

From a commercial success to a disaster in slow motion: The social impact of gas extraction in the Province of Groningen

16.11.2022 Dutch Studies Lecture

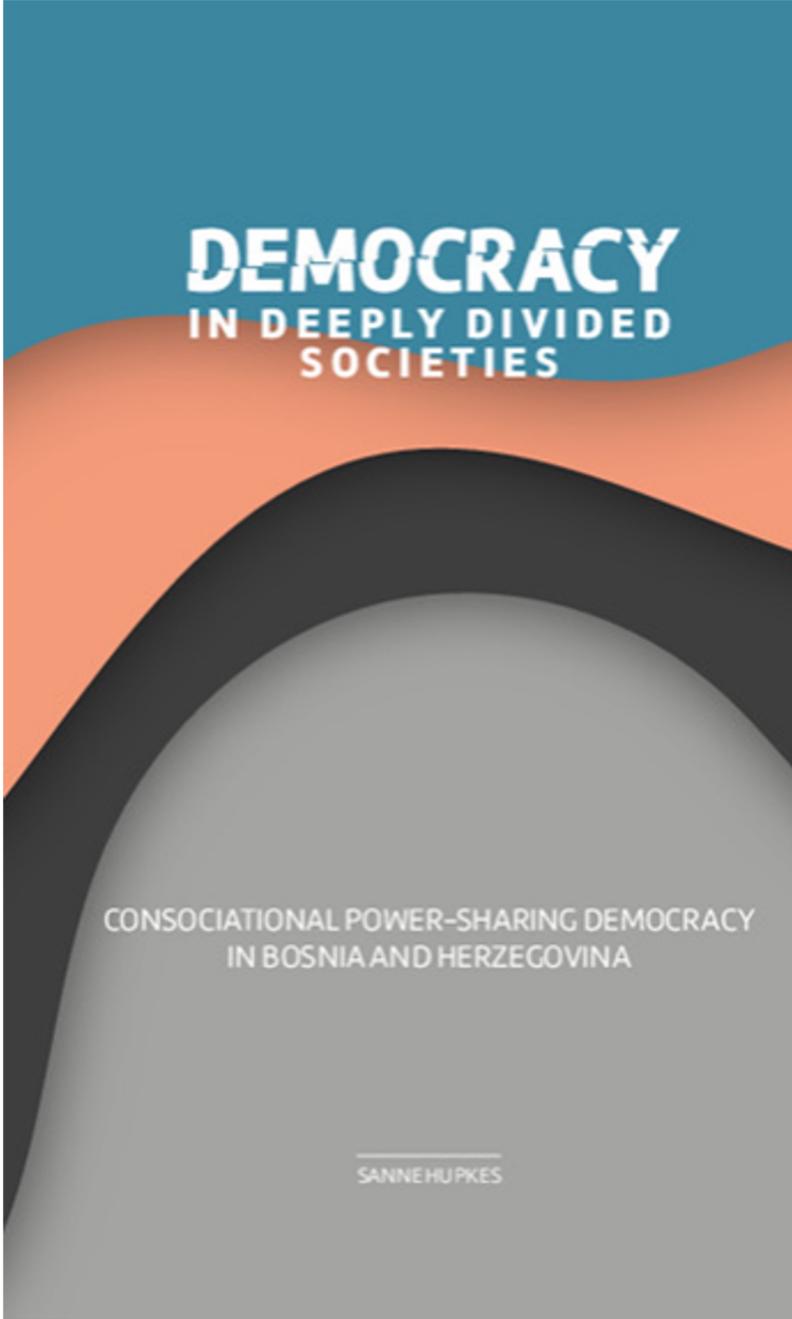
Dr. Sanne Hupkes



Kennisplatform
Leefbaar en Kansrijk
Groningen



About me





The Knowledge Platform

Social impact of mining and energy projects



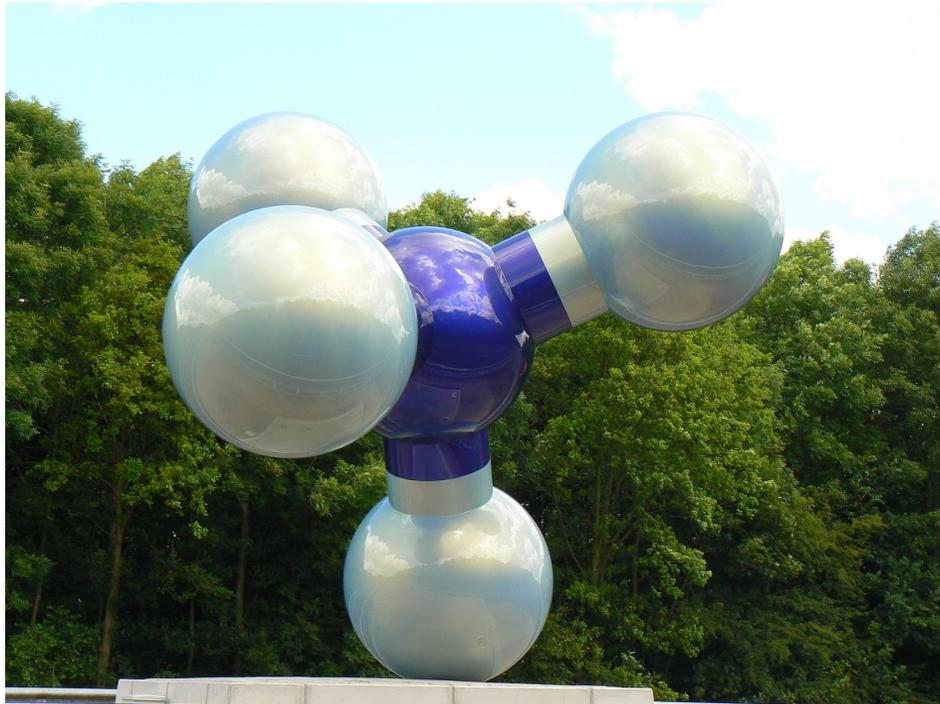
The Knowledge Platform

3 themes:

- Societal impact
- Recovery
- Lessons



Setting the scene



2009: Artwork celebrating the 50 years of gas extraction in the Province of Groningen.



