

Sun wind water earth life living legends for design

AR1U130 Sustainable UrbanEngineering Territory (design)

AR0112 Civil engineering for dummies (calculations)

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Ir. D. de Bruin

Drs. M.J. Moens

Prof.dr.ir. C.M. Steenbergen

Ir. M.W.M. van den Toorn

Publish on your website:

AR1U130 (4 ECTS)

how you could take sun,
wind, water, earth, life
living into account in
your

- earlier work, the atlas
and
- in the future

AR0112 (2 ECTS)?

calculations and
observations of sun, wind,
water, earth, life, living in
any location and your
design, check your
observations by math.

use the .xls simulations!

assignments

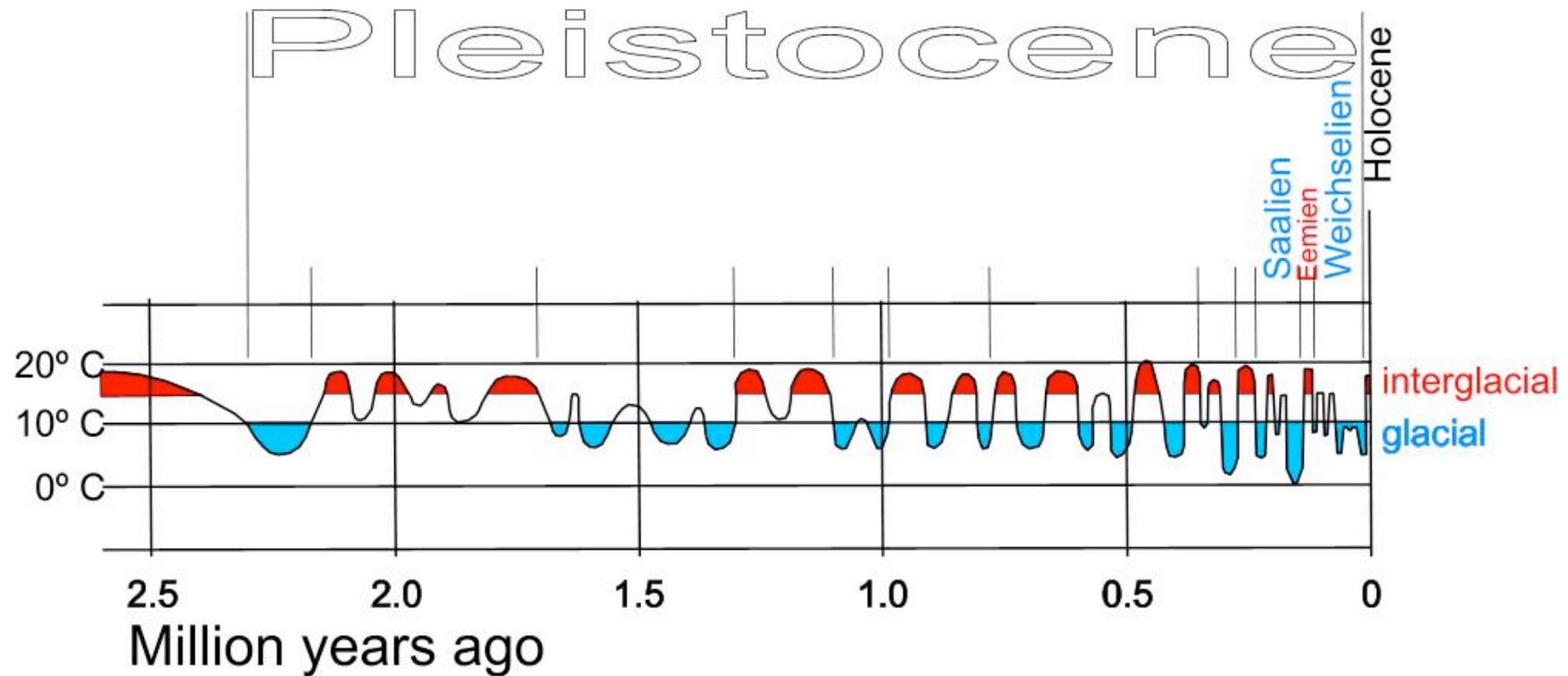
- [Make your own website](#), publish your solution of the take home assignments, concerning earlier work on your website.
- Publish additions concerning actual and future work.
- Please keep the numbering of the assignments and make them easy to be found for judgment on your website.

Territory

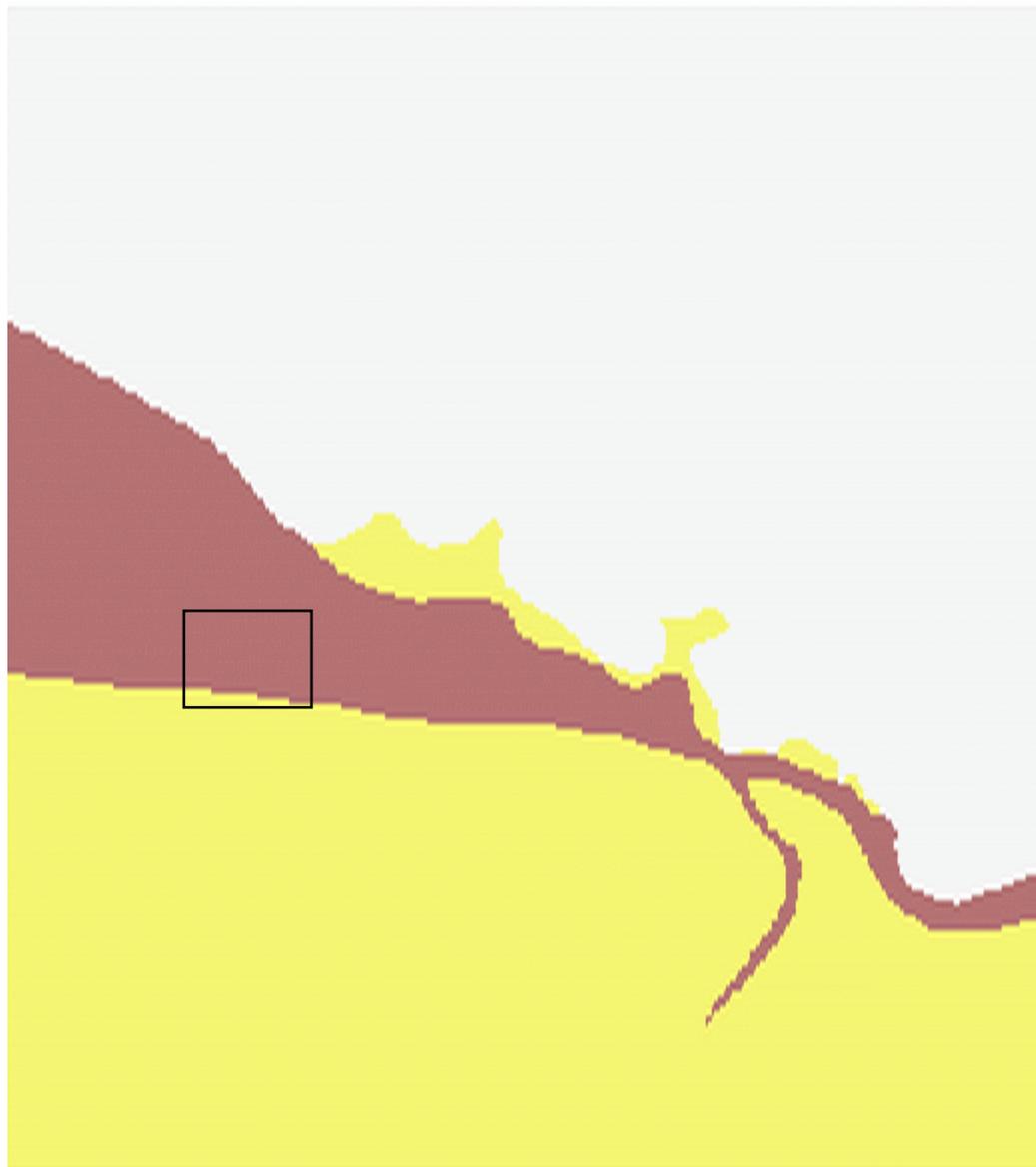
2 000 A.D.



