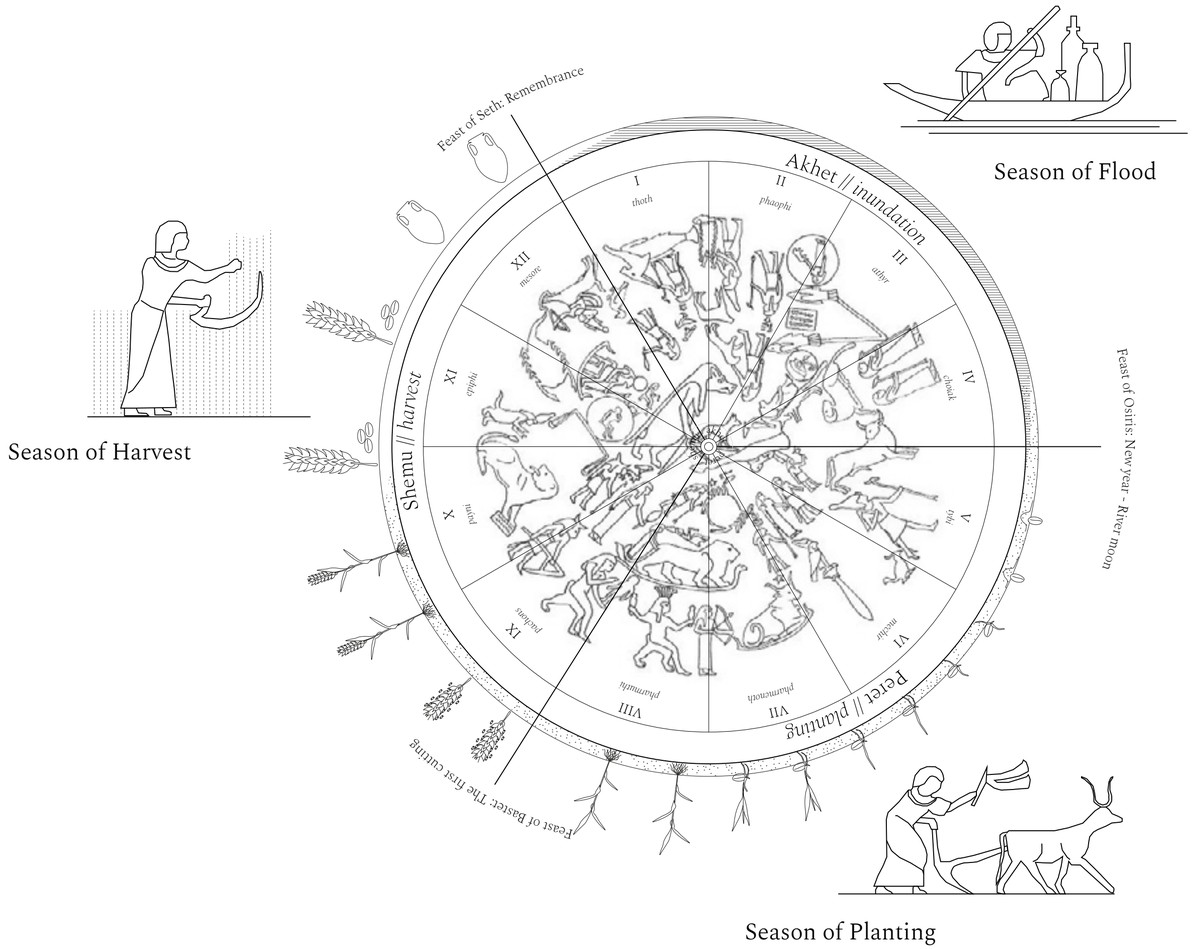
a River Reborn

An explorative landscape architecture design focussed on restoring the natural river system in the Nile River Basin.

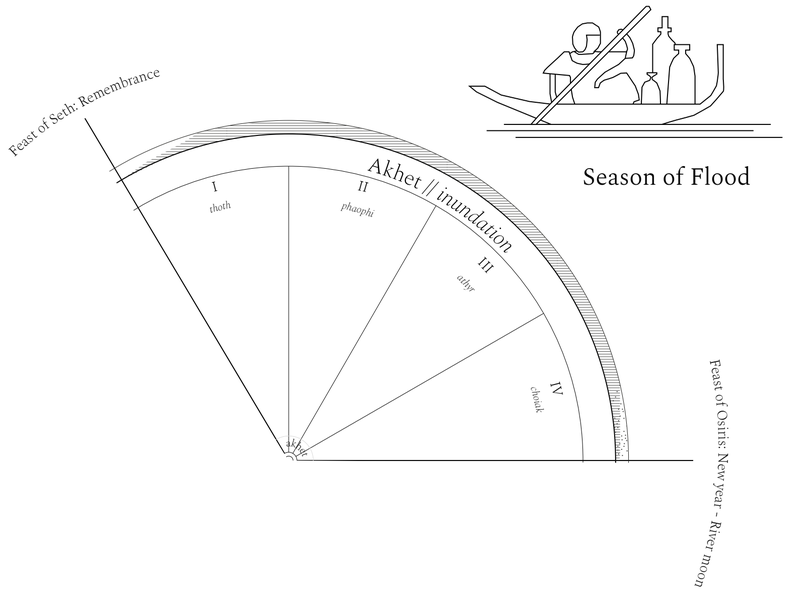
P5 presentation // RCL // Flowscapes
Msc Landscape Architecture // TU Delft
Hilde Huijboom // 5485207
Prof. dr. Steffen Nijhuis // dr. Fransje Hooimeijer
Room Q // 03 - 11 - 23

