



Ministerie van Infrastructuur
en Waterstaat

Soil passports in the Netherlands – an instrument for the circular economy

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Overview

- Soil Quality Decree
- Soil passport
- The economics of excavated soils
- Incidents and accidents, hints and allegations
- Kwalibo: Certification and governmental admission
- Passports: types and content
- Upcoming contaminants
- Environmental guarding



Soil Quality Decree

- National regulation [EU notified (WFD)] for **useful application** of soil and sediment
- Soil and sediment is reusable if:
 - Useful application
 - **Compliance with reuse standards** based upon
 - Stand-still and fit for use
 - Risks for humans and ecology
 - **Environmental declaration of Soil Quality (soil passport)** for applicable soil and receiving soil
- Notification of application to competent authority

Background value

Agriculture/nature

Residential value

Residential

Industry value/
Intervention value

Industry

Remediation



Environmental Declaration of Soil Quality (Soil passport)

- A passport gives value to soils
- No passport: no reuse
- Quality is not what you see
- Quality is what you read
- Soil applicant is responsible for soil quality at application site
- Soil excavator is responsible for soil passport



The economics of excavated soils

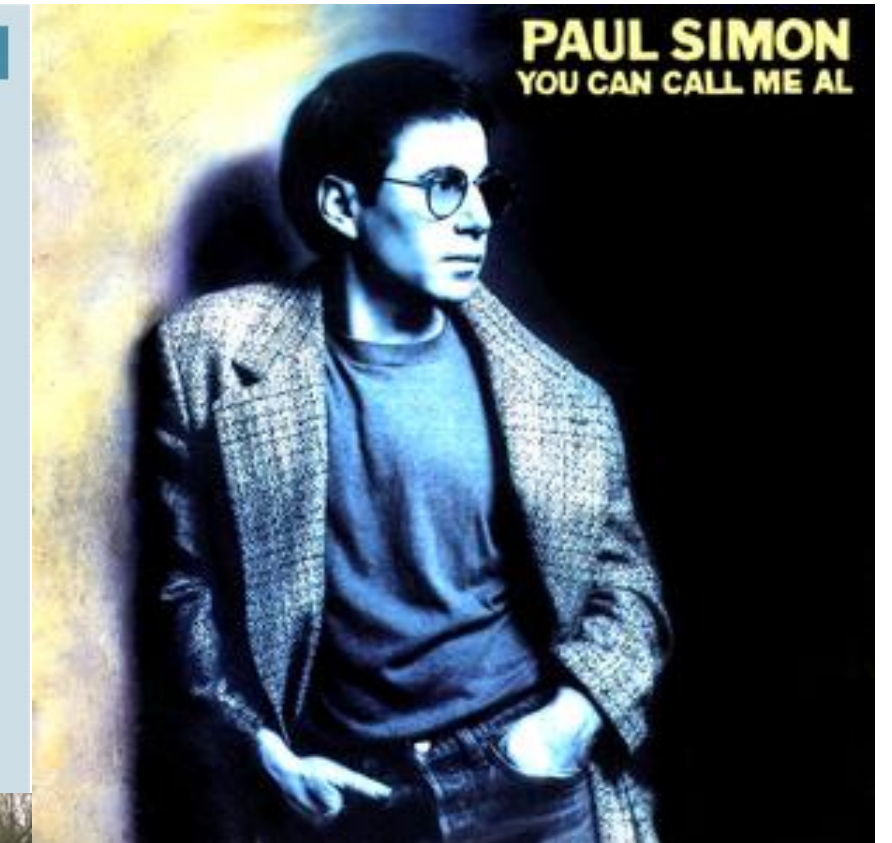
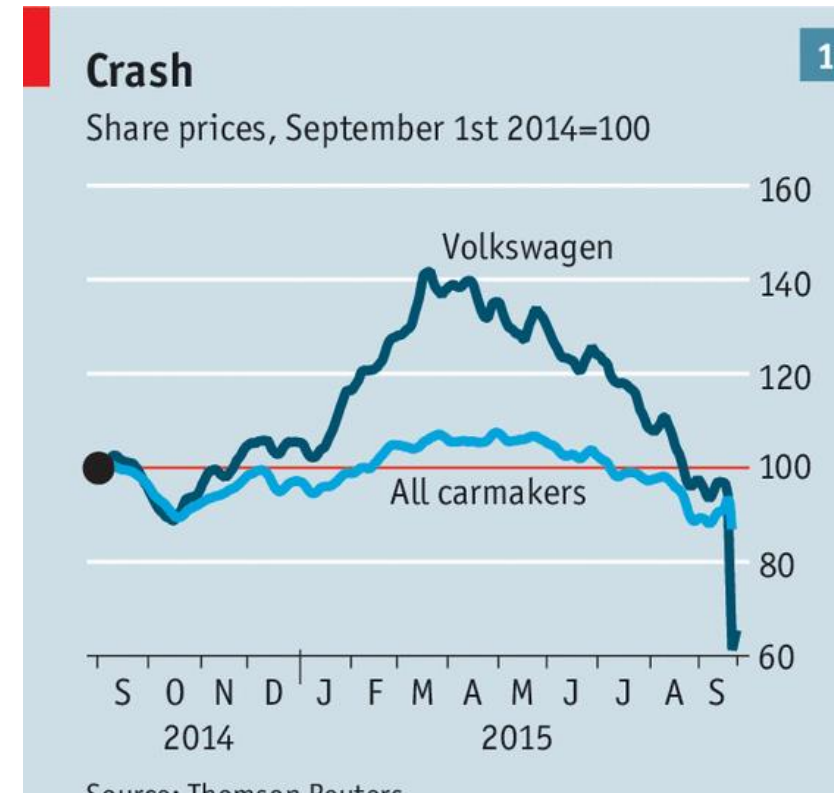
Soil quality	Economics for soil applicant	Economics for soil producer	
Primary soils	Costs € 10,-/ton	Costs €5,-/ton	Benefits €7,-/ton
Secondary reusable soils	Costs € 0,-/ton	Costs € 10,-/ton	Benefits € 0,-/ton
Non-reusable soils	Not allowed	Costs € 75,-/ton	Benefits € 0,-/ton

