



Importance of communication for sustainable Groundwater management:

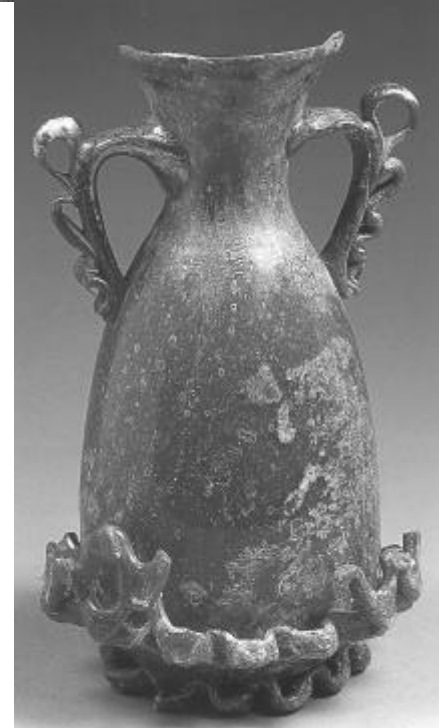
Example on national and urban level

Ebel Smidt, Peter Ramakers, Patty Kluijtmans



Communication levels of our presentation

- Information and analysis:
- Cases : National and urban
- Pictures: change in landuse
- Pictures: national water heritage of Afghanistan
- Your reactions

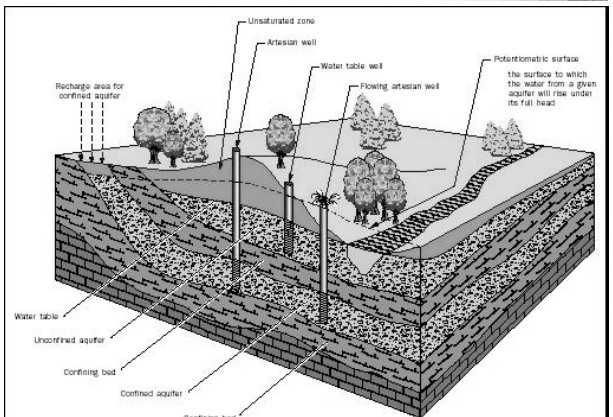
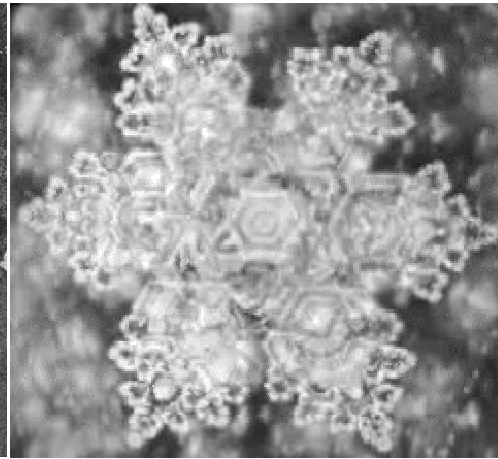


Different views on groundwater

- Hydrological view
- Soil view
- Drinking water view
- Ecological view
- Mythical view



Different views on groundwater, examples

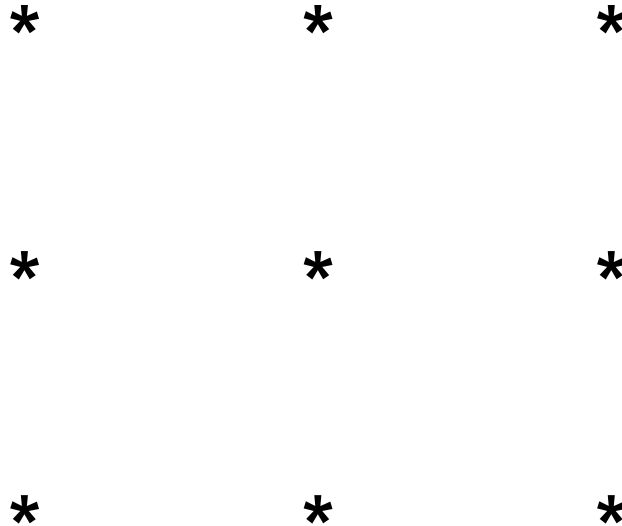


Paul Watzlawick's five axioms

- Impossible not to communicate
- Contents and relation aspect
- Relations depend on interpretation of interactions - interdependency
- Digital (verbal) and analog (non)-verbal communication
- Symmetry or complementary



Example : Interpretation of solution scope



Connect all points with four lines without lifting the pencil

Communication model Watzlawick - check

- Did we communicate?
- Ratio content – relation?
- Type of interdependency?
- Verbal – non verbal info?
- Equal – non equal?



