

Sturing in de afvalwaterketen

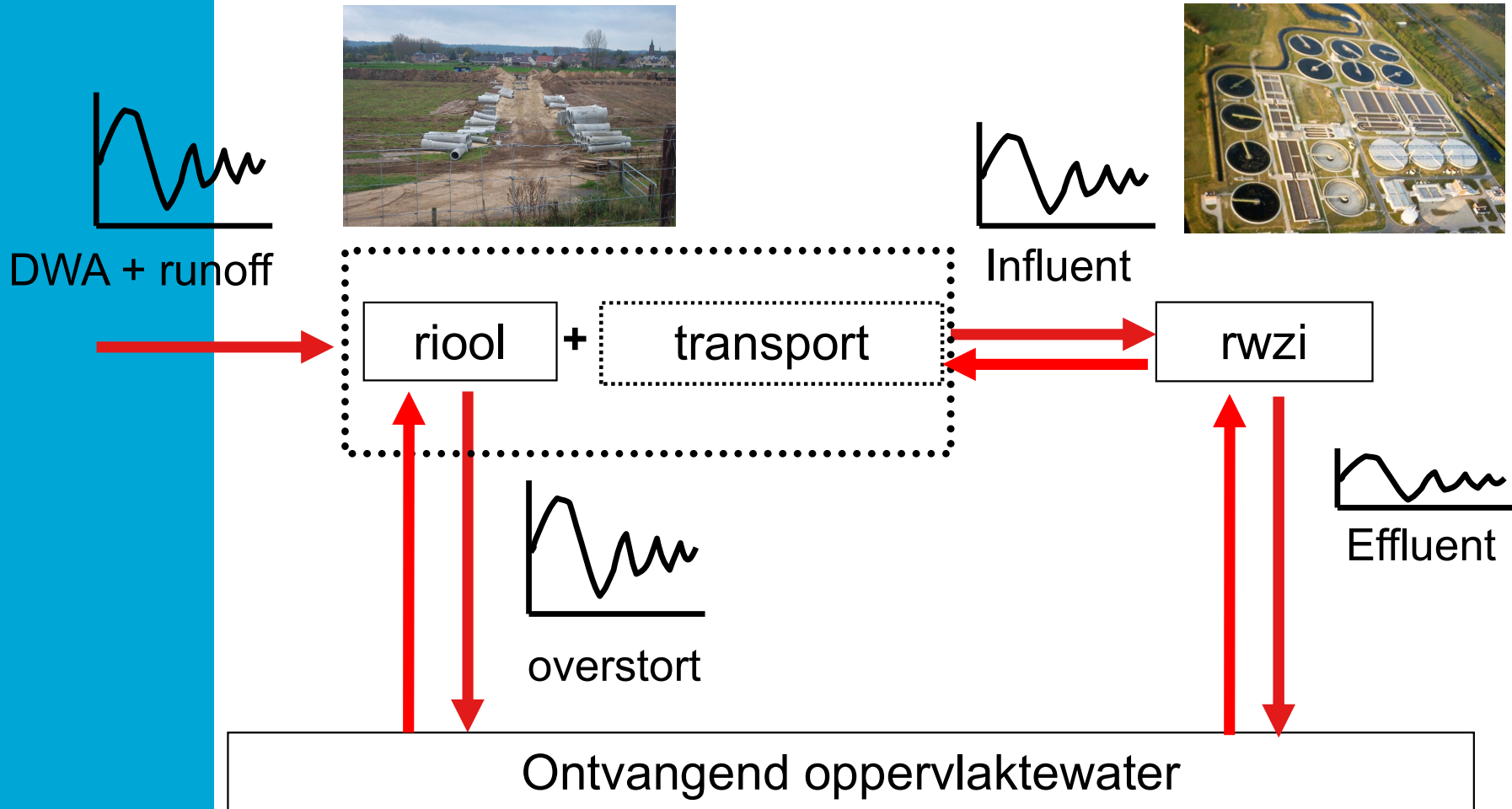
Introductie

Dr.ir. J.G. Langeveld, TU Delft

STOWA symposium 'sturing in de afvalwaterketen'