Temperature and history



200 000 B.C
Saalien





150 000 B.C.
end Saalien



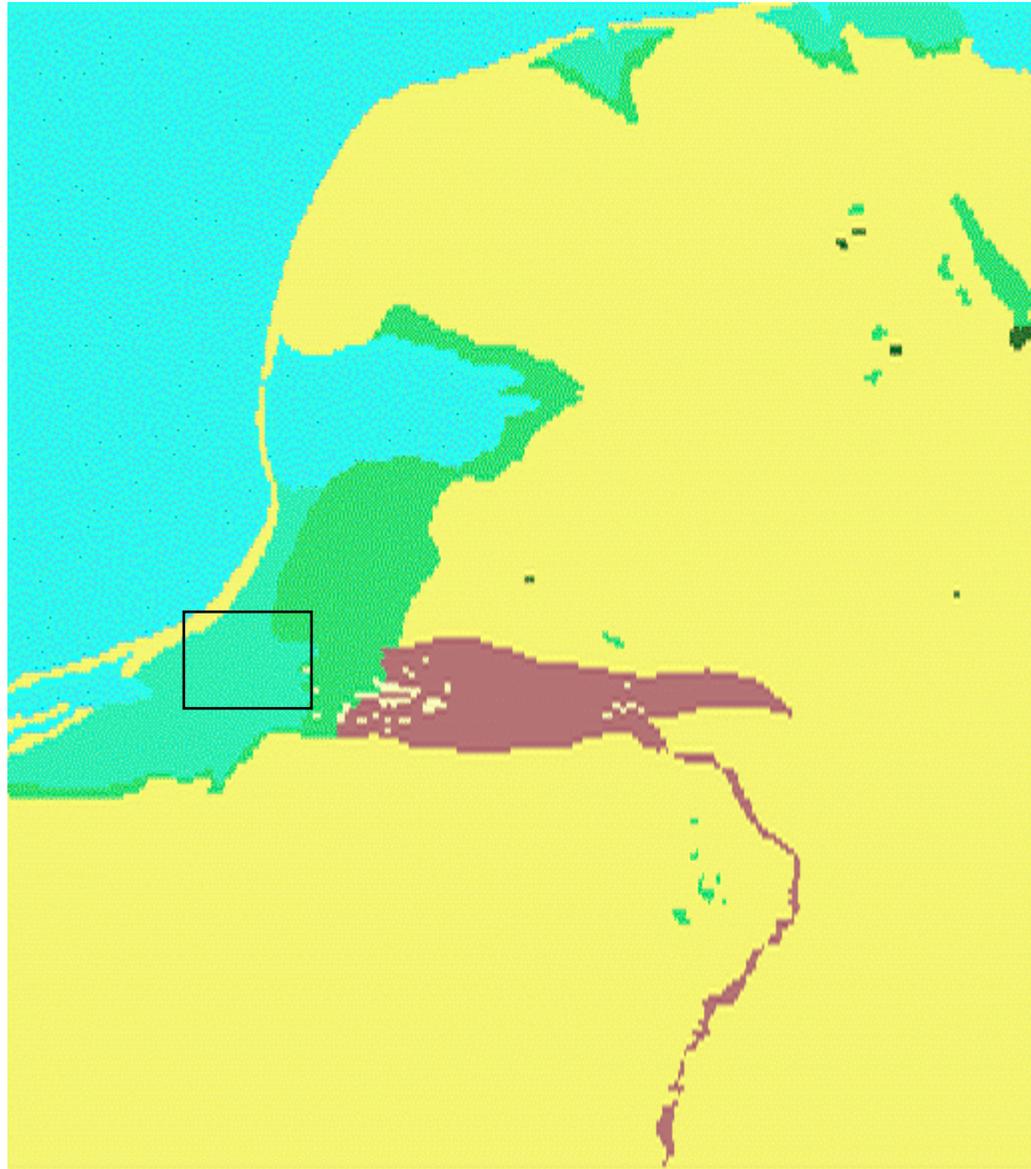
80 000 B.C.
Eemien



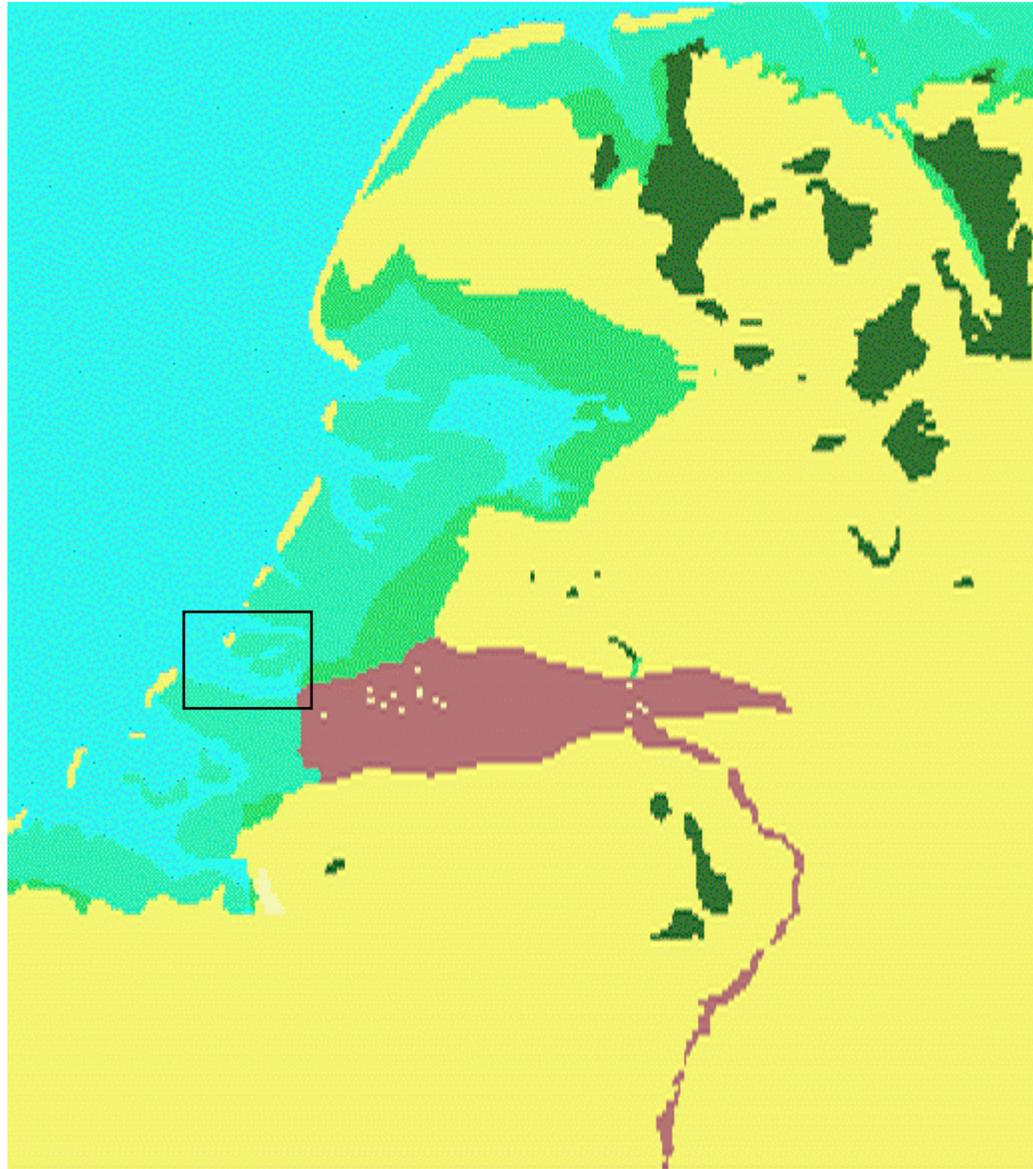
15 000 B.C.
Weichselien



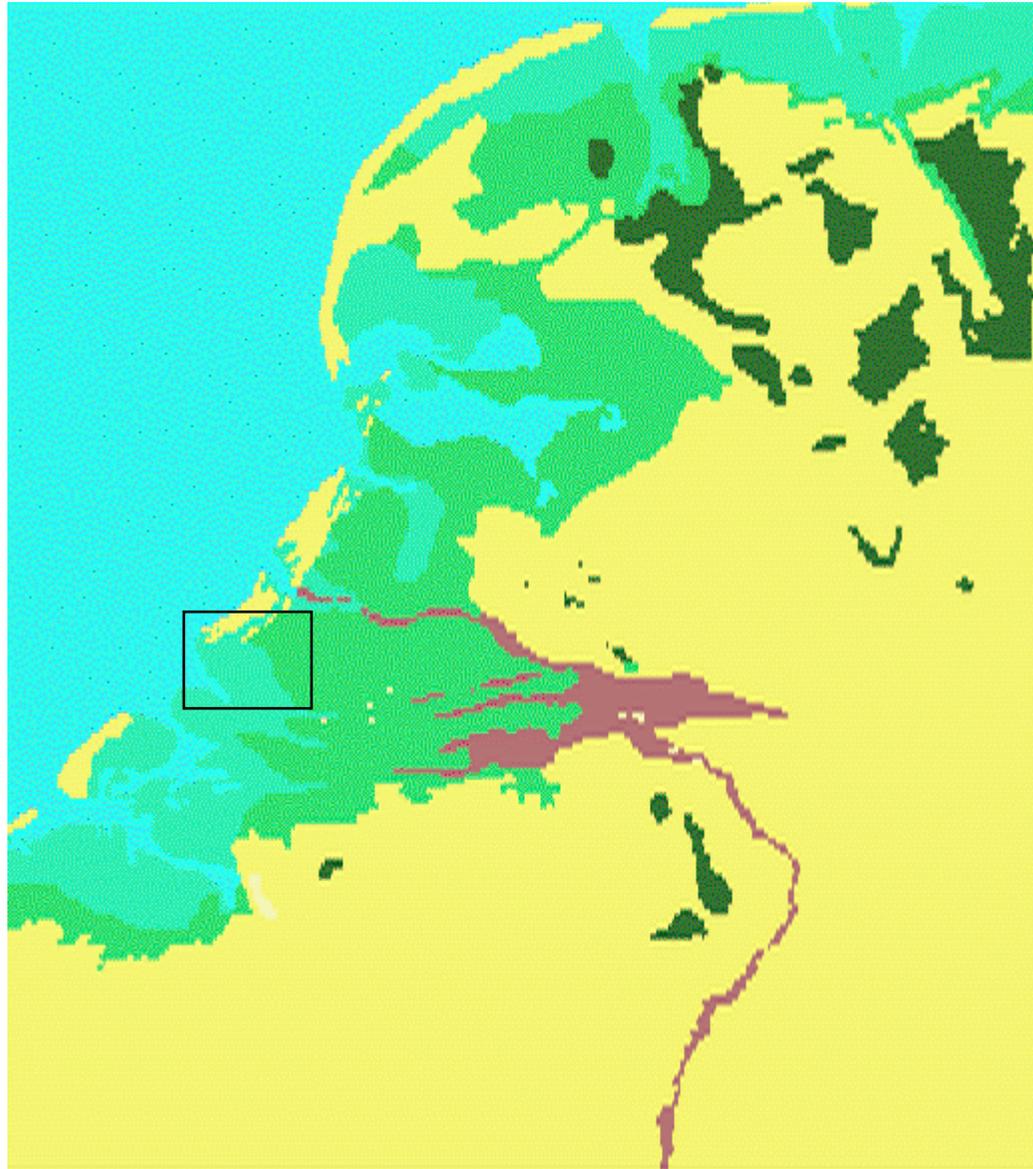
10 000 A.D.