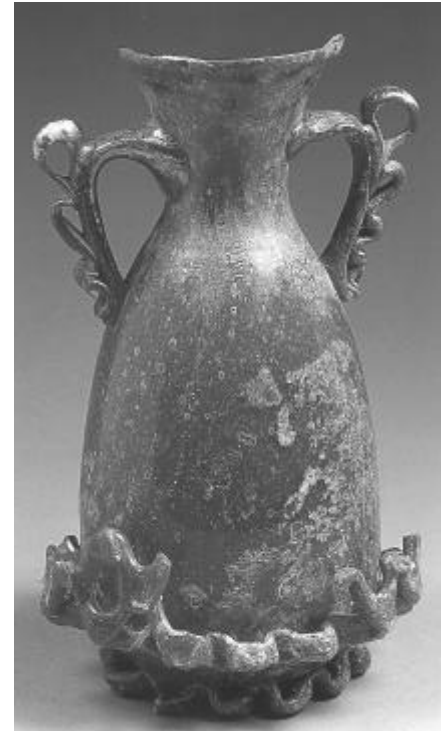
Communication model : check

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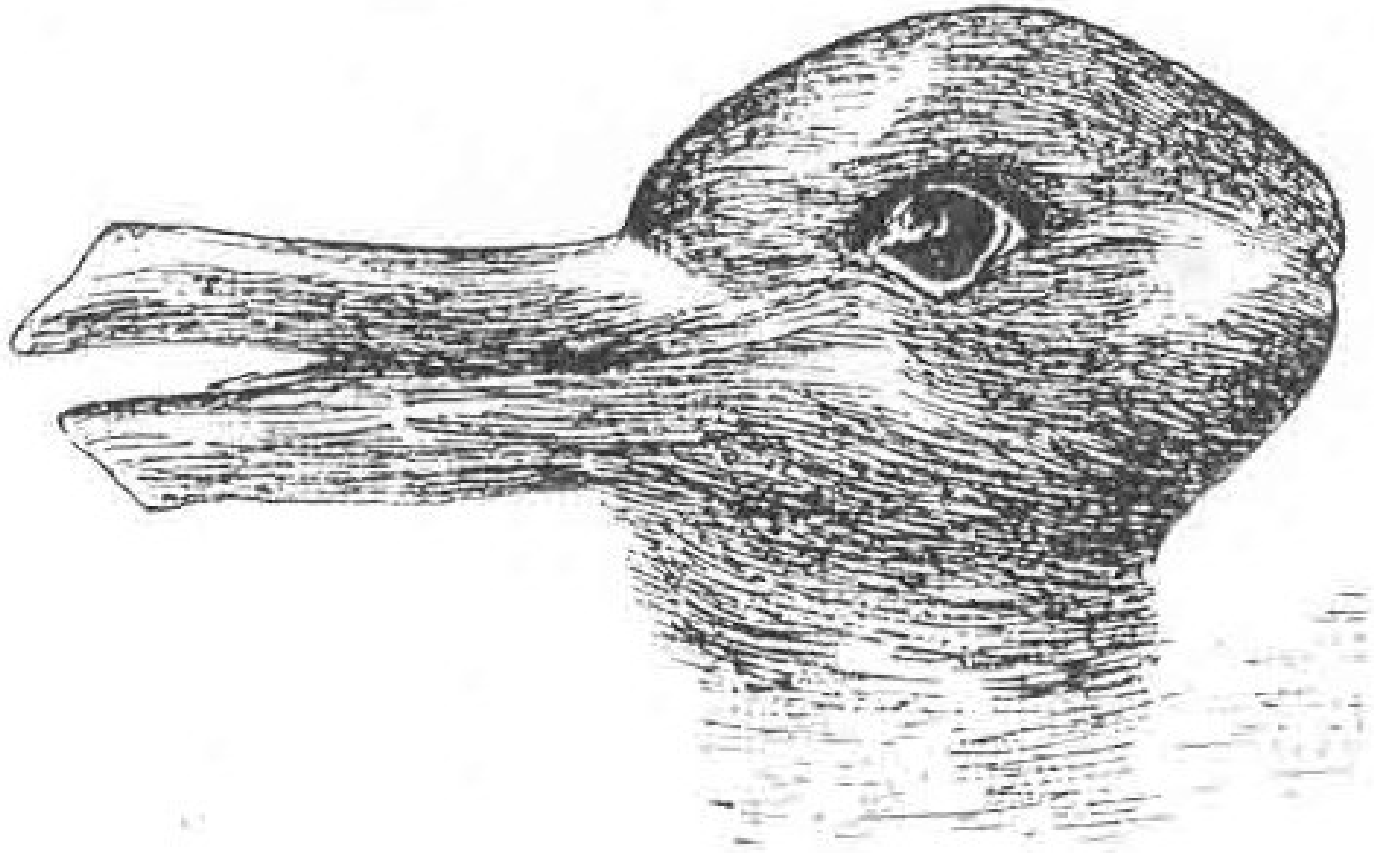