20 April 2023

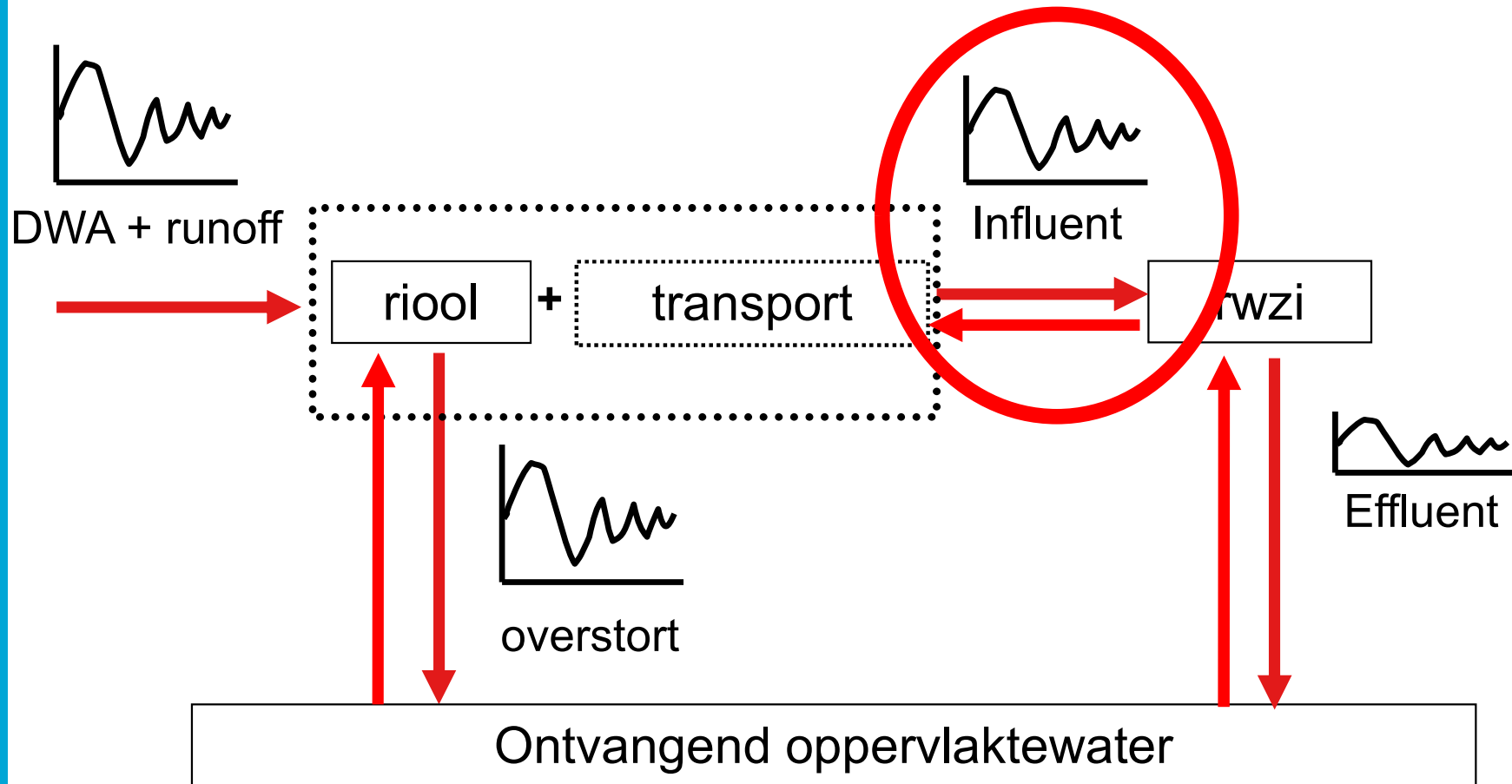
Dynamiek in afvalwaterketen



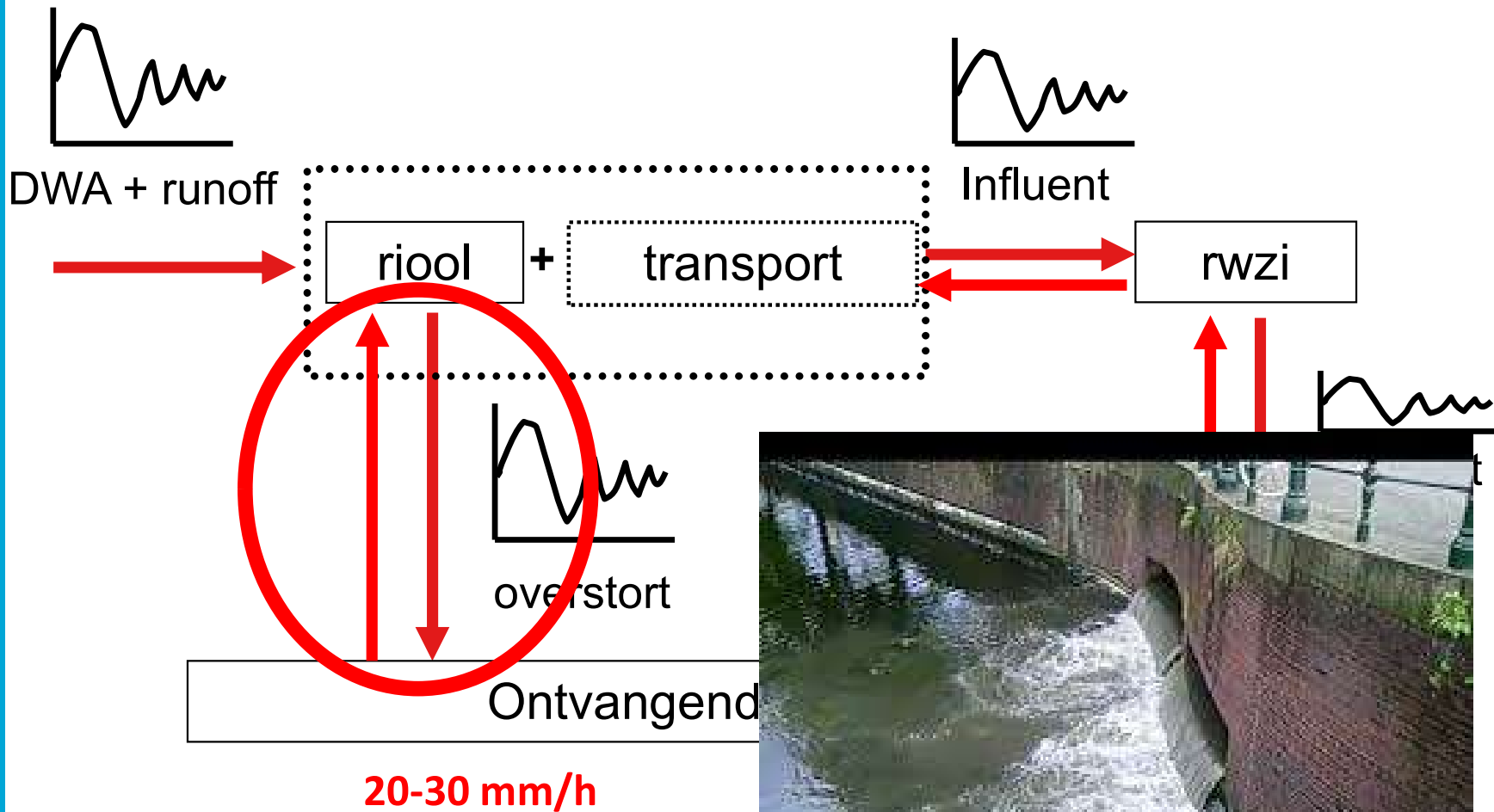
Dynamiek in afvalw



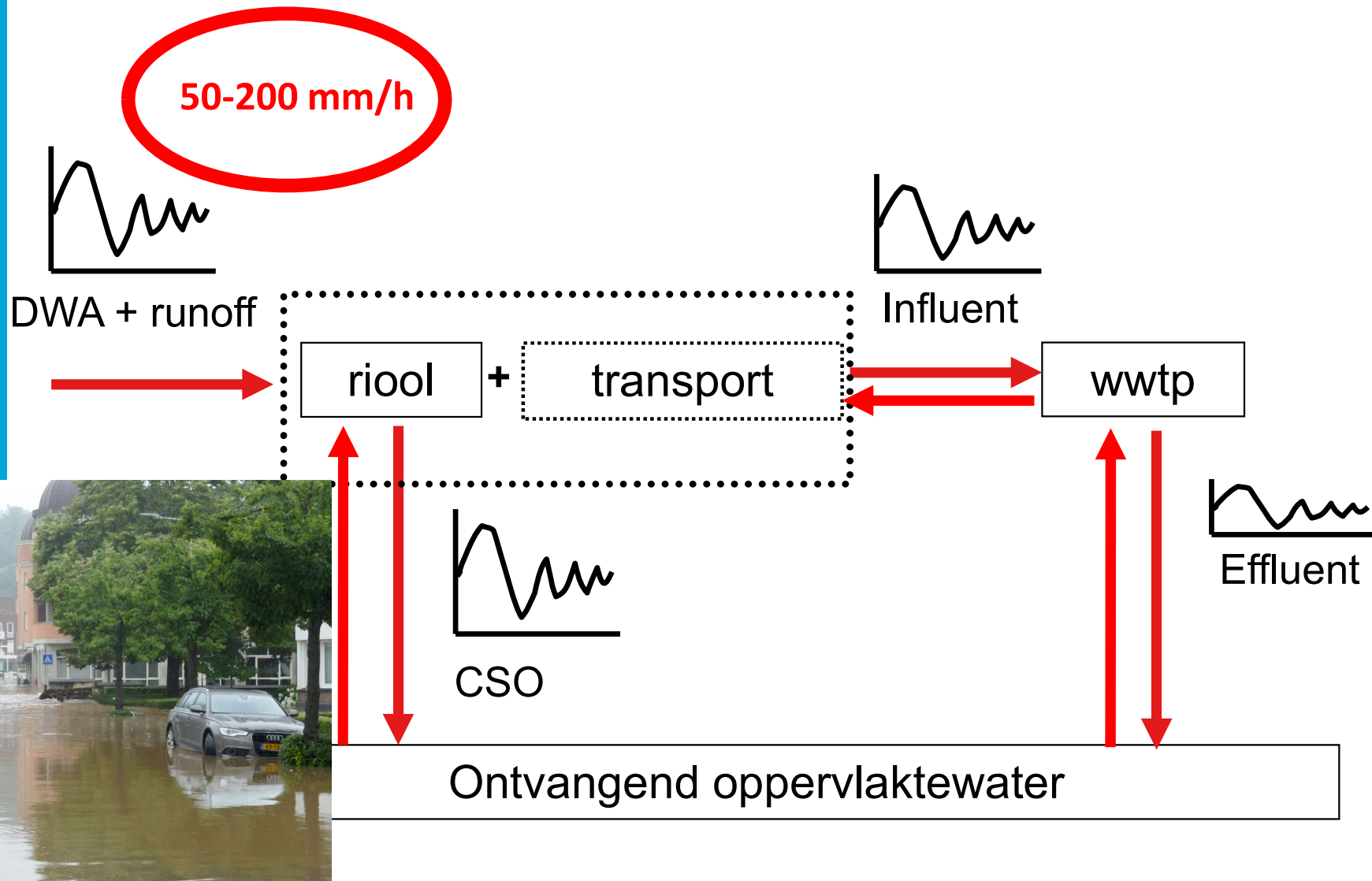
0,7 mm/h



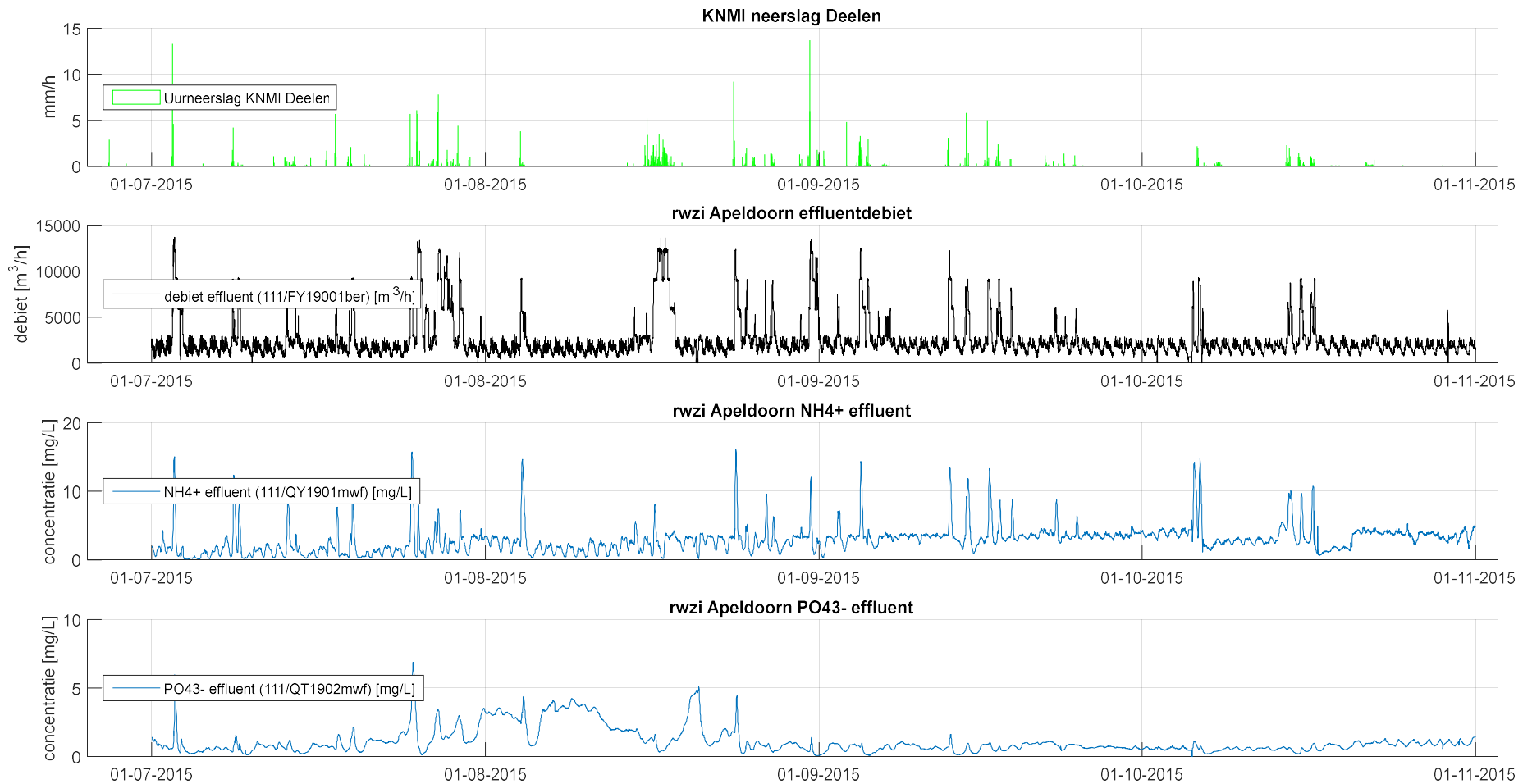
Dynamiek in afvalwaterketen



Dynamiek in afvalwaterketen

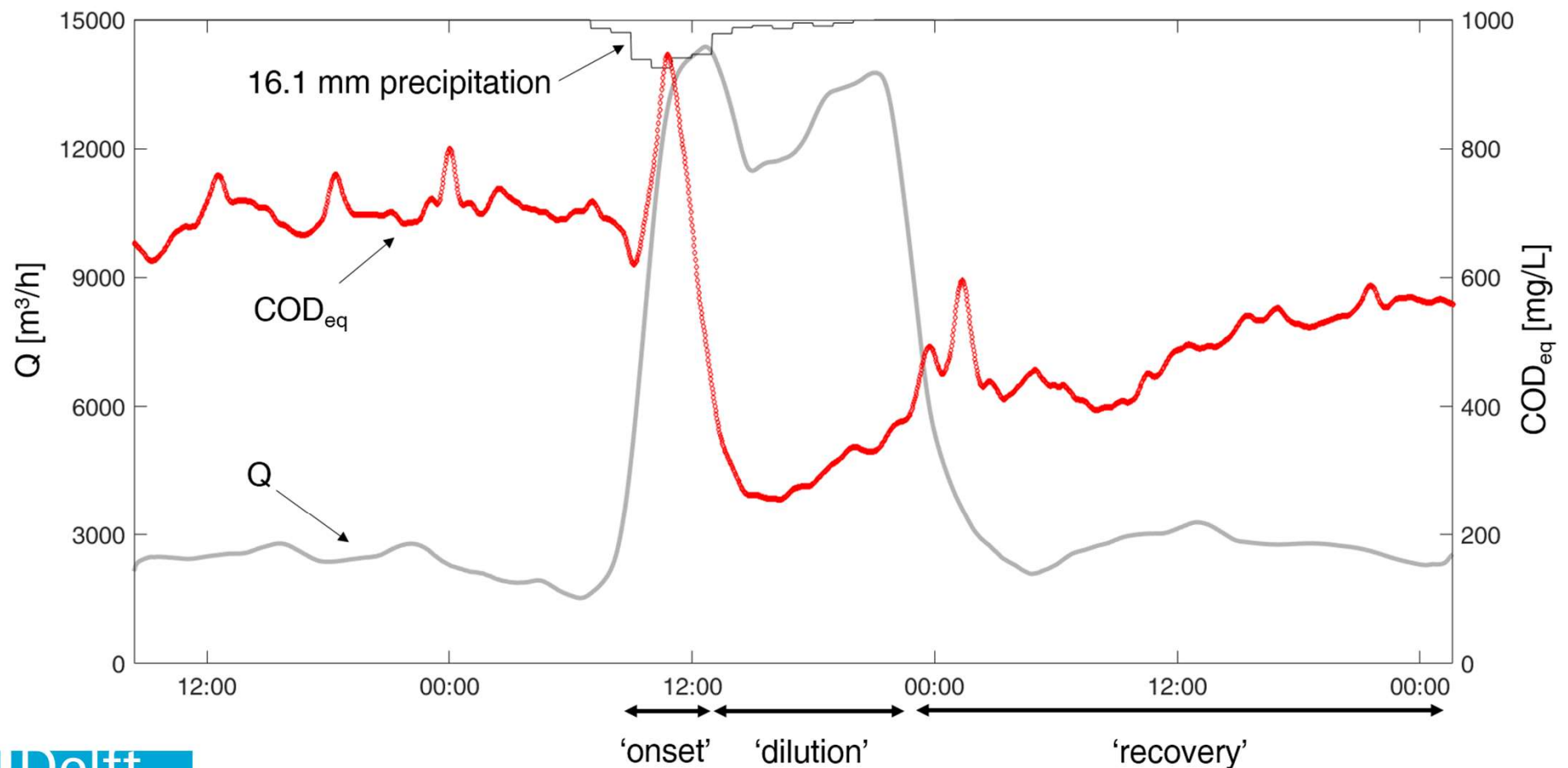