2019: Artwork symbolising the negative impact of the gas extraction.

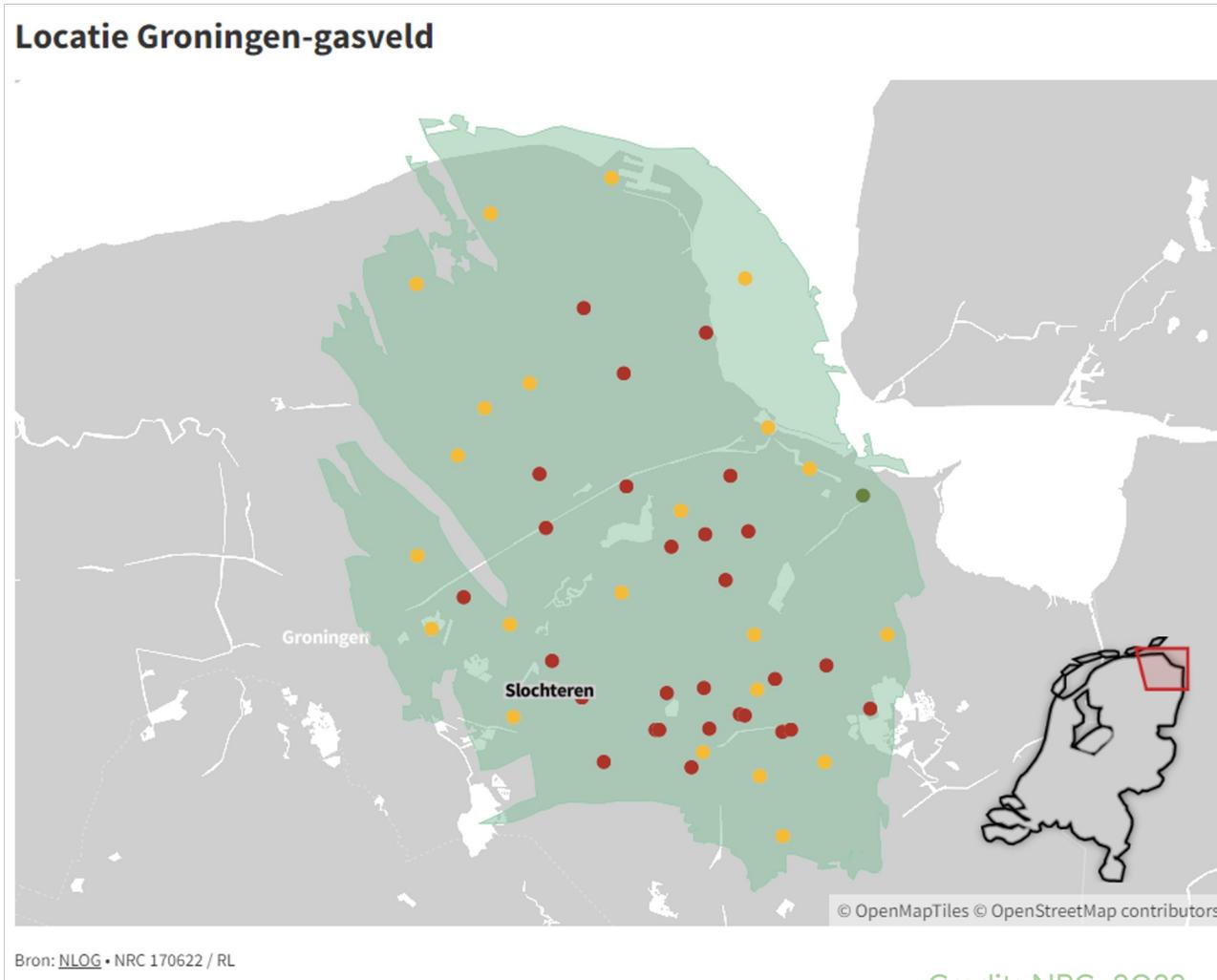
This presentation

- The Groningen gas field
- Societal impact of the gas extraction
- Lessons learned and challenges ahead

The Groningen gas field

1. History and characteristics
2. Governance
3. Benefits and wealth
4. Earthquakes and soil subsidence
5. Damages, unsafety and controversy
6. International context

1. History and characteristics



1. History and characteristics

- 1959: The Groningen gas field discovered
- 1963: start commercial production

The Groningen field:

- 3 km depth, in a porous layer of sandstone
- 900 km²
- 2740 billion m³ gas
- Top 10 gas fields – biggest of Europe
- Low calorific