Communication - check (3)

- Did we communicate?
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Changing the perspective : paradigm shifts



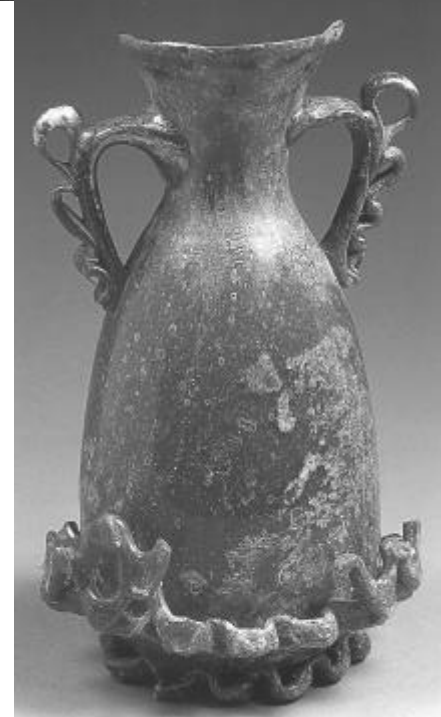
Kuhnian paradigm shifts and transitions

- Same information
- Seen in completely different way
- Einsteinian Relativistic worldview , quantummechanics
- In real life systems: communicaton via WWW



Current relevant paradigm shifts and transitions

- Subject-object interaction in physics
- Holistic view on complex environmental systems
- Managing watersystems
- Language changes: water bodies in EU
- Water management seen also as social science



