mura" ("Big Lagoon"), the ancient name of the Hachirogata Lagoon. Applications came from all over Japan, but only the best farmers were selected (Ogata, 2016). The purpose of the reclamation project was "To establish an agricultural model for Japan by raising production and income levels through greater efficiency, and by building a prosperous, comfortable and modern farming community" (Hachirogata impoldering project office, 1969).

The Hachirogata polder was established to develop large-scale industrial agriculture with techniques of modern agriculture. Nowadays 540 full-time farmers manage 9,000 ha of land and primarily grow rice, but also beans, wheat, and vegetables. The layout of the polder (Figure 2) resembles the IJsselmeerpolders in the Netherlands, such as the Wieringermeerpolder (1927-1930), Noordoostpolder (1937-1942) and Oostelijk Flevoland (1950-1957), and served as inspiration for the design of the polder. In particular the Noordoostpolder was of interest since it was the first Dutch polder in which the layout was planned as an integral task, involving all its agricultural, urban and landscape elements at once, while reflecting the state of the art in design, science and engineering (Nijhuis, 2017). Also Oostelijk Flevoland was of great influence since it was under construction in the period.
that the Hachirogata polder was planned. Ogata-Mura was conceived as a new farming village illustrating a new organization of communities (Kitao, 2016).

SUMMARY OF THE VISIT

28 February 2017: arrival in Akita.

1 March 2017: In the morning we drove to Mt. Kanpu, a relatively small mountain of 355 meters ASL located on the Oga Peninsula to the west of the polder. We visited one of the quarries where rock was excavated to serve as foundations for the dams, sluice complexes and dikes of the polder. Furthermore we saw the spring where water wells from the ground to serve as fresh water supply for the village and surrounding farmlands, and enjoyed the prospect from the mountain having an overview of the polder.

From there we went to the polder museum and got an introduction into the history of the impoldering by a local volunteer that happens to be a rice farmer in the polder as well. Next to that archival research was conducted to find historical documents on the planning and design of the polder, particularly related to the Dutch involvement (e.g. Nedeco) of the setup of the reclamation and the water infrastructures (pumps, sluices, etc.).

From there we drove through the polder visiting particular sites, such as the southern pumping station, the southern dike and lake, rice factory with the biggest silos in Japan, the impressive blossom-tree lined central road, one of the two important crossings of the tree-lined main water discharge canal and Mt. Ogata Fuji that happens to be the lowest “mountain peak” in Japan (0 metres ASL). From there a dramatic view over the vast open agricultural landscape opened up, closely resembling the Dutch agricultural landscape of the IJsselmeerpolders. An important difference is however, that here the land is mainly used for rice production and vegetables. The rice produced is here is of an exceptional quality and is
praised throughout Japan and beyond. Also it is interesting to see that parts of the polder are transformed in nature reserve, and there is attention to alternative forms of energy production.

Also we visited a paddy field where the farmer explained how the water system functions in terms of water level management and use of the water courses, sluices, etc. Interesting detail is that water levels fluctuate constantly throughout the season in order to create optimal conditions for the rice to grow. In Dutch Polders the water levels are usually stable throughout the season with relatively high water levels in the summer time and relatively low water levels in winter, to facilitate land use.
2 March 2017: In the morning we had a walk through the village of Ogata-Mura. Special features are the axial organization, wind breaks by mainly pine-trees, the spacious setup with suburban housing typologies and the shrine. This shrine is erected to honour the establishment of the polder and was an important socio-cultural feature that was important in the establishment of the community. Also interesting was the centre of the village with facilities like school, health-care centre, cooperation/market, and the municipal building with its typical tower marking the centre of the village. All buildings are modernistic in expressions, which gives the village a very western appearance. We went to the Municipal Office to collect some background documents. In the afternoon we had an extensive interview with Mr. Miyata, who has been mayor for thirty years of the village. In appendix A the questions can be found. Since Mr. Miyata could not speak English, the questions were translated and discussed by prof. Kitao. The results of the interview are now transcribed and translated into English. The result will provide important insights in the spatial, social-economic and ecological characteristics, challenges and identity of the Hachirogata polder and Ogata-Mura.

RECOMMENDATION
Since this is a valuable but initial first encounter with the Hachirogata polder and Ogata-Mura it is important to elaborate a more systematic analysis addressing spatial, socio-economic and ecological aspects at multiple scales. This could serve as a basis for a comparative analysis with the Dutch Ijsselmeerpolders that aims to identify important characteristics, transnational influences (Japan-Netherlands), future challenges and principles and strategies for future development.