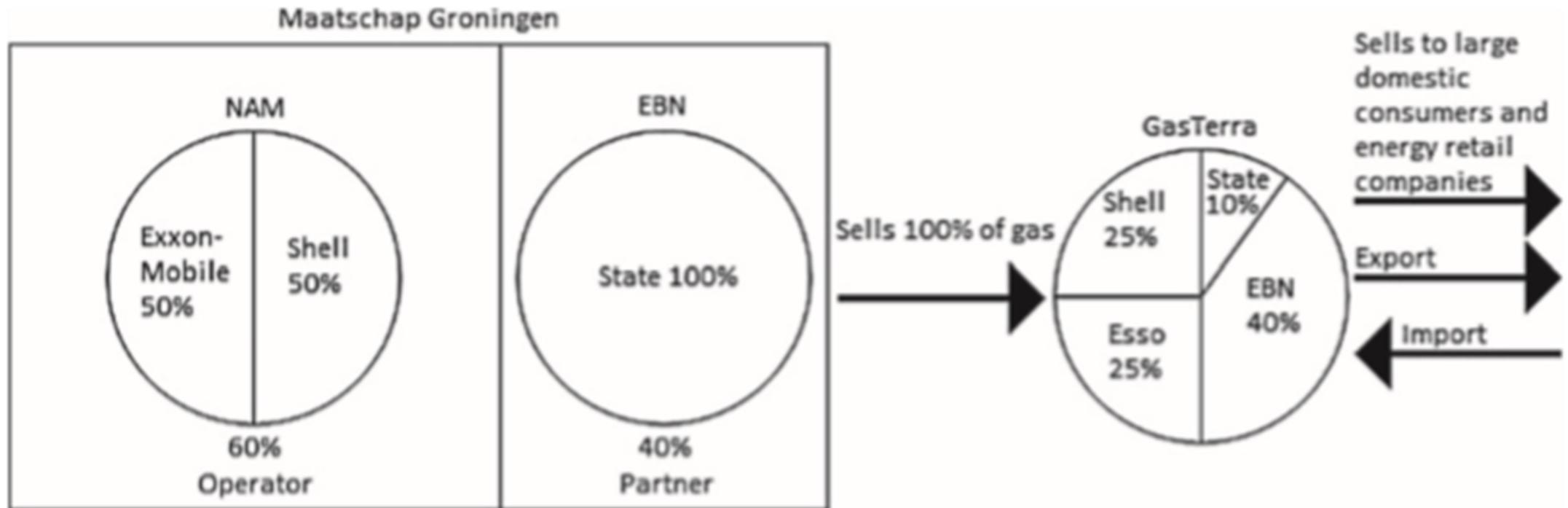
1. History and characteristics

- Relatively low extraction costs
- Highly efficient operation
- Densely populated



2. Governance

A public-private partnership



Source: van der Voort & Vanclay, 2015

2. Governance

- Profits shared between government and NAM

Revenues national government

- sale of gas;
- share in NAM profits;
- royalties;
- taxes and fees;
- dividends

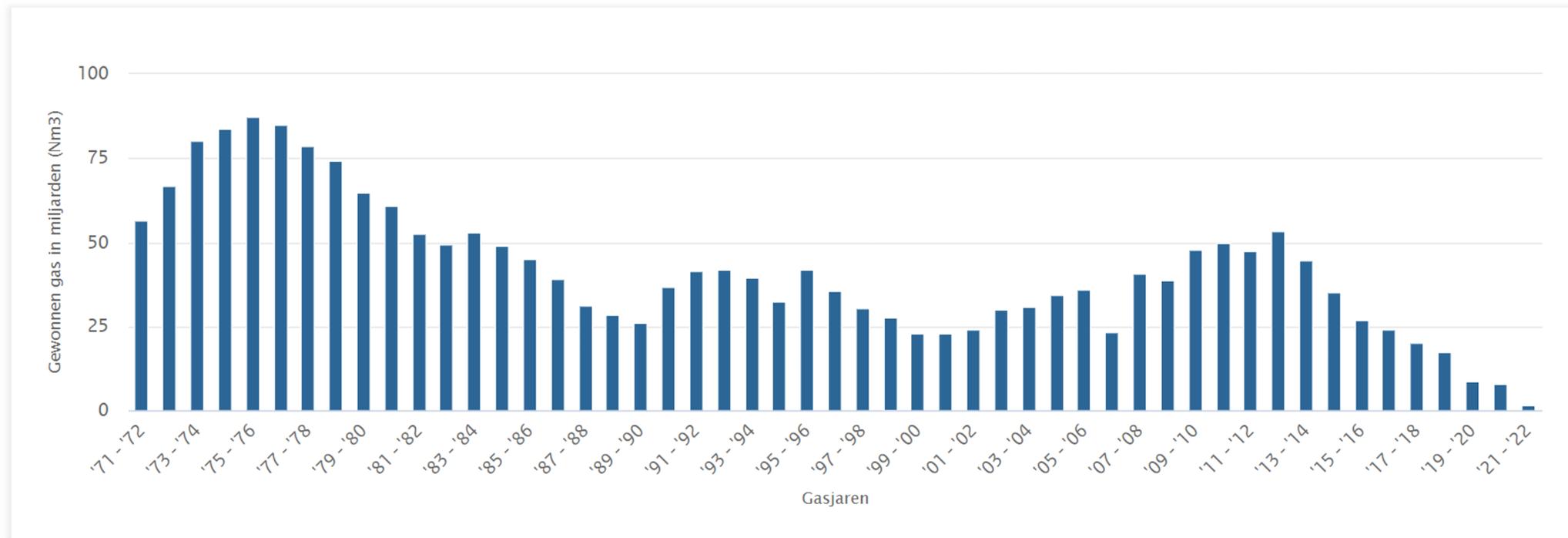
This amounts to...

