

# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

Presented by the FIG Working Week 2019,  
April 22-26, 2019 in Hanoi, Vietnam

"Geospatial Information for a Smarter Life  
and Environmental Resilience"



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## The struggle for a land surveying profession

- FIG Hanoi, April 25 2019
- Arve Leiknes/Leiv Bjarte Mjøs/Helge Nysæther



Source: Steinar Talmoen, <http://wallpaper>

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Contents

- History – cadastral surveying and mapping comes in place in Norway
- Economic mapping from 1960
- Cadastral reforms from 1980
- Initiatives for a surveying profession
- The present situation
- Needs for Innovation
- Cadastral practice
- Conclusions



3

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## History 1700s

- 1700 - legislation introducing cadastral surveying prior to title deeds registration came in place in Bergen
  - Survey certificates are archived from 1714
- 1719 - legislation introducing mandatory boundary mapping when boundary disputes were brought to court (rural and urban areas)
  - As a consequence a small group of authorised surveyors establishes from mid 1700s
- 1764 - legislation introducing written boundary descriptions when land was subdivided in rural areas
  - Local judge and 6 laymen





# FIG WORKING WEEK 2019

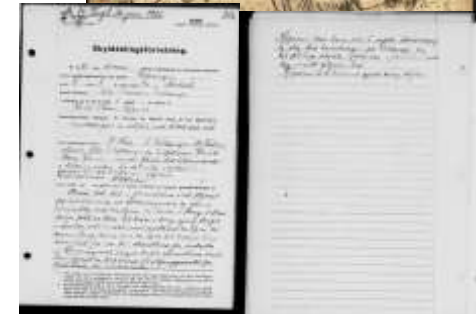
22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## History 1800s

- 1804-05 – economic (cadastral) mapping introduced
  - stopped in 1815-16
  - Poor economy and resistance from the farmers
- Cadastral modernisation throughout the 1800s was purely on valuation
- 1827 – 1830 – building laws introducing cadastral surveying/mapping and chief surveyor in the major cities Kristiania (Oslo) and Bergen
  - Trondheim 1869
- 1859 – the land consolidation courts established
  - Active in rural areas, should make large volumes of maps
- In latter 1800s minor cities and towns introduce cadastral surveying and mapping and chief surveyor by own initiative (and government decision)



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

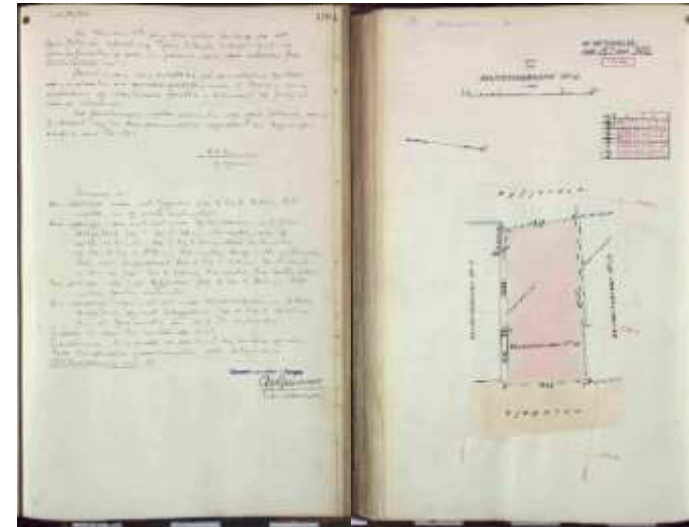
22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## History 1900 - 1960

- Early 1900s - initiatives for economic mapping, they did not succeed
- New land subdivision law in 1909, the system with laymen in rural area when land is subdivided was continued (now 3 laymen appointed by the local sheriff)
- 1924 – general building law introducing cadastral surveying and mapping in all cities and towns
- 1934 – the land consolidation courts are given authority to conduct boundary surveys as independent court cases, including settlement of disputes
- The small group of authorized surveyors disappears, probably outcompeted by municipal surveying and land consolidation courts



6

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## From 1960 - The economic mapping project

- The catalyst was increased focus on land planning and control and reduced mapping costs
- Photogrammetric methods
- Field work carried out by persons engaged at county level, not necessarily with surveying and mapping competence
- No adjudication process for boundaries nor approval from the land owners of the recorded boundaries
- Roughly calculated 50 % of the boundaries were registered in the economic mapping project



Source: gisresources.com



Source: Kartverket

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

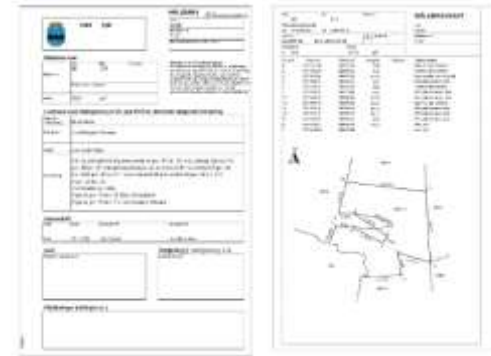
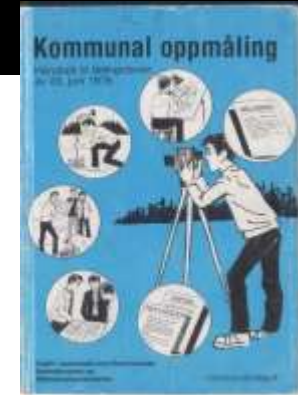
22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Cadastral reform from 1980

- Triggered by the needs for updating of the new economic maps
- Nationwide surveying and cadastral mapping is introduced
- Municipal surveying (monopoly)
- Multipurpose cadastre (the GAB system), but no nationwide cadastral map
- No legal requirements for education nor authorization of surveyors
- No strengthening of education nor research



