

**Improving transparency,  
accountability and responsiveness**

**RIES:**  
Rijnland Internet Election System

A fully Transparent Election System

Marco Rijkschroeff

April 2007 Het Waterschapshuis - RIES

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**Outline**

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- The Dutch water boards
- The demand for e-voting
- Our Main goals and criteria
- History of RIES
- Challenges for RIES
- Demonstration of e-voting
- Q+A

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**Government**

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- Dutch Waterboards
- 26 boards
- Organization
  - Dijkgraaf
  - Daily board
  - General board
- Specific tasks
  - Water quantity
  - Water quality



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**Background**



- Dutch policy: 65% all public services admissible through Internet in 2007
- Specific Water Board objectives for elections
  1. maximum accessibility
  2. maximum user-friendliness
  3. lowest cost possible

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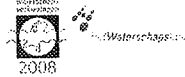
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**Government perspective:  
Main goals for e-voting**



- Combine with postal-mail voting, without any requirement for the voter to pre-register his preferred way of voting.
- Fully transparent and verifiable by voters and independent experts.
- Increase of usability for handicapped and visual handicapped
- Simplification in back-office organization

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**Users perspective:  
Comfort and reliability**



- Ability to cast vote in different ways (mail/Internet) and several times
- Ability to check if own vote was actually cast and counted in the tally; 70% of the voters stressed this as important
- 99% should be able to use the system on a regular Internet attached PC,
- Meets the formal government criteria for elections (transparency, etc etc)

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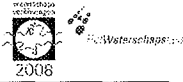
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**Formal criteria of any E-election**



- Authentication
- Uniqueness
- Secrecy
- Integrity
- Accuracy
- Verifiability
- Non-coercibility
- Auditability
- Convenience
- Accessibility
- Reliability
- Transparency
- Flexibility
- Certifiability
- Cost-effectiveness
- Recount tally

**RIES meets all these requirements!**

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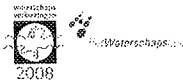
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**Water board election in 2004**



- 35% of the voters used internet voting of RIES
- 86% positive user feedback and no negative response
- Flawless in processing
- Full validation performed by independant parties
  - Radboud Universiteit, TNO, Ithaka
  - Madison Ghurka - Cryptomathic



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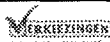
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**Dutch general election 2006 - KOA**



- 63% of the registered voters abroad selected internet voting of RIES
- 90% positive user feedback and no complaints about internet voting
- Flawless in processing
- Full validation performed by a variety of independant parties
  - TNO, CiBIT, Radboud University

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### Users point of view



- Be able to validate: highly important  
– 70% of the voters stated the ability to validate if their vote had actually been cast highly important
- No modifications to their home pc

Voter's needs are comfort and transparency

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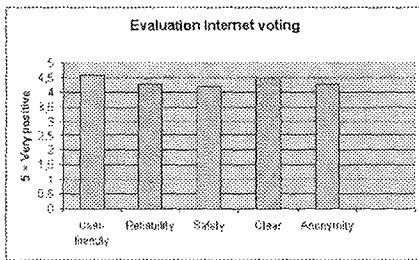
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### Transparency and accountability appreciated



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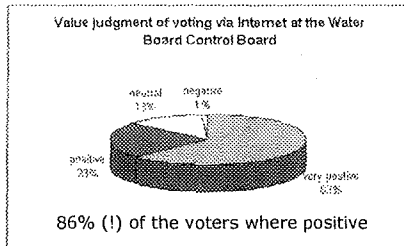
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### Voters judgement



86% (!) of the voters where positive

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**Reaction of voters**



- *'Saves time'*
- *'Otherwise, I would not have voted'*
- *'I can vote whenever I please'*
- *'I don't have to leave home for voting'*
- *'Fast and easy'*



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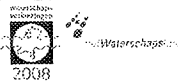
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**Challenges for RIES**



- 2004: 2.200.000 eligible voters
- 2006: 20.000 Dutch voters abroad
- 2008: 12.400.000 eligible voters postal mail and Internet
- 2005 Good Practice Label European Commission
- 2006 UN: Public sector award

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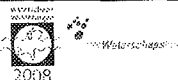
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**RIES internet voting**