- 70–95% of all profit from gas extraction from the Groningen field. (Depending on gas prices.)

Source: van der Voort & Vanclay, 2015

3. Benefits and wealth

Jaarlijks gewonnen gas uit het Groningenveld



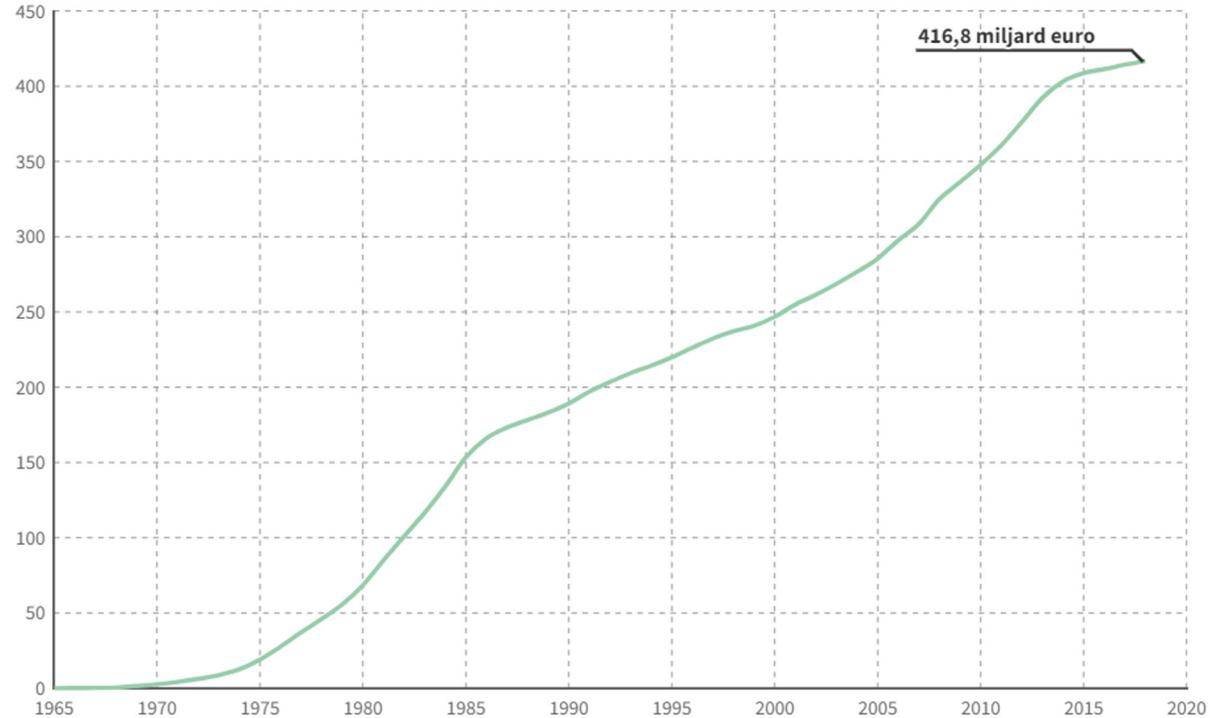
Bron: NLOG

Laatst bijgewerkt: 26-04-2022

3. Benefits and wealth

Cumulatieve aardgasbaten overheid, in miljarden euro's

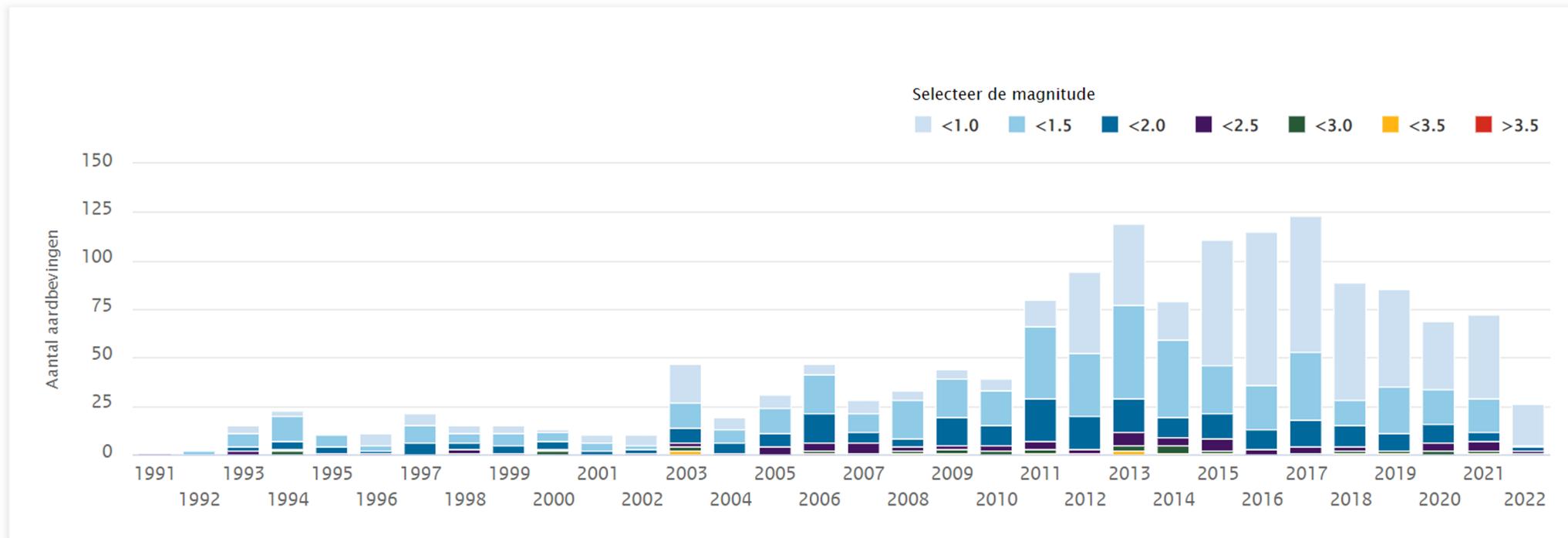
Omgerekend naar prijsniveau 2018



Bron: CBS

4. Earthquakes and soil subsidence

Aantal aardbevingen in het Groningenveld



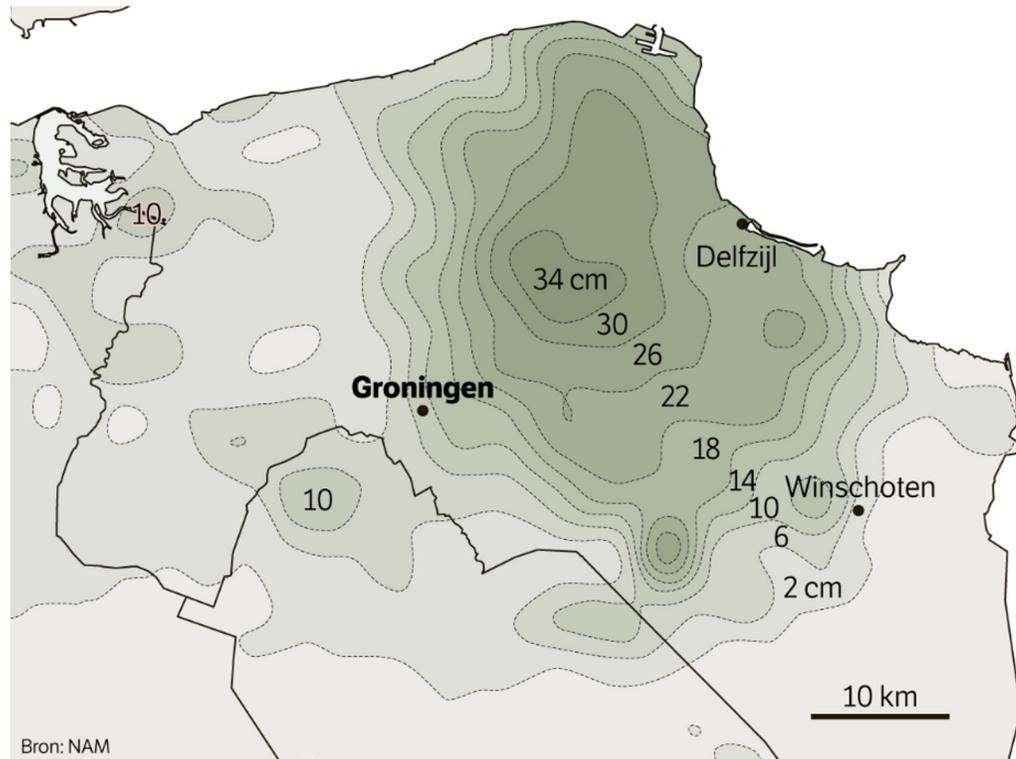
Bron: KNMI

Laatst bijgewerkt: 14-08-2022

4. Earthquakes and soil subsidence

Bodemdaling door gaswinning vanaf de start van de gasproductie tot 2018

Gemodelleerd op basis van beschikbare waterpasdata van 1964 tot 2018



5. Damages, unsafety and controversy

Earthquakes are not part of the traditional hazard scape of the Netherlands (Bakema et al., 2018).

Early warnings...

1963: engineer Willem Meiborg

1986: first earthquake.

1986: Geographer Meent van der Sluis

...

2022: parliamentary inquiry shows how insights of many scientists were ignored for decades (PEAG, 2022)

5. Damages, unsafety and controversy

Denial by NAM and Dutch government

1. Causal links gas extraction and earthquakes.
2. Earthquakes cause damage.