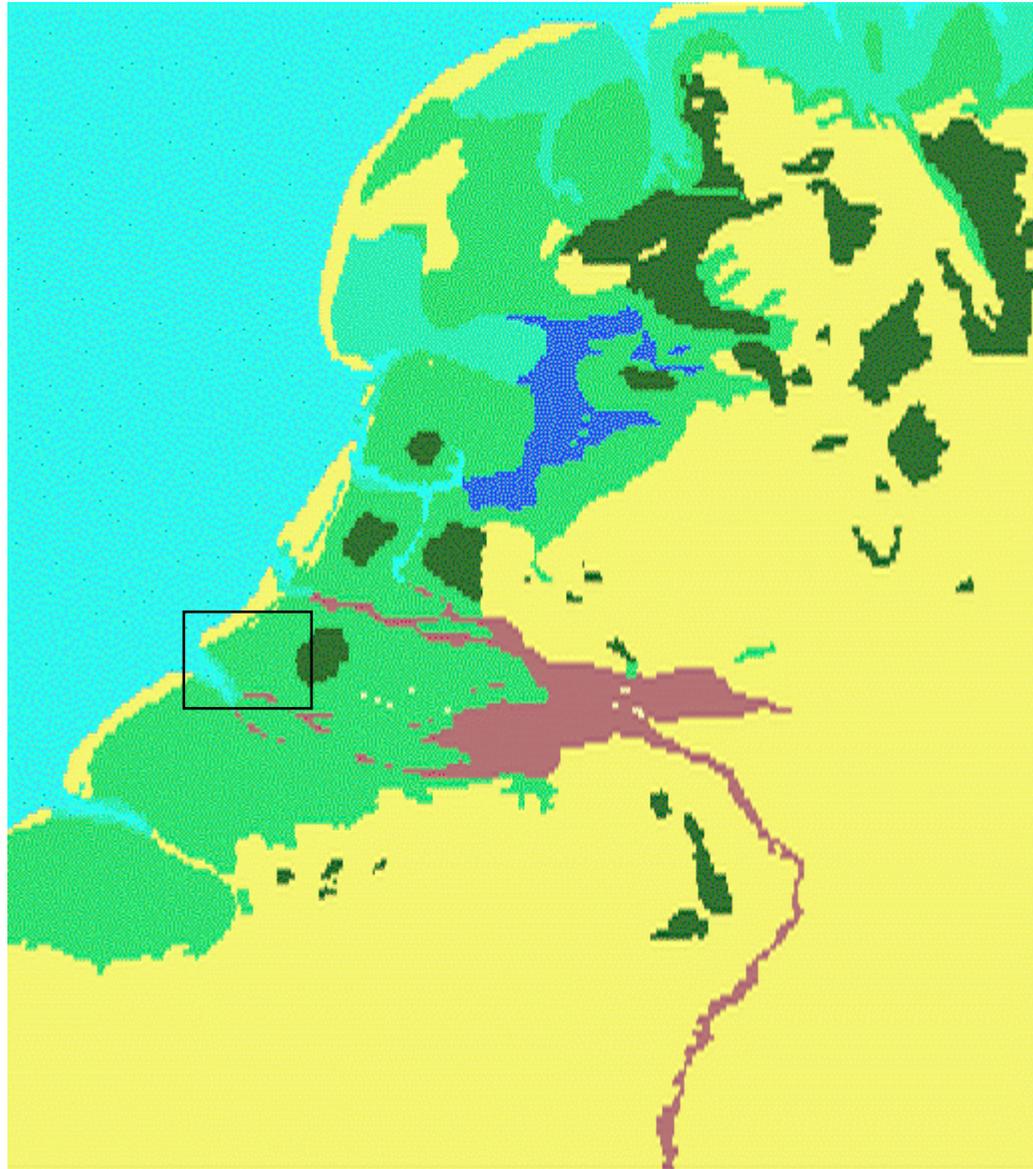
5 500vChr



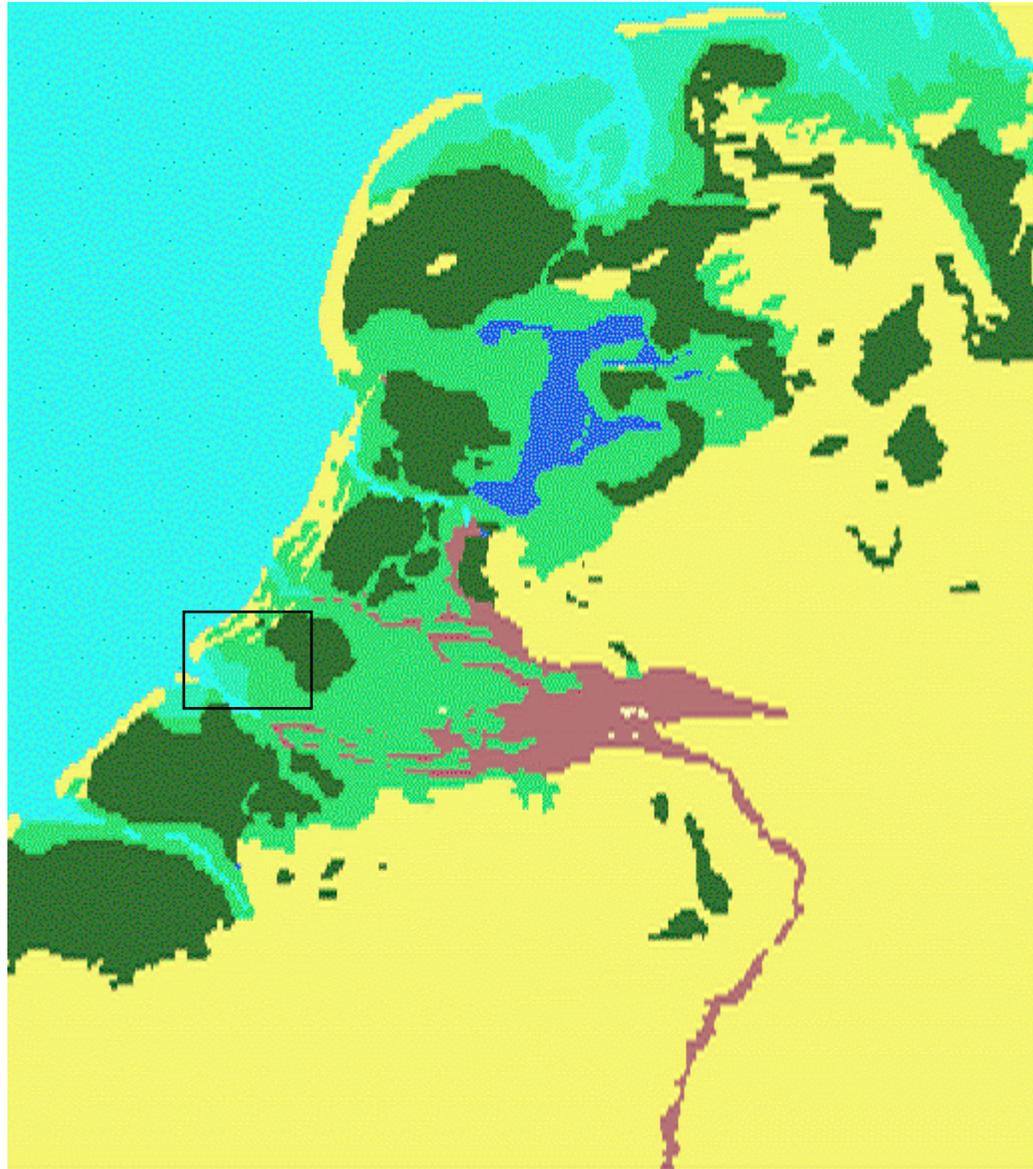
4 100vChr



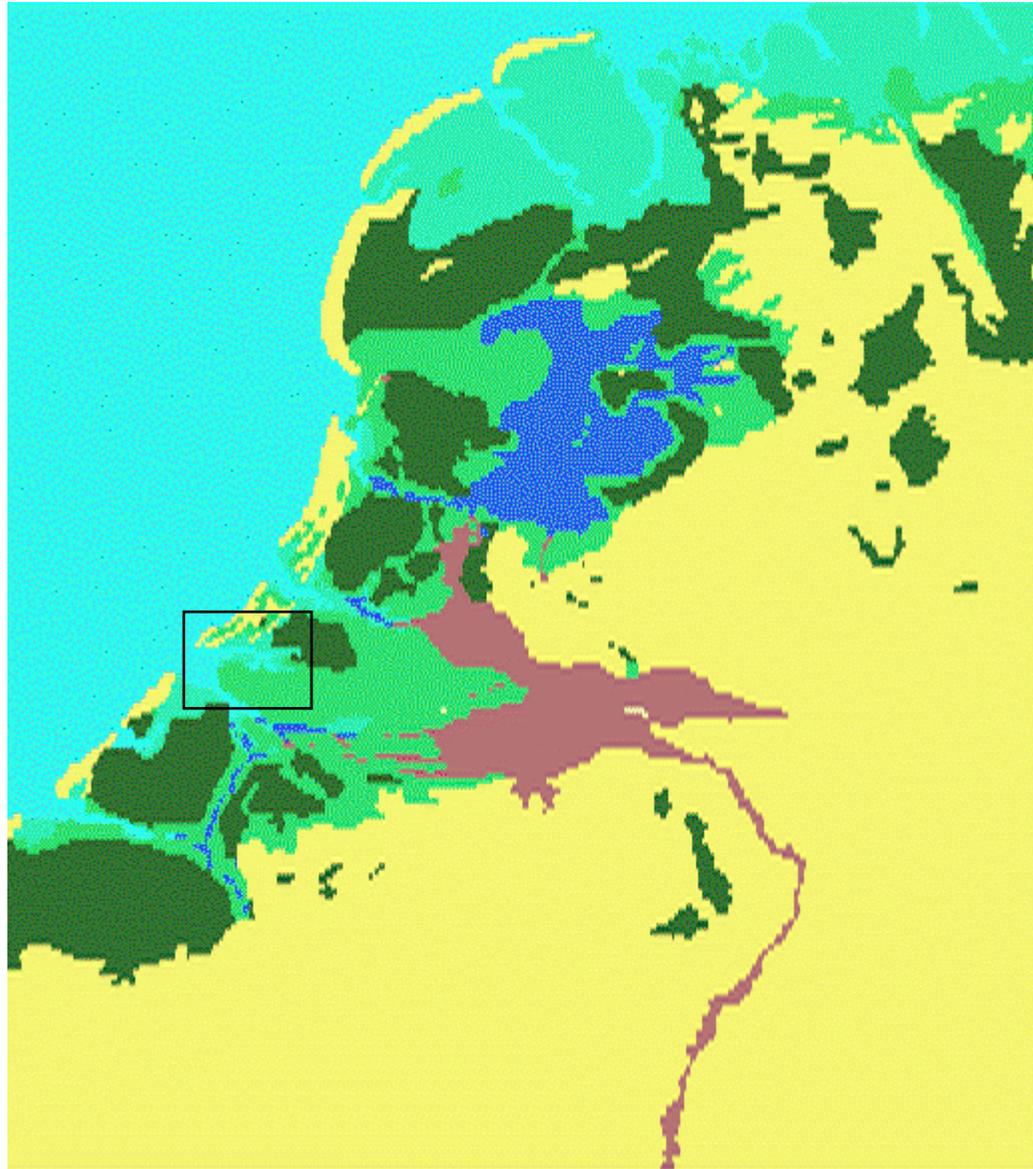
3 000vChr



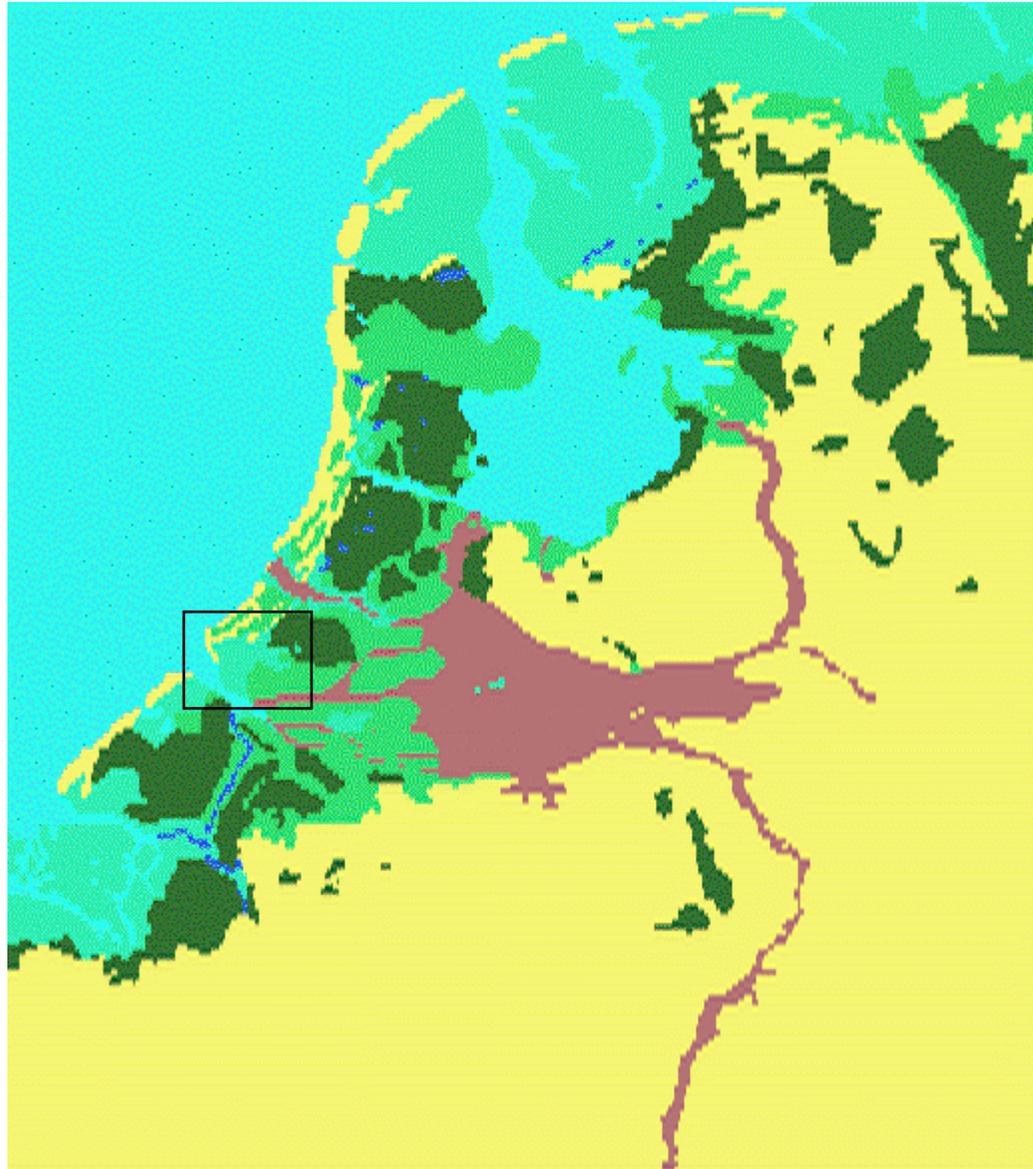
2 100vChr



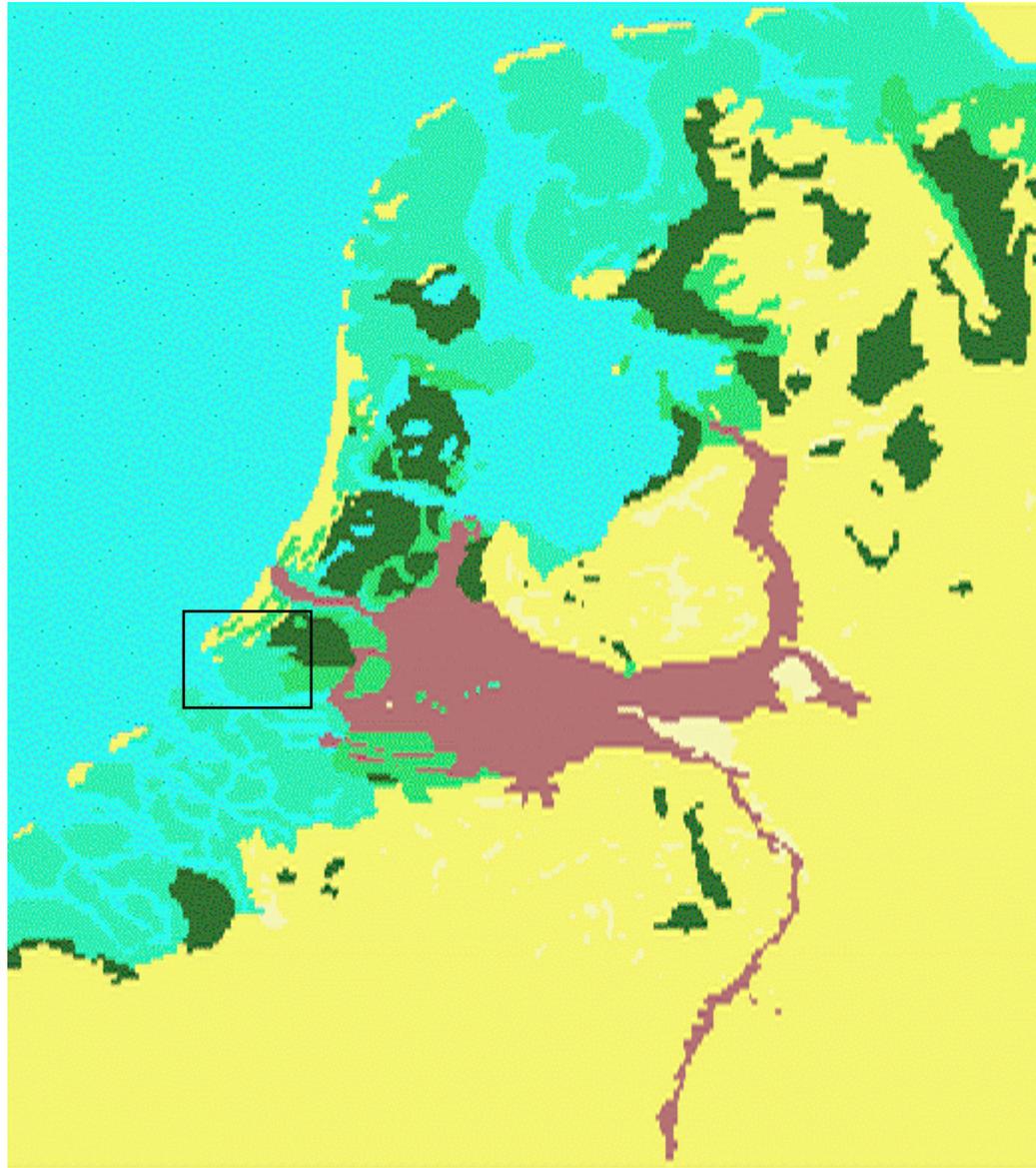
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200vChr



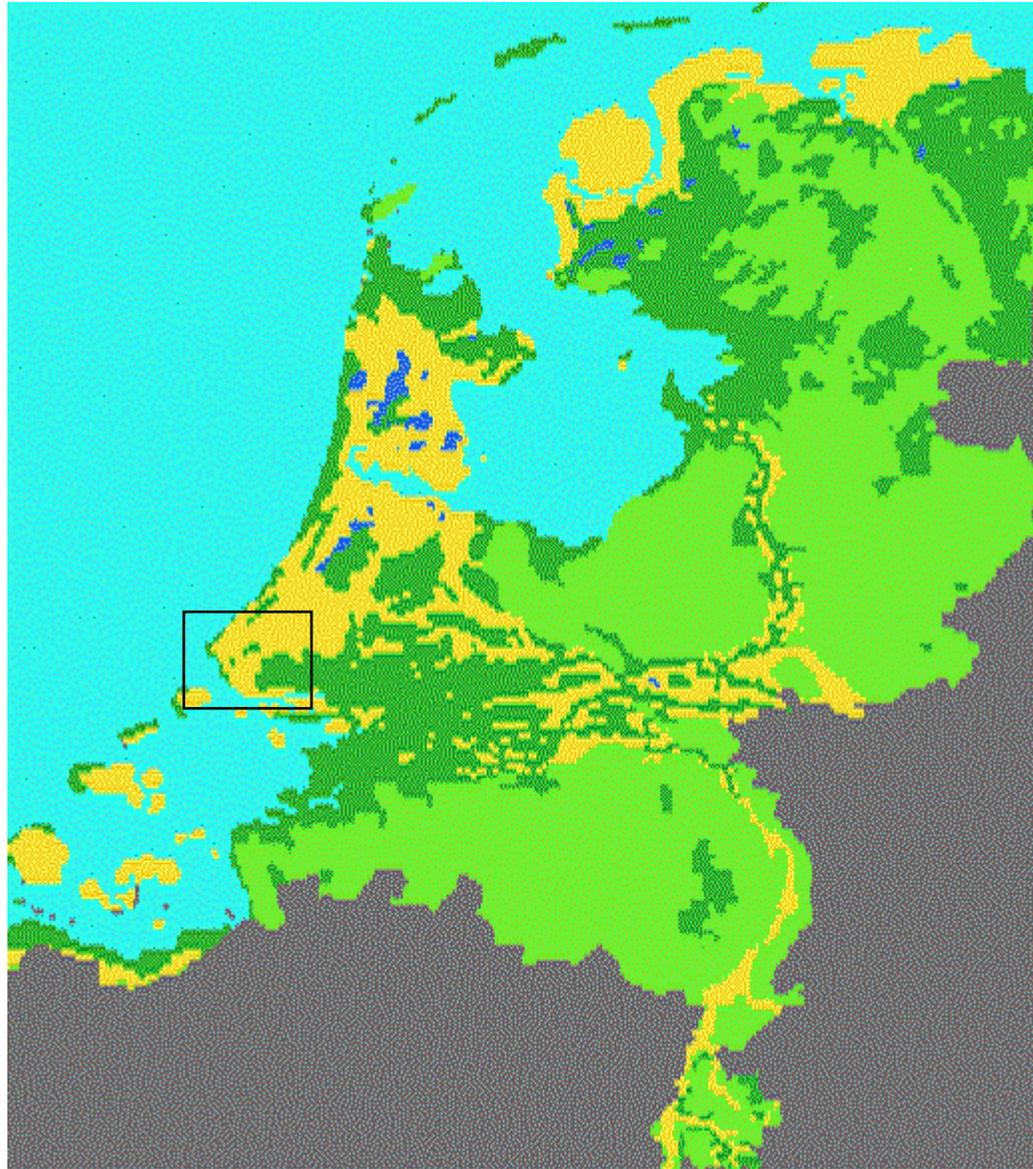
600



1 000



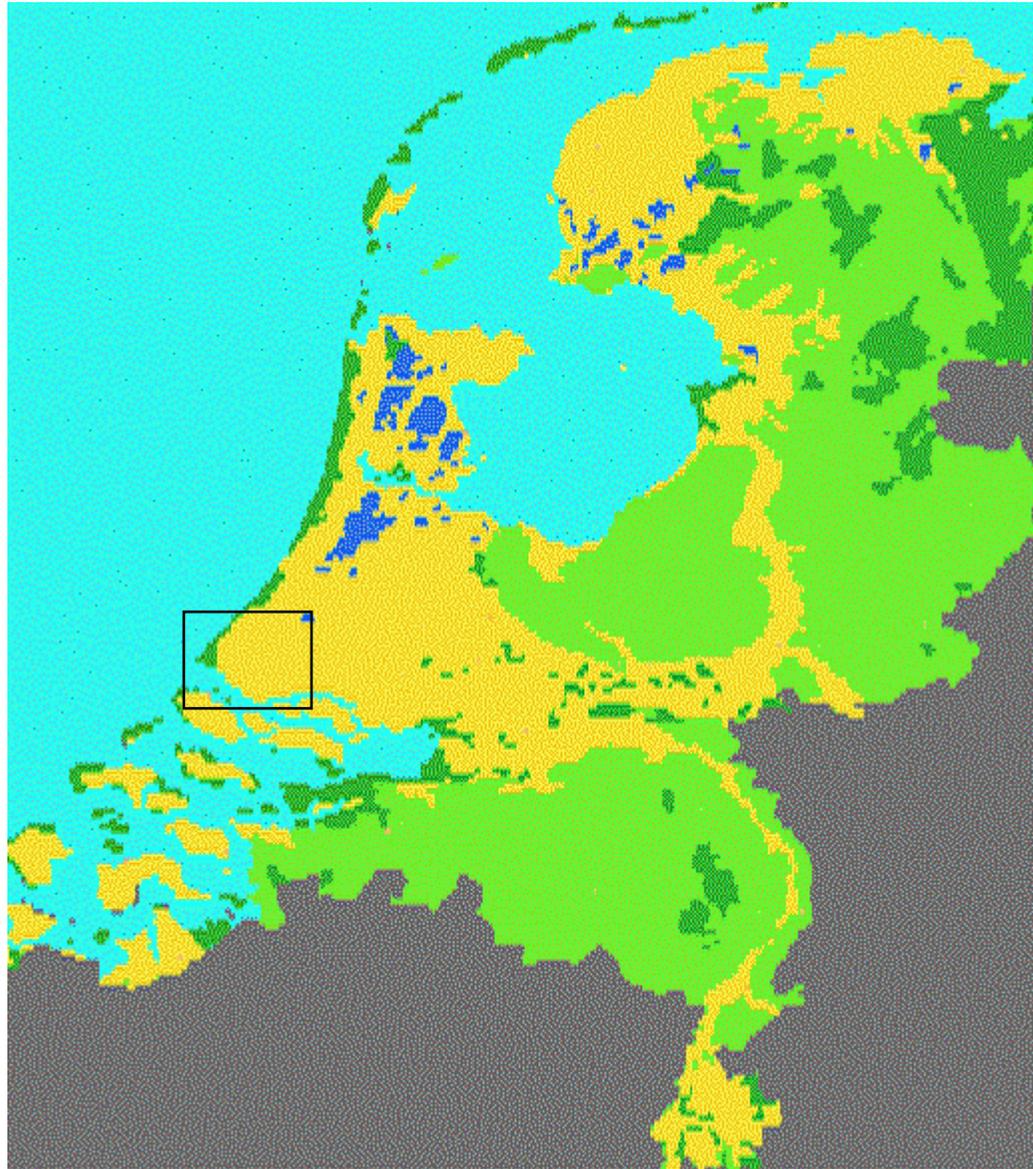
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1 100