Dynamiek in de afvalwaterketen



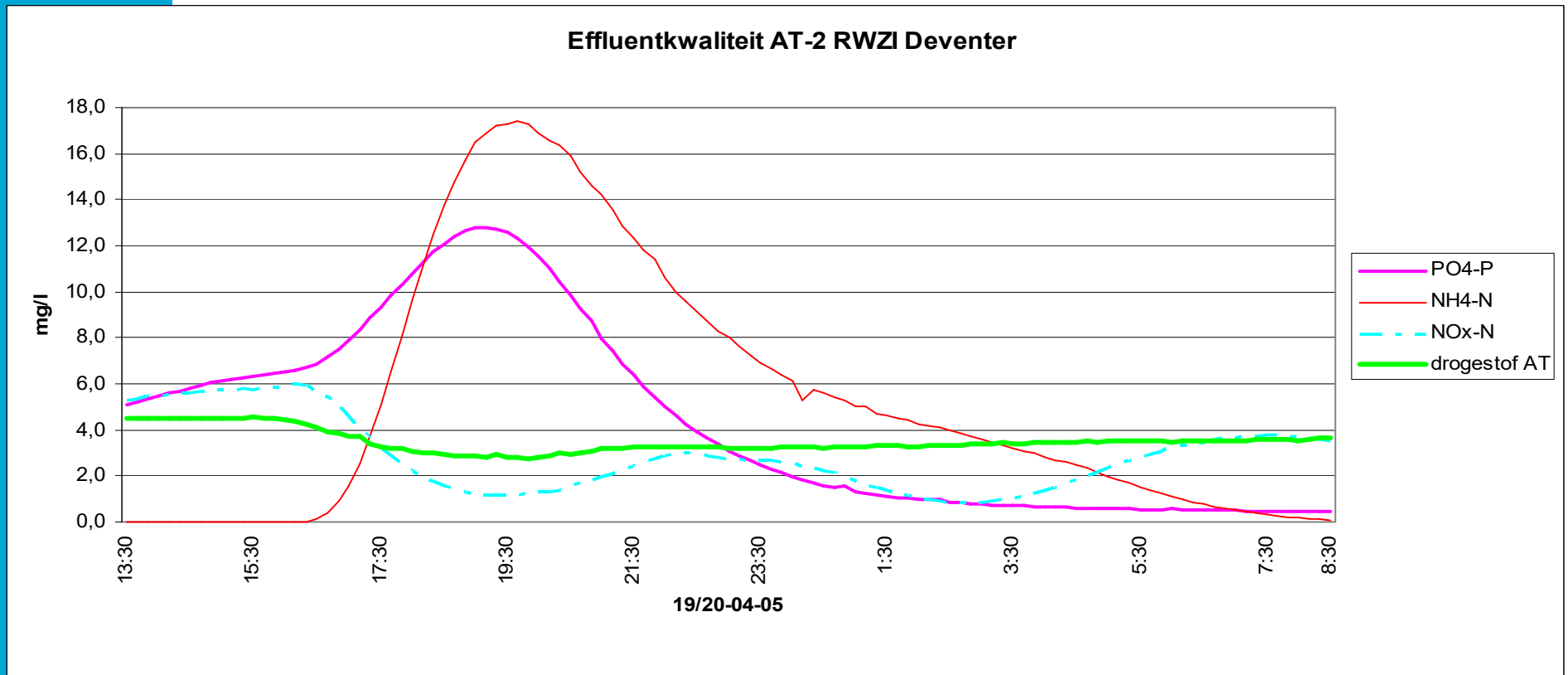
Dynamiek in de afvalwaterketen

- Influent tijdens bui



Dynamiek in de afvalwaterketen

- Effluent tijdens bui



Focus sturing



RWZI functioneren (75% van de tijd)



RWZI functioneren (ruim 20% van de tijd)