The Nile River Basin

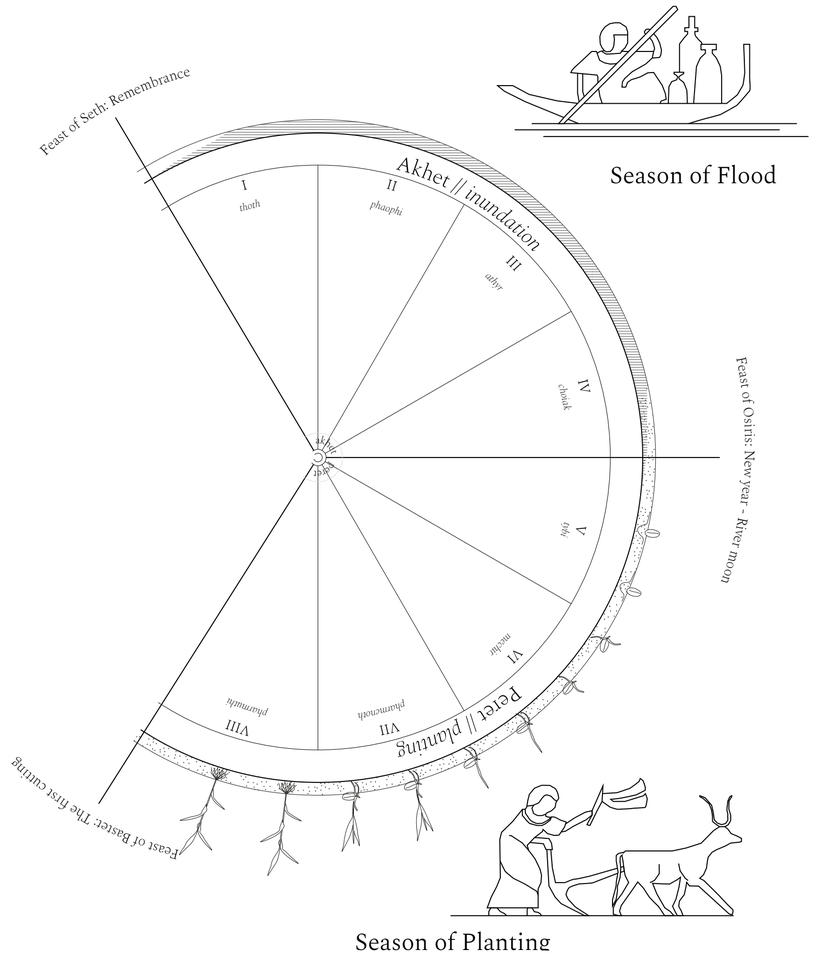
Three seasons of Ancient Egypt



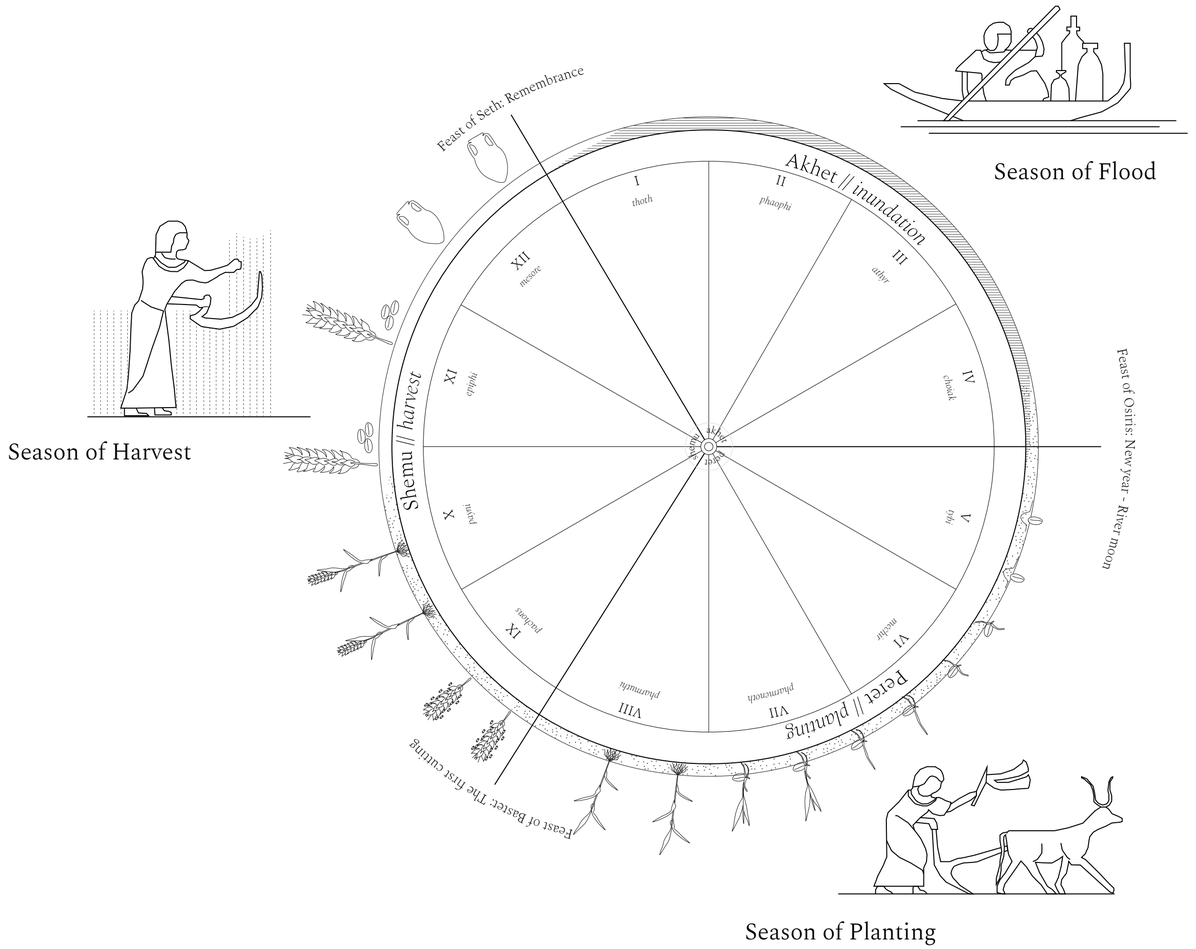
Three seasons of Ancient Egypt



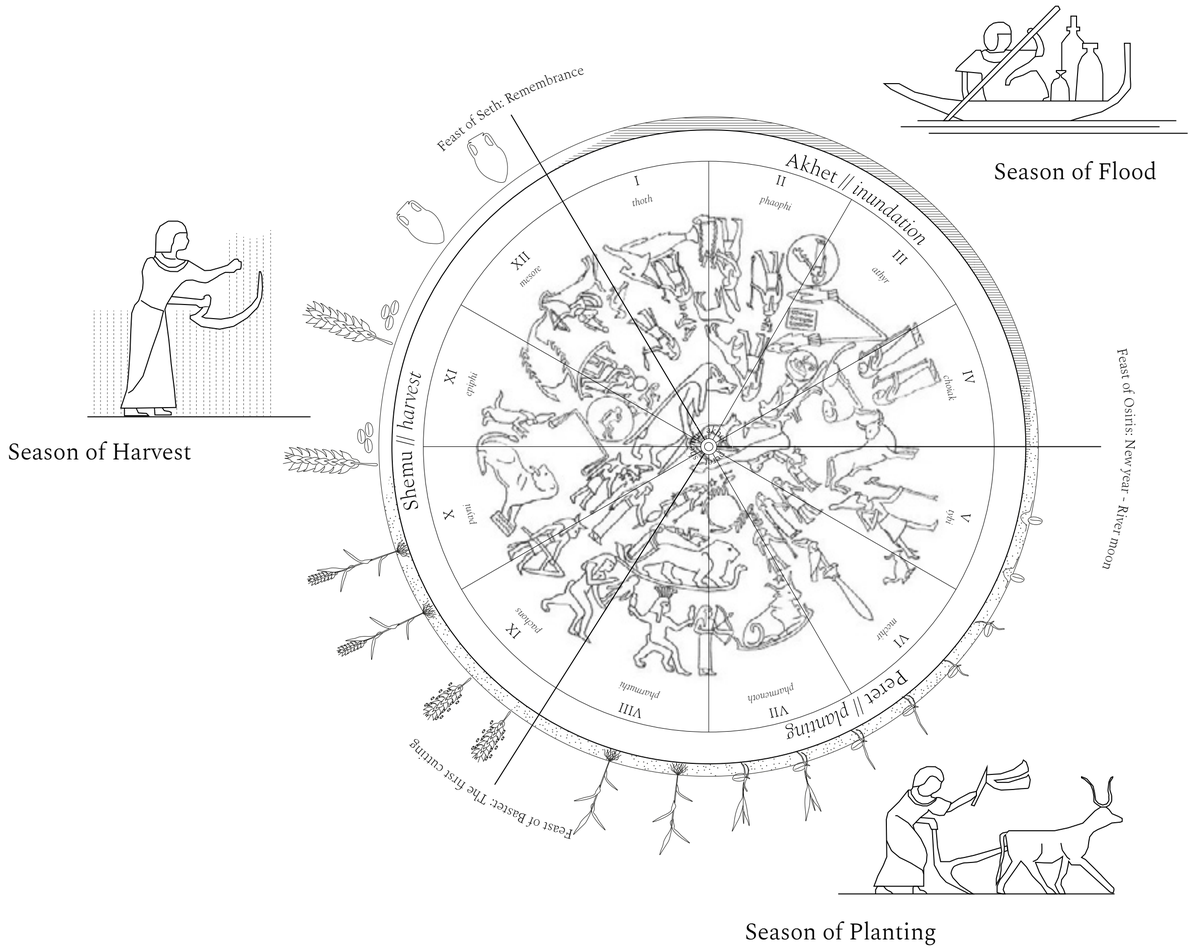
Three seasons of Ancient Egypt



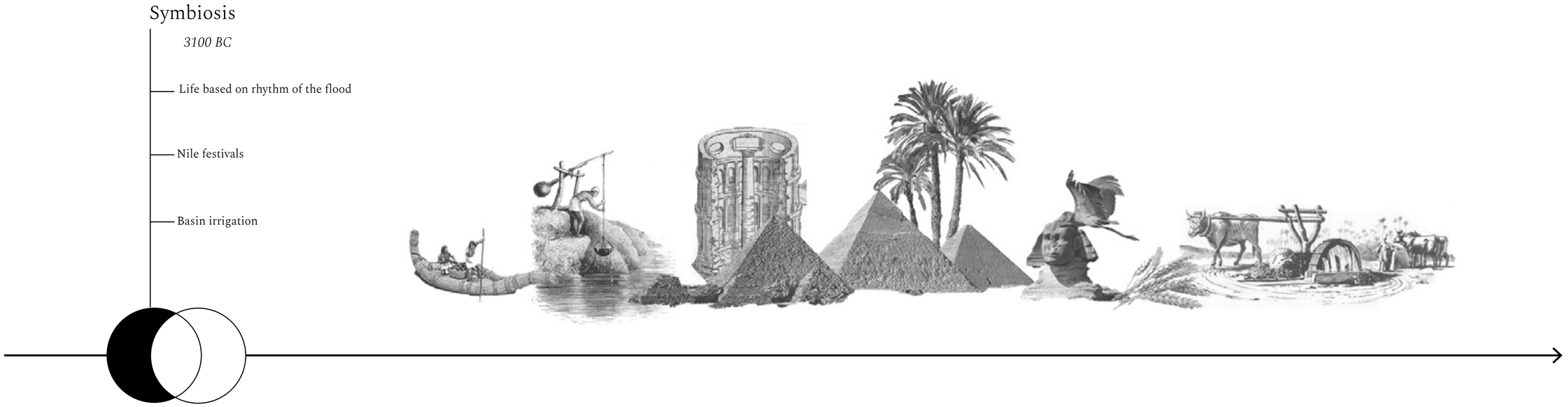
Three seasons of Ancient Egypt



Three seasons of Ancient Egypt



A trip through time



Nature

Humans

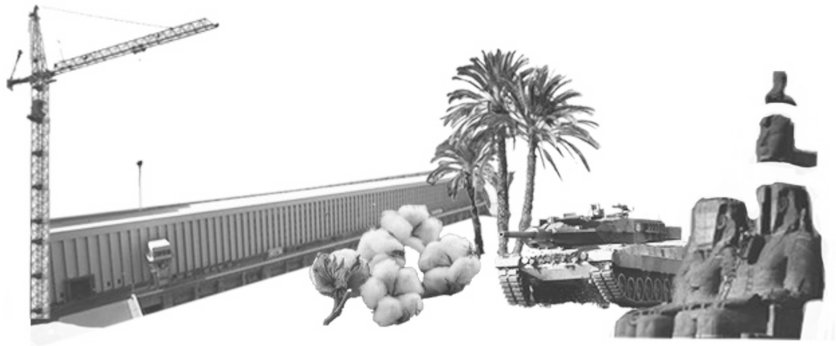
based on Redeker, C., & Jüttner, M. (2020). *Landscaping Egypt: from the aesthetic to the productive.* Jovis Verlag GmbH.

A trip through time

Controlling

1500 - 1970

- Extensive infrastructural irrigation work