Screen shots



April 2007

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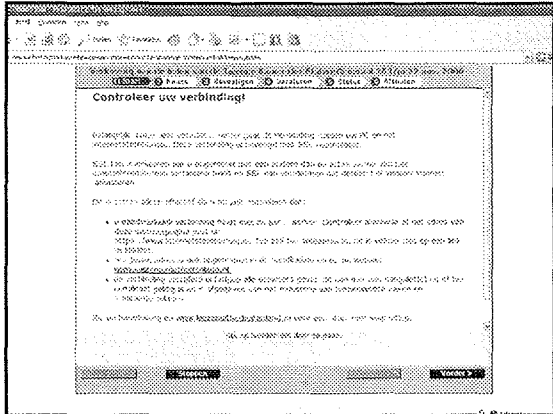
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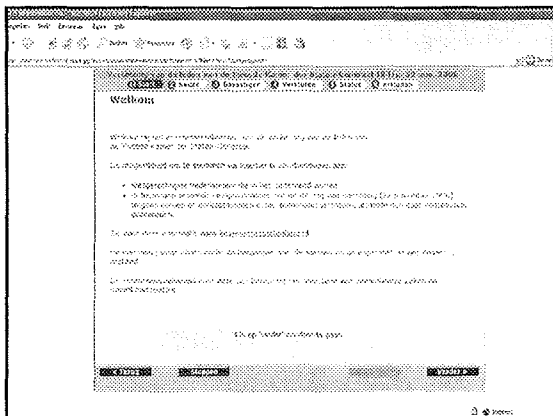
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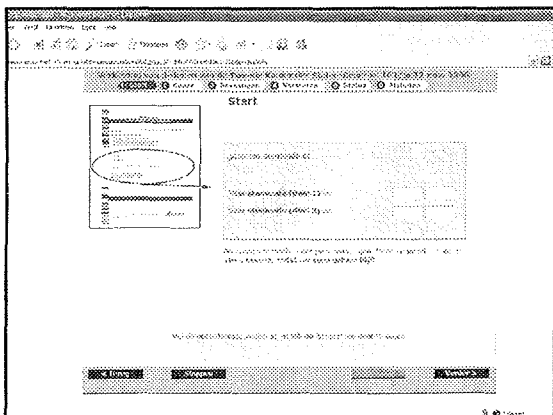
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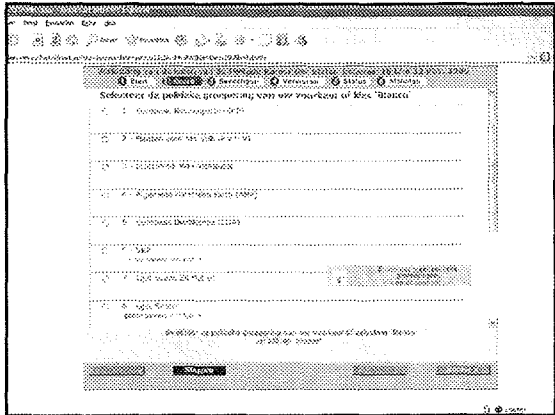
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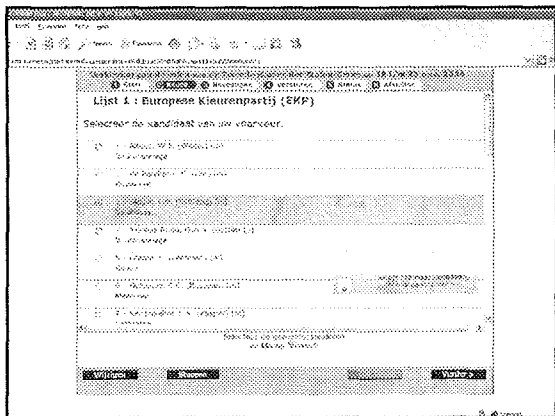
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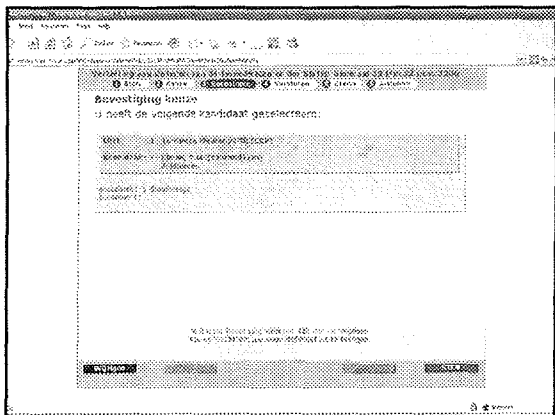
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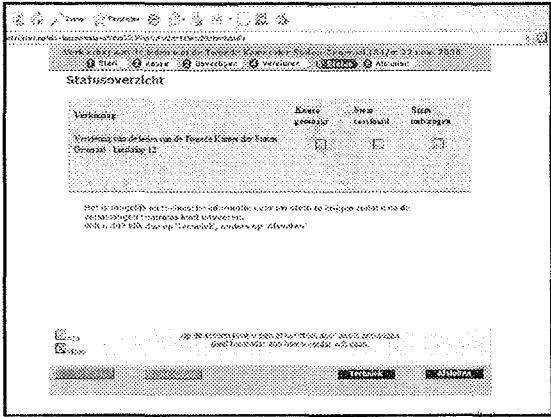