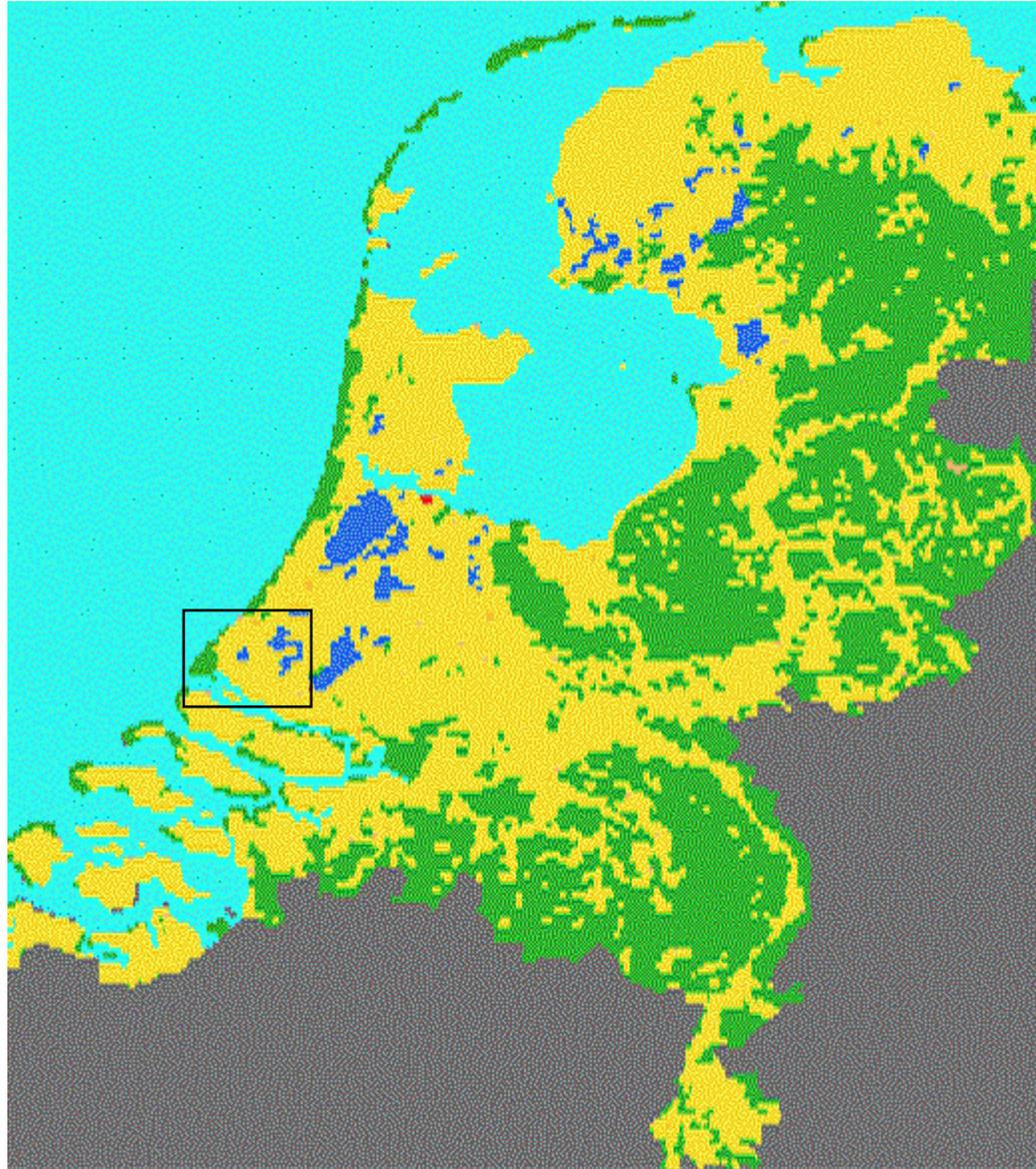
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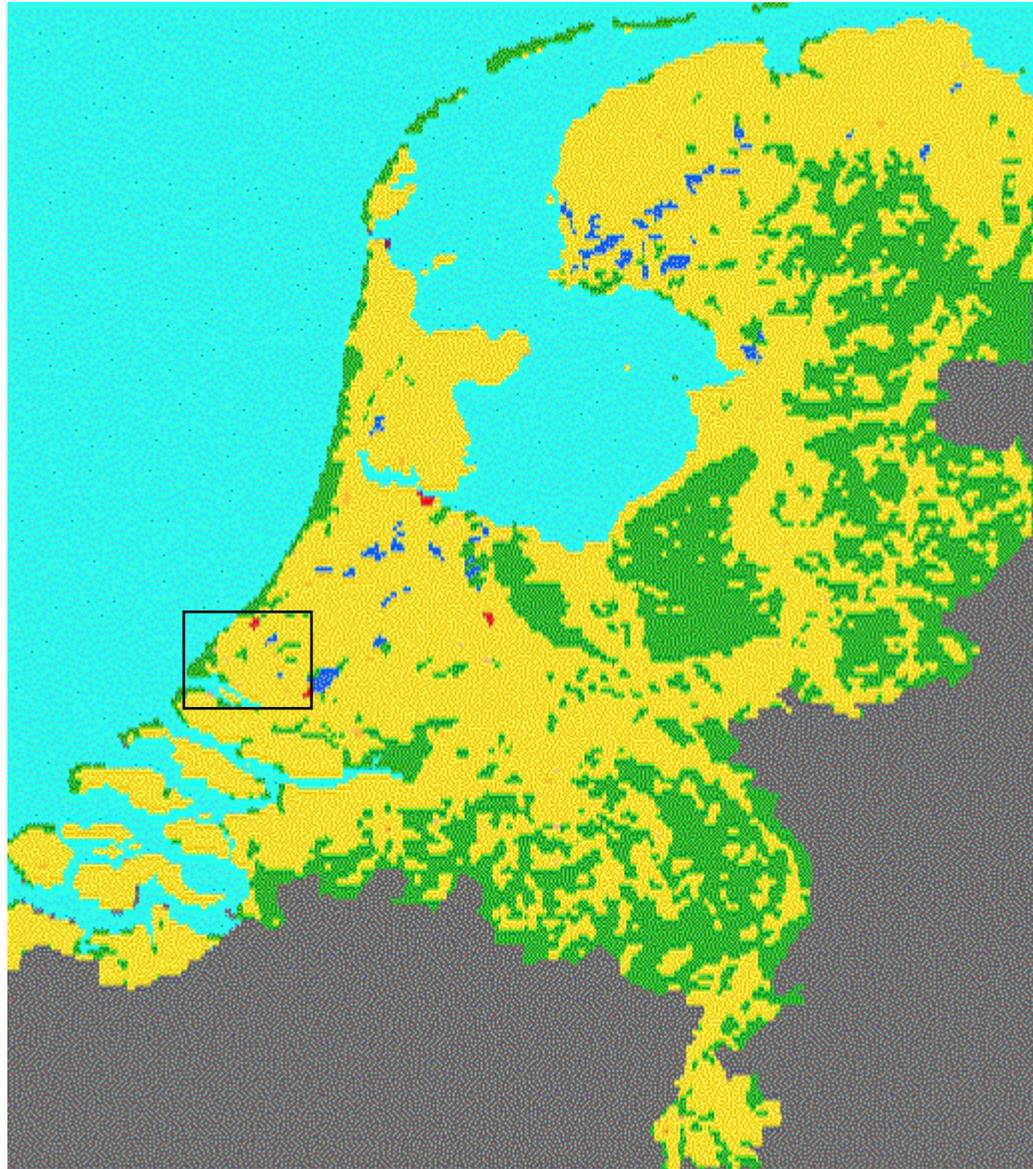
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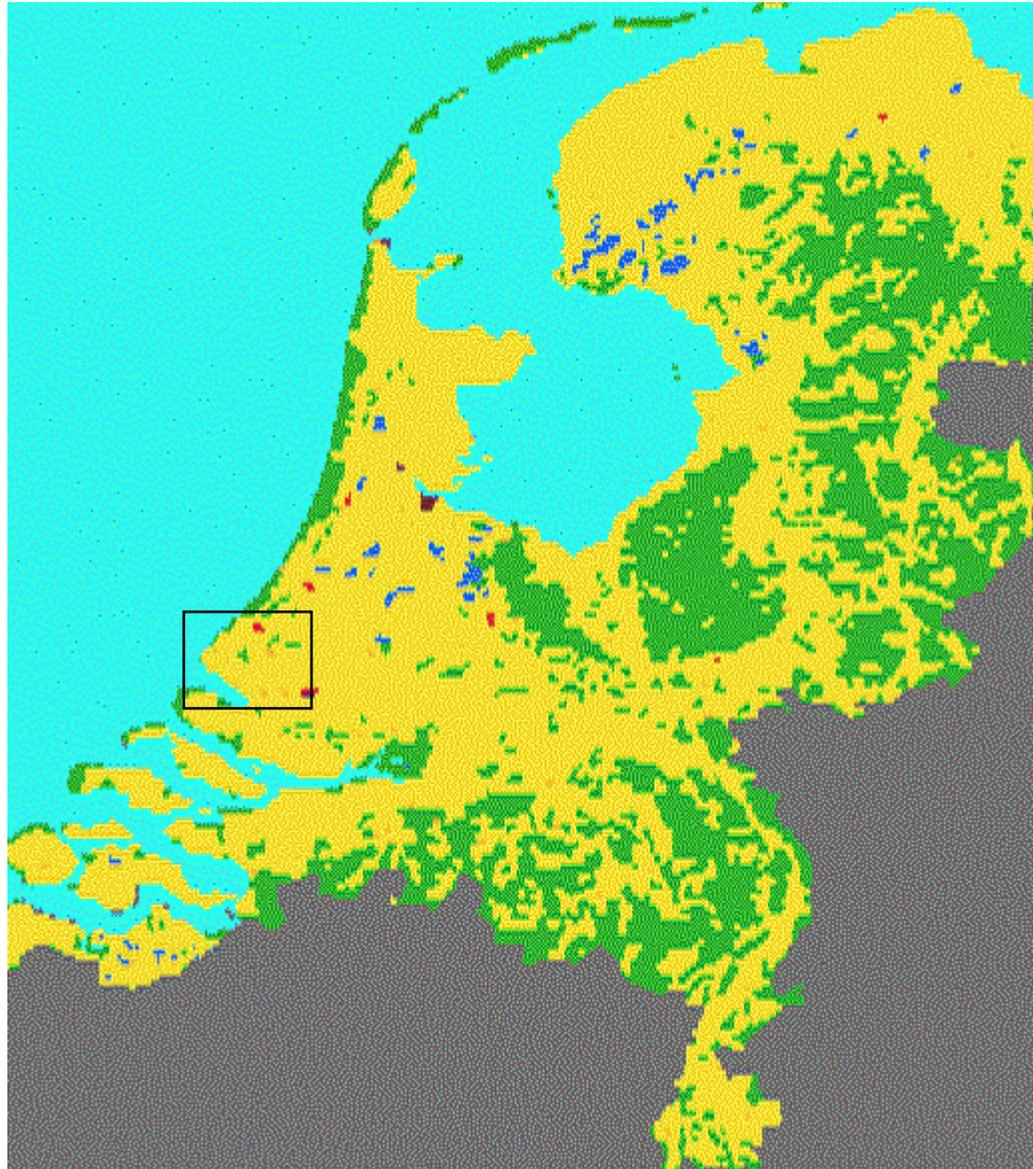
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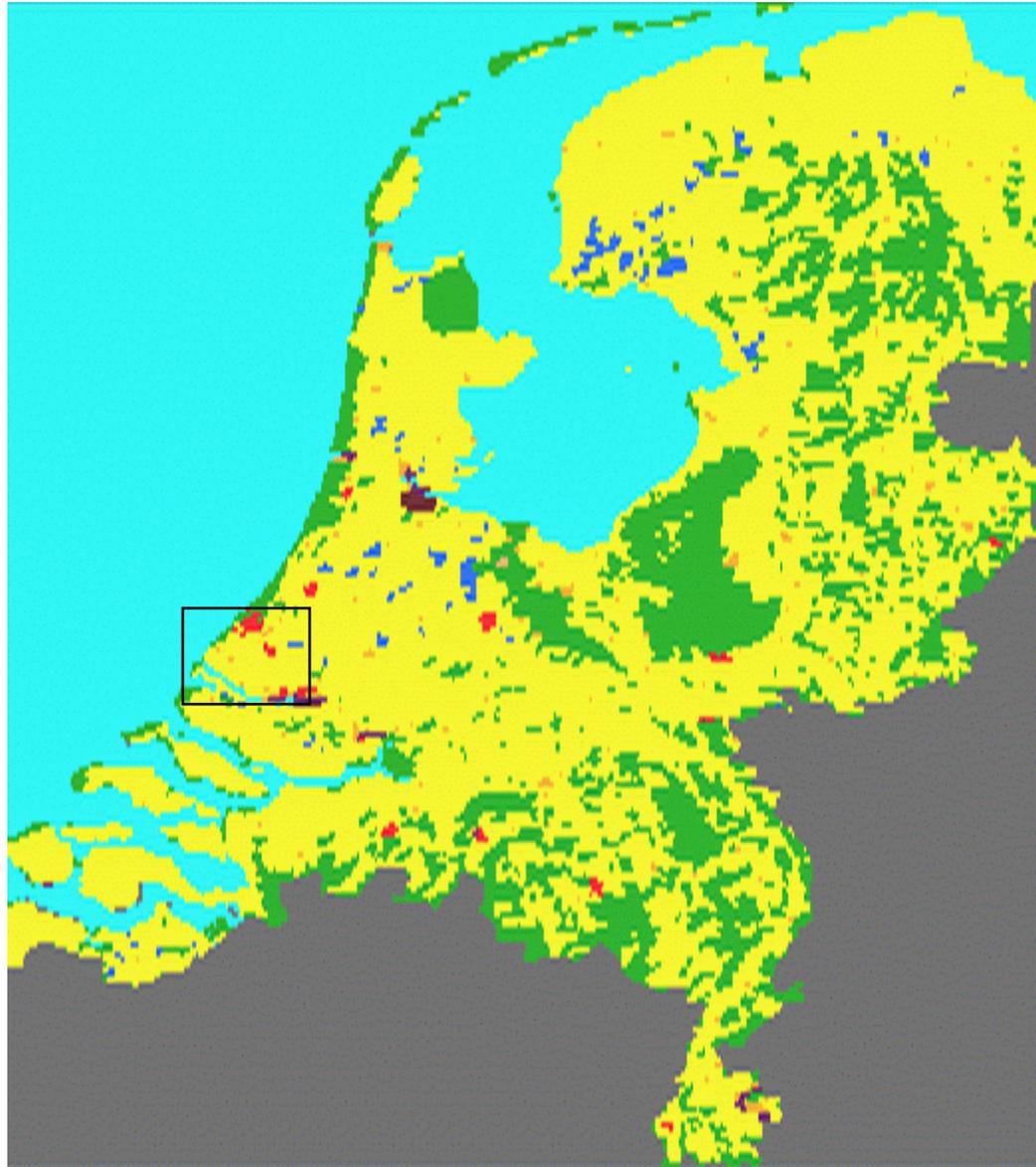
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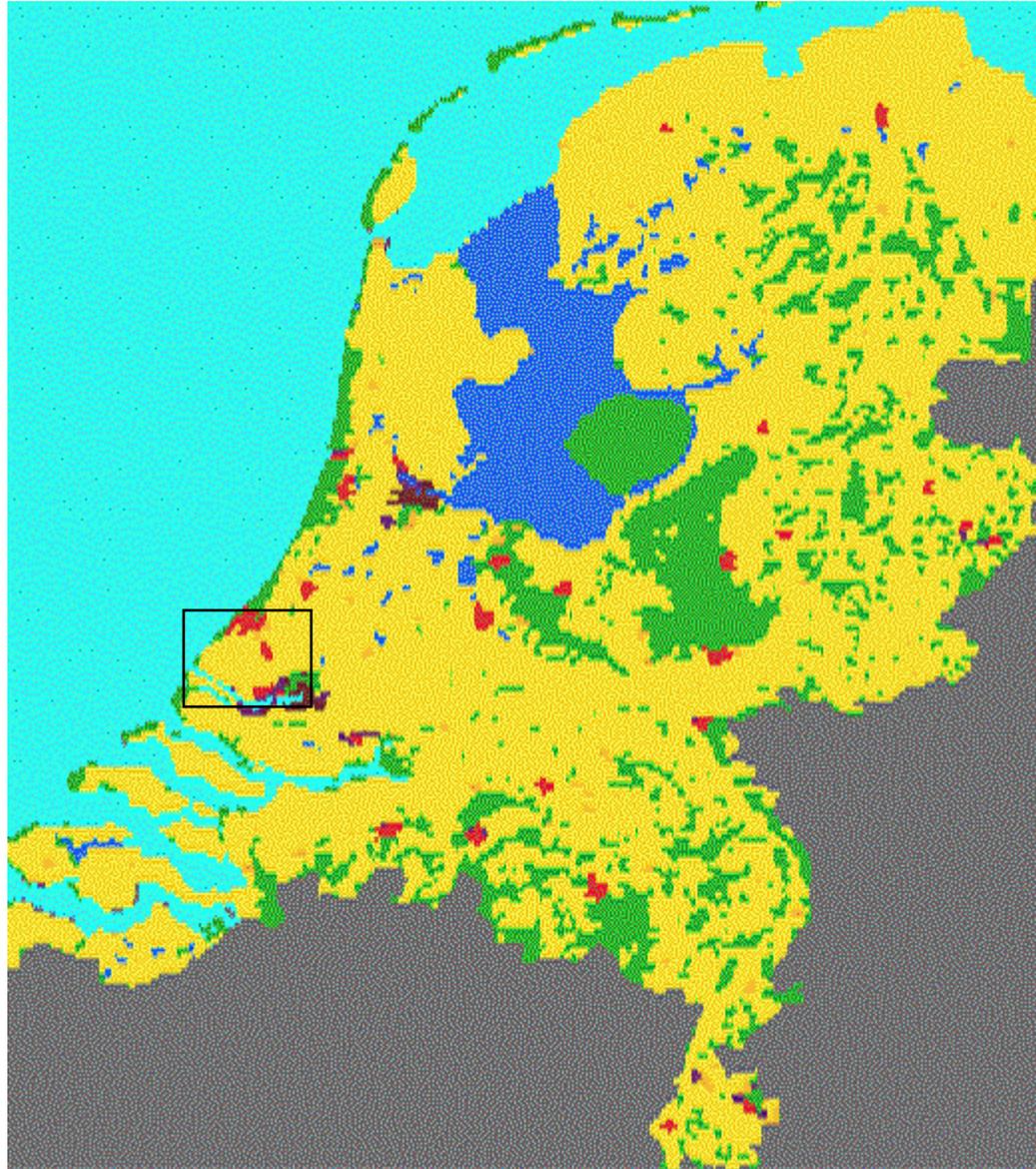
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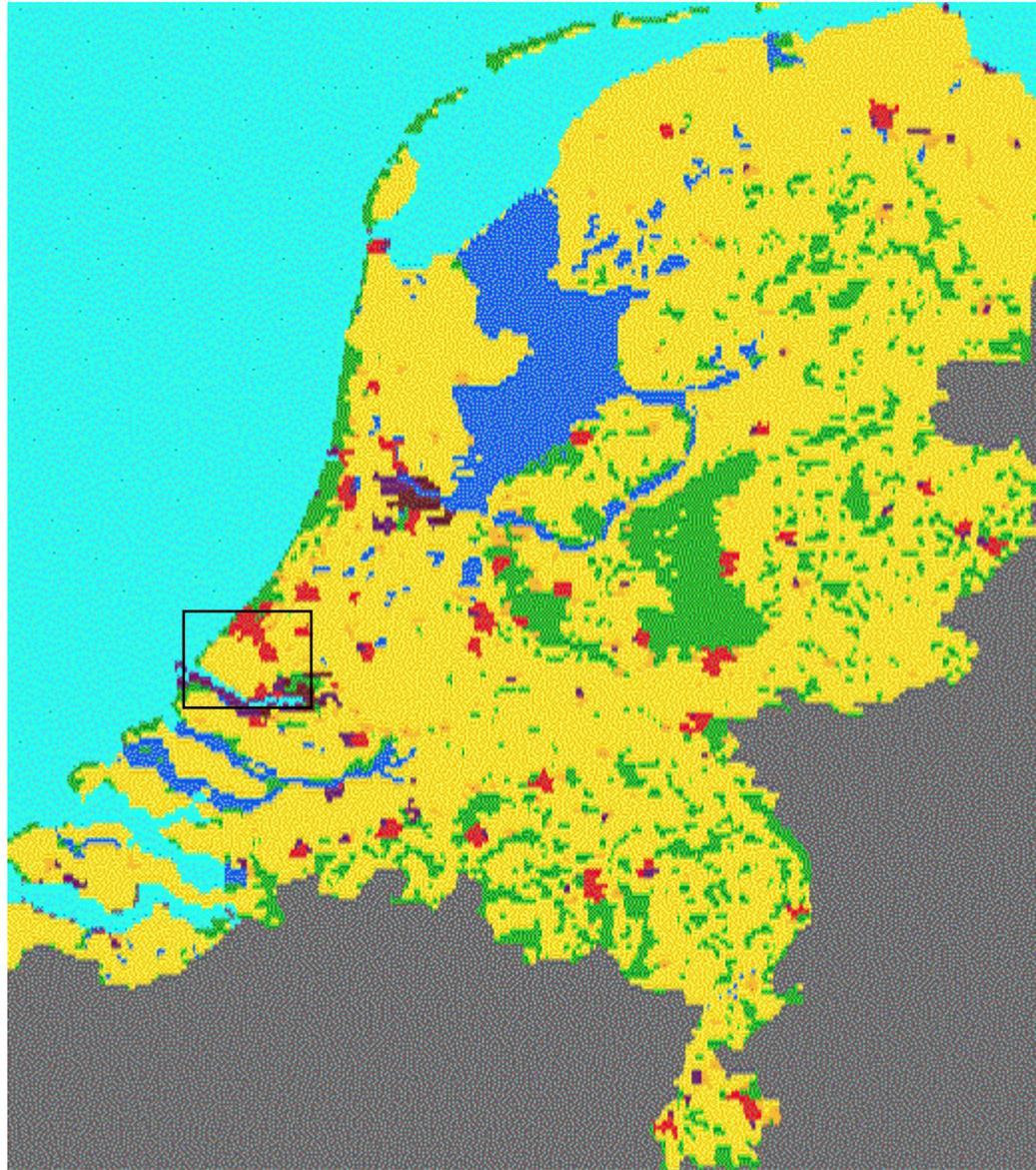
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1 930