3. Earthquakes cause safety issues.

2009: Groninger Bodembeweging established to represent the interest of residents.

2012: turning point is an earthquake with M3,6 on the Richter scale, epicenter is the village of Huizinge.

5. Damages, unsafety and controversy

PREMIUM

NAM: 2800 huizen in Groningen versterken

22 december 2017, 11:59 · Groningen

Deel dit artikel



PREMIUM

Toezichthouder SodM: beoordelen huizen in aardbevingsgebied Groningen gaat goede kant op, versterkingsoperatie loopt nog steeds niet goed

Lyanne Levy en Bas van Sluis · 23 juni 2022, 14:50 · Groningen

Deel dit artikel



5. Damages, unsafety and controversy

Mitigation strategies

- Identify buildings at risk + reinforcement
- Reduction gas extraction only in 2014
- 2019 decision to stop gas extraction

Responsibilities

- NAM: damage repair and reinforcement
 - > Not transparent and impartial
- 2015: burden of proof changed
- 2020: national government takes over responsibility

NOS Nieuws • Donderdag 29 maart 2018, 19:29 •
Aangepast donderdag 29 maart 2018, 19:29



Hoe Wiebes tot historisch besluit kwam om gaskraan dicht te draaien

De Groningse gaskraan [gaat helemaal dicht](#) en minister Wiebes maakte vandaag bekend hoe hij dat wil doen. Er komt een stikstof-installatie om buitenlands gas geschikt te maken voor gebruik in Nederland.

