

Use of Multi Criteria Analyses to facilitate decision making

Examples:

- Environmental audit
- Area's for retention
- Suitability for urban development

Arnout Heuven



Tauw

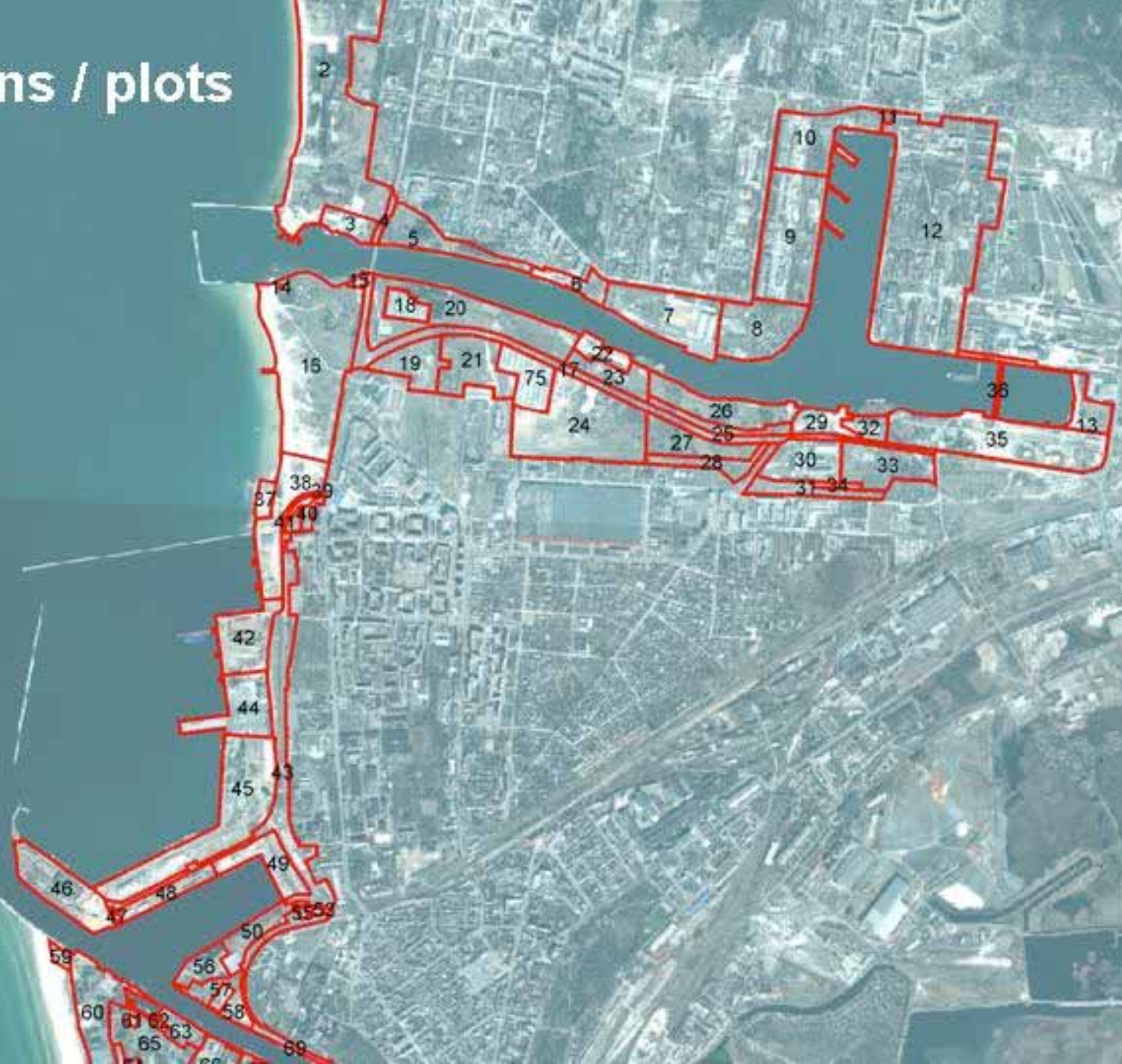
Sheet 1

HARBOUR AUDIT

Freebird Images



Locations / plots



Excel spreadsheet

Raw water and waste water	Storage of hazardous materials	Waste management	Air emissions	PCB's	Asbestos	Noise, vibrations, odour and other physical factors	Radioactive materials	Contaminated groundwater & land	Emergency preparedness	Ozon depleting substances	Assessment	Total Score (sum)
0	0	0	0	0	8	0	0	9	0	0	Tauw	17
0	0	0	0	0	8	0	0	9	0	0	Tauw	17
0	0	0	0	0	0	0	0	0	0	0	Out	0
0	0	0	0	0	0	0	0	0	0	0	SSPA	0
14	0	0	0	0	8	0	0	9	0	0	Tauw	31
14	0	0	0	0	8	0	0	9	0	0	Tauw	31
0	0	0	9	0	10	0	0	0	0	0	Tauw	19
0	0	0	0	0	9	0	0	10	0	0	Tauw	19
0	11	0	0	0	9	0	0	10	0	0	Tauw	30
0	0	9	0	0	9	0	0	11	0	0	Tauw	29
0	0	0	0	0	9	0	0	0	0	0	Tauw	9
14	9	10	10	0	10	0	0	10	11	0	Tauw	74