8

ORGANISED BY



PLATINUM SPONSORS







# FIG WORKING WEEK 2019

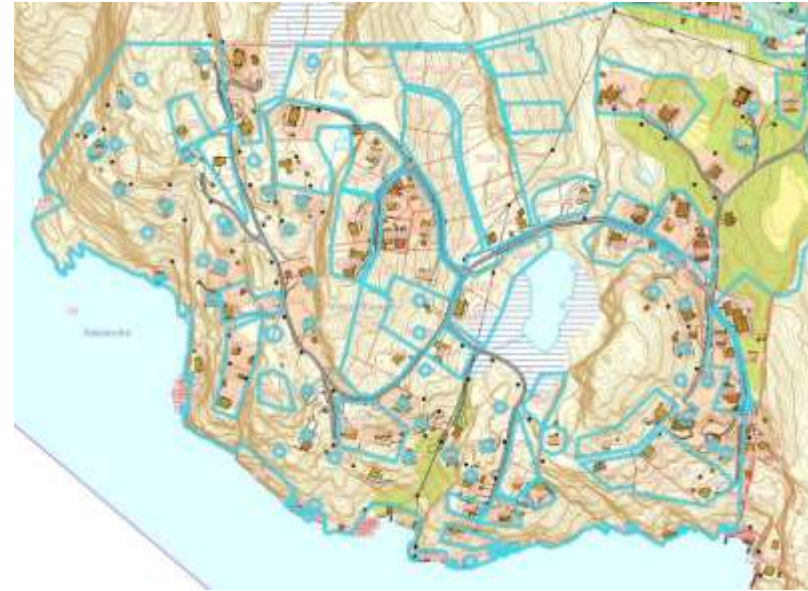
22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## First initiative for a land surveying profession

- Quality problems becomes apparent from early 1990s
- Cadastral law renewal from mid 1990s
- Governmental committee appointed for revision of the cadastral law
- Law proposal in 1999
  - Proposal for national cadastral map
  - Proposal for privatization of cadastral surveying
- Introduction of private authorized surveyors rejected
- National cadastral map implemented from 2010





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Second initiative for privatization

- Private surveying companies take initiatives towards the Parliament in 2015 for privatization of cadastral surveying
- Majority in Parliament in favor, Government starts work on law amendment
- Proposal handled by Parliament in March 2018
- Once again the proposal for privatization is rejected, the Municipal system is to be continued
- However, Parliament is in favor of authorization requirements for education, practice and authorization



10

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## The present system and some basic features

- Norwegian Mapping Authority responsible for land register and cadastre
- Municipalities updates the cadastre
- Municipalities and land consolidation courts are undertaking cadastral surveys
- Poor quality in cadastre
- Freedom of contract has a strong standing and registration is not mandatory
- High and increasing number of property disputes



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## The authorization system – new § 38 in the cadastral law

The Ministry can, upon application, issue license (*no: landmålerbrev*) to persons that have

1. Reached the age of majority (18 years) and are capable of conducting cadastral surveys
2. Have approved education
3. Have at least two years of relevant experience after completion of education
4. Have passed an authorization test

New § 38 is not implemented. Bylaws and transitional provisions are under preparation by the Ministry.



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Will license lead to the establishment of a surveying profession capable of solving the cadastral challenges?

Integrity	-	Expertise and experience	-
Ethics	-	Knowing your limits	-
Conflict of interests	-	Quality	-
Honesty	OK	Consistency	-
Trust/trustworthiness	-	Regulation an compliance	-
Competence and skills	OK?	Standards	OK?

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Need for Innovation

- Is legislation in compliance with the technical development?
  - Cadastral Law
  - Planning and Building Law
- BIM/3D-cadastre
- AI / Machine learning / Blockchain
- Are the curricula at the universities up-to-date?

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



Bachelor in Land surveying and Land administration

➤ – 50 students starting each year

**Our university makes Cadastral surveyors**

Content in the program

- Landsurveying and GIS
- Cadastre and Land administration
- Land use planning



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Cadastral surveying – 3rd semester

- In cooperation municipalities
- Cadastral surveying – municipal monopoly task
- Private surveyors
- University – "private" surveyor
- University – gets 50 % of the fees paid



ORGANISED BY



PLATINUM SPONSORS







# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Cadastral practice

- Meetings between municipality and university (students and professors)
- Students establish contact with landowners



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Cadastral practice

- The field meeting with the land owners
- administrated by the professors



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Cadastral practice

- Land surveying
  - Conducted by the students
  - Professors control the survey
- The results and the documentation
  - Prepared by the students and the professors as a team work.



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Advantages for the students

- Meet "real" land owners and the "real world"
- Knowledge about 20-30 cadastral surveys
- Learning by doing
- Part of the professional society



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Advantages for University

- Professors have cadastral practice
- "Library" of cadastral surveys
- Good connection with the professionals
- Happy students are the best ambassadors for the education and university
- Increasing the number of applicants



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Advantages for municipalities

- Contact with academics
- Employ land surveyors
- Professional development for the staff in the municipalities



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Conclusions

- It is not clear how the authorisation system is to be implemented and how it will function in a municipal system with extensive autonomy
- Even if introduction of authorisation is an important step forward to improve the system, it is difficult to foresee that it will have any special impact without addressing the basic problems in the cadastral mapping system
- How successful the step with future authorisation will be, depends on further decisions taken and development paths established in the forthcoming years



**When will a cadastral surveying profession be in place Norway?**





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



*Thank You!*

ORGANISED BY



PLATINUM SPONSORS