In green: driver for the circular economy

In red: threat for the circular economy

Incidents and accidents, hints and allegations

- Falsified passports
- More soil applied than in passport
- Forgotten contaminants
- Re-sampling and using the best samples
- Merging clean and contaminated soils
- Debris and plastics in soils
- Soils with high pH near surface waters
- Soils with high organic matter in surface waters



Kwalibo: certification and governmental admission

- 'Kwalibo' stands for quality assurance in soil management
- SQD → critical soil activities
- SQD → certification schemes (BAT for conducting activity)
- SQD → critical activities: mandatory certification and admission
- Relevant critical activities:
 - Soil stockpile sampling
 - Soil investigation
 - Soil analyses
 - Soil merging (soil banks)
 - Soil production
- Admission and guarding: Ministry of environment (soil+, inspection)

5 types of soil passports = Environmental declaration of Soil Quality (EdSQ)

- Preliminary investigation → **Stockpile investigation** → EdSQ.
Used for excavated soil, all qualities, nationwide
- Preliminary investigation → **Soil investigation** → EdSQ
Used for soil to be excavated and for receiving soil, all qualities, nationwide
- **Soil quality Map** → Preliminary investigation → EdSQ
Used for soil to be excavated and for receiving soil, all qualities, local use
- **Soil production** → entrance examination → **certification and admission** → EdSQ
Used for soil banks (merged soils) and primary production (sand mining), all qualities, nationwide
- **Soil production** → entrance examination → **private declaration** → EdSQ
Used for washed-off soil from harvest products, primary production (tunnel building), nature & agriculture quality only, nationwide

NB: entrance examination consists of a product quality control (5 -10 stockpile investigations) and production control (audit of Quality Management Procedures to assure product stability)