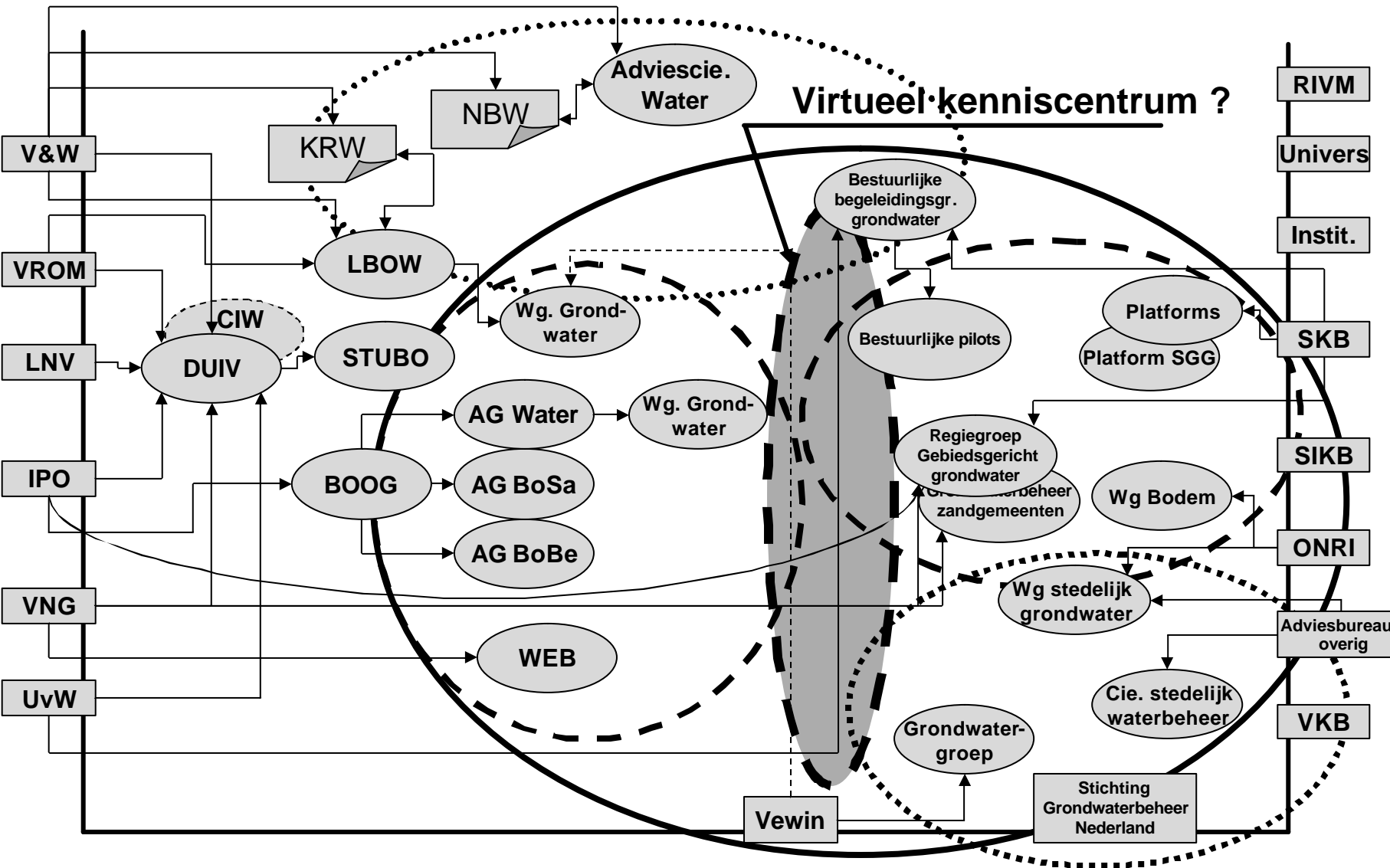
Back to the groundwater issue as example

- Issue at stake in the Netherlands : two worlds (ground)water community and soil communitiy
- Example of sectoral worlds
- Relevant for any cooperation issue?