- Perennial agriculture
- Aswan High Dam



Nature

Humans

based on Redeker, C., & Jüttner, M. (2020). Landscaping Egypt: from the aesthetic to the productive. Jovis Verlag GmbH.

A trip through time

Commodifying

1970 - present

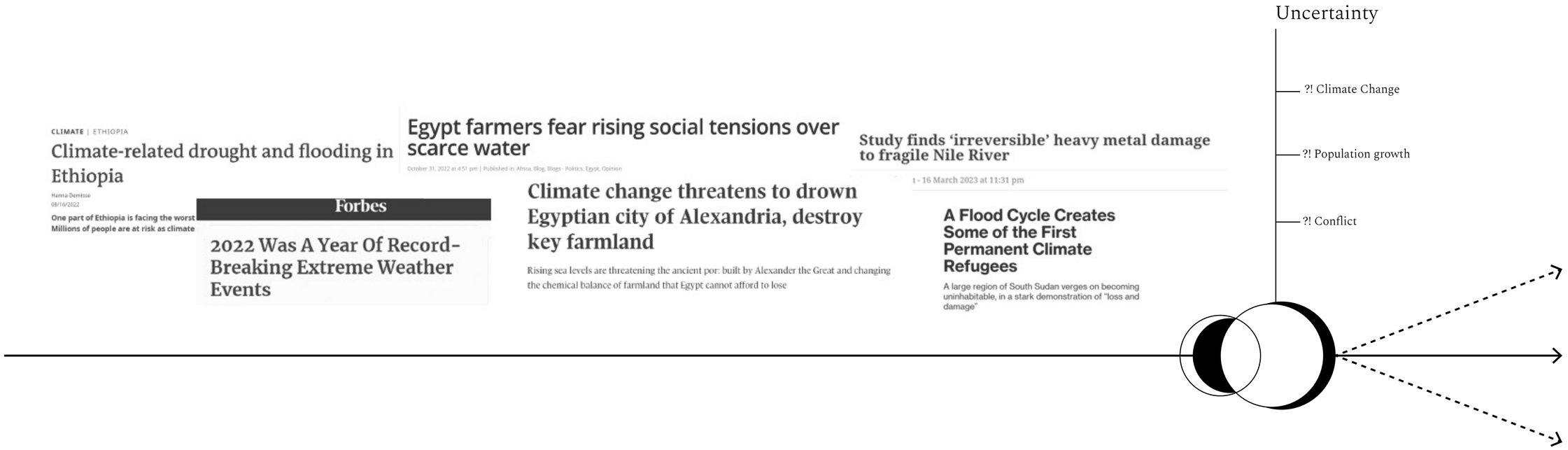
- Exploitation of resources
- Tourism
- Large scale irrigation project in desert

Nature

Humans

based on Redeker, C., & Jüttner, M. (2020). Landscaping Egypt: from the aesthetic to the productive. Jovis Verlag GmbH.

A trip through time



Nature

Humans

based on Redeker, C., & Jüttner, M. (2020). Landscaping Egypt: from the aesthetic to the productive. Jovis Verlag GmbH.