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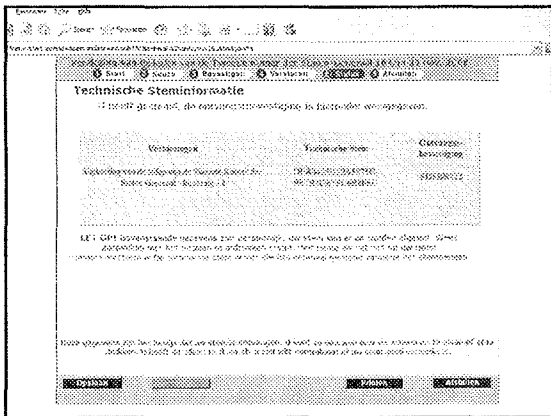
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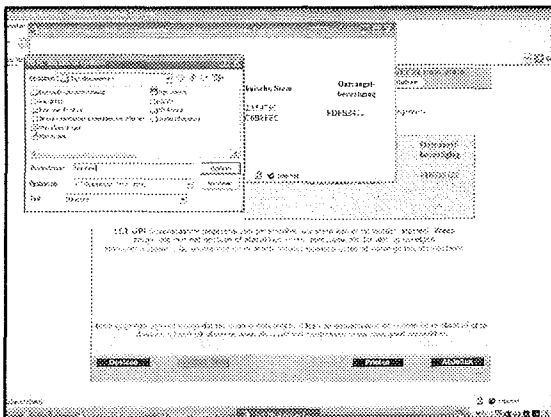
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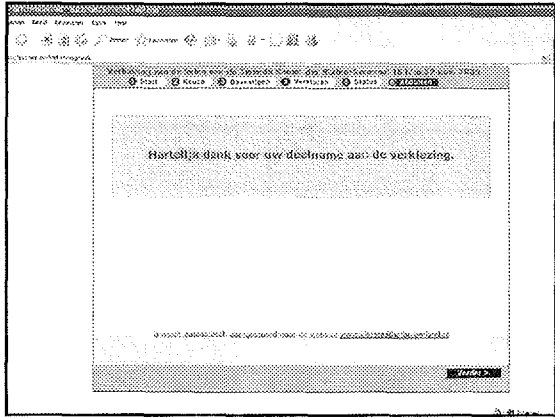
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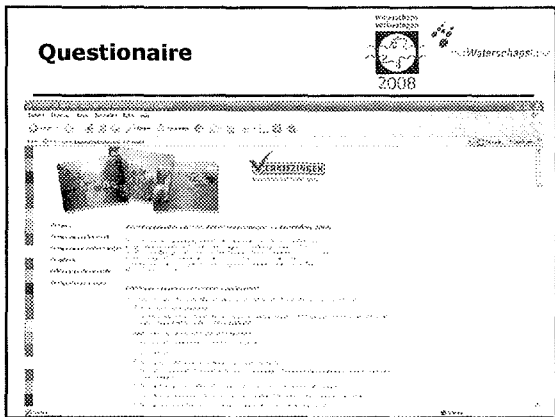
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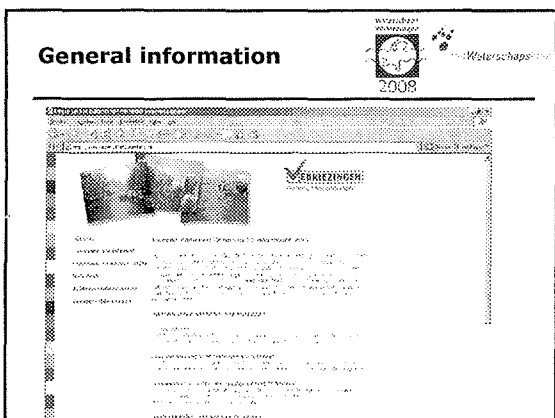
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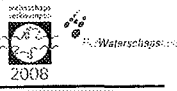
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**Published data**