Stockpile investigation

Desk study

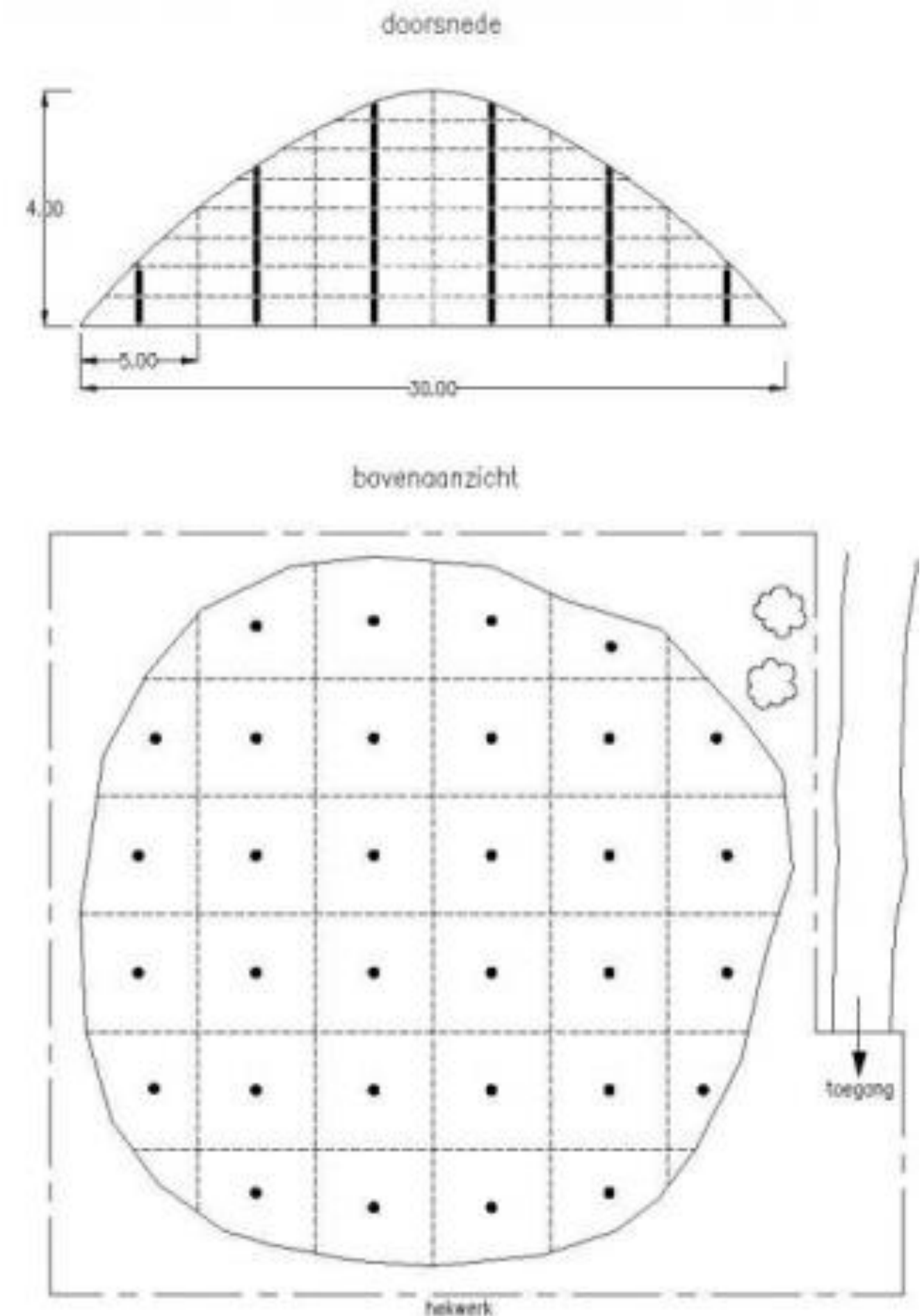
- Historic information (type of contaminants, homogeneous quality and physical properties)

Fieldwork

- 2 * 50 increments of 180 gram
- Representative samples for stockpile average
- 2 samples of 9 kilo

Laboratory

- Sample preparation (sample average)
- 2 Analyses: average is used for classification



Selection of contaminants

- SQD
 - 140 contaminants with reuse standards
 - Millions of contaminants without standards → precautionary principle
- Standard package of contaminants:
 - Cd, Cu, Hg, Pb, Ni, Zn, Ba, Mo, Co
 - PAH, PCB, Mineral oil
- Based upon preliminary investigation:
 - Likely present contaminants (both standardized and non-standardized) → e.g. PFOA, PFOS, DDT

Content of EDSQ-soil passport

- Unique number, Name and signature of drafter
- Reference to relevant documents:
 - preliminary investigation
 - stockpile investigation
 - soil investigation
 - soil quality map
 - entrance examination
- Description and amount of soil
- Soil Quality based upon documents and investigated standardized contaminants
- Disclosure of concentration or emission of non-standardized contaminants
- Content of debris
- Instructions for use



Environmental guarding of SQD: Municipality, Water board

Environmental guarding 'kwalibo' and EdSQ – soil passport: Ministry of environment

Responsibility

Applicant of soil



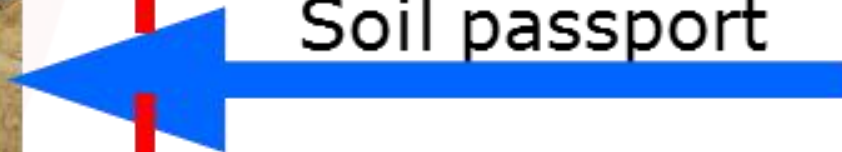
Producer of soil with admission of the EdSQ



Execute critical soil activities



Drafting EdSQ- Soil passport



Strength and weaknesses

- Strength:
 - Public acceptance of SQD and reuse standards
 - “Kwalibo”
- Weaknesses:
 - Environmental guarding
 - Short term economics





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Thank you for your attention

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