An uncertain future

floods in South Sudan

An uncertain future

Drought in Egypt

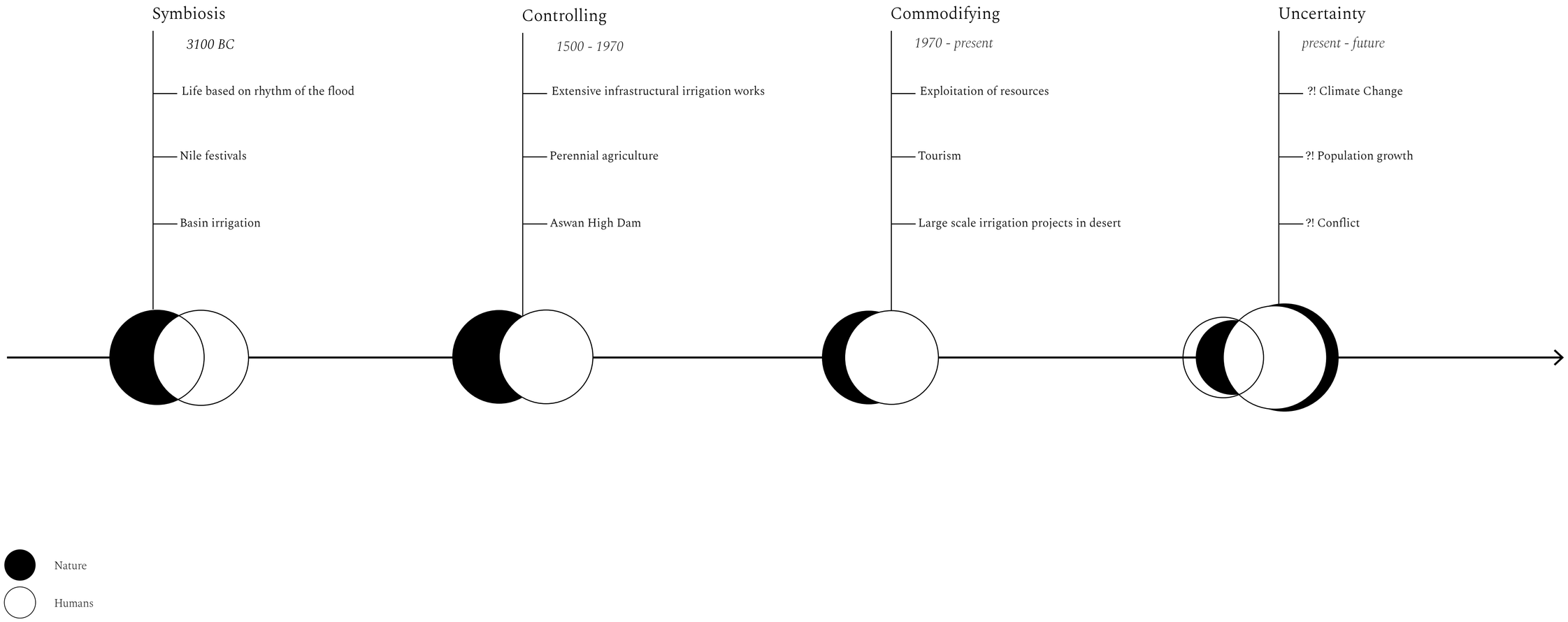
An uncertain future

soil erosion in Ethiopia

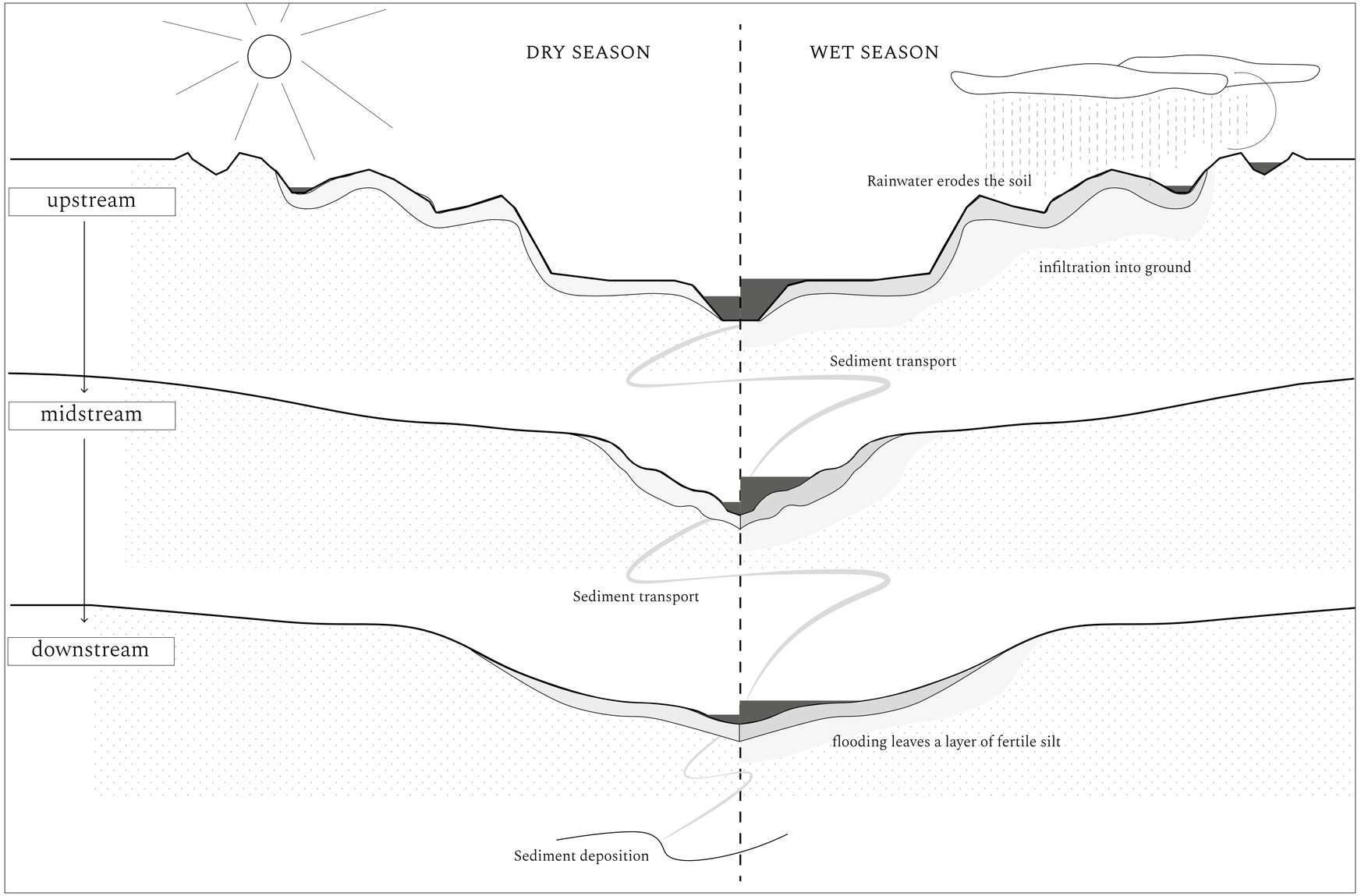
An uncertain future

coastal erosion in Nile Delta

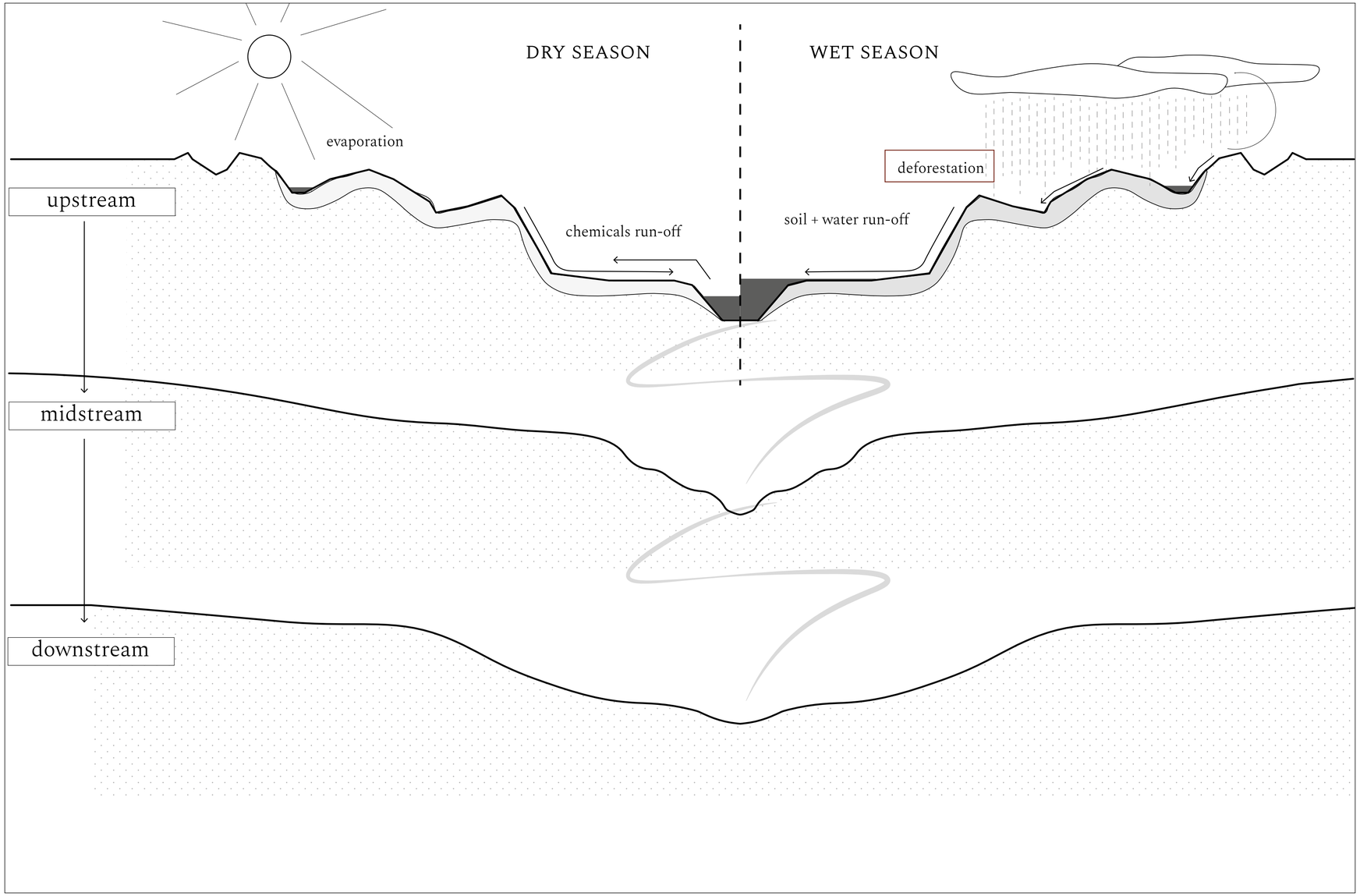
Can this be related back to how humans have shaped and formed the landscape over time?