De komende jaren wordt de gasexport naar het buitenland teruggeschroefd. Binnen twaalf jaar moet de gaskraan helemaal dicht zijn. Na jarenlang wikken en wegen is dit het definitieve besluit. Hoe kwam dat precies tot stand?

NOS Nieuws • Dinsdag 10 september 2019, 12:14 •
Aangepast dinsdag 10 september 2019, 13:09



Gaswinning Groningen stopt al in 2022

Het kabinet wil dat er veel eerder een eind komt aan de gaswinning in Groningen dan eerder was gepland. Minister Wiebes gaat nu uit van medio 2022. Eerder was nog sprake van 2030. Wiebes zegt verder dat de gaswinning volgend jaar al onder het 'veilige niveau' van 12 miljard kubieke meter komt, namelijk 11,8 miljard, in plaats van de eerder gedachte 15,9 miljard.

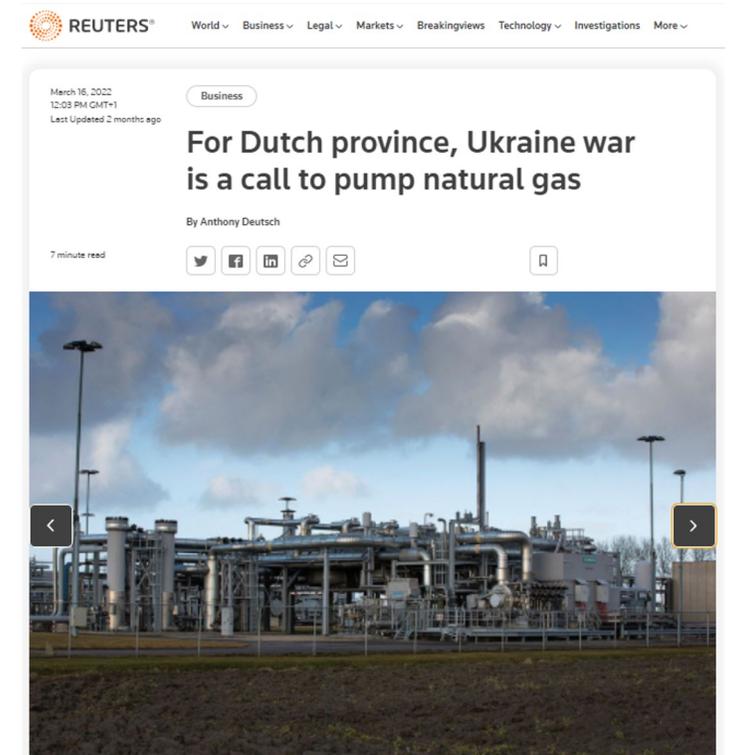
5. Damages, unsafety and controversy

Governance

- Safety – reinforcement
NAM > Centrum voor Veilig Wonen (CVWW) > Nationaal Coördinator Groningen (NCG)
- Damages, material and immaterial — compensation
NAM > CVWW > Tijdelijke Commissie Mijnbouwschade Groningen (TCMG) > Instituut Mijnbouwschade Groningen (IMG)
- Future perspective — investments
Nationaal Programma Groningen (NPG)

6. International context

- War in Ukraine and dependency on Russia Reduction gas extraction only in 2014
- Increasing international pressure to continue extraction
- Contracts with other countries
- Delay in building the nitrogen factory Zuidbroek



Current situation

Earthquakes

- Unclear if gas extraction will stop
- Even if gas extraction stops, earthquakes may continue for decades

Societal impact

- Not merely a technical or financial problem, but a societal problem:
Bureaucracy, inequality and insecurities
- Constant changes in the institutional landscape make governance a problem (Bovenhoff et al., 2021).
- Not recognizing the problems made it worse

Portrait



Sociatal impact of the gas extraction

1. Material damage
 - a) Unsafety
 - b) Damages
 - c) The housing market and economic developments

2. Immaterial damage
 - a) Policies and communication
 - b) Health and wellbeing

Material impact

- 410,000 residents exposed to induced earthquakes
- Buildings are unsafe and/or damaged: houses, schools, churches etc.
- Buildings need fortification and/or damage repair

Approach

- Focus on technical solutions
- Inspection costs €10.000 – €100.000 (reinforcement).

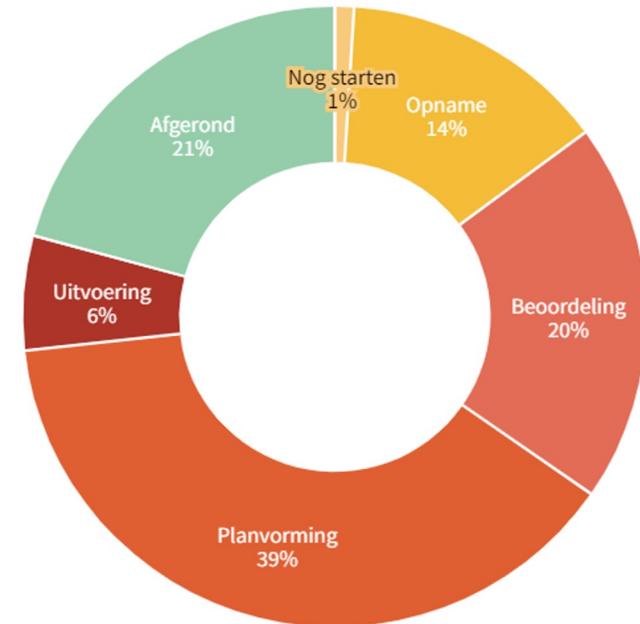
1a Unsafty

- More than 27.000 buildings need to be inspected
- Discrepancy between predictions from models and the outcomes of inspections
- Responsible: Nationaal Coordinator Groningen (NCG)