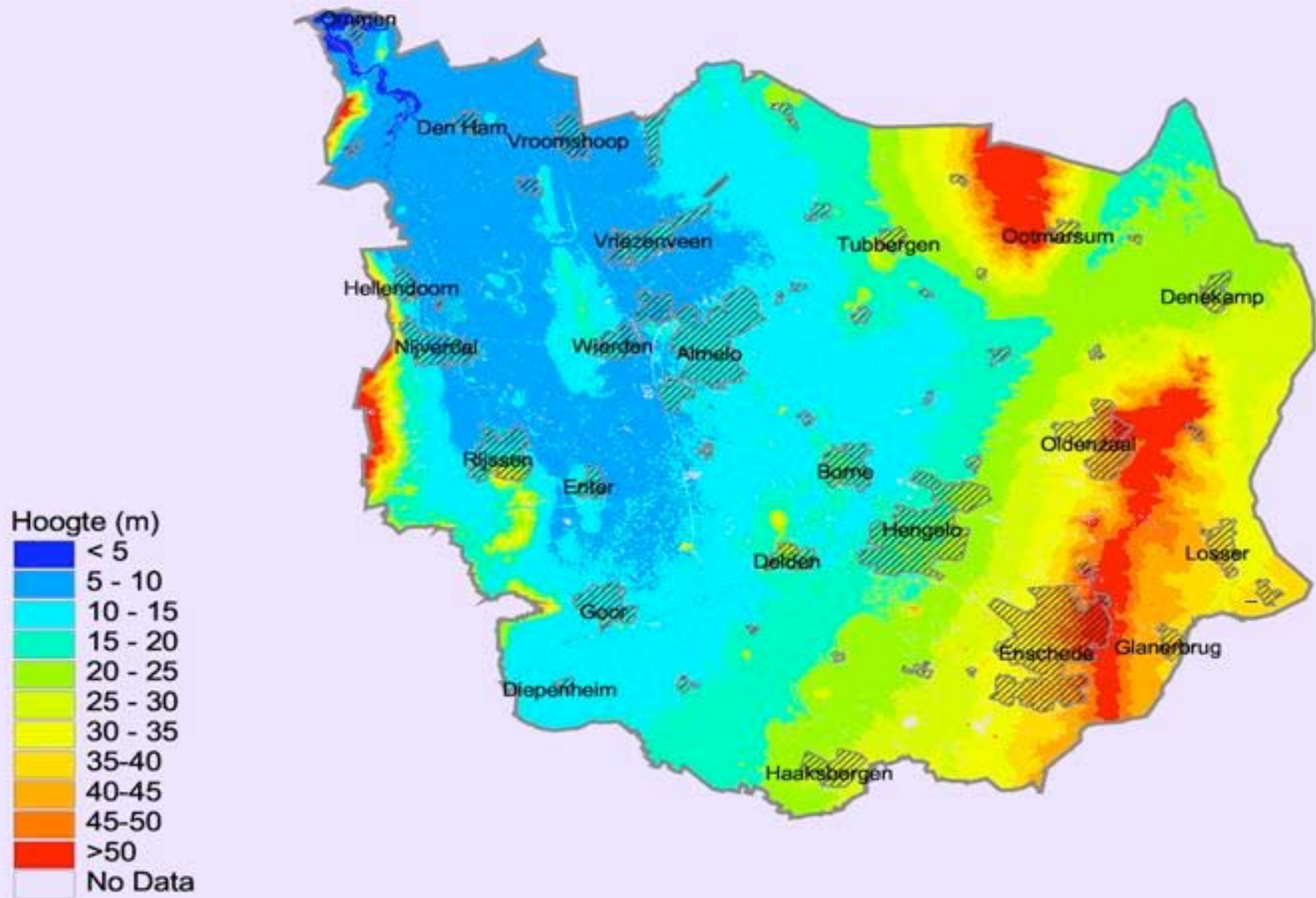
Presentation



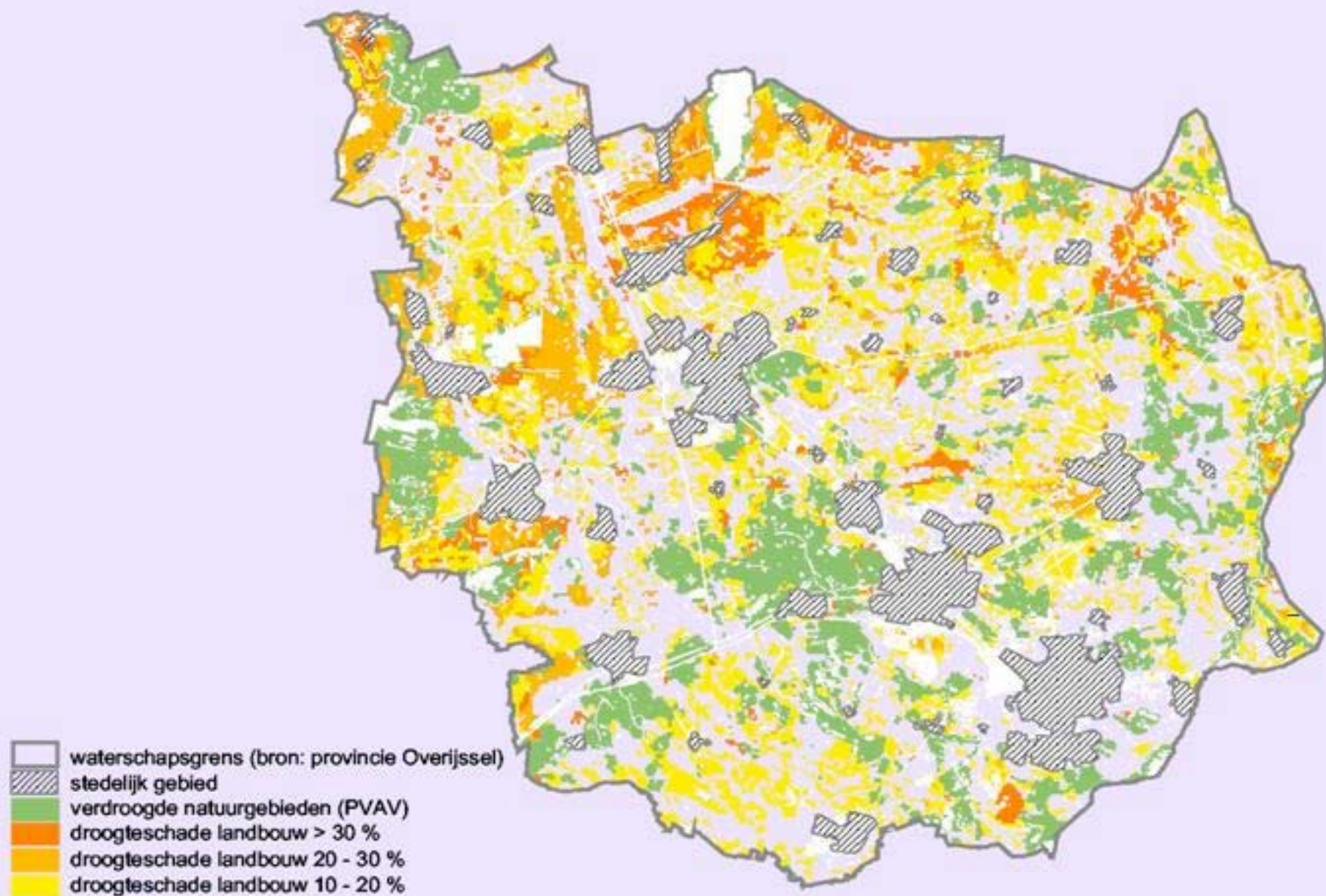
Area's for retention



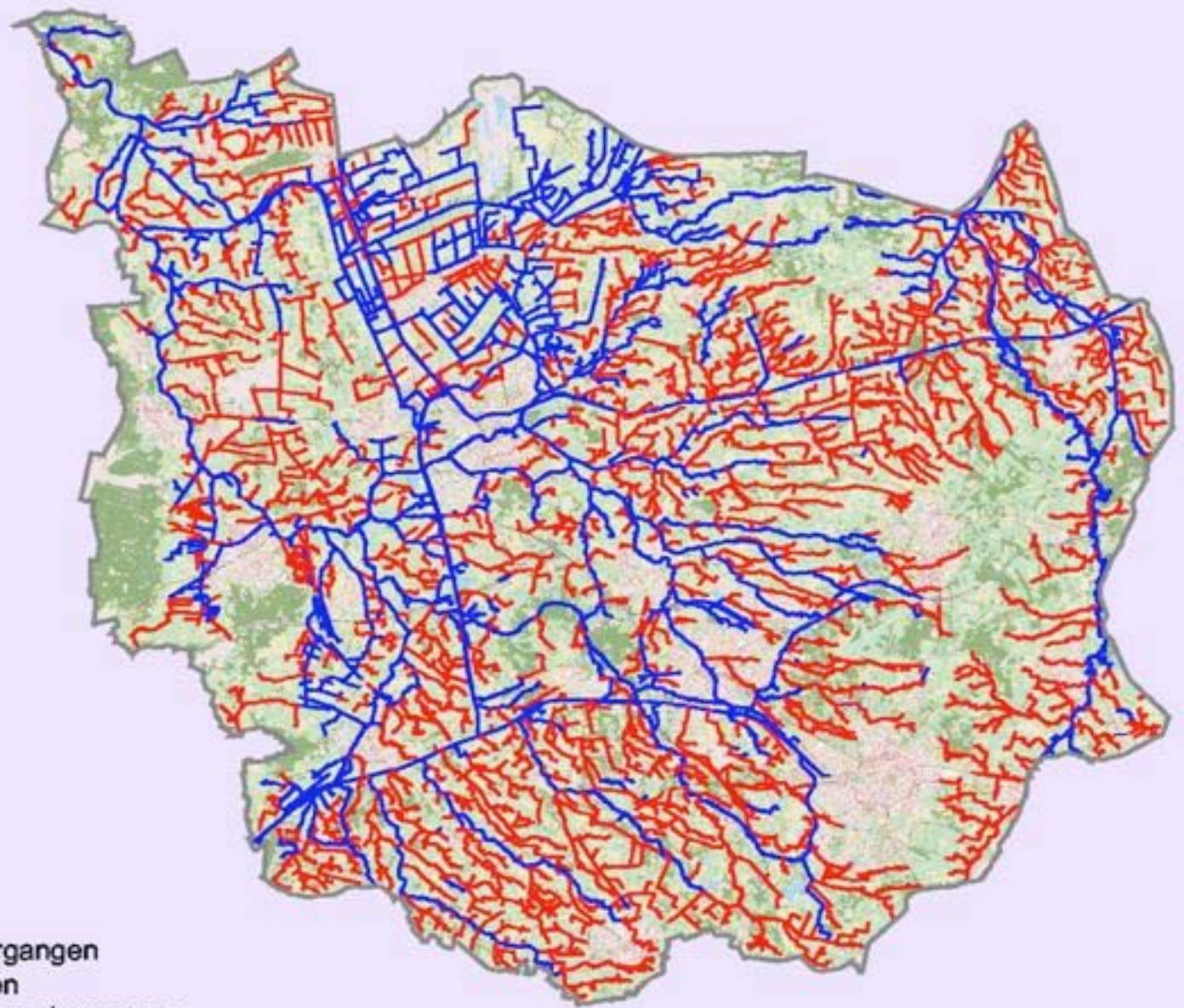
Digital Elevation Model






Agricultural and natural land suffering dryness