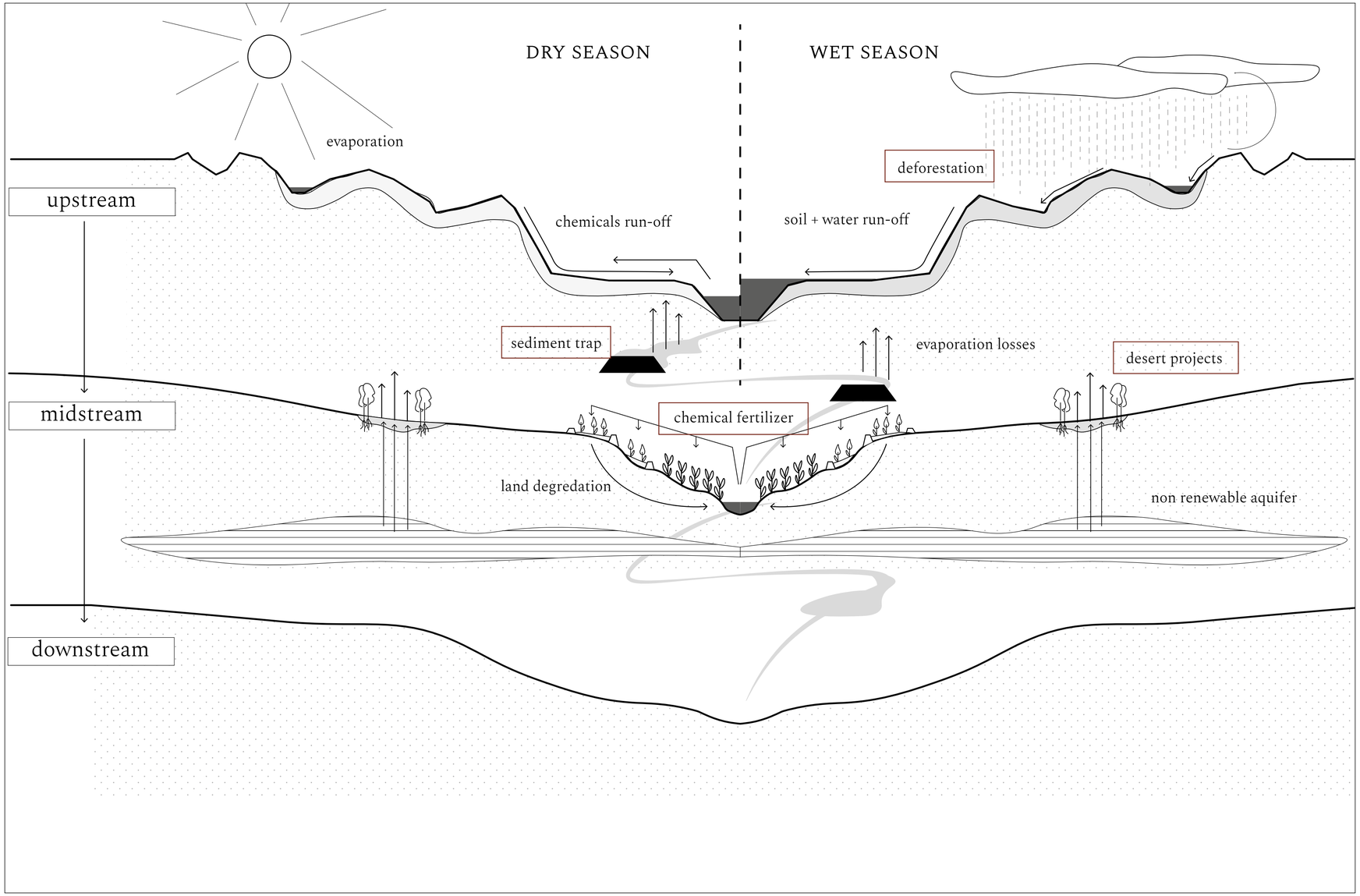
The river system



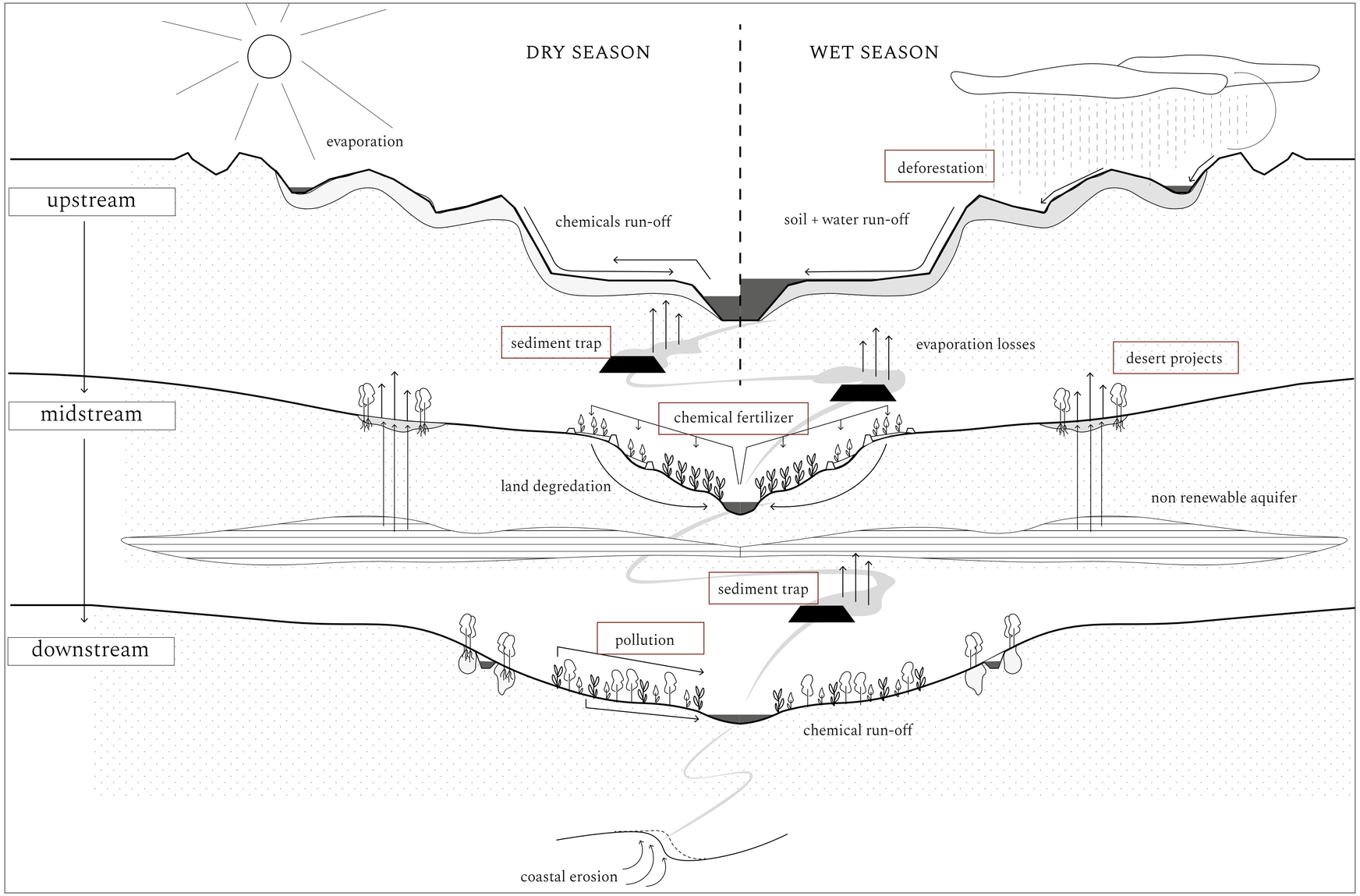
Current river system



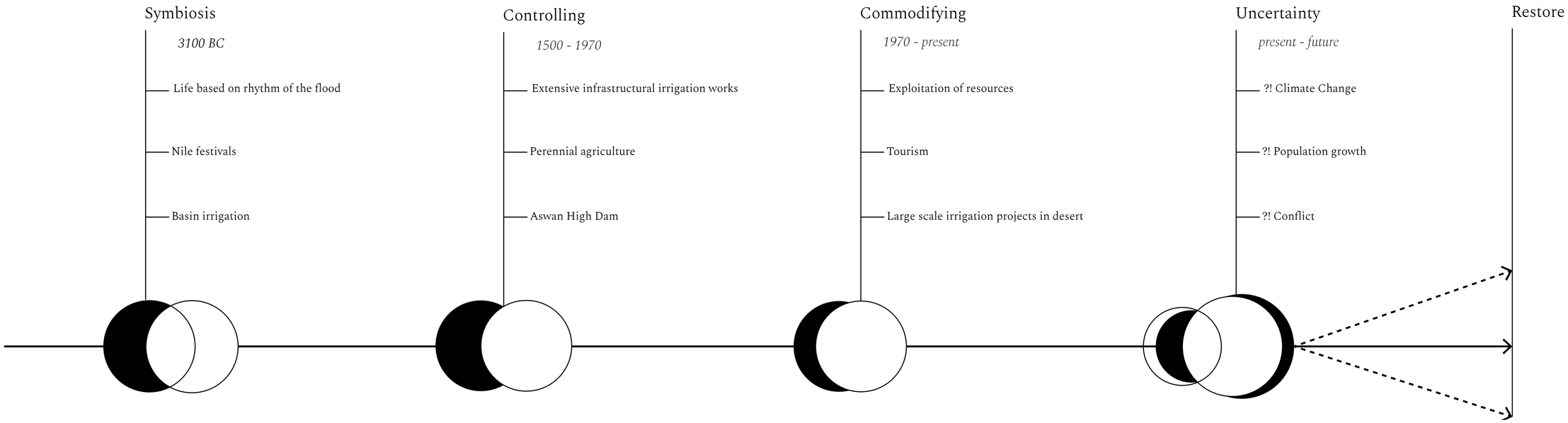
Current river system



Current river system

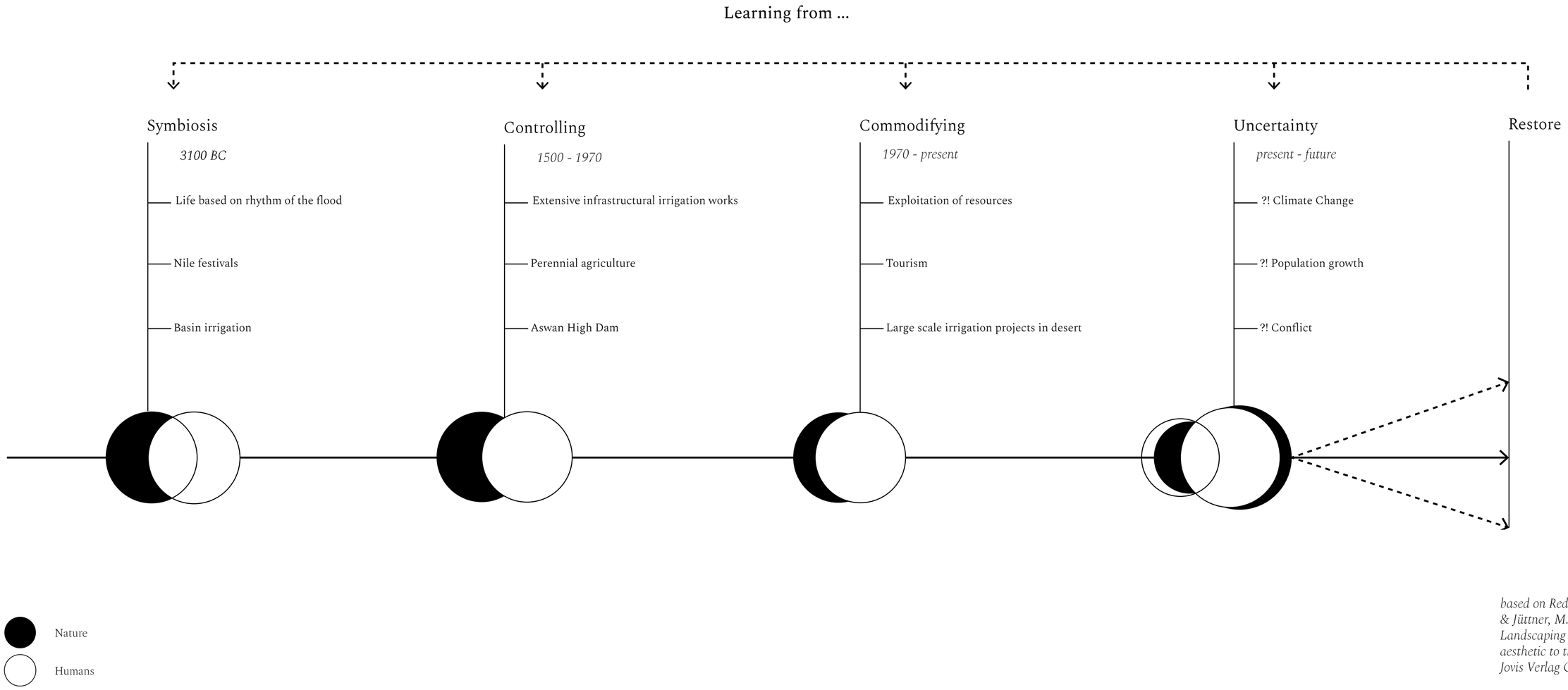


Can we restore?