ACKNOWLEDGEMENT
I would like to thank the polder museum, Mr. Miyata, the local farmer, Prof. Kitao and Prof. Saito for this insightful study trip and wonderful experience.

REFERENCES
## APPENDIX: QUESTIONS INTERVIEW MR. MIYATA

### General

1. What are the strengths, opportunities, weaknesses, threats of the Hachirogata polder in your opinion?

2. Do people feel happy to live here, and why?

3. Has the Hachirogata polder a particular identity? And if yes, how would you describe it?

4. What are important socio-cultural values of the polder/village?

5. Is living below the sea-level experienced as a problem by the people?

6. How do you understand the history of the village in last 50 years.

### Agriculture

7. What are the main crops grown for large scale agricultural production? (E.g. Vegetables, cereal, fruit)

8. How are logistics organized? (From land to market/factory?, is this centrally organized?)

9. Is the polder only focussed on agricultural production (mono-functional), or is there also space for multifunctional use? (ecological development, recreation, etc)

10. What kind of future socio-economic or climatic trends/developments do you recognize that will impact the setup of the polder?

11. And what possibilities are there to anticipate and facilitate these developments?

12. Are the farms/houses/land family property? How is follow up organized? (From father to son/daughter? And is that possible, related to demographic trends such as ageing etc)

13. Are there environmental issues that need to be addressed from an integral perspective? (Water quality, co2, sustainable energy supply, etc)

### Landscape

1. 八郎潟干拓地（総合中心地を含む）に関して、どのような点を高く評価しますか（生活環境や農業の観点から）、また、どのような弱点があると思いますか。

2. 八郎潟の人々はこの干拓地で生活をして、どのような喜びを感じていると思いますか？そして、どうしてそのように思っているのでしょうか？

3. 八郎潟の干拓地の最も際立った、固有性（アイデンティティ？）はどのようなことで、それをどのように理解されていますか？

4. 干拓地にある村の重要な社会・文化的な価値は、どのようなものであると考えておられますか。

5. 干拓地という、海面の下の土地での生活を、人々はどのように感じているとお考えでしょうか。

6. 村ができて50年経ちましたが、この村の歴史をどのように考えますか？

### Agriculture

7. 大規模農業生産ではどのような農産物を生産しておられますか？野菜や、果物、米、トウモロコシなどもありますか。

8. 生産物の流通はどのようにされていますか？生産物を市場や工場にどのようなシステムで出荷されていますか？

9. 干拓地は農業生産に特化していますか？他にどのような産業がありますか。そして、他の産業への展開の可能性はあると考えられますか？（例えば、エコロジーやレクリエーションなどその他）

10. 干拓地全体の環境について、気候環境の変動に対して、社会や経済はどのような影響が生じると考えておられますか？

11. 今後、干拓地が開発されるとすれば、どのような方向で、どのように開発されると考えられますか？

12. 農場、宅地は個人の資産ですか？また、そうした資産はどのように継承されるのが一般的ですか？こうした資産の継承をどのように管理されていますか？どのような人が継承者となりますか？
What are the most important landscape features/characteristics of the polder in your opinion?

What are important aesthetic and ecological values of the polder/village?

Are there municipal/regional plans for development of these values?
(E.g. Is there something like a landscape vision, ecological development plan, water quality plan, etc.)

Did the initial plan/setup work in practice? What changed over time?

What are the most important features of the village (Ogata Mura village)?

Are there regulations to protect the setup / landscape of the polder?
(E.g. Do they need permits to built? If yes what is the procedure?)

Do the people perceive these rules as restrictive? And how do deal with them in practice?

Can the polder be regarded as cultural heritage?
If yes, what elements are valuable and important to protect?
Dose the local people is positive for maintaining some original houses and some public facilities as their heritage?

In the Netherlands it is hardly possible to protect landscape because of agricultural production, how does it work in practice?

How does the local people understand/accept the polder was made by the Dutch engineering?

When you are the mayor of the village, how was the interrelationship between the neighboring municipalities? How did you work with Akita Prefecture and Ministry of Agriculture?

How do you remember/evaluate the turning point of environmental orientated agriculture and backgrounds it?
水産省や秋田県との関係はどのような関係だったと思いますか？

25) どのようなことが環境配慮型の農業へと展開してゆく背景にあったと思われますか？