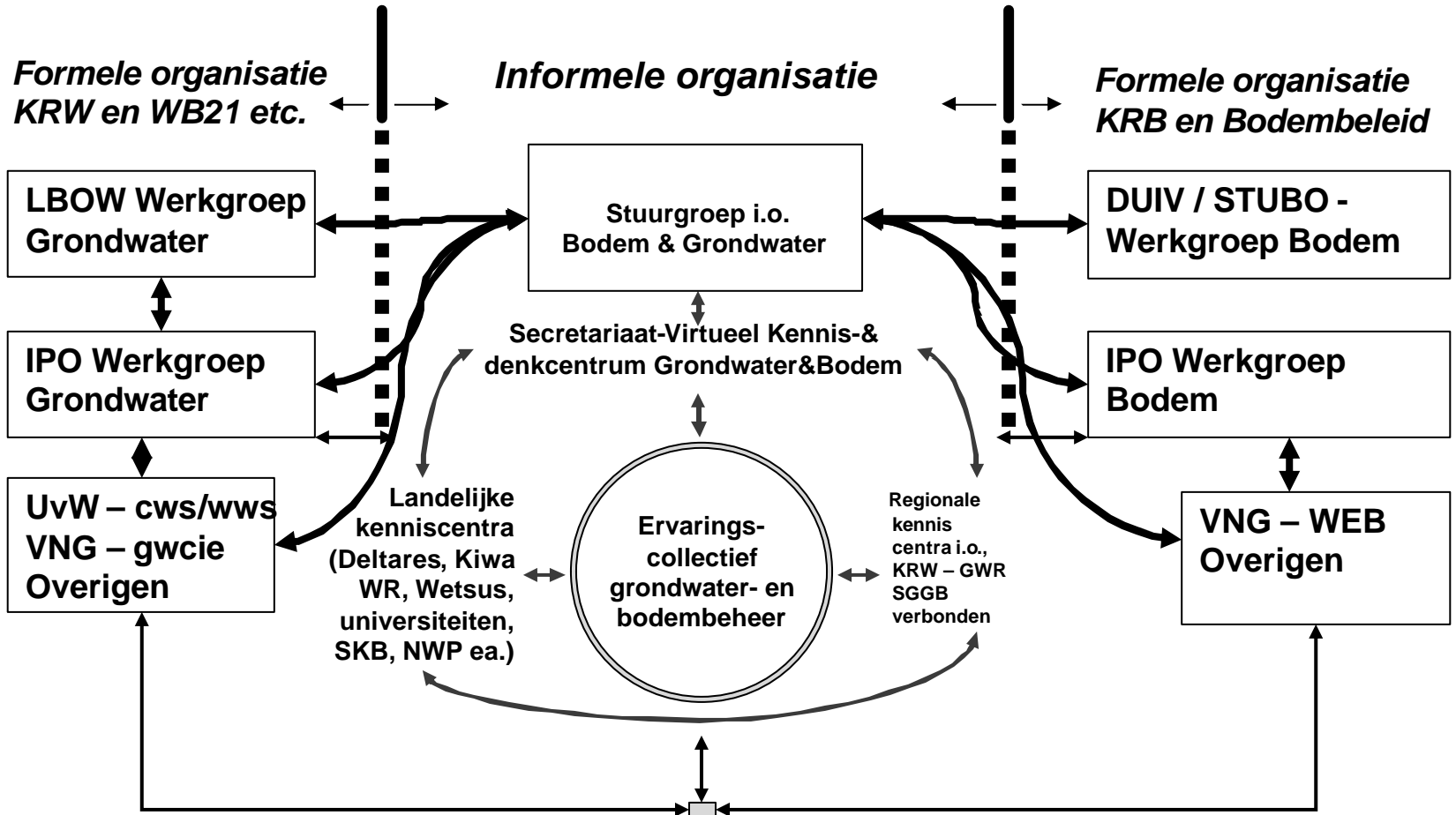
Soil and groundwater communities

How to improve communication ?