based on Redeker, C., & Jüttner, M. (2020). Landscaping Egypt: from the aesthetic to the productive. Jovis Verlag GmbH.

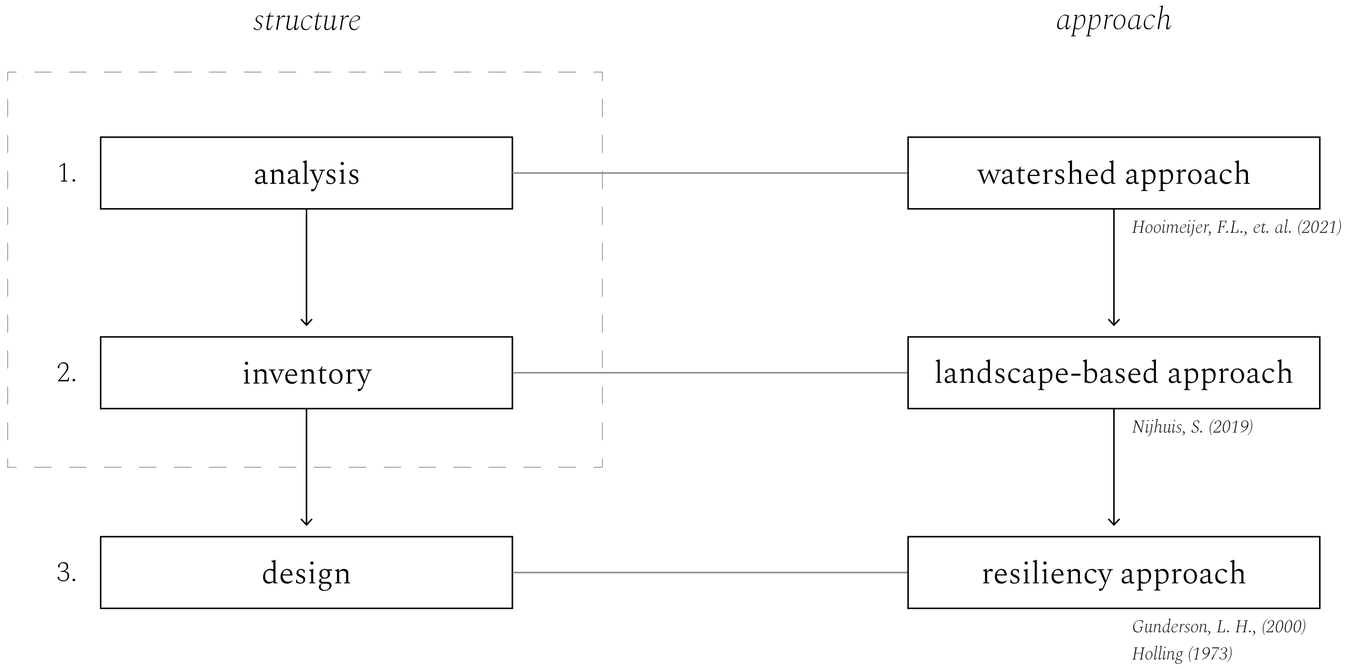
Can we learn from the past?



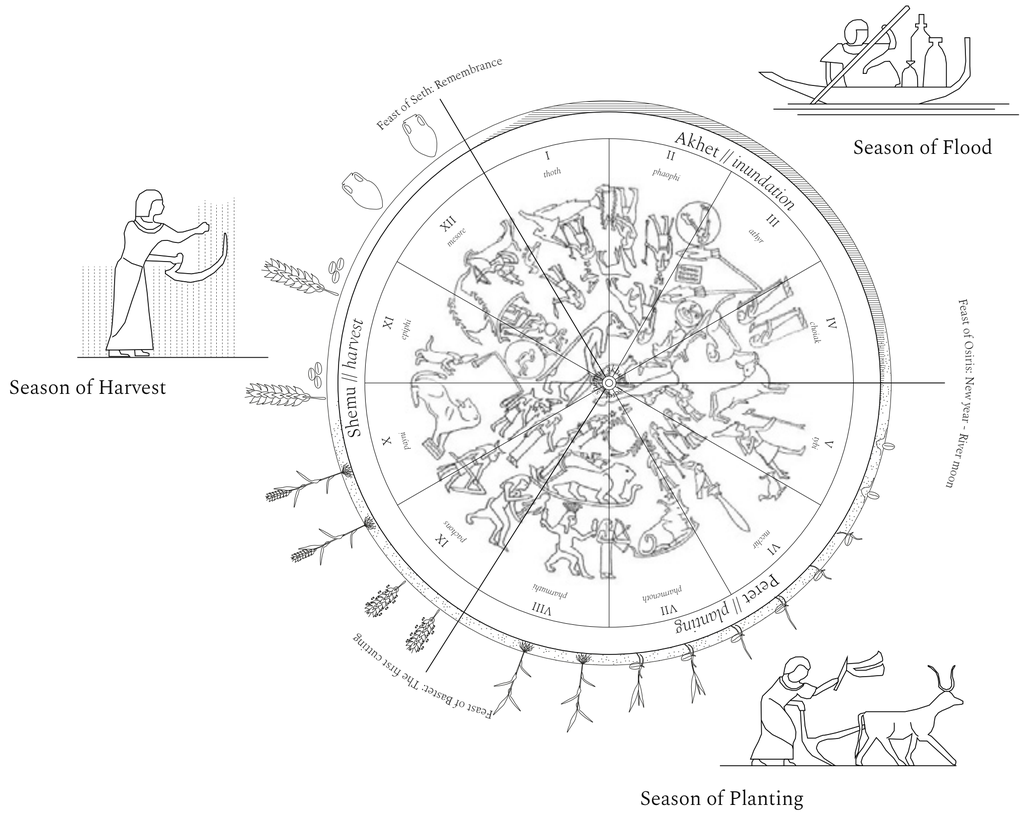
based on Redeker, C., & Jüttner, M. (2020). Landscaping Egypt: from the aesthetic to the productive. Jovis Verlag GmbH.