Credit: NRC, 2022

Verdeling adressen over de versterkingsfasen, stand 30 juni 2022

Totaal 27.181 adressen



Bron: [NGC](#)

■ Nog starten: Het versterkingstraject is nog niet gestart

■ Opname: Verzamelen bouwtechnische gegevens

■ Beoordeling: Voldoet het pand aan de veiligheidsnorm?

■ Planvorming: Voor adressen die niet aan de veiligheidsnorm voldoen

■ Uitvoering: De eigenaar is akkoord met het versterkingsplan

■ Afgerond: Adres voldoet al aan veiligheidsnorm, het pand is versterkt, of wordt gesloopt

1b Damages

- New damages claims, especially after earthquakes
- 20.000 damage claims still pending
- 2,5 years before decision on damages is made

(See [Dagblad van het Noorden](#), November 7, 2022.)

- Responsible: Instituut Mijnbouwschade Groningen (IMG)

Nieuwe schademeldingen per week



Bron: [IMG](#)

1c The housing market and economic impact

- Distorted housing market
- Investments region
- Economic impact on households



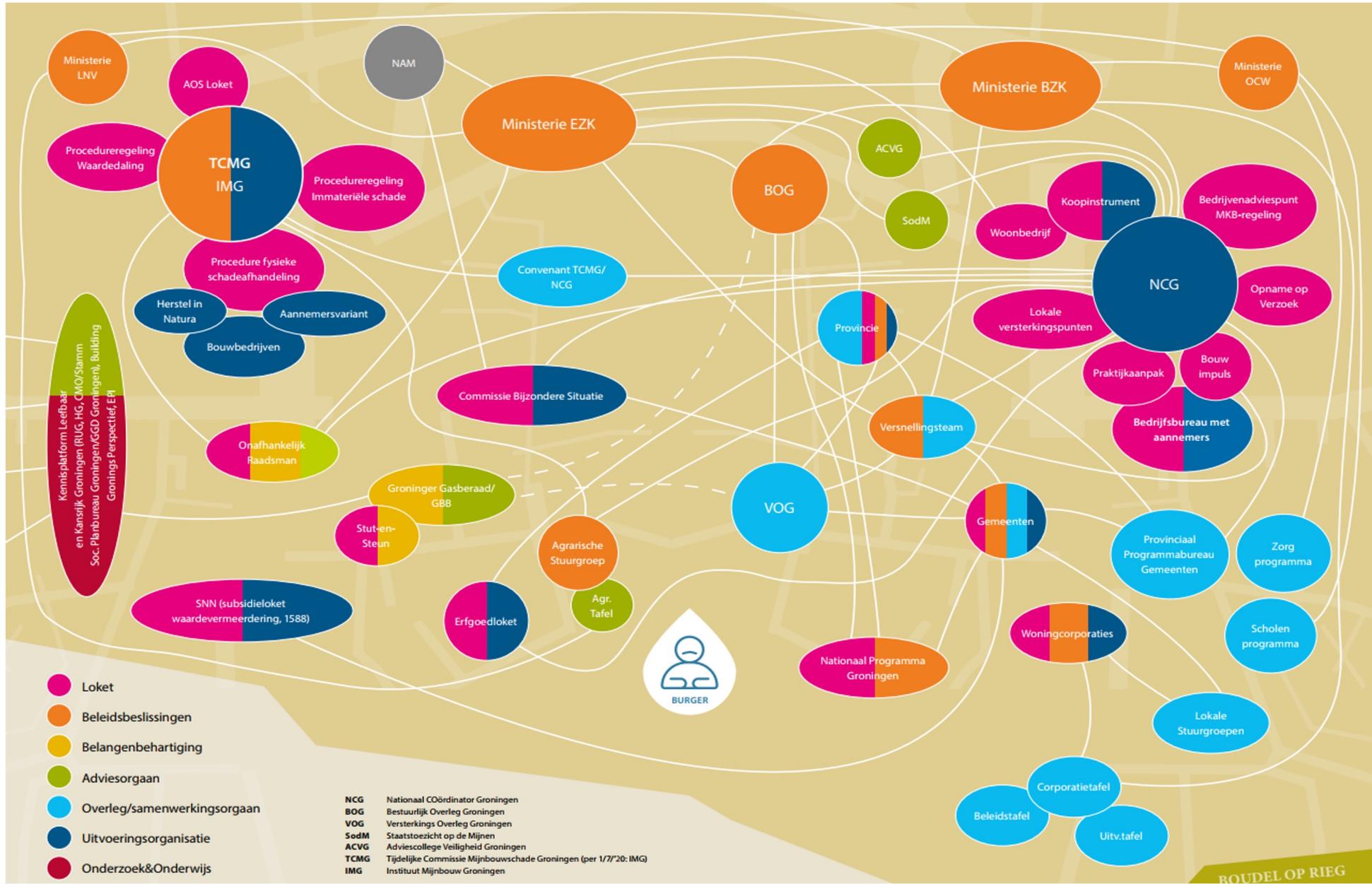
2. Immaterial impact

- Time-and energy consuming processes:
Bureaucracy.
Repairs and reinforcement
- Temporary displacement of people
- Inequalities and loss of social cohesion
- Long-term insecurity