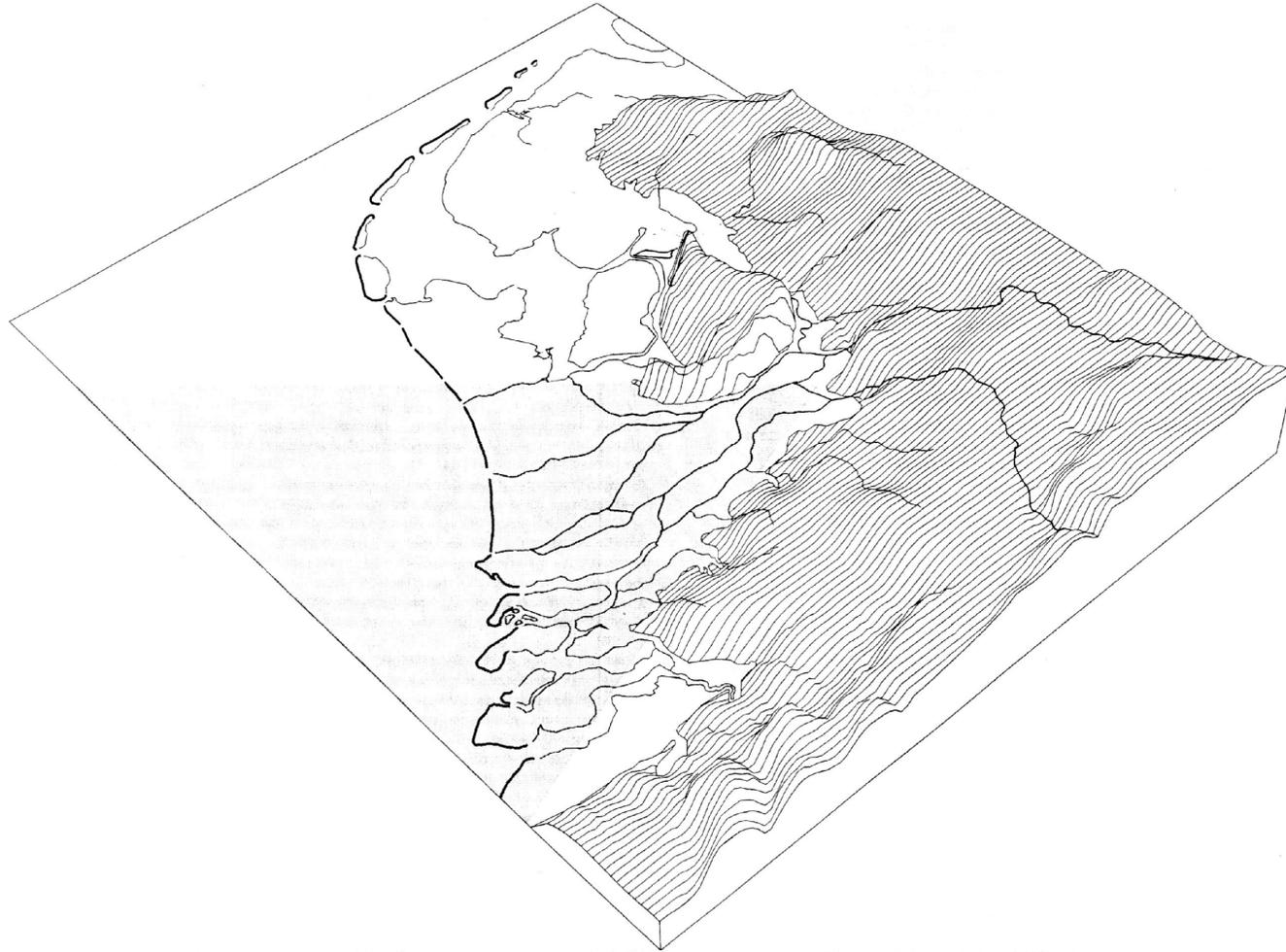
1 950



1 990

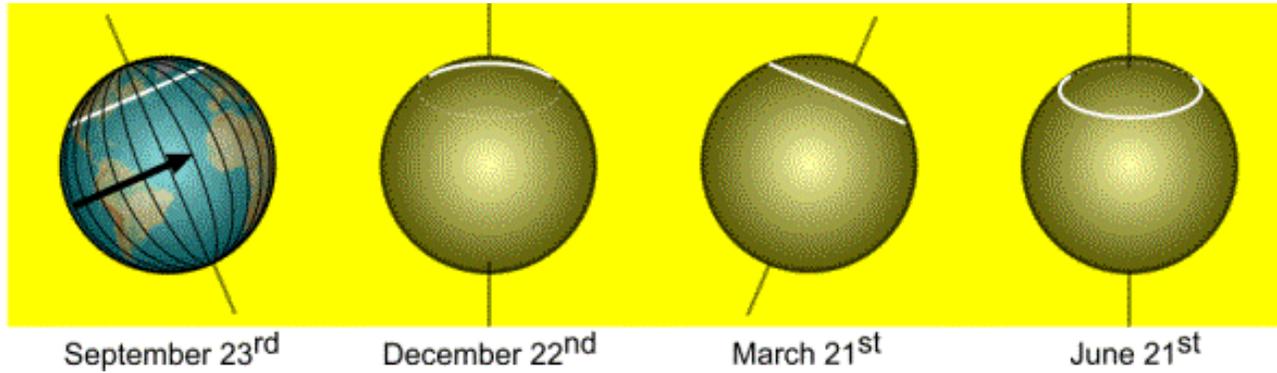
2000

2 000

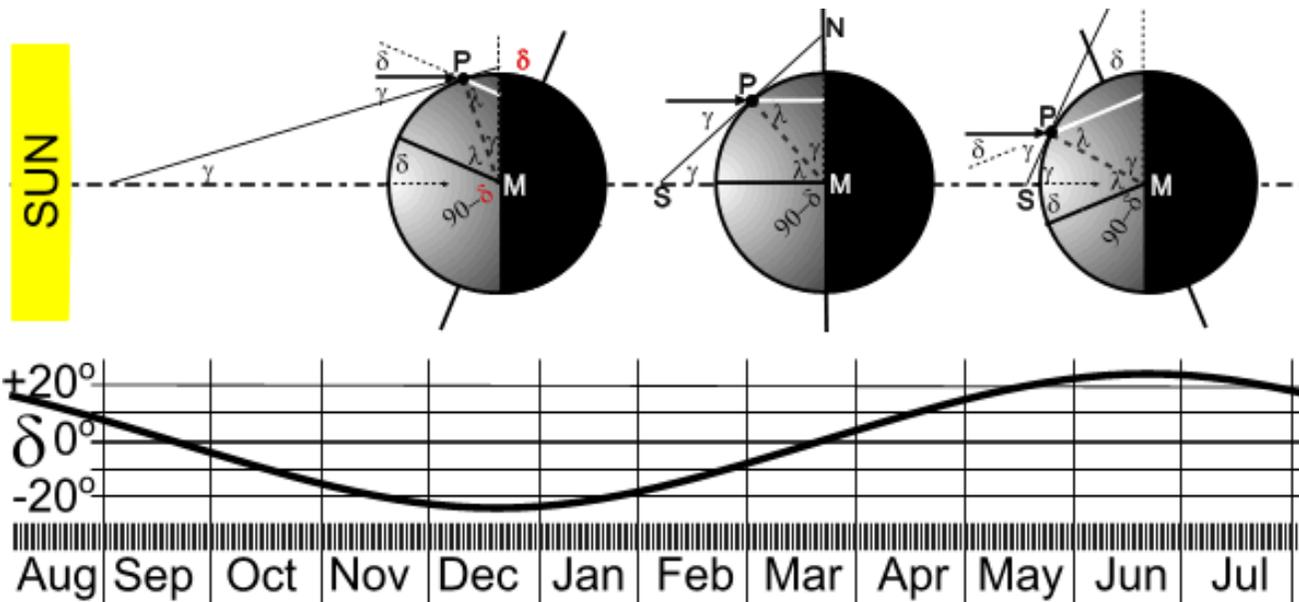


Sun wind water earth life **living**
legends for design

Sun wind water earth life living



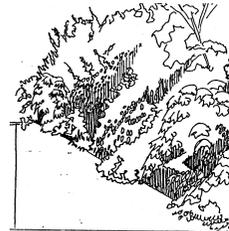
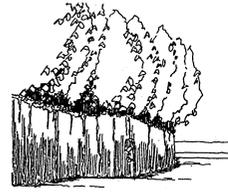
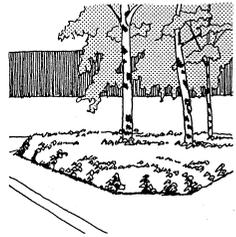
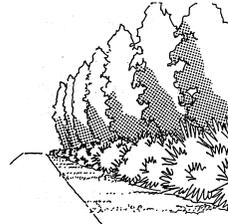
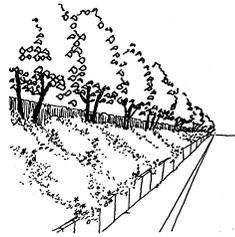
γ is inclination
 λ is latitude
 δ is declination
 $\gamma + \lambda - \delta = 90^\circ$



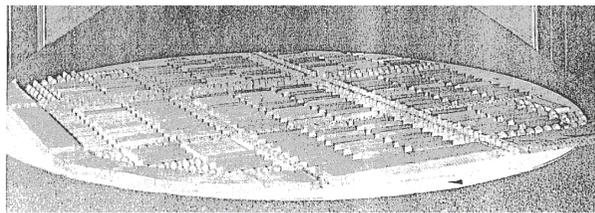
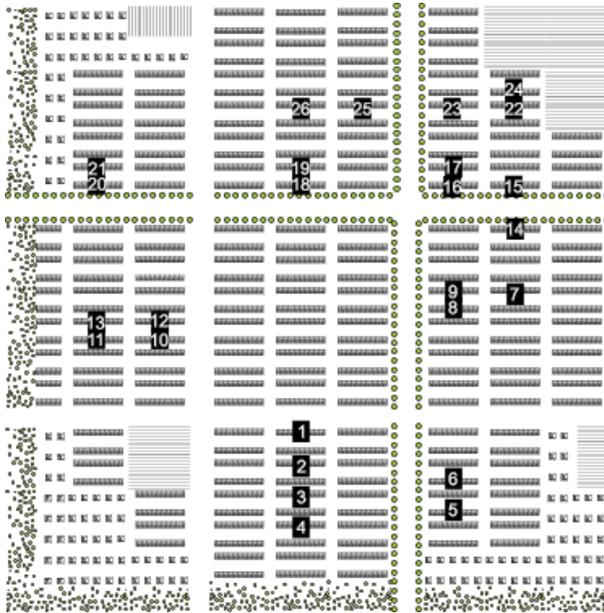
Sun wind water earth life living