Beperken overstortingen (4-10 keer per jaar)



Beperken wateroverlast door alle hens aan dek (1 keer per jaar)

Wanneer sturen?

- Onbalans in systeemcapaciteiten
 - Eerlijk vergelijken

Wanneer sturen?

- Onbalans in systeemcapaciteiten
- Verschillen in concentraties

Parameter	Eenheid	VGS	Rwzi effluent	Overstort gemengd	Overstort gemengd + BBB
CZV	mg/l	35	37	180	96
N-totaal	mg/l	2,8	9	9,9	6
P-totaal	mg/l	0,6	2	2,3	1,3
Cu	µg/l	15	10	84	54
Zn	µg/l	110	50	298	213
PAK	µg/l	0,3	0,06	0,5	-

Wanneer sturen?

- Onbalans in systeemcapaciteiten
- Verschillen in concentraties
- Verschillen in kwetsbaarheid



STOWA rapport 2019-03

- Hulpmiddel selectie kansen
- <https://p4uw-stowa.shinyapps.io/stowa15/>

stowa

REK IN AFVALWATERSYSTEMEN:
HULPMIDDEL VOOR
VERKENNEN RUIMTE VOOR
OPTIMALISATIE

RAPPORT

2019
03



Waarom juist nu sturen?

To reduce pollution due to rain waters, MS will be required to establish and implement **integrated water management plans** in all large agglomerations and in those above 10.000 p.e. where there is a risk for the environment. Priority will be given to **preventive measures** including green infrastructures and to **optimisation** of the existing collecting, storage and treatment systems by better using digitalisation based on clearly defined standards and specifications.