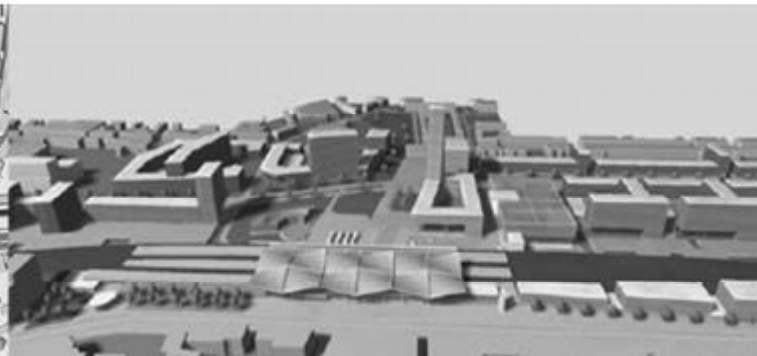
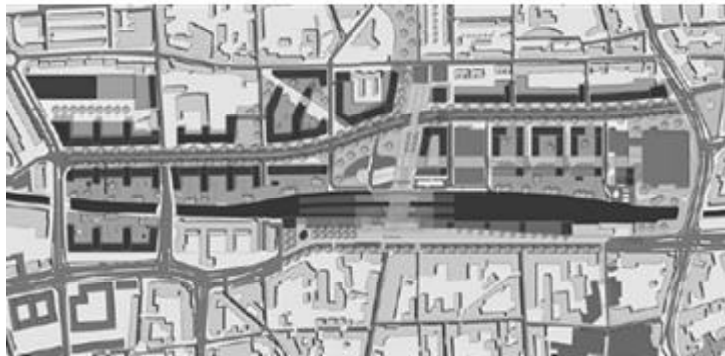
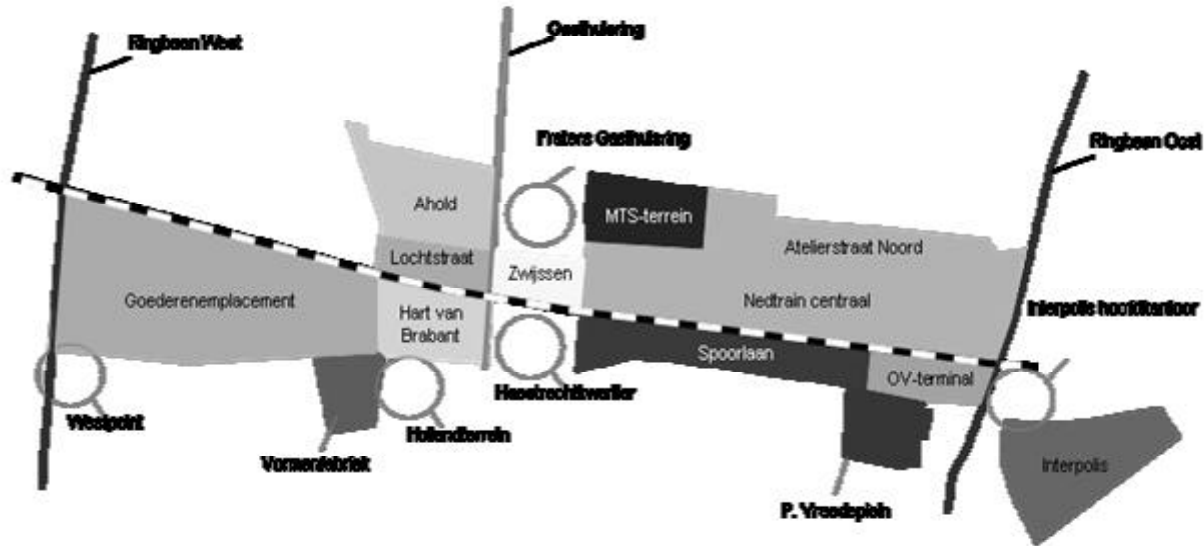
Facilitating communication on groundwater and soil

Objective: better integration 2 worlds and integration policy and working levels



Railway area Tilburg

DE SPOORZONE



Stakeholders

- Internal stakeholders municipality: 20 departments of environment, energy, water, remediation, physical planning, city development, culture, financial advisors and members of the city council.
- External stakeholders: advisors, local- provincial and central government.

Plan forming

- Brainstorm sessions

- Tell something about yourself
- what is nice of working within the municipality
- what is nice of Tilburg
- what is nice about this project

–Results:

Real team, no secrets, save, stable, confidence, open mind.

All the plans of the different stakeholders came together, one integrated plan at policy level

Rapid plan formulation (4 month), better access to funds, improved idea implementation proces.

Communication

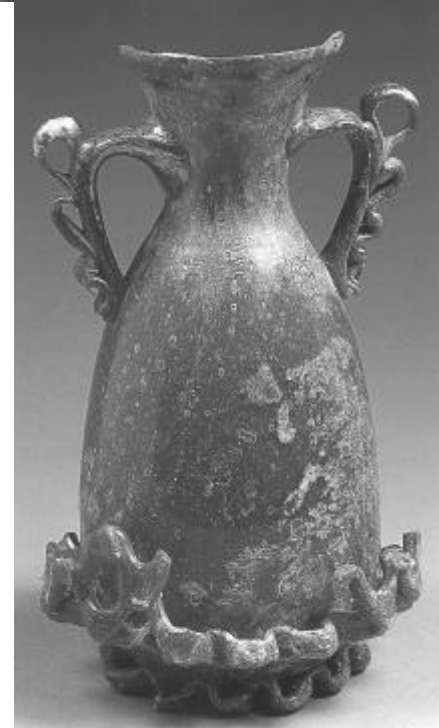
- Communication
- Experiment

Conclusion

- Message
- Same ideas
- Commitment helps all participants to solve the problem.