2a. Policies and communication

- Procedures are stressor for inhabitants
- Insufficient communication
- Feelings of injustice, dissatisfaction and frustration



Ministerie LNV

AOS Loket

NAM

Ministerie EZK

Ministerie BZK

Ministerie OCW

Procedureregeling Waardedaling

TCMG IMG

Procedureregeling Immateriële schade

Convenant TCMG/ NCG

BOG

ACVG

SodM

Woonbedrijf

Koopinstrument

Bedrijvenadviespunt MKB-regeling

Procedure fysieke schadeafhandeling

Herstel in Natura

Aannemersvariant

Bouwbedrijven

Commissie Bijzondere Situatie

Provincie

Lokale versterkingspunten

Opname op Verzoek

Praktijkaanpak

Bouw impuls

Bedrijfsbureau met aannemers

Kennisplatform Leefbaar en Kansrijk Groningen (RUG, HG, CMO/Stamm Soc. Planbureau Groningen/GGD Groningen), Building Gronings Perspectief, EPH

Onafhankelijk Raadsman

Groninger Gasberaad/ GBB

Stuven-Steun

Agrarische Stuurgroep

Agr. Tafel

VOG

Versnellingssteam

Gemeenten

Provinciaal Programmabureau Gemeenten

Zorg programma

SNN (subsidieloket waardevermeerdering, 1588)

Erfgoedloket

Nationaal Programma Groningen

Woningcorporaties

Scholen programma

Lokale Stuurgroepen



Beleidsstafel

Corporatietafel

Uitv.tafel

2a. Policies and communication

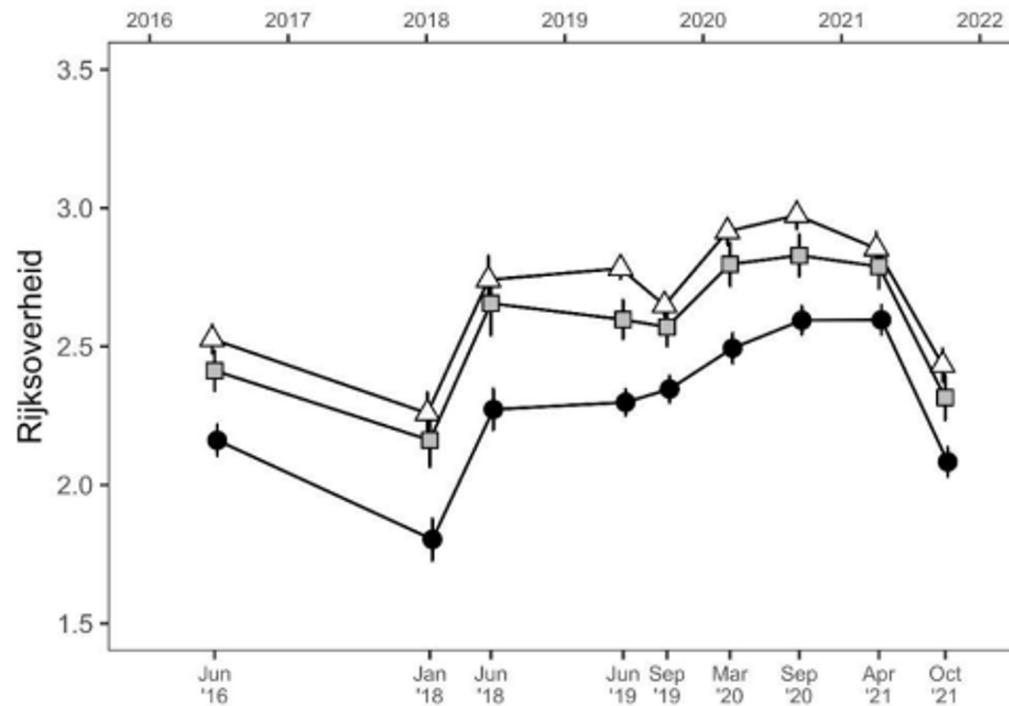


Figure: Trust in institutions on a scale of 1 to 5 as a function of time and trust, with a confidence interval of 95% (Stroebe et al., 2022).

2b. Health and wellbeing

- Gronings Perspectief: quantitative and qualitative studies
- Chronic stress, fear, insomnia, depression
- Frustration and powerlessness
- People with multiple damage claims feel significantly less safe (Stroebe et al., 2022)
- Children and young people experience similar health impact as adults

Challenges ahead and lessons learned

1. Restoration of relations and regaining trust
2. Vision for the future
3. Lessons learned

1. Restoration of relations and regaining trust

- Relations are damaged
- No Social License to Operate





1. Restoration of relations and regaining trust

- Relations between citizens, governments and industry impacted by
 - denial of problems
 - broken promises
 - systemic changes
 - radical shifts in policy
 - years of uncertainty
- Reconciliation and restoring trust vital

2. A vision for the future

- Money is not the solution
- Participation and dialogue on different levels
- Integral approach to the restoration of safety and damages



3. Lessons learned

- Need for Social Impact Assessment before the start of any project, plan, program
- Acknowledge unpredictability and uncertainty
- Listen to citizens and give them control
- Develop monitoring system together with citizens
- Importance of making responsibilities clear
- Support of citizens crucial to any (mining) project

Vragen?

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