Brussels, 26.10.2022
COM(2022) 541 final

2022/0345 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

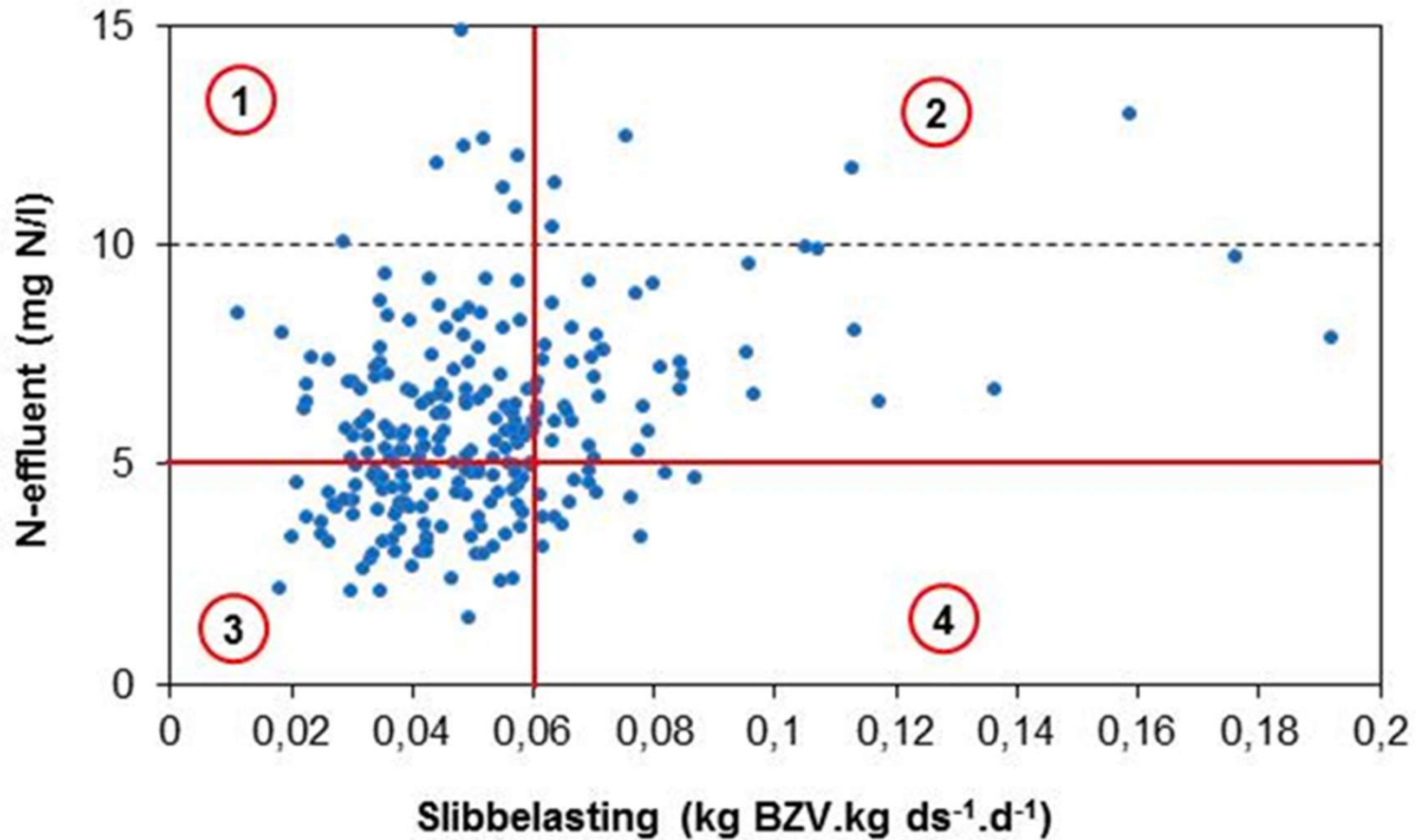
concerning urban wastewater treatment (recast)

(Text with EEA relevance)

{SEC(2022) 541} - {SWD(2022) 541, 544}

Parameters	Concentration	Minimum percentage of reduction ⁷ ⊠ (See Note 1) ⊠
Total phosphorus	2 mg/l (10000 — 100000 p.e.) → 2 mg/l (more than 100000 p.e.) ← 1 mg/l (more than 100000 p.e.) ⇒ 0,5 mg/L ⇔	80 ⇒ 90 ⇔
Total nitrogen ⁸	15 mg/l (10000 — 100000 p.e.) ⁹ 10 mg/l (more than 100000 p.e.) ¹⁰ ⇒ 6 mg/L ⇔	70-80 ⇒ 85 ⇔

$N_{\text{totaal}} < 6 \text{ mg N/l?}$



Aan de slag met sturen

- Wegnemen onbalans
- Prioriteren lozingsroutes & locaties
- Op zoek naar nieuwe 'balans' tussen riolering en rwzi:
 - Platslaan pieken
 - Q_{\max} rwzi herijken