Concluding remarks

- Make all aspects visible, recognition of facts and emotions. Psychological theory useful in water&land management
- Results in discovering the often hidden reservoir of solutions
- Combined physical-chemical-biological, social and psychological reservoir management is current transition challenge



*While we pursue the
unattainable we make
impossible the realizable.'*

ROBERT ARDREY



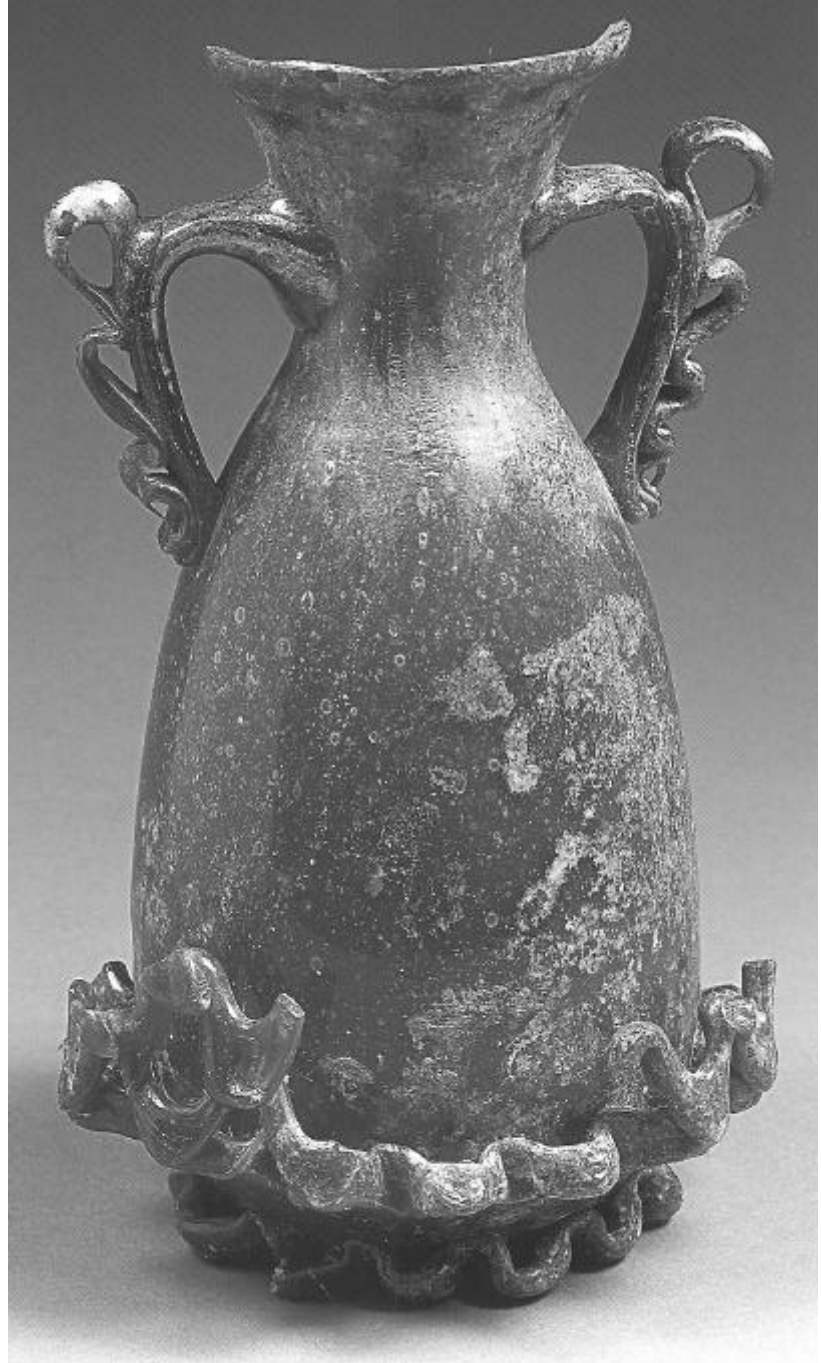
Blue vase with a resille-pattern

*Afghanistan, Begram
1st century AD*

National Museum of Afghanistan

Blown glass

H17.7cm; Ø 7.3 cm



The Fountain of the Oxus

*Water spout in the form of a
theatrical mask*

Afghanistan, Ai Khanum

2nd century BC

National Museum of Afghanistan

*Limestone
21x40x19 cm*



Statue of a 'river goddess'

Begram, 1937

National Museum of Afghanistan

ivory



*'The way out is
through the door.
Why is it that no one
will use this exit?'*



CONFUCIUS

'