To explore **landscape architectural design** and identify design principles that focus on **restoring the natural river system** in the Nile River Basin, while enhancing the ecological, socio-economic value, hydrological functioning and overall resilience of the basin.

The research structure

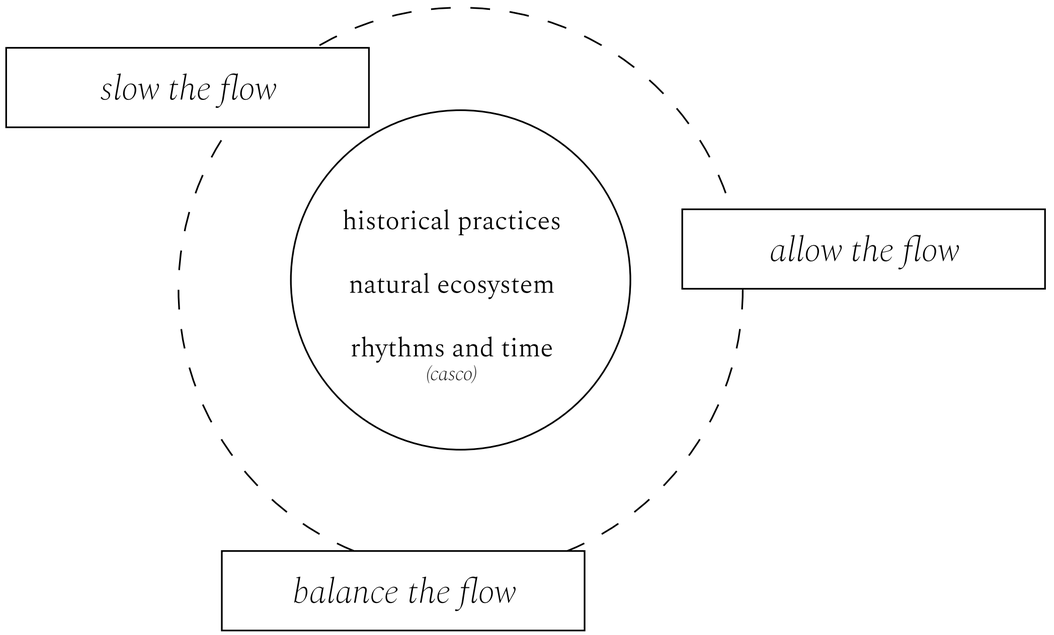


Inspired by the past

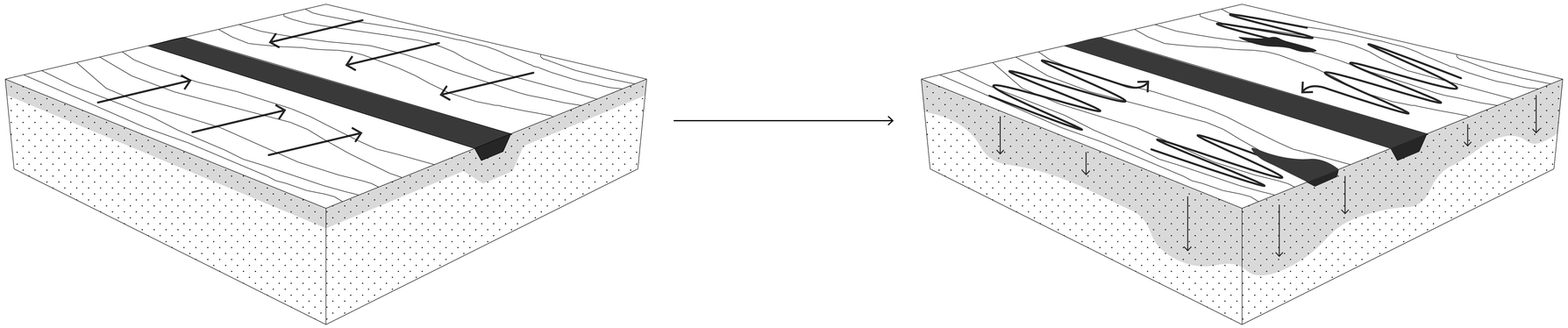


To restore the Flow

Principles



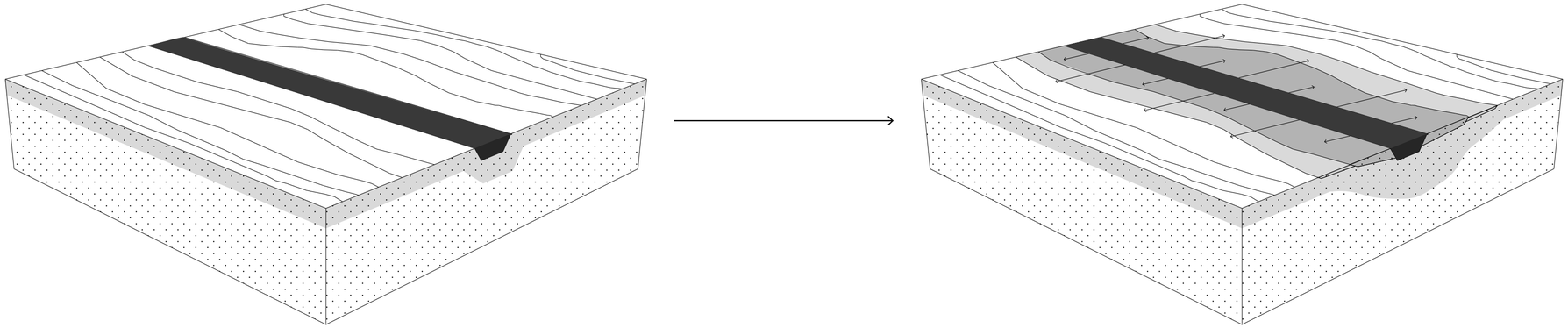
Slow the flow



