

Designing climate proof urban districts

Presentation for Deltas in Times of Climate Change 2010

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Presentation

- What are climate proof urban areas
- Climate design tool
- Test of tool in pilot



'Climate proof' in area development

- Climate proof' district is broad concept with different interpretations
- there is no single interpretation what 'climate proof' means in area development
- To help stakeholders IVAM and Witteveen + Bos are developing the Climate assessment tool DPL for area development
- The project is commissioned by the province of Limburg and the ministry of VROM
- The tool offers a language and an assessment method

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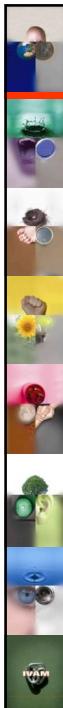


Aim of the Climate assessment tool DPL

- develop a common language for communication about climate effects in area development:
- thereby creating a language for dialogue between stakeholders
- the tool assesses in a clear and transparent way the climate proof performance of areas
- The tool helps to design climate proof districts adapted to climate effects and with limited CO2 emissions

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Target group of the tool

Stakeholders in the area development process

- Municipalities: various departments and politicians
- Private organisations: project developers, buildings companies, investors
- Citizens
- Provinces

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Structure of Climate assessment tool DPL

- Determination of performance with 9 indicators,
- Balance between science and practise
- Result is the climate proof profile of the area : score 0 is very bad, score 10 is very good
- Compares pilot areas with reference areas
- Reference areas represent the '6' scores at school (pass score):
- reference areas just comply with regulations without special attention for climate change

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Indicators for the assessment

- Energy consumption buildings and public lighting
- Car ownership
- Renewable energy generation

- Rainwater catchment in the area
- Rainwater delayed runoff
- Rainwater runoff to sewer system
- Flood risk
- Drought control
- Heat stress
- Climate resilient ecology

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Climate assessment tool DPL

Duurzaamheidsprofiel van een locatie - Klimaatmodule

Versie 2.0

Algemene invoer

Naam wijk of plan: Bestaande wijk Plan Plan

Aantal inwoners: 20 100 ha

Kies referentiewijk: Woonwijk, laagbouw, rond 2008



Aspectscores

	1	2	3	4	5	6	7	8	9	10	Totaal	groot	Thema
1: Energieverbruik gebouwen en verlichting	1	2	3	4	5	6	7	8	9	10	6	6	10
2: Ondersteuning duurzame energie	1	2	3	4	5	6	7	8	9	10	6	6	10
3: Vasthouden regenwater	1	2	3	4	5	6	7	8	9	10	6	6	10
4: Vasthouden regenwater	1	2	3	4	5	6	7	8	9	10	6	6	10
5: Afvoeren restant regenwater naar riool	1	2	3	4	5	6	7	8	9	10	6	6	10
6: Ondersteuning winter	1	2	3	4	5	6	7	8	9	10	6	6	10
7: Overstromingsgevaar (rivieren)	1	2	3	4	5	6	7	8	9	10	6	6	10
8: Droogtebestrijding	1	2	3	4	5	6	7	8	9	10	6	6	10
9: Hittestress	1	2	3	4	5	6	7	8	9	10	6	6	10
10: Klimaatrobuste ecologie	1	2	3	4	5	6	7	8	9	10	6	6	10

Navigatie

- Algemeen
- CO2 (milieutekst)
- 1: Energieverbruik gebouwen en verlichting
 - 2: Autobezit
 - 3: Ondersteuning duurzame energie
- Heftiger piekbuien
 - 4: Vasthouden regenwater
 - 5: Vasthouden regenwater
 - 6: Afvoeren restant regenwater naar riool
- Toename neerdaag winter
 - 7: Overstromingsgevaar (rivieren)
- Droogte
 - 8: Droogtebestrijding
- Stijging temperatuur
 - 9: Hittestress
 - 10: Klimaatrobuste ecologie

Invoer

Inlezen Bewaren Verwijderen Toevoegen Print invoer ?

Weergaarde

Waarde	Aantal
0: Ruimtegebruik	1
1: Energieverbruik gebouwen en verlichting	1
2: Autobezit	1
3: Ondersteuning duurzame energie	1
4: Vasthouden regenwater	1
5: Vasthouden regenwater	1
6: Afvoeren restant regenwater naar riool	1
7: Overstromingsgevaar (rivieren)	1
8: Droogtebestrijding	1
9: Hittestress	1
10: Klimaatrobuste ecologie	1

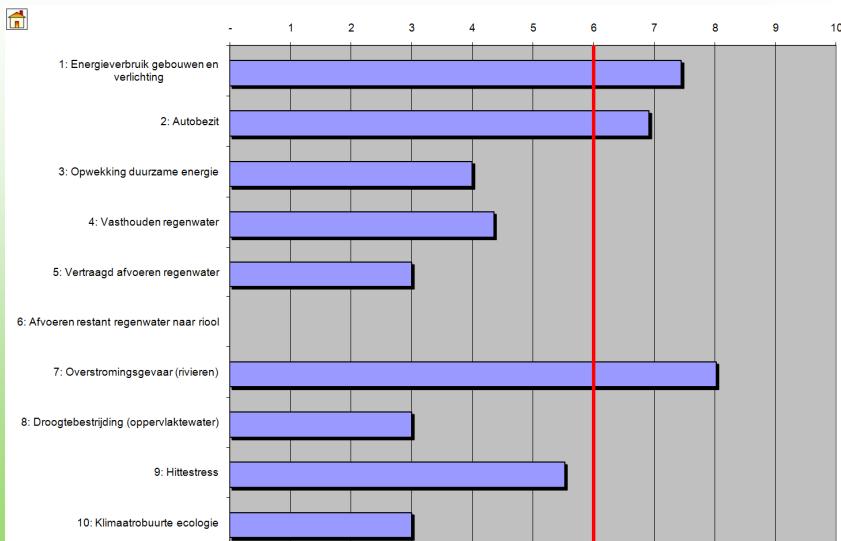
Pilot test in Maastricht, Netherlands



- District Mariaberg
- Existing neighbourhood build in 1950-1960
- 55 hectare
- 2200 houses



Climate profile of Mariaberg – Maastricht



	<h2>Energy consumption for buildings and public lighting</h2>
	<ul style="list-style-type: none"> ■ Mariaberg in Maastricht: ■ Most houses: B label ■ Public lighting: 350 kWh per streetlight per year
	<ul style="list-style-type: none"> ■ Reference for existing area: ± label D ■ Reference for public lighting: 250 kWh, 10 streetlights per hectare.
	<div style="background-color: #ffffcc; padding: 5px; text-align: center;"> Score houses: 7,4 Score public lighting: 4,2 </div>

	<h2>Car Ownership</h2>
	<p>Two indicators for car ownership:</p>
	<ul style="list-style-type: none"> ■ Indicator 1: number of cars in the area: 1435 per 2223 dwellings (0,65 per dwelling) ■ Marieberg -> score 7,4
	<ul style="list-style-type: none"> ■ Indicator 2: on the basis of physical characteristics of the district: distance to the railway station, floor space index and number of parking lots
	<ul style="list-style-type: none"> ■ Mariaberg Maastricht -> score 6,9

Renewable energy generation

- Indicator: percentage renewable energy for houses and public lighting

Mariaberg Maastricht:

- No generation of renewable energy in the district
-> score 4

Rainwater catchment

- Indicator: the percentage of the rainwater which is released in the ground and not to the sewer system

- Mariaberg Maastricht

- Much paving
- Relatively scarce public green space

- score: 4,4



Sewer system

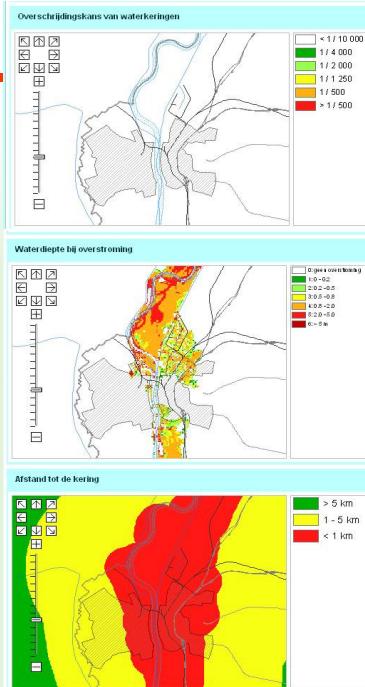
- Percentage of the area with double sewer system in which rainwater is separately released from the polluted water

Mariaberg Maastricht:

- Single sewer system: score 3.

Flood risk

- Data from Dutch Klimaatatlas
- Mariaberg Maastricht:
- River Maas
 - Flood risk
-> best category
 - Water depth
-> best category
 - Distance to the dam
-> < 1 km van Maas
- Score 8





Drought control

- Mariaberg Maastricht : no seasonal water storage capacity

Score: 3,0

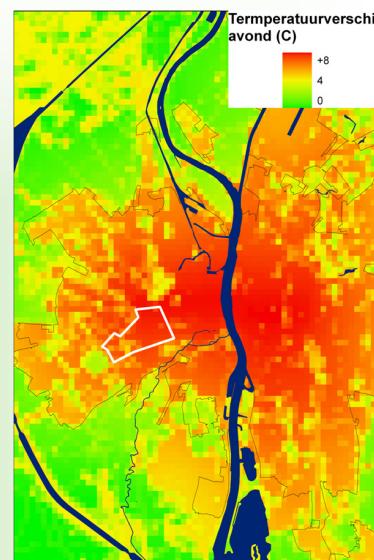


Heat stress

- Indicator based on three physical characteristics
 - urban area
 - Floor space index in district
 - Percentage green area in district

Geschat temperatuurverschil met buitengebied in de avonduren	
Percentage bebouwd binnen een straal van 3 km rond het	54%
Bebouwingsdichtheid (FSI) (aspect 0)	0,40
Percentage groen in de wijk (aspect 0)	0,111927
ΔT	5,4
	0,18

- Maastricht:
 - $\Delta T = 5,4$
 - Score: 5,5



Climate resilient ecology

- The Mariaberg district has no connections to nature areas around Maastricht

Score: 3,0

Climate proof profile of Mariaberg – Maastricht