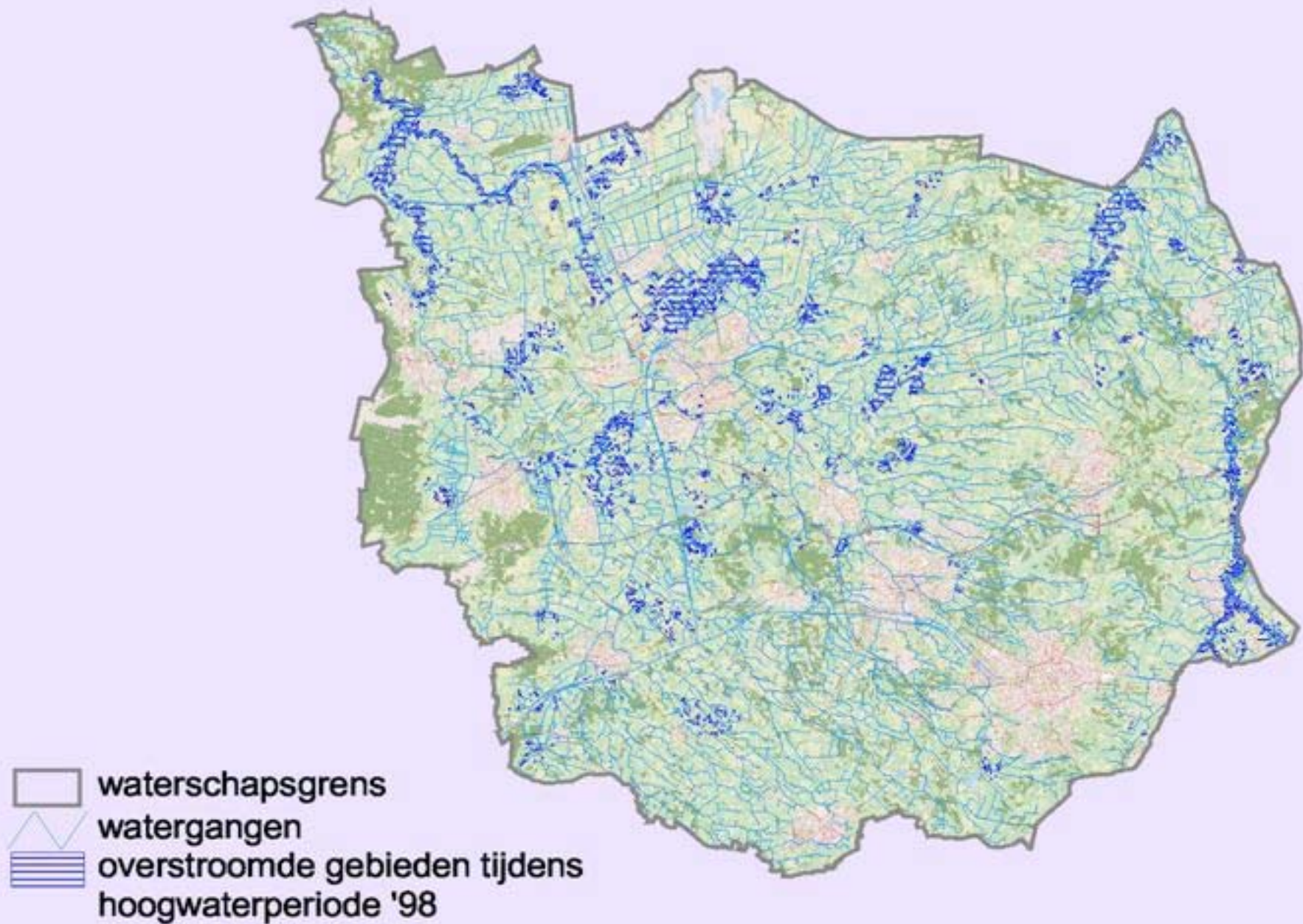


Non-permanent waterways and streams

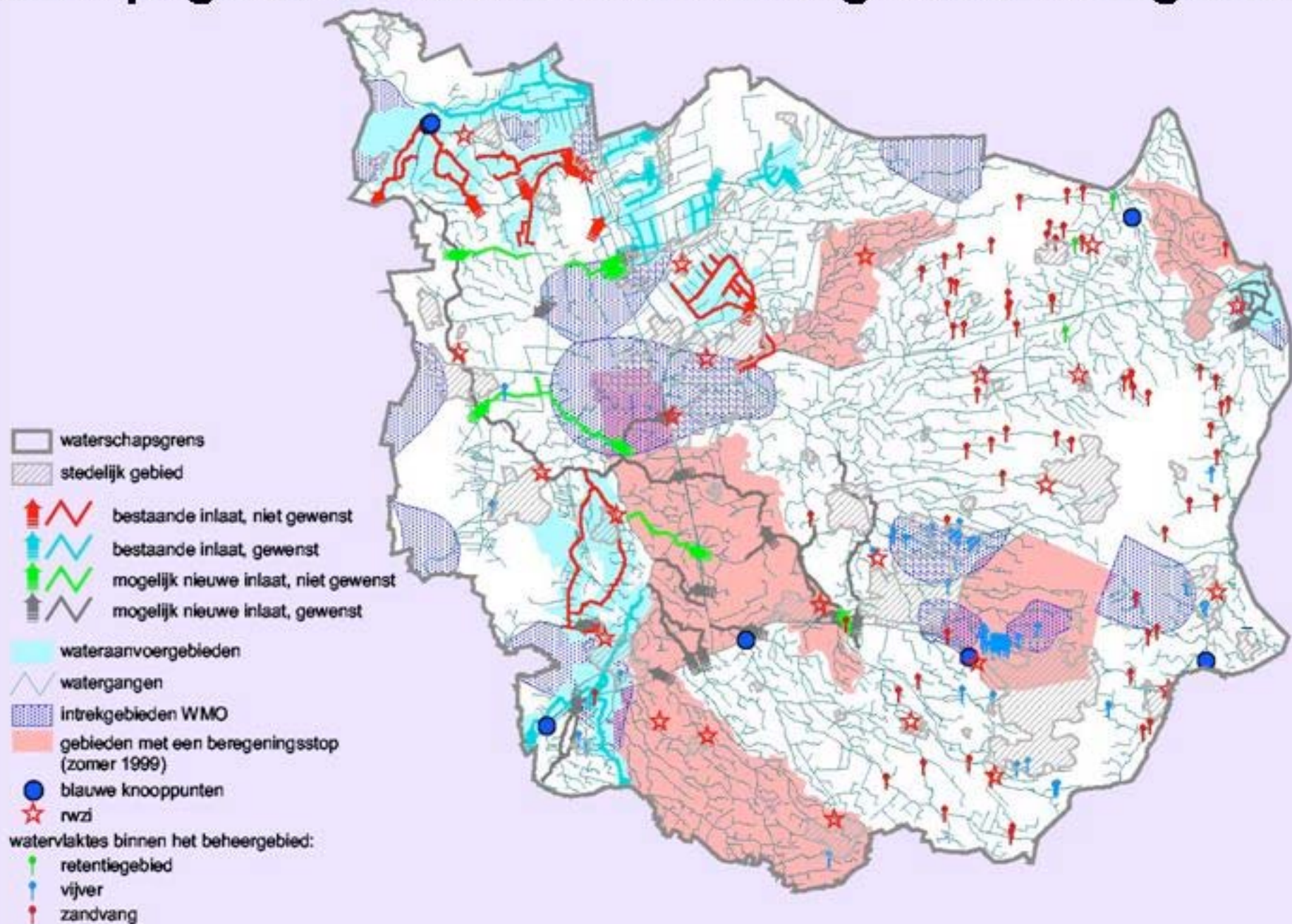


-  waterschapsgrens
-  droogvallende watergangen
-  niet droogvallende en niet op peil blijvende watergangen