Planting by man

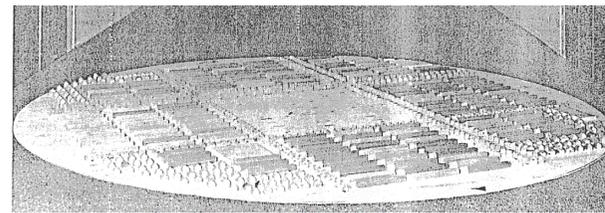
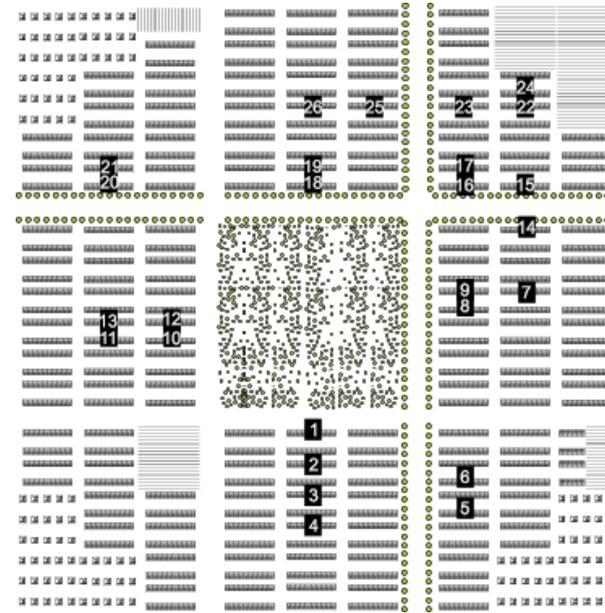
Planting effects



Sun wind water earth life living



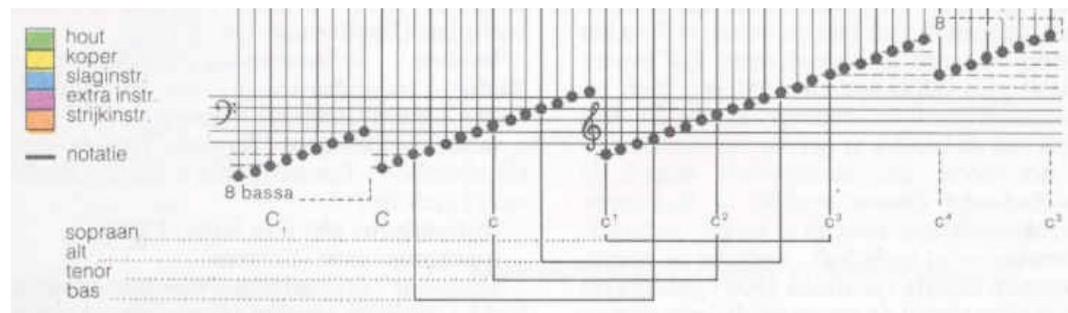
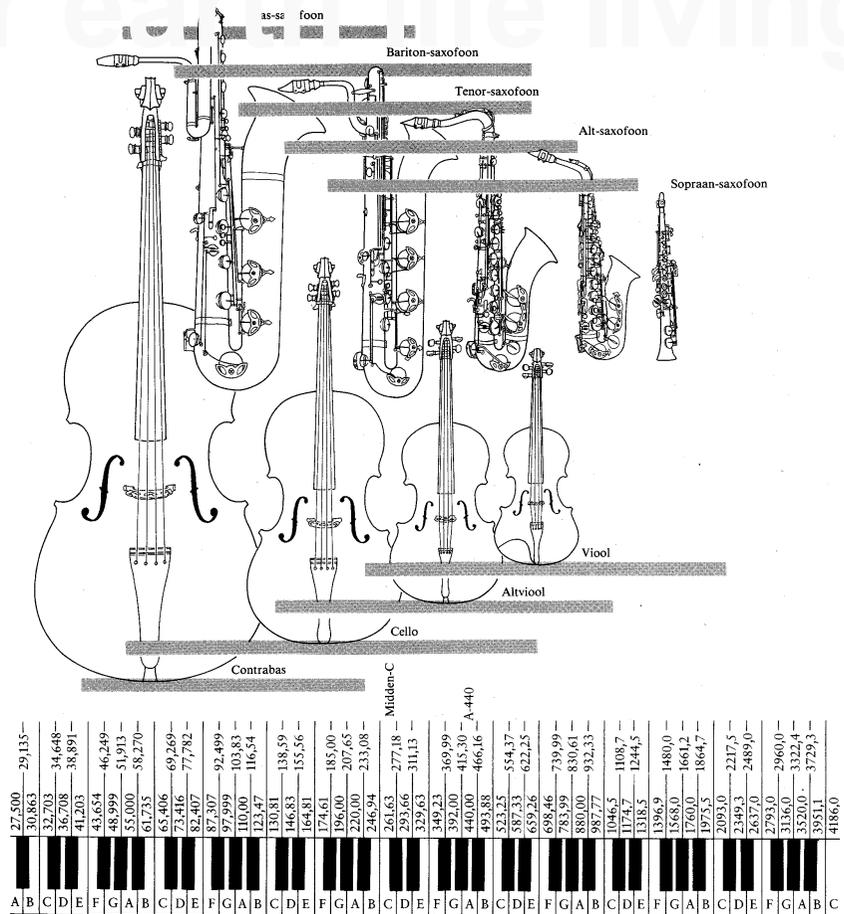
'Peripheral green'



'Central green'

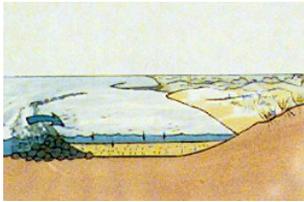
Sun wind water earth life living

Sound and noise

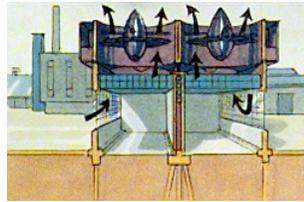


Sun wind **water** earth life living

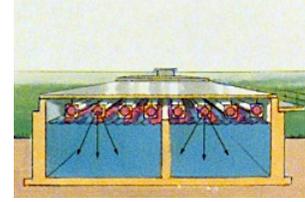
Civil engineers



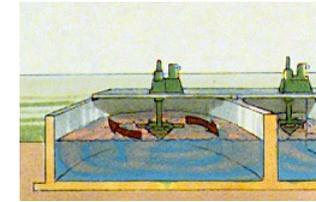
01 Water structuring



02 Saving water



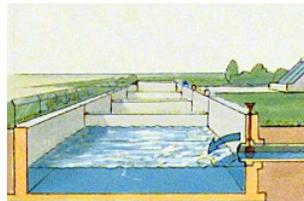
03 Water supply and purification



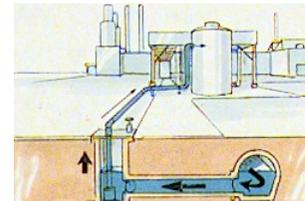
04 Waste water management



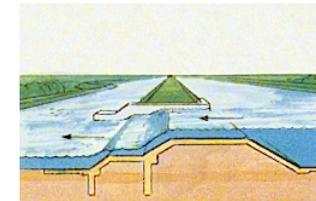
05 Urban hydrology



06 Sewerage



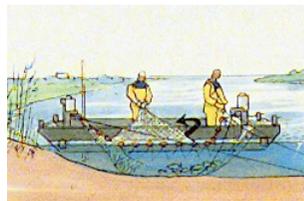
07 Re-use of water



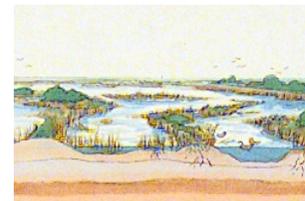
08 High tide management



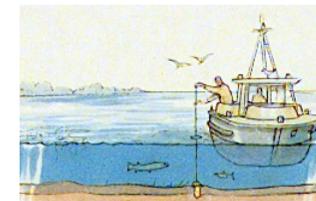
09 Water management



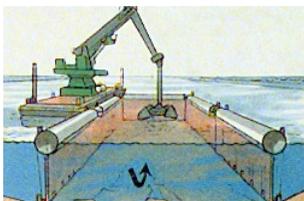
10 Biological management



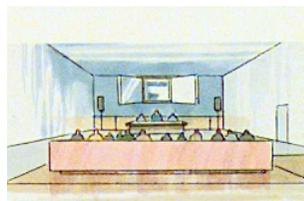
11 Wetlands



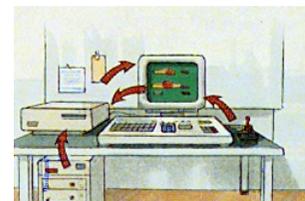
12 Water quality management



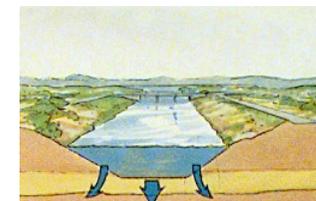
13 Bottom clearance



14 Law and organisation

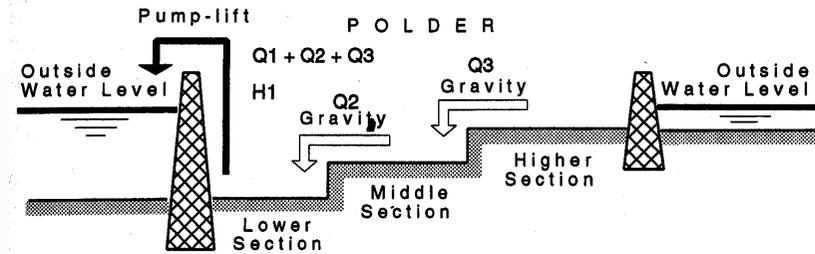
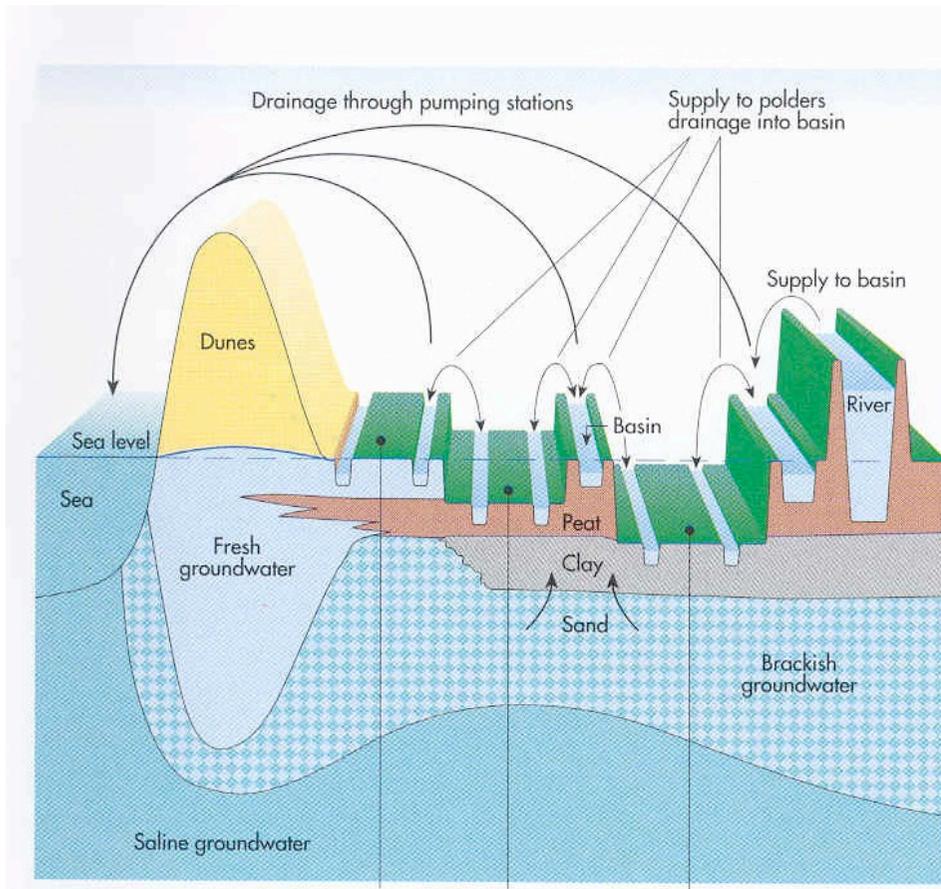


15 Groundwater management

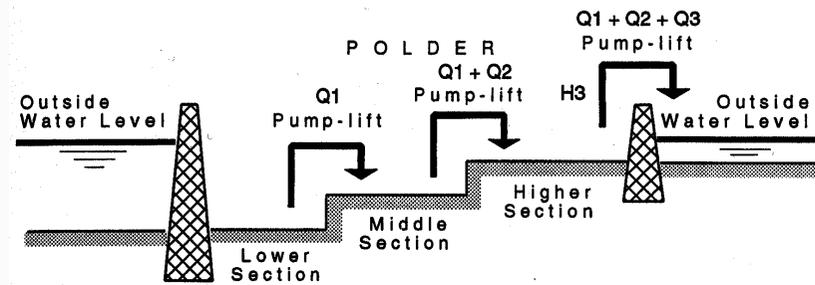


16 Natural purification

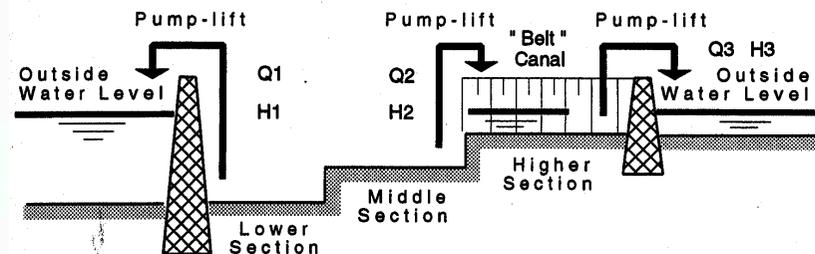
Polders



Alternative I: One pumping station (maximum energy requirements).

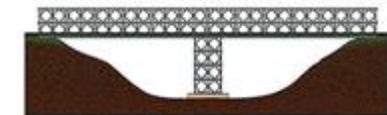
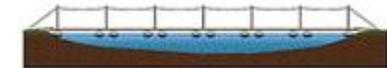
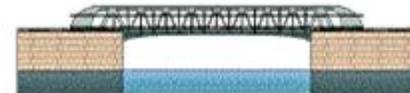


Alternative II: Three pumping stations (minimum energy requirements).



