



FIG Commission 7 and 9 Annual Conference and Meeting

4th – 8th December 2017 - Cartagena Colombia

*Cadastral systems:
needs for improvement.
Case study Norway.*



Illustration from visitnorway.no

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Norway – some statistics

- Area: 324.000 km²
- Less than 3 % is agricultural land
- Population: 5,27 mill.
- Properties (cadastral units) 2,67 mill
- GDP (PPP) per capita: \$70.655

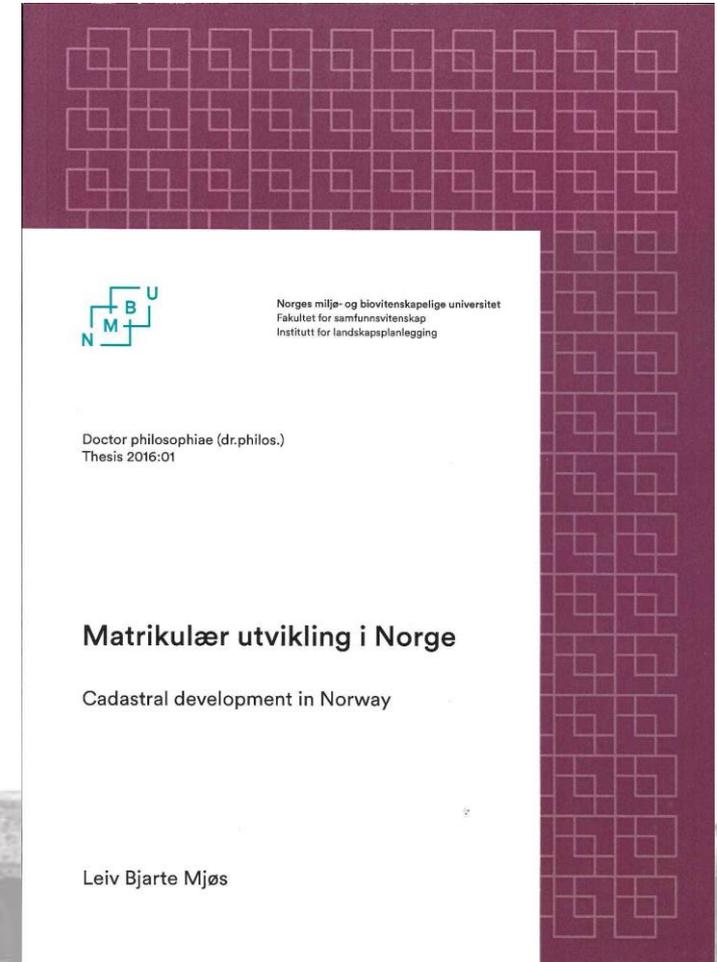


Sources: <https://en.wikipedia.org/wiki/Norway>, <https://www.kartverket.no/>

Dr. thesis in 2016

<https://www.researchgate.net/publication/303405186> Matrikulaer utvikling i Norge C
cadastral development in Norway