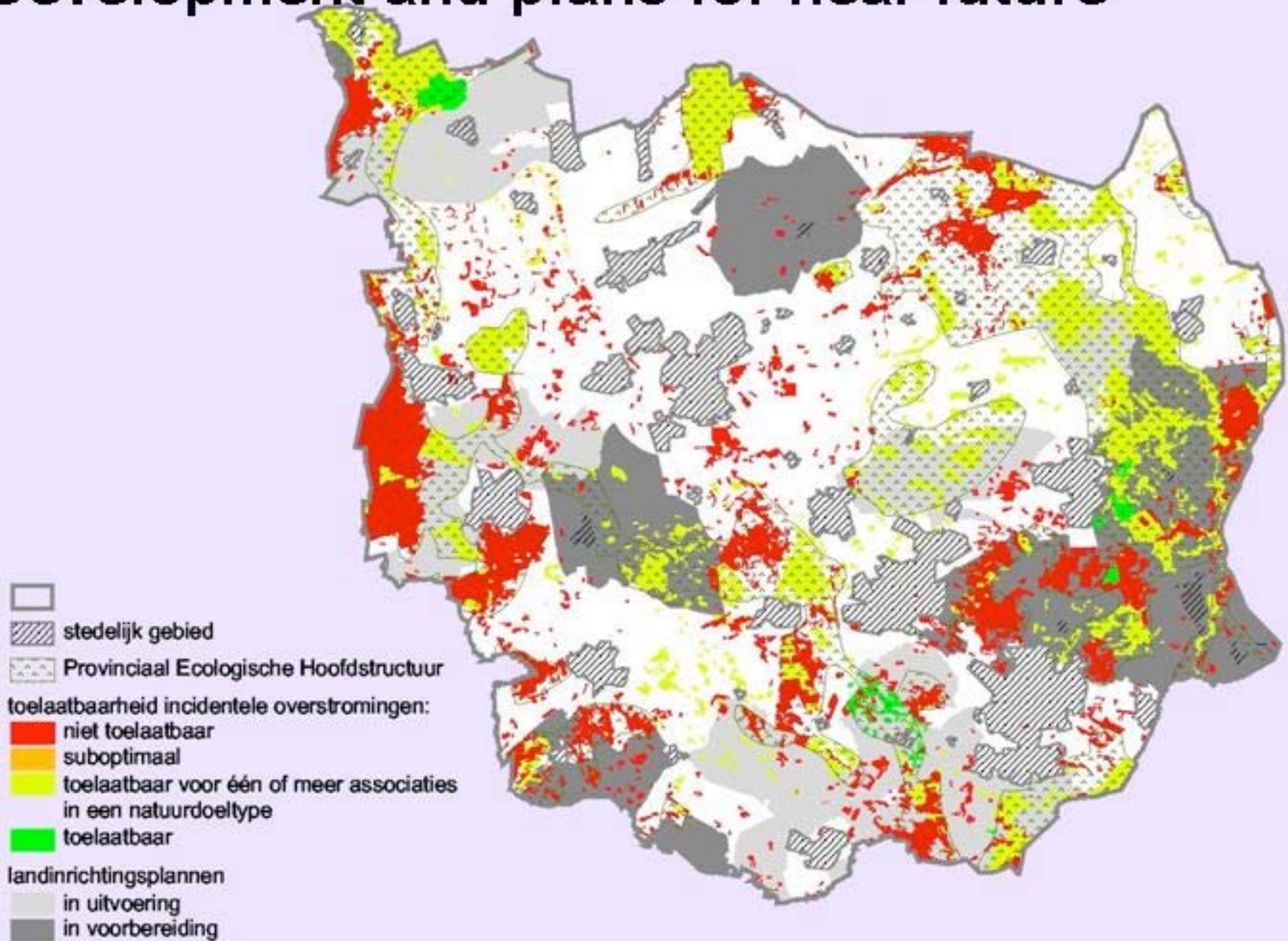
Inundated area's



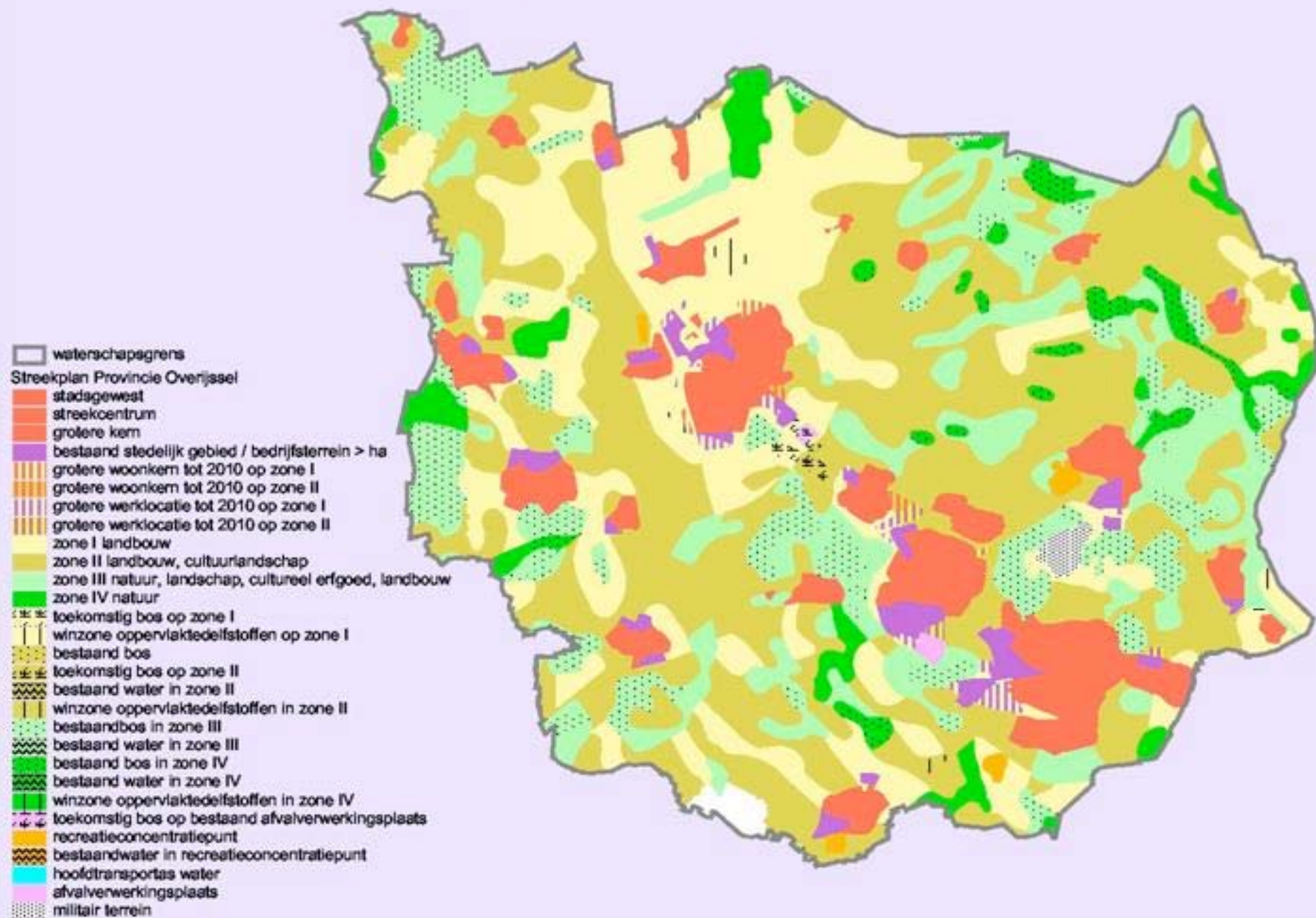
Antropogeenic influences concerning watermanagement