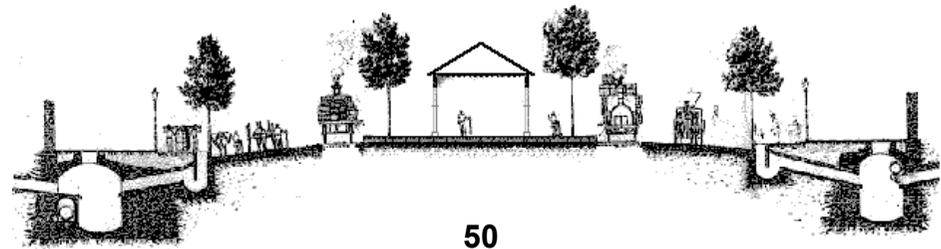
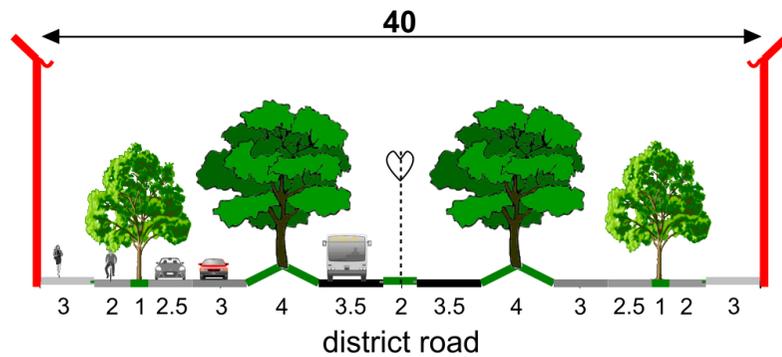
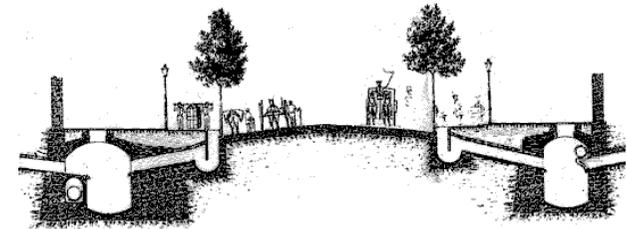
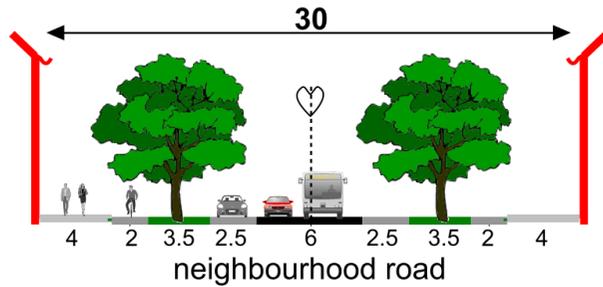
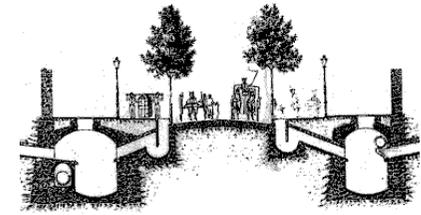
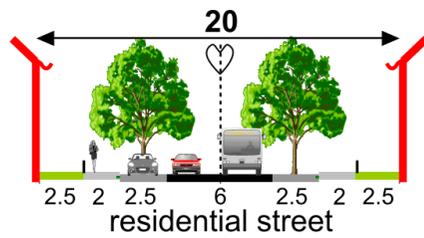
Sun wind **water** earth life living

Crossings



Sun wind **water** earth life living

Traffic



Sun wind water **earth** life living

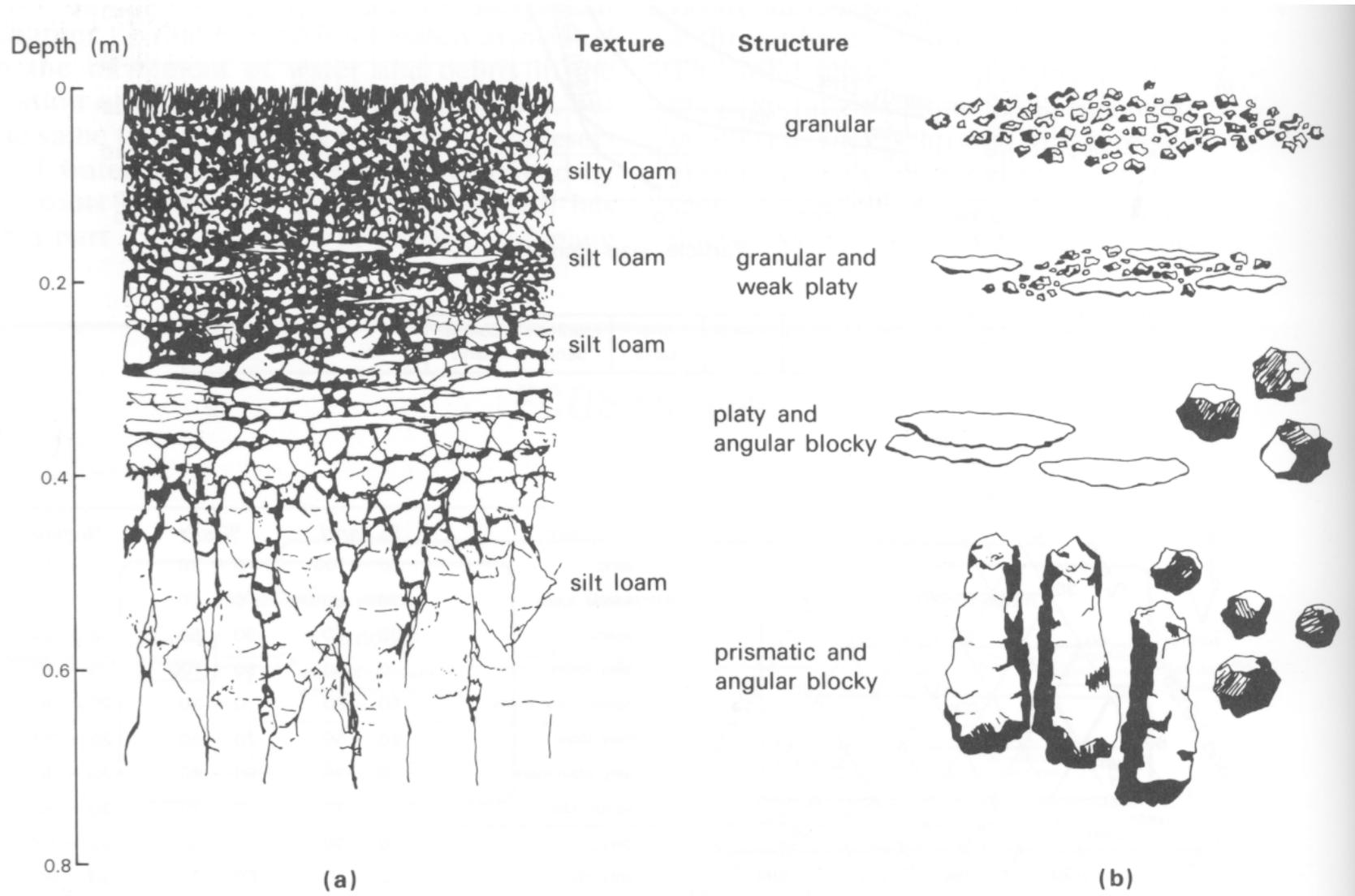
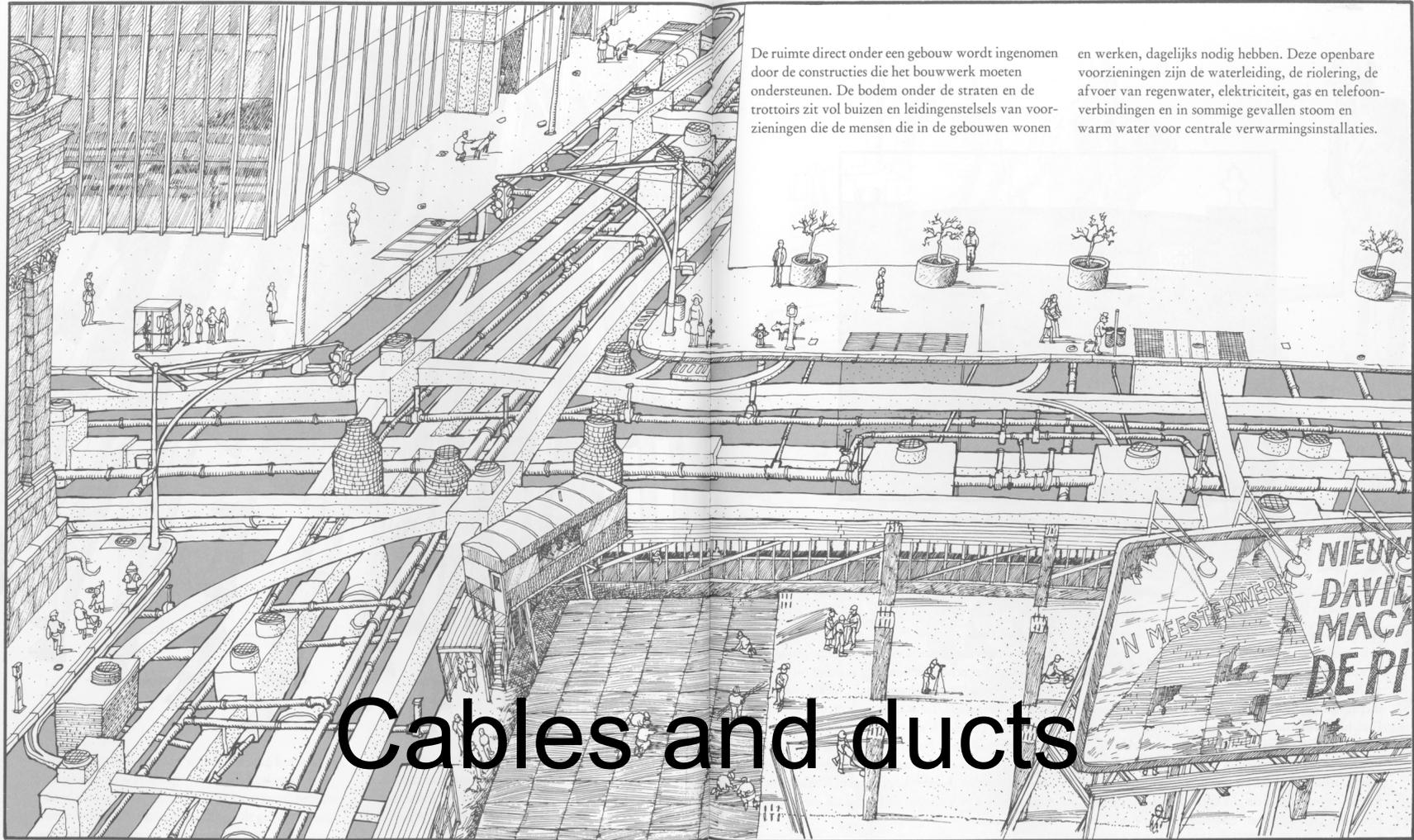


Figure 20.4 Soil structure (modified from Agricultural Advisory Council on Soil Structure and Soil Fertility 1971).

Sun wind water earth life living

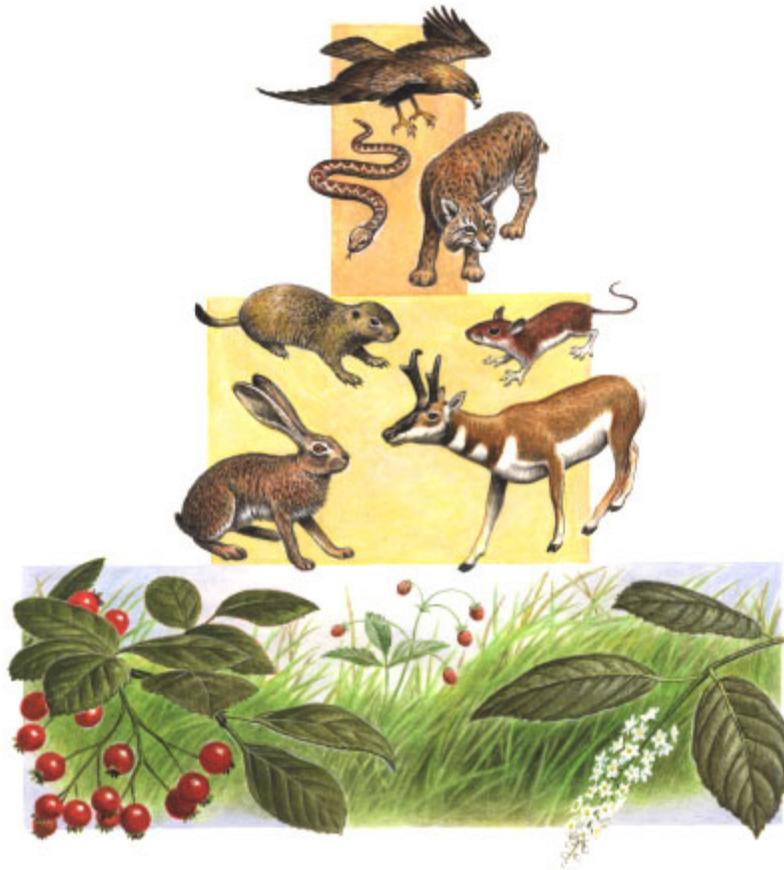
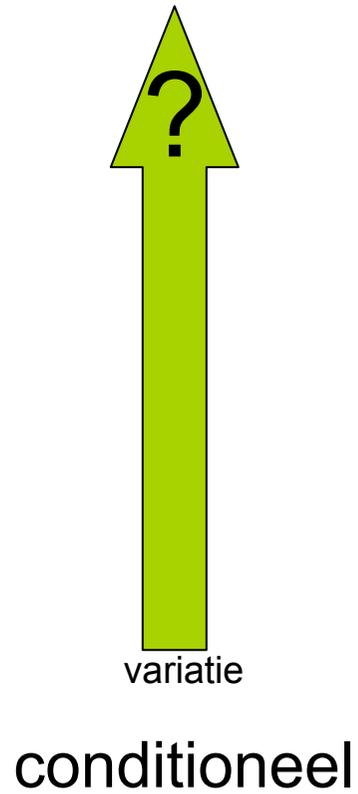


De ruimte direct onder een gebouw wordt ingenomen door de constructies die het bouwwerk moeten ondersteunen. De bodem onder de straten en de trottoirs zit vol buizen en leidingstelsels van voorzieningen die de mensen die in de gebouwen wonen

en werken, dagelijks nodig hebben. Deze openbare voorzieningen zijn de waterleiding, de riolering, de afvoer van regenwater, elektriciteit, gas en telefoonverbindingen en in sommige gevallen stoom en warm water voor centrale verwarmingsinstallaties.

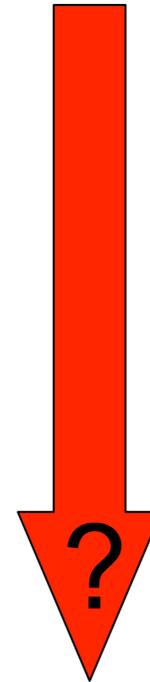
Cables and ducts

Sun wind water earth **life** living



operationeel

doelsoorten



Sun wind water earth **life** living

Nature targets 300 m.