before

after

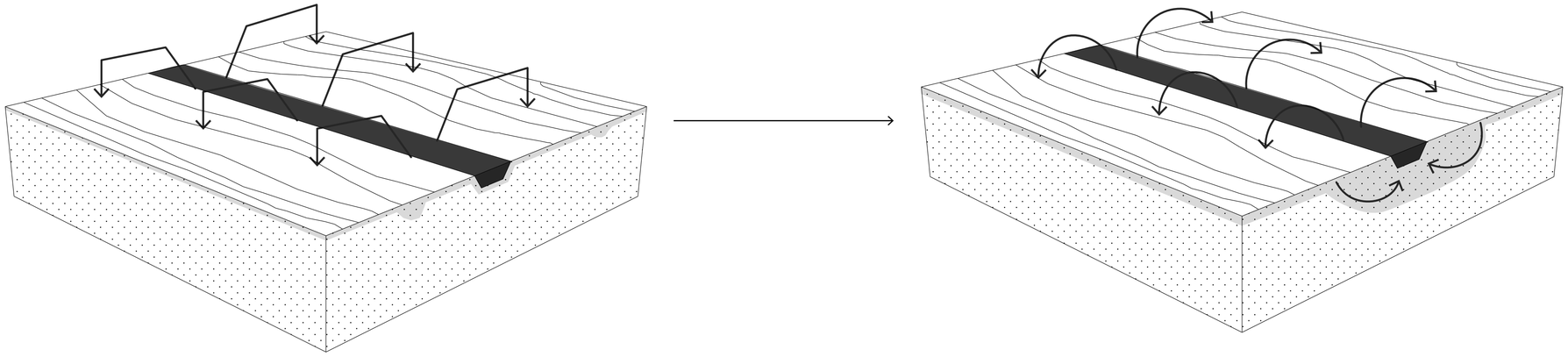
Allow the flow



before

after

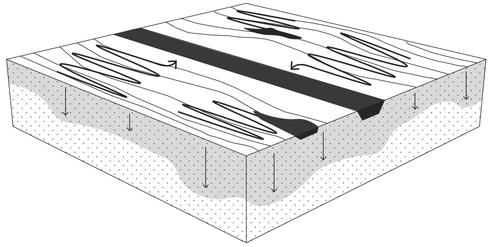
Balance the flow



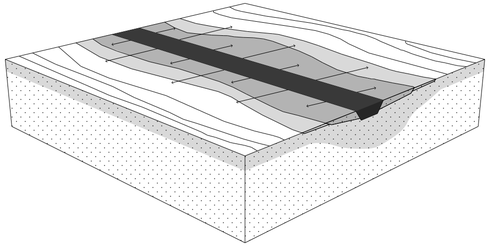
before

after

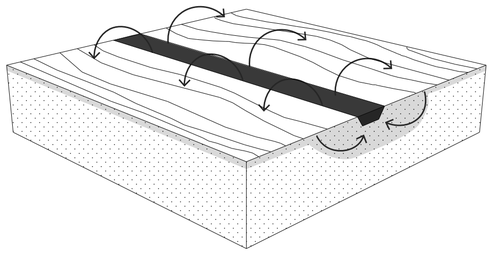
basis principles



slow the flow



allow the flow

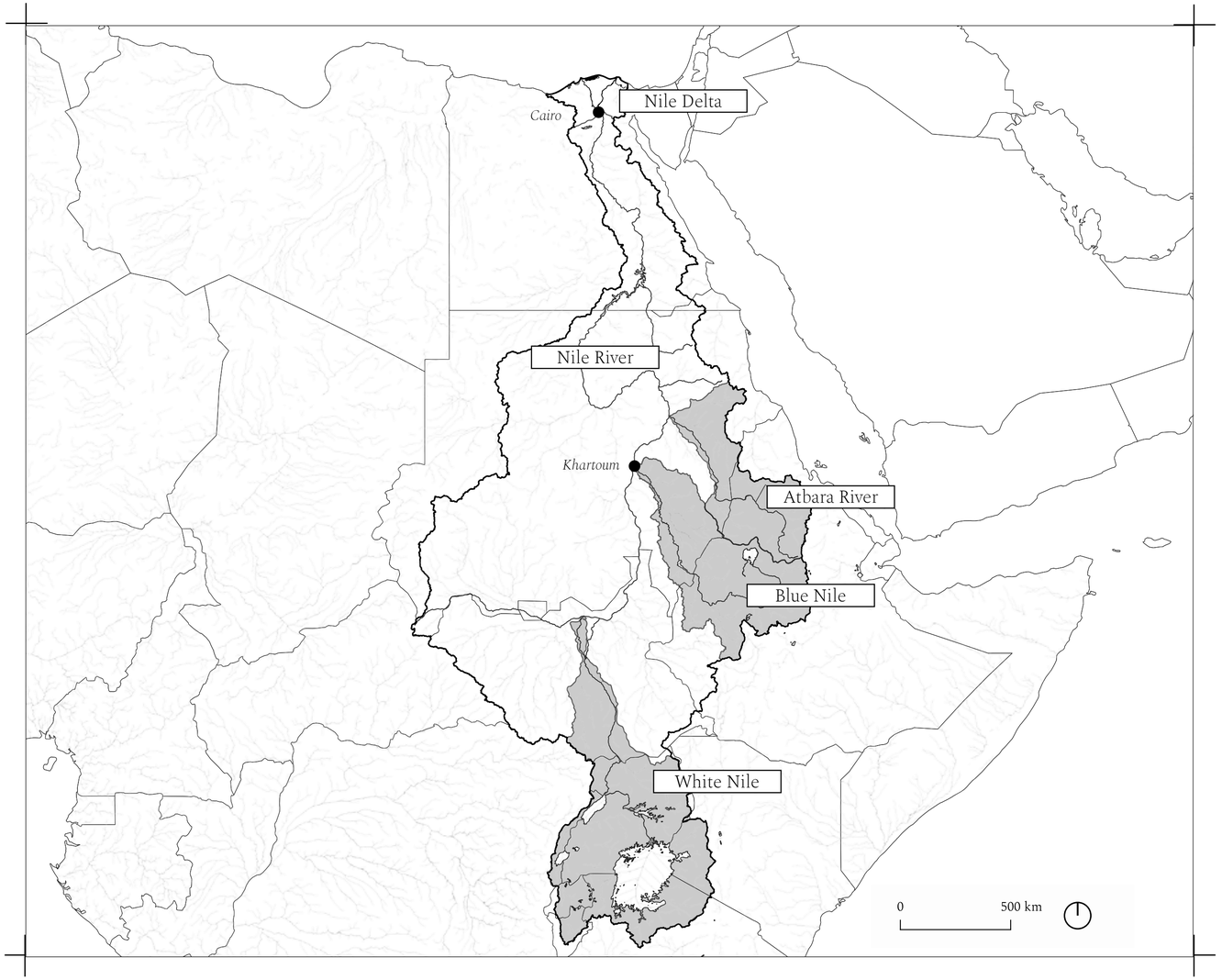


balance the flow

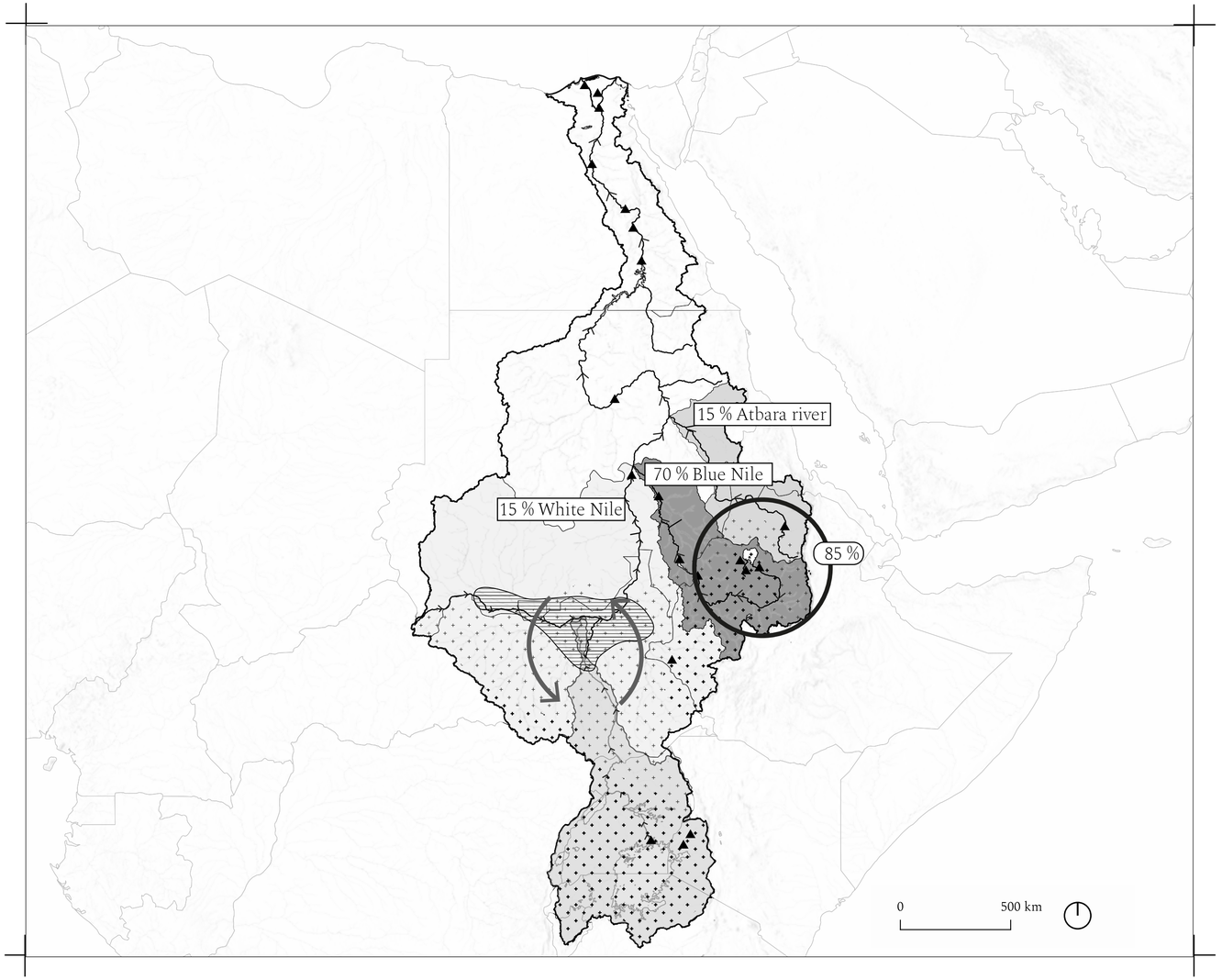
Three local landscape architecture designs

Upstream → **Midstream** → **Downstream**