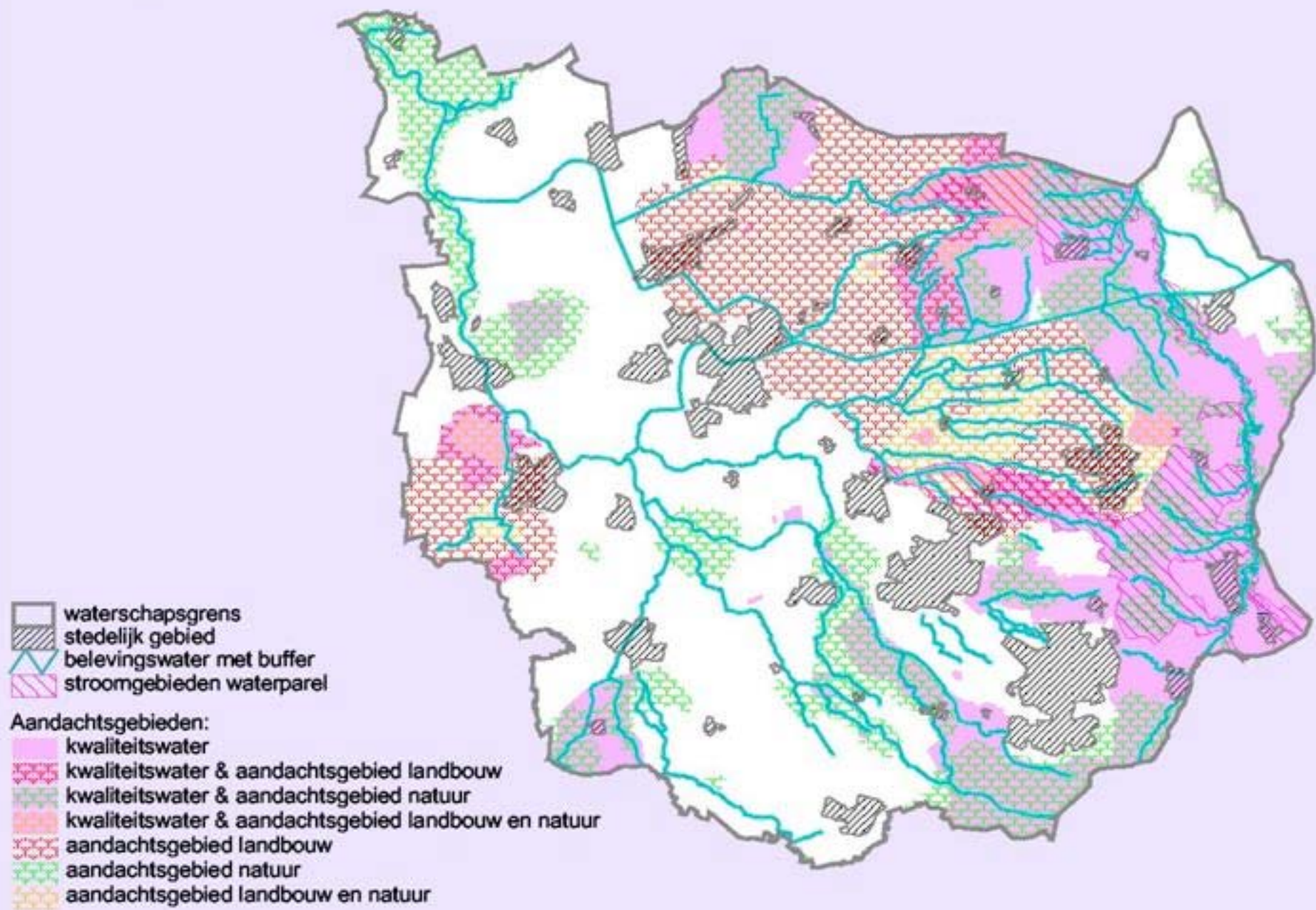
Development and plans for near future



Actual territory policy



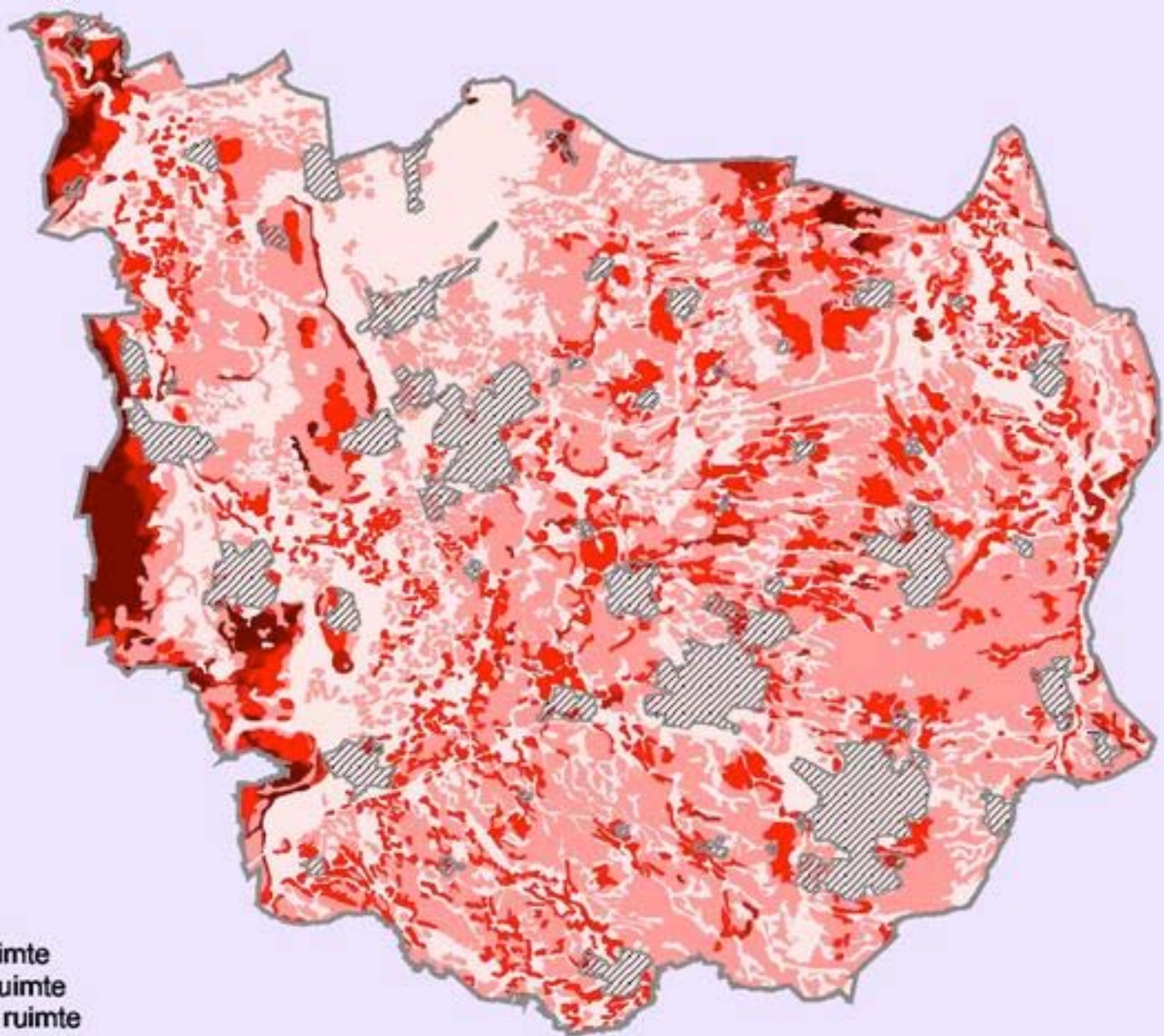
Ecological potential and measures



- waterschapsgrens
- stedelijk gebied
- belevingswater met buffer
- stroomgebieden waterparel