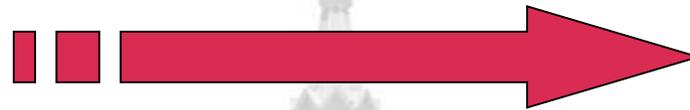
Pages 33 – 88 in English



The Norwegian cadastral history up to 1960

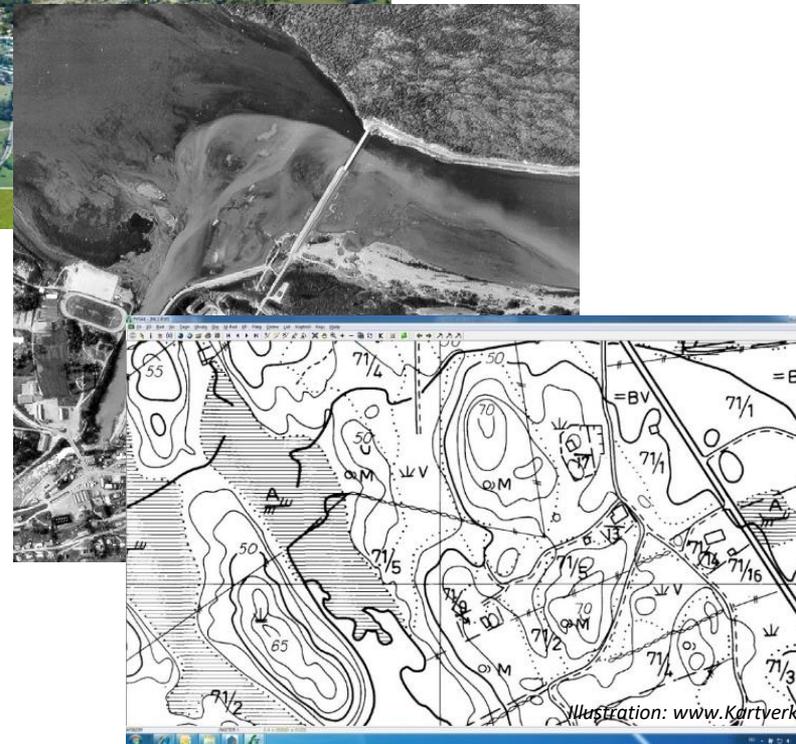
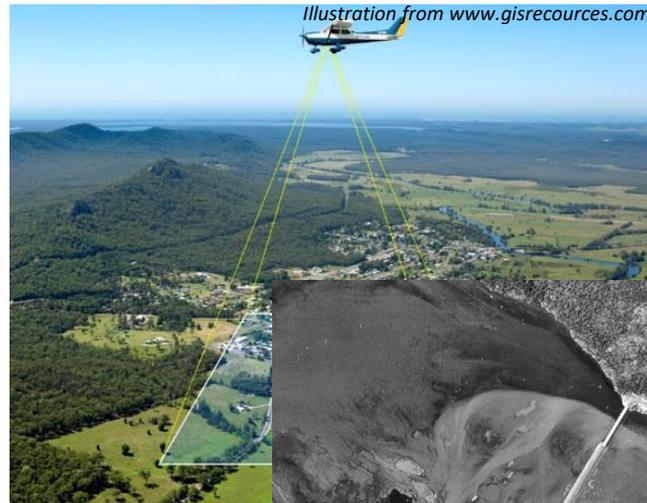
- The origin: the court protocols and the tax cadastre of the 1600s
- 1804-05: the first economic mapping starts
 - in the Kingdom of Denmark-Norway
- 1815-16: the first economic mapping is stopped in Norway
 - Norway in union with Sweden from 1814
- 1818-1836: modernization of the tax cadastre
 - based on valuation, no cadastral surveying
- 1848 – coordination of land books and tax cadastre
- 1859 – the land consolidation courts are established
- Throughout 1800s – cadastral mapping is introduced in cities and towns
 - On individual basis
- The decades around 1900 – attempts for economic mapping fails

Development after 1960



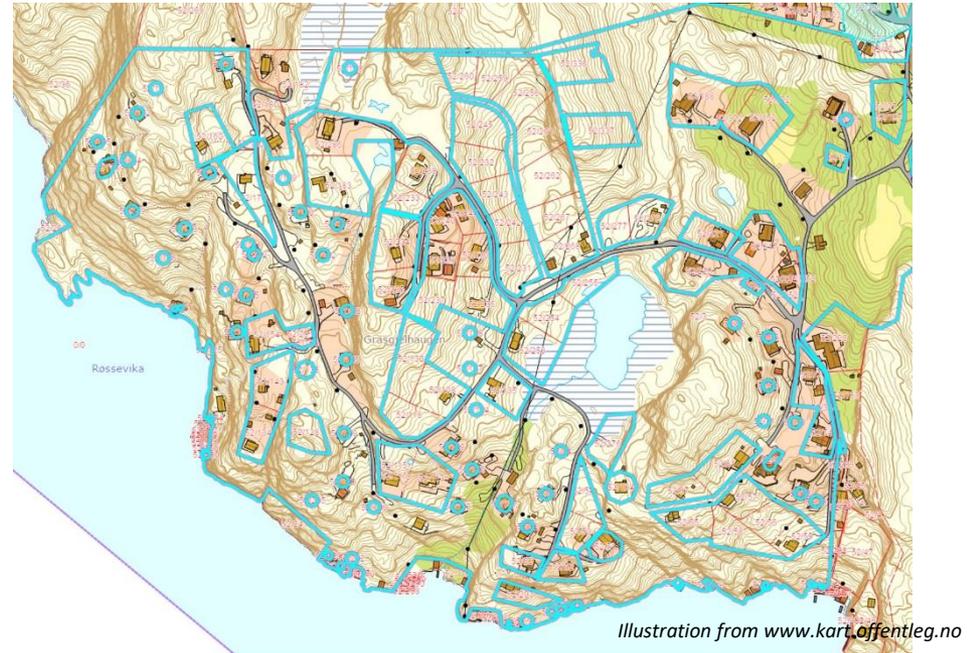
The economic mapping project

- Cadastral mapping in rural areas from 1960
- Photogrammetric methods
- Poor quality control
 - Initially only properties larger than 0,5 ha are to be mapped
- No approval from the land owners of the recorded boundaries
- 32.000 maps produced, mostly in 1:5.000