**Waterschap De Oostvaardersplassen**  
2008

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... (more text) ...

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**Independent check by the Radboud University**



**Waterschap De Oostvaardersplassen**  
2008

**Kiescentrum het bestuursrecht een onafhankelijke blik door de Radboud Universiteit Nijmegen**

... (text about independent check) ...

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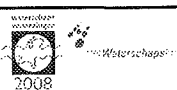
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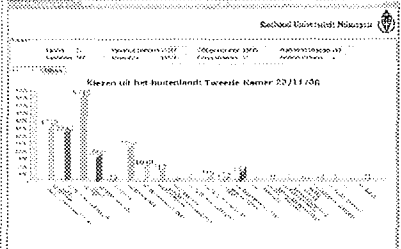
**Independent counting of the ballotbox**



**Waterschap De Oostvaardersplassen**  
2008

**Kiescentrum het bestuursrecht een onafhankelijke blik door de Radboud Universiteit Nijmegen**

Kandidaat	Stemmen
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...	...
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... (text about independent counting) ...

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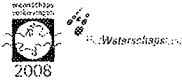
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### Independent published counting result



#### SOS-RIES uitslag voor de verkiezing Kiezen uit het buitenland: Tweede Kamer 22/1/06

##### Totaaluitslag politieke grouperingen

- LIJST 01 Christen Democratisch Appel (CDA): 3740 (18.9% van geldig / 18.5% van totaal)
- LIJST 04 Partij van de Arbeid (PvdA): 3332 (16.8% van geldig / 16.5% van totaal)
- LIJST 03 VVD: 5719 (28.9% van geldig / 28.2% van totaal)
- LIJST 04 SGP (Socialistische Partij): 1599 (8.4% van geldig / 8.4% van totaal)
- LIJST 05 Fortuyn: 99 (0.2% van geldig / 0.2% van totaal)
- LIJST 06 GROENLINKS: 238 (1.8% van geldig / 1.5% van totaal)
- LIJST 07 Democraten 66 (D66): 1049 (5.2% van geldig / 5.1% van totaal)
- LIJST 08 ChristenUnie: 712 (3.6% van geldig / 3.2% van totaal)
- LIJST 09 Staatkundig Gereformeerde Partij (SGP): 72 (0.4% van geldig / 0.4% van totaal)
- LIJST 10 Nieuwland Transparant: 6 (0.0% van geldig / 0.0% van totaal)

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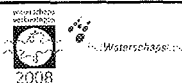
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### Independent published counting result



##### Detailuitslag

LIJST 01 Christen Democratisch Appel (CDA): 3740 (18.9% van geldig / 18.5% van totaal)

Partij	Aantal Stemmen	% van geldig	% van totaal
LIJST 01	3740	18.9%	18.5%
LIJST 02			
LIJST 03	5719	28.9%	28.2%
LIJST 04	3332	16.8%	16.5%
LIJST 05	99	0.2%	0.2%
LIJST 06	238	1.8%	1.5%
LIJST 07	1049	5.2%	5.1%
LIJST 08	712	3.6%	3.2%
LIJST 09	72	0.4%	0.4%
LIJST 10	6	0.0%	0.0%

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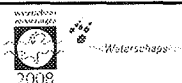
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### Independent published counting result



##### De volgende problemen kwamen voor bij het openstellen van de stembus

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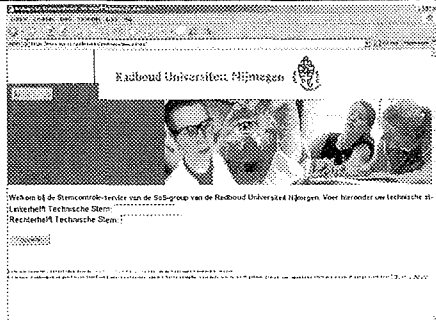
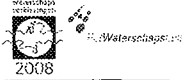
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### Independent checking of personal vote



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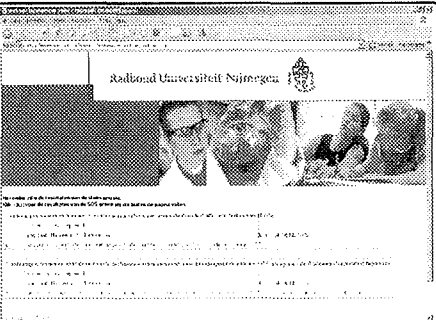
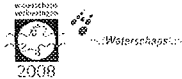
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### Independent checking of personal vote



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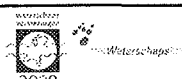
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### Future of e-voting



A good election system has to meet the set of requirements as stated before

But the key factors for a successful voting system are:

- Convenience
- Accessibility
- Transparency

When meeting this requirements it possible to have 12 million voters in 2008

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**Q+A**



**• Thank you**

- Marco Rijkschroeff

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