- Aandachtsgebieden:
- kwaliteitswater
 - kwaliteitswater & aandachtsgebied landbouw
 - kwaliteitswater & aandachtsgebied natuur
 - kwaliteitswater & aandachtsgebied landbouw en natuur
 - aandachtsgebied landbouw
 - aandachtsgebied natuur
 - aandachtsgebied landbouw en natuur

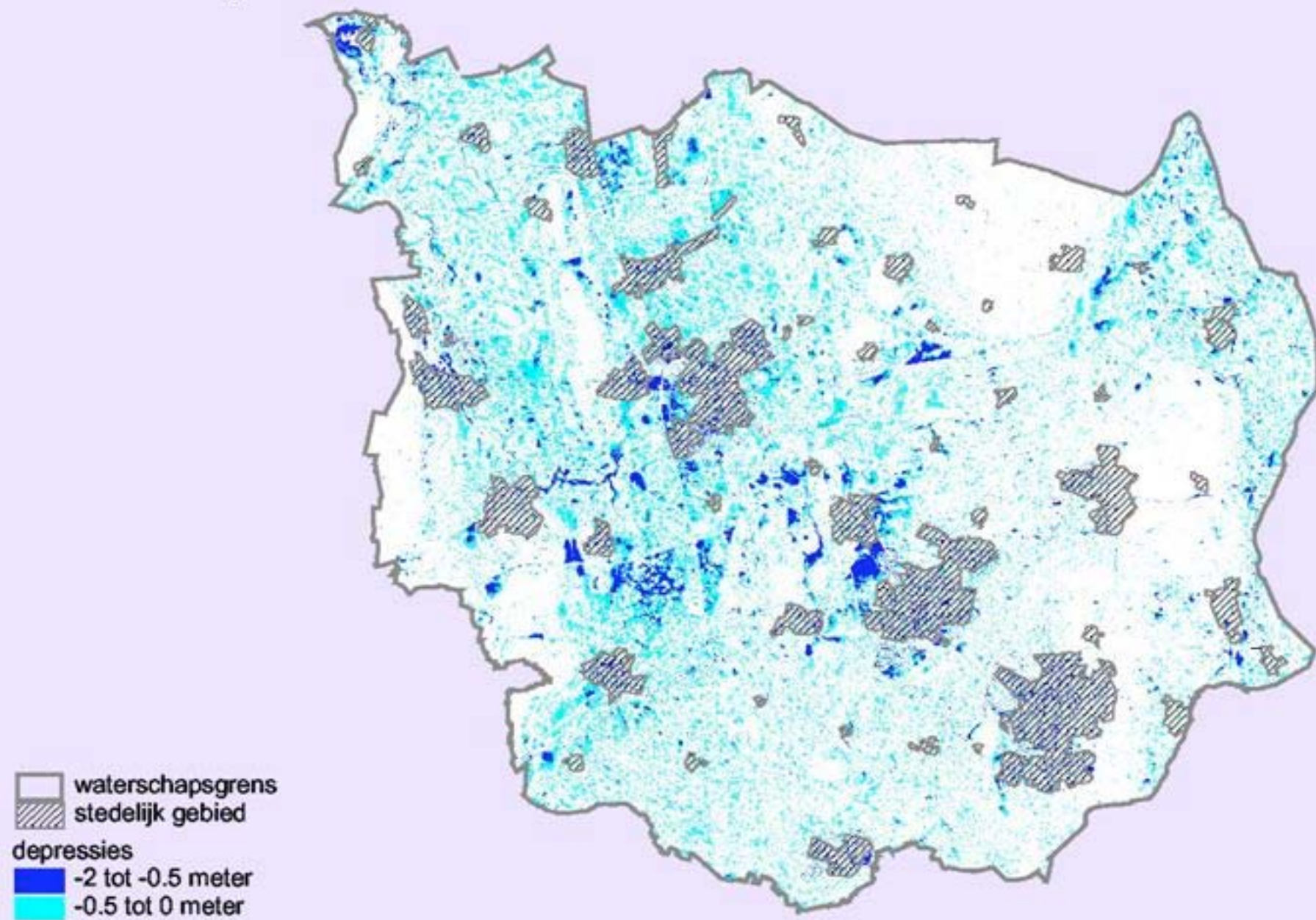
Availability for groundwater retention



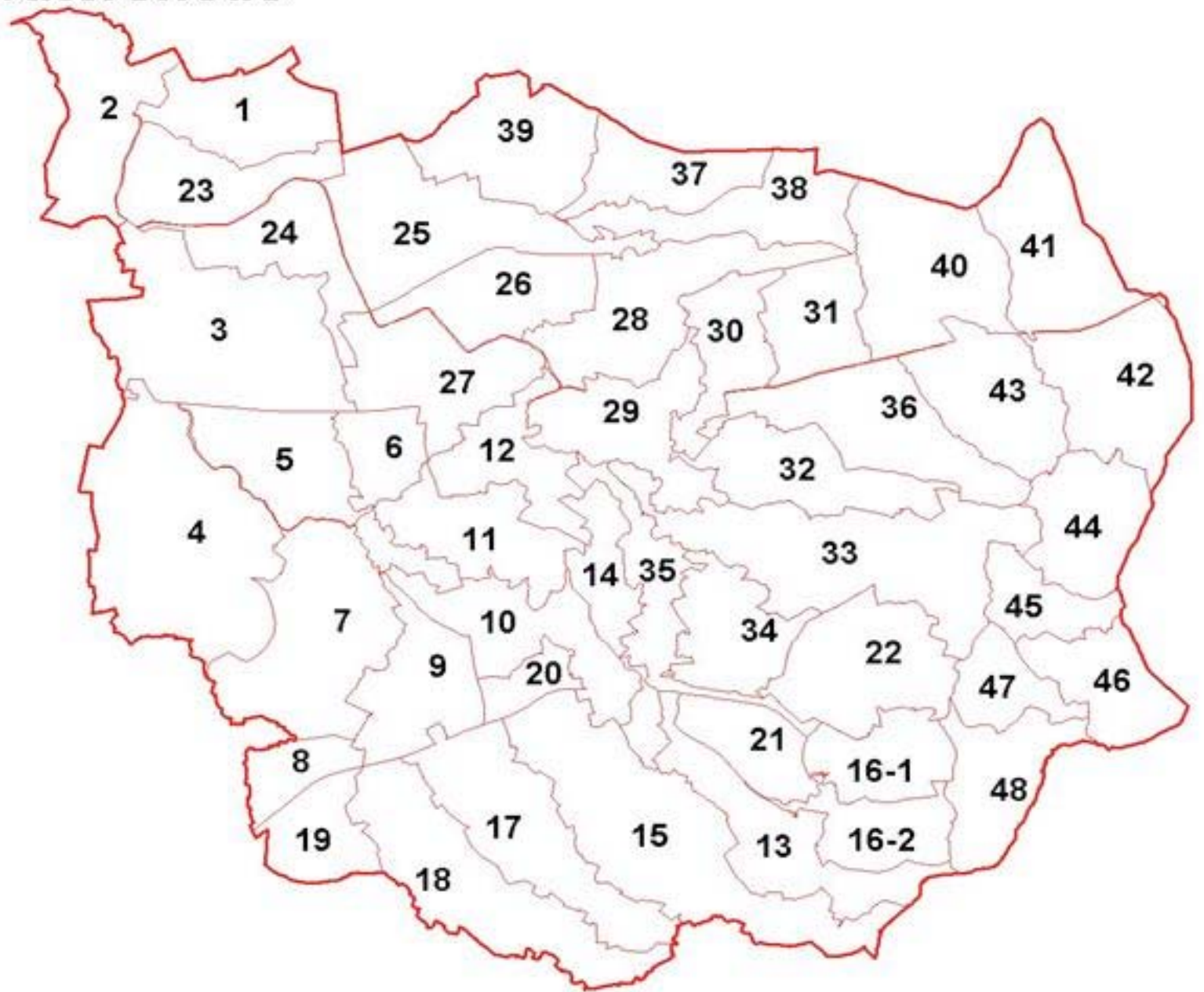
waterschapsgrens
stedelijk gebied

Bodemruimte
geen ruimte
0 - 5 cm effectieve ruimte
5 - 10 cm effectieve ruimte
10 - 20 cm effectieve ruimte
20 - 30 cm effectieve ruimte