Attempts for improvements after 1980

- Digitization of economic maps from mid 1980s
- Quality problems becomes apparent from early 1990s
- Cadastral law renewal from mid 1990s
 - Proposal for national cadastral map
 - Proposal for privatization of cadastral surveying
 - Adopted in 2005
- Introduction of private authorized surveyors rejected in 2007
- Nationwide cadastral map implemented from 2010



Characteristics of the present system

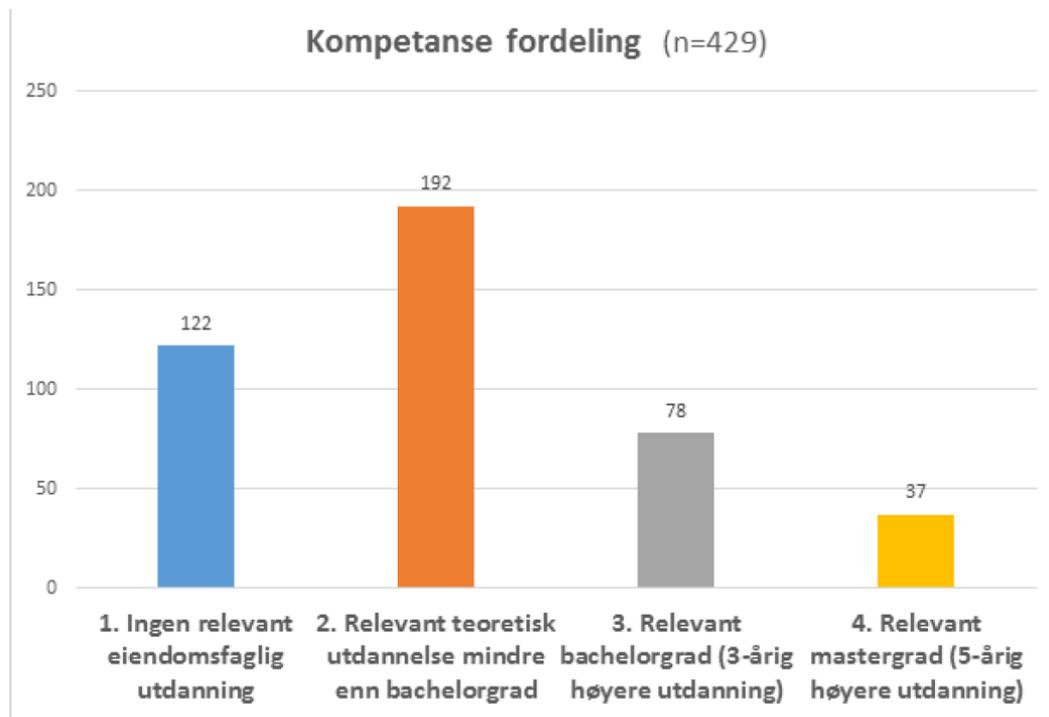
- The Land register supports a well functioning land market
- Poor quality in the cadastral map (and in the cadastre in general)
 - 25 % of the ground properties have one or more fictive boundaries, or missing boundaries, according to figures by the Ministry of Local Government and Modernization.
- No legal education requirements nor authorization of persons undertaking cadastral surveying
- Poor boundary determination system
- High and increasing number of boundary disputes

New initiatives for authorized private surveyors in 2015

- Private surveying companies takes political initiatives in 2015
- Support from the government
- Law proposal to the Parliament summer 2017
 - 3 years bachelor education and 2 years practice to become an authorized surveyor
- Parliament election autumn 2017

- To come:
- Public hearing in Parliament in January 2018
- Final decision is predicted in March 2018

The competence issue



Figur 2: Nasjonal kompetanse fordeling for 429 landmålere.

Survey of cadastral surveyors education in 2017. Number of respondents 429.

1. No relevant surveying education (122/429)
2. Relevant theoretical education less than 3 years (192/429)
3. Relevant bachelor degree (78/429)
4. Relevant master degree 37/429)

Source: Kristiansen, Stubdal, Vie, Arell (2017)
Kartlegging av kompetanse innen kommunal oppmålingsforretning.
Bachelor thesis HVL.

Proposed measures for improvement (my thesis)

- Stronger focus on the functionality and responsibilities of the cadastral system
- Strengthen education and establish a profession of cadastral surveying experts
- Strengthen quality control and improve the boundary determination system



Photo: L.B.Mjøs



Thank You!

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**Universidad de
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