300m

hz-3.1: laaglandbeek

hz-3.2: zoet watergemeenschap

hz-3.3: rietland en ruigte

hz-3.4: ven

hz-3.5: droog grasland

hz-3.6: bloemrijk grasland

hz-3.7: vochtig schraalgrasland

hz-3.8: open zand

hz-3.9: droge heide

hz-3.10: vochtige heide en levend hoogveen

hz-3.11: struweel, mantel- en zoombegroeiing

hz-3.12: hakhout

hz-3.13: bosgemeenschappen van arme zandgrond

hz-3.14: bosgemeenschappen van leemgrond

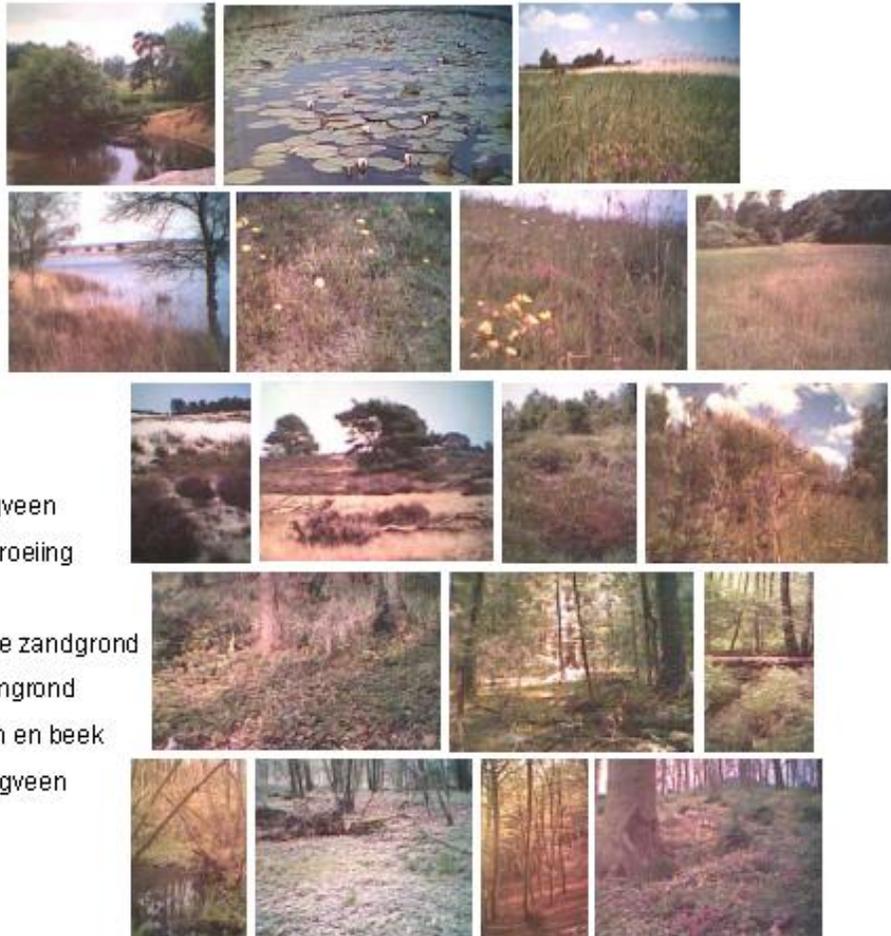
hz-3.15: bosgemeenschappen van bron en beek

hz-3.16: bosgemeenschappen van hoogveen

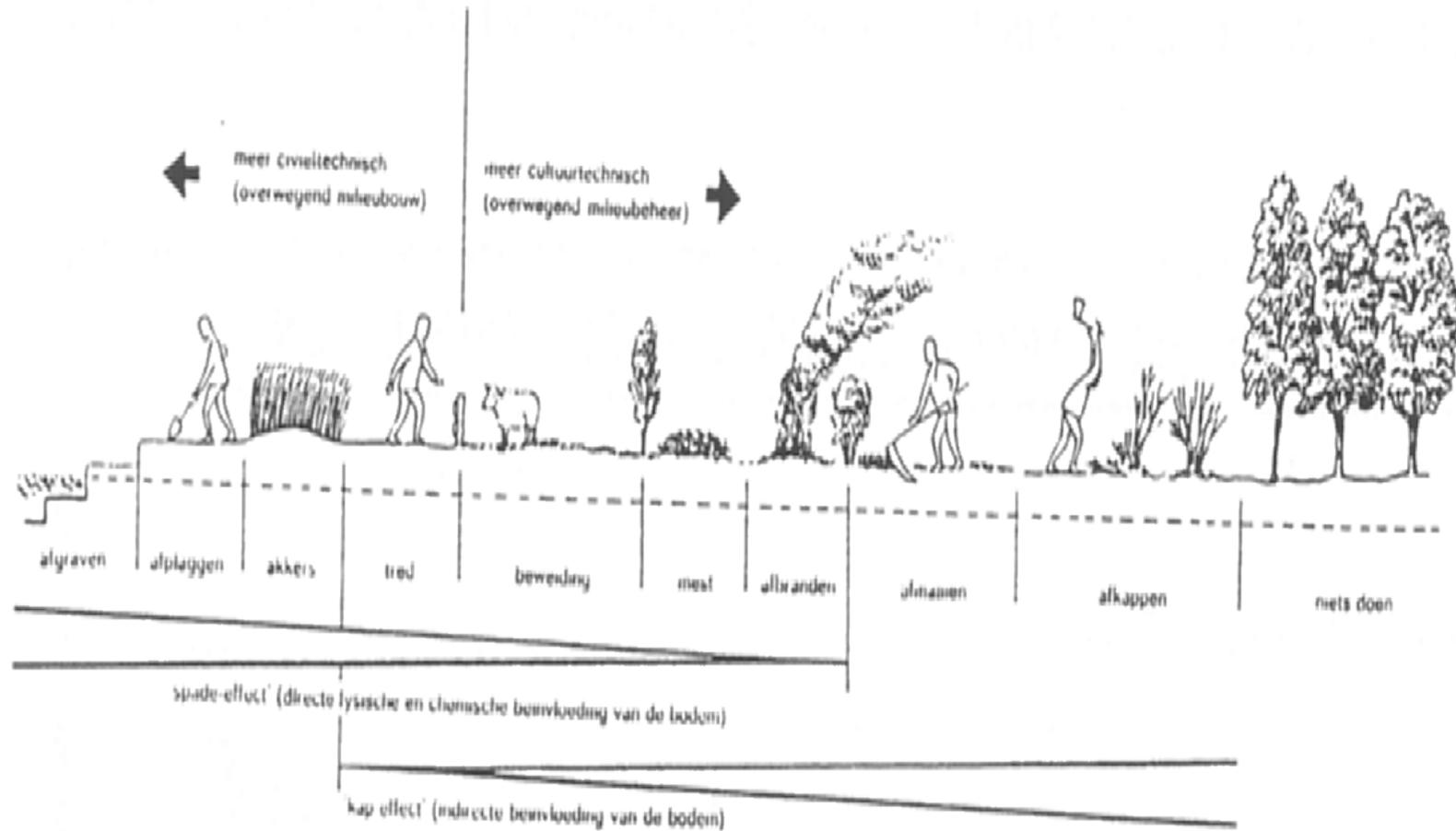
hz-3.17: middenbos

hz-3.18: boombos

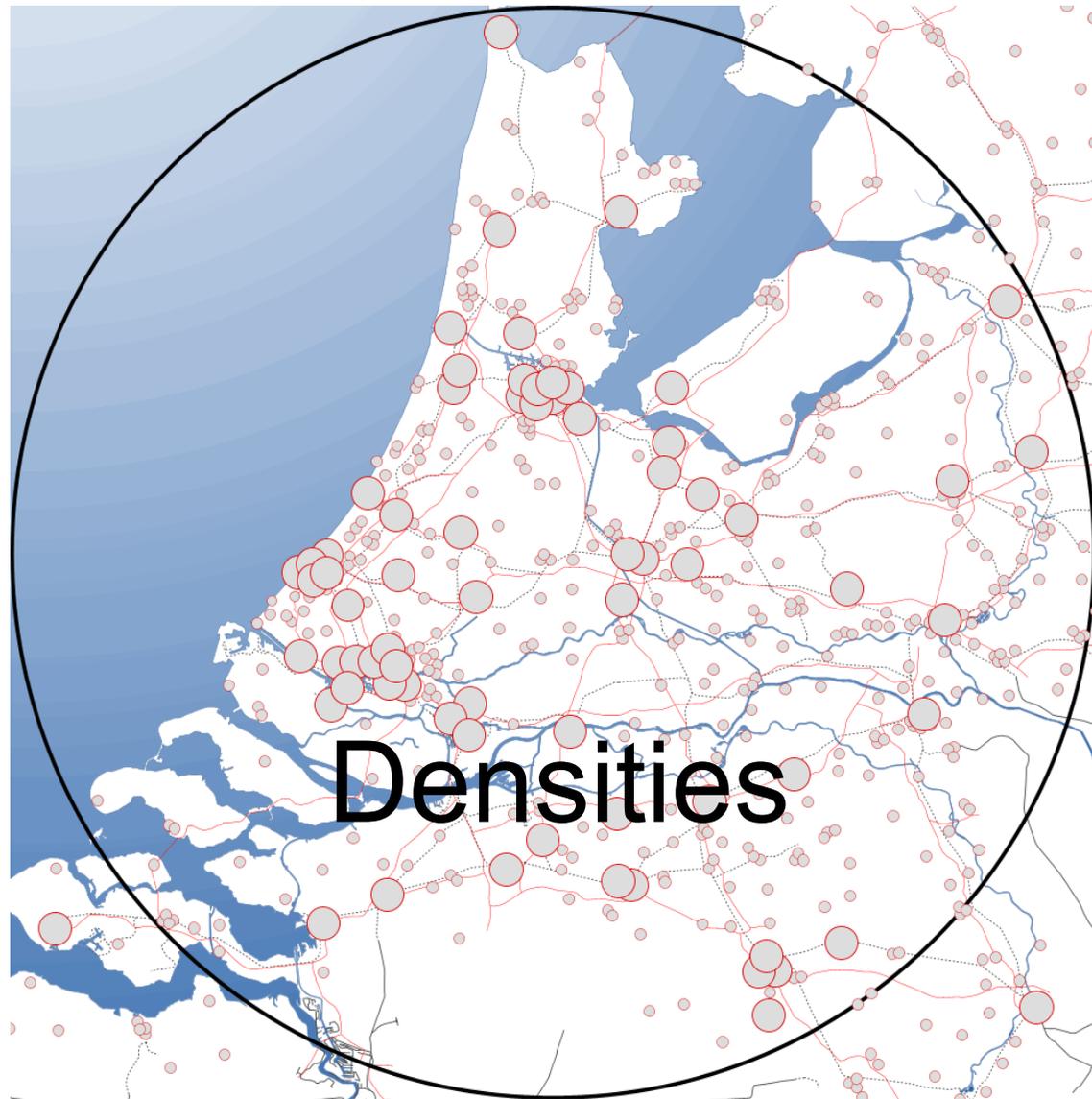
hz-3.19: park-stinzenbos



Sun wind water earth life **living**



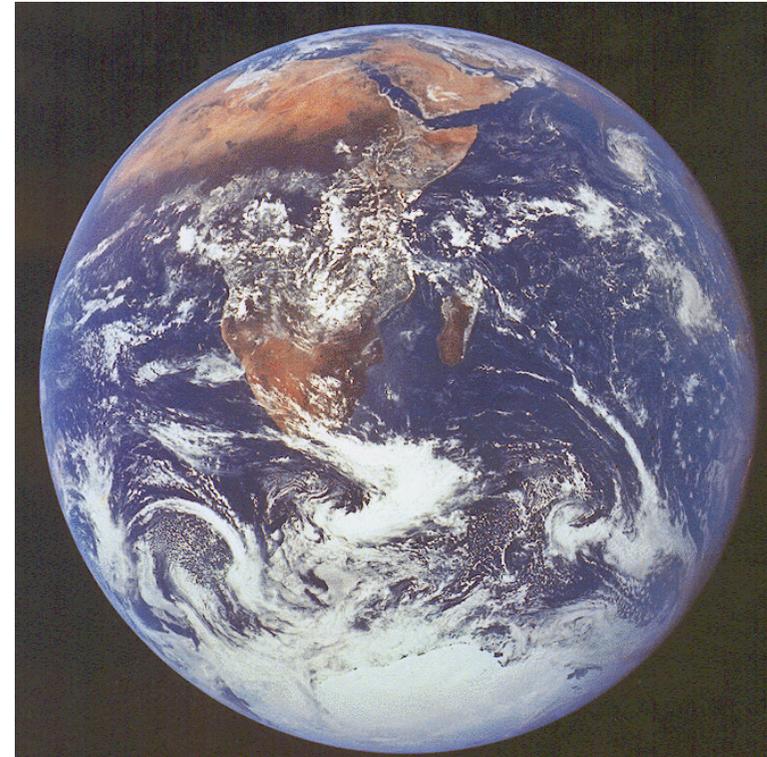
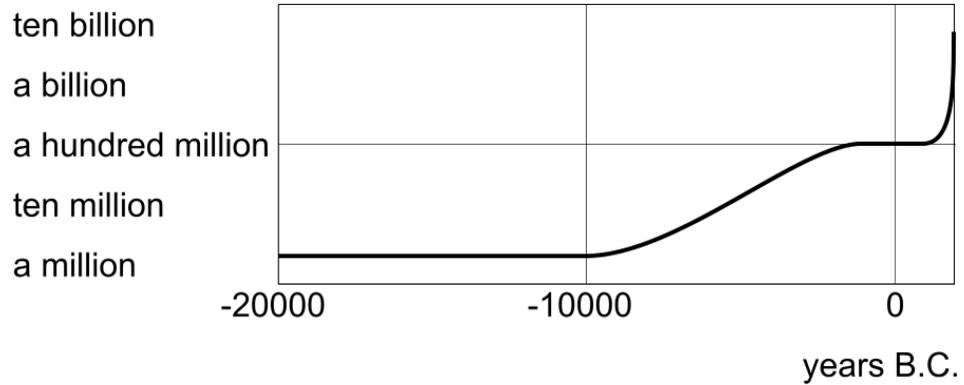
Sun wind water earth life **living**



Sun wind water earth life **living**

Environment

WORLD POPULATION



Sun wind water earth life living

Legends for design

straal in m	RG	RB	RZ	GZ	BZ	GB	
30 000	nationale spreiding?	bouwen in de duinen?				Nederland Waterland	
10 000	Groene Hart?	Makelaarsdroom	mainports	groene inpassing van snelwegen	Afsluitdijk	Casco-concept	
3 000	bufferzones?				Tjeukemeer	3 netwerken	
1 000	stadsgroen?		geluidhinder	ontsluiting	bermbeheer	havens	oeverrecreatie
300	wijkgroen?					boulevards	
100	buurtgroen?						
30	vlekgroen?	ontwatering			kaden	taluds	
10	hof of tuin?						
3	snippergroen	Venetië	rooilijnmarge			beschoeiing	
1							

Sun wind water earth life living

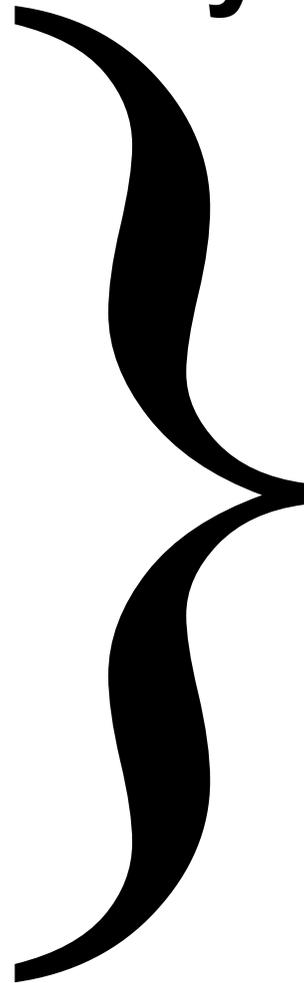
Index with 5 000 key words

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water management(lowlands)	183
water pollution	559
water production	513
water reservoirs	178
water storage	178
water supply	185
water table(planting)	76
water(ecological groups)	412
water(fishing, drinking, swimming)	572
water's edge	614

Use them in your studio

- Sun
- Wind
- Water
- Earth
- Life
- Living



Legends
for
design

Tests

Microsoft Excel - 200809AR2U070.xls

File Edit View Insert Format Tools Data Window Help Adobe PDE

75%

Arial 10

AT1

1	AR1U130 November 2009					http://team.bk.tudelft.nl/Education/Education.htm																														
2	Please check your URL. If it does not agree please mail the right one to					T.M.deJong@tudelft.nl																														
3	to be judged					referring code AR1U130, period and your web-address!!																														
4	assignment																																			
5	St.Nr	Last Name	First name	Email	URL	website made	test Sun	test Plantation	test Wind and noise	test Water	test Traffic	test Earth	test Life	test Living	test Environment	test Legends	average of tests	earlier design work	sun	plantation	wind	noise	water	traffic	earth	land preparation, cables and pipes	life	natural differentiation, new legends	living, density	environment	general content	preliminary mark	registered	registered		
6																																				
7	max possible score					1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
8	Average					##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##	##
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Totaallijst /

Draw AutoShapes

Ready NUM