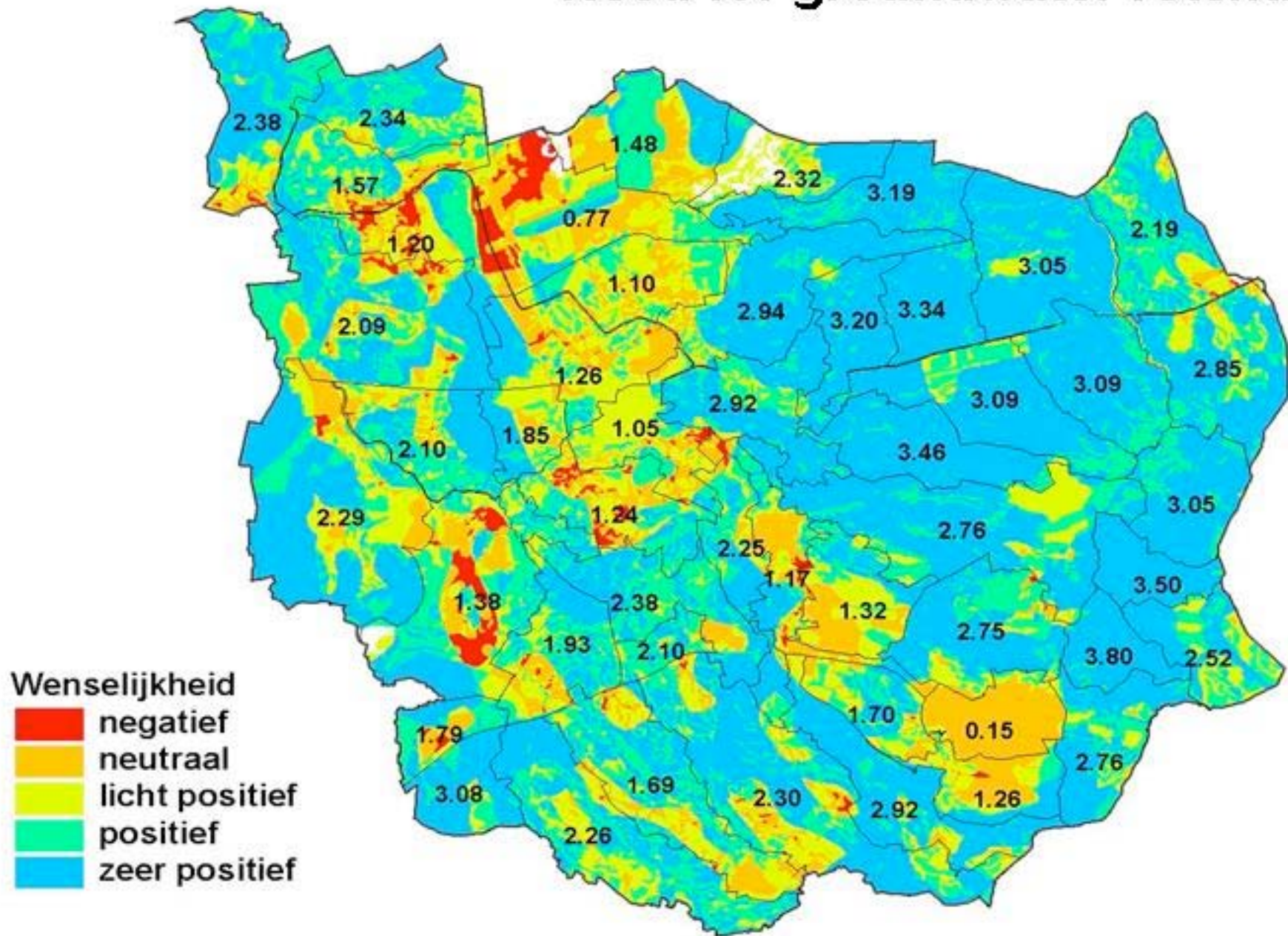
Natural 'depressions' or sinks



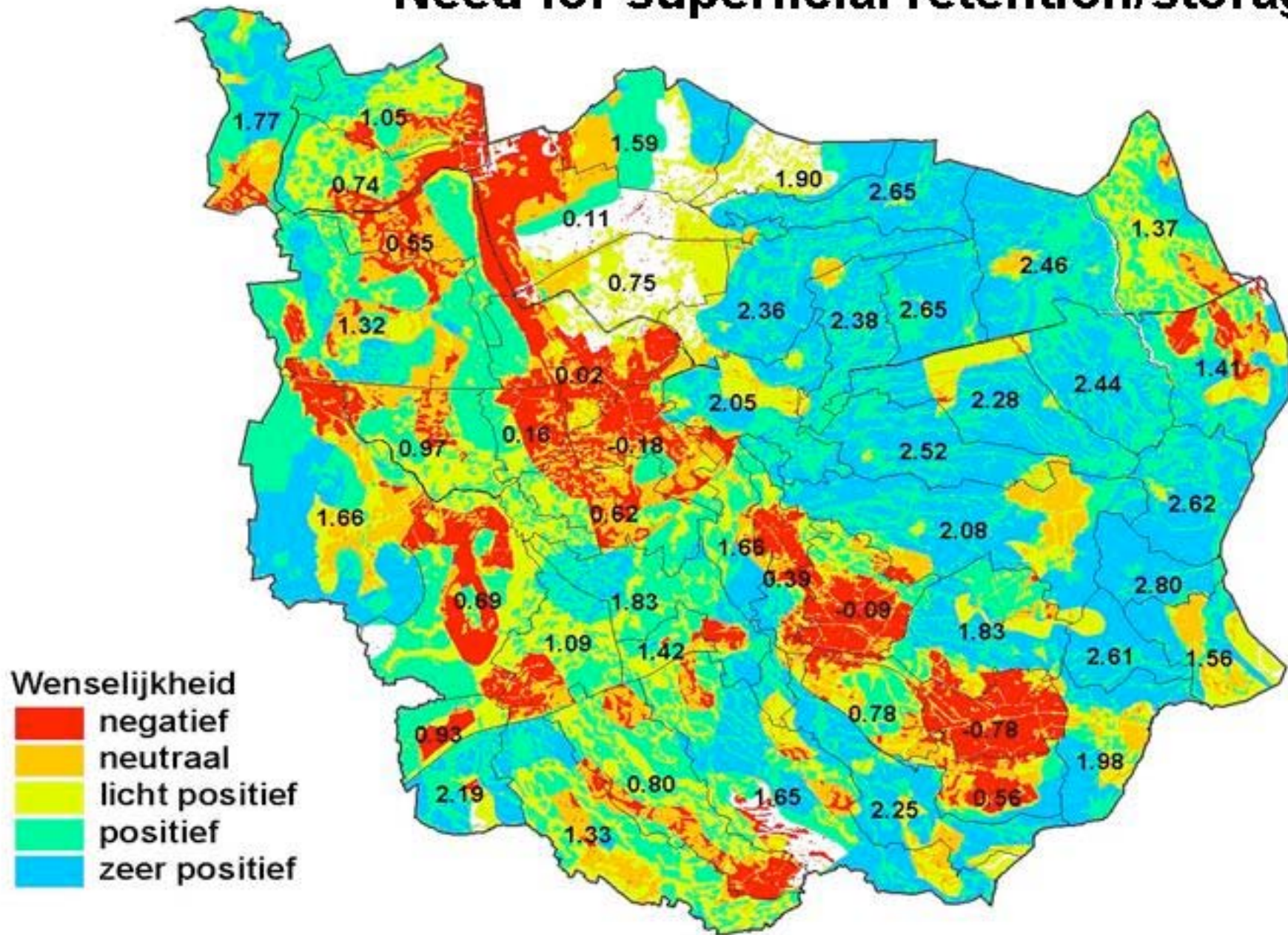
Small watersheds



Need for groundwater retention

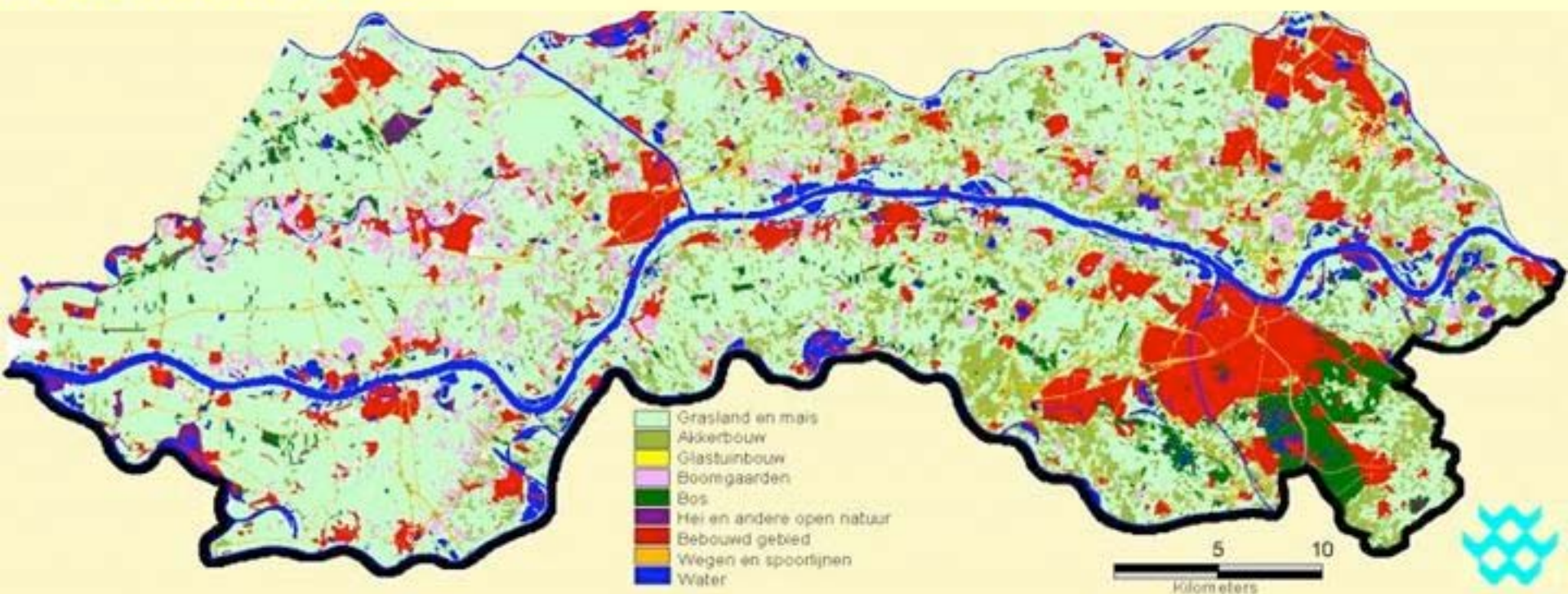


Need for superficial retention/storage



Suitability (based on the watersystem) for urban development

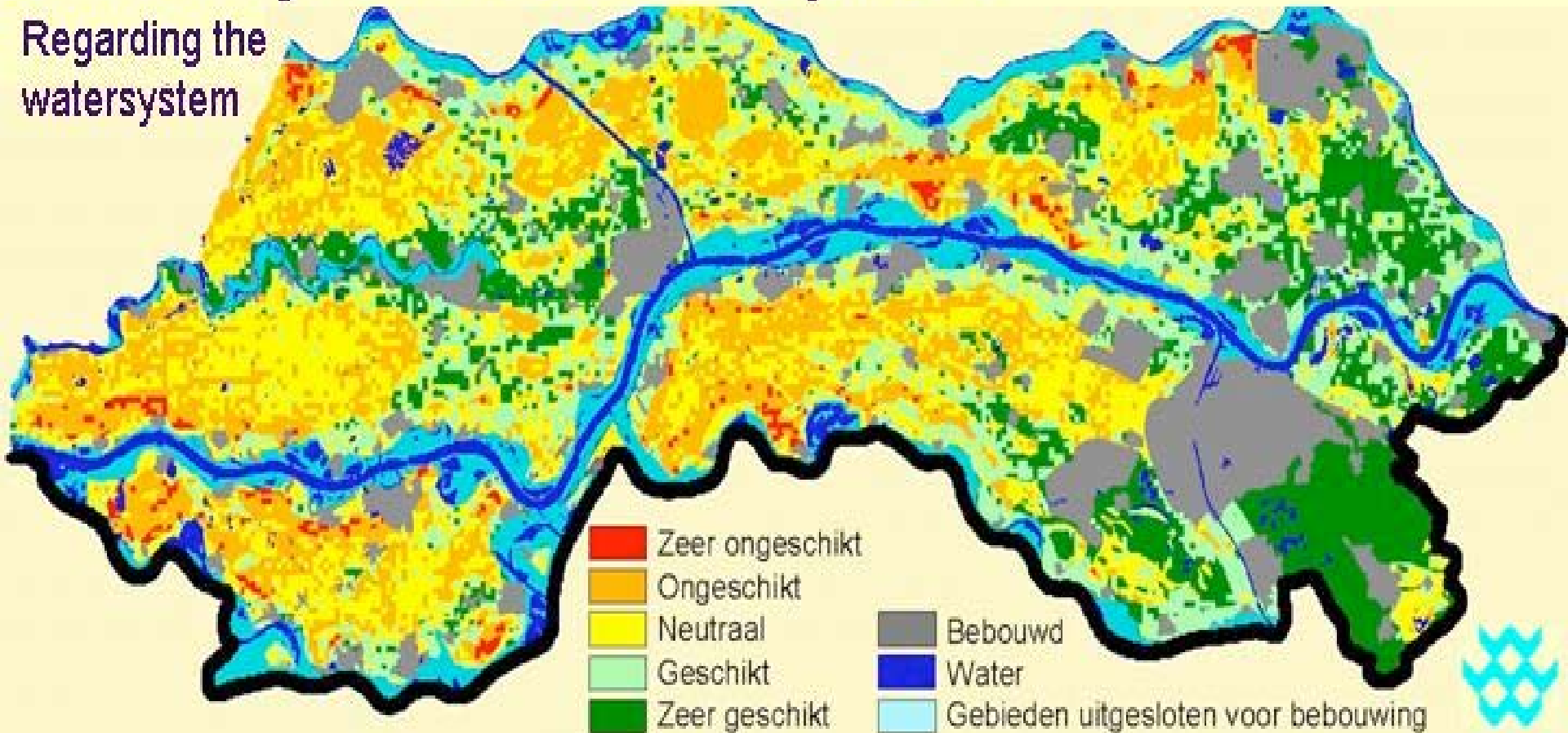
Digital Elevation Model
Surface water level in polders
Drainage system
Effect of high water level in main streams
Groundwater depth
Seepage
Geology: depth of pleistocene sand
Sinks
Actual landuse



MULTI CRITERIA ANALYSES

Suitability for urban development

Regarding the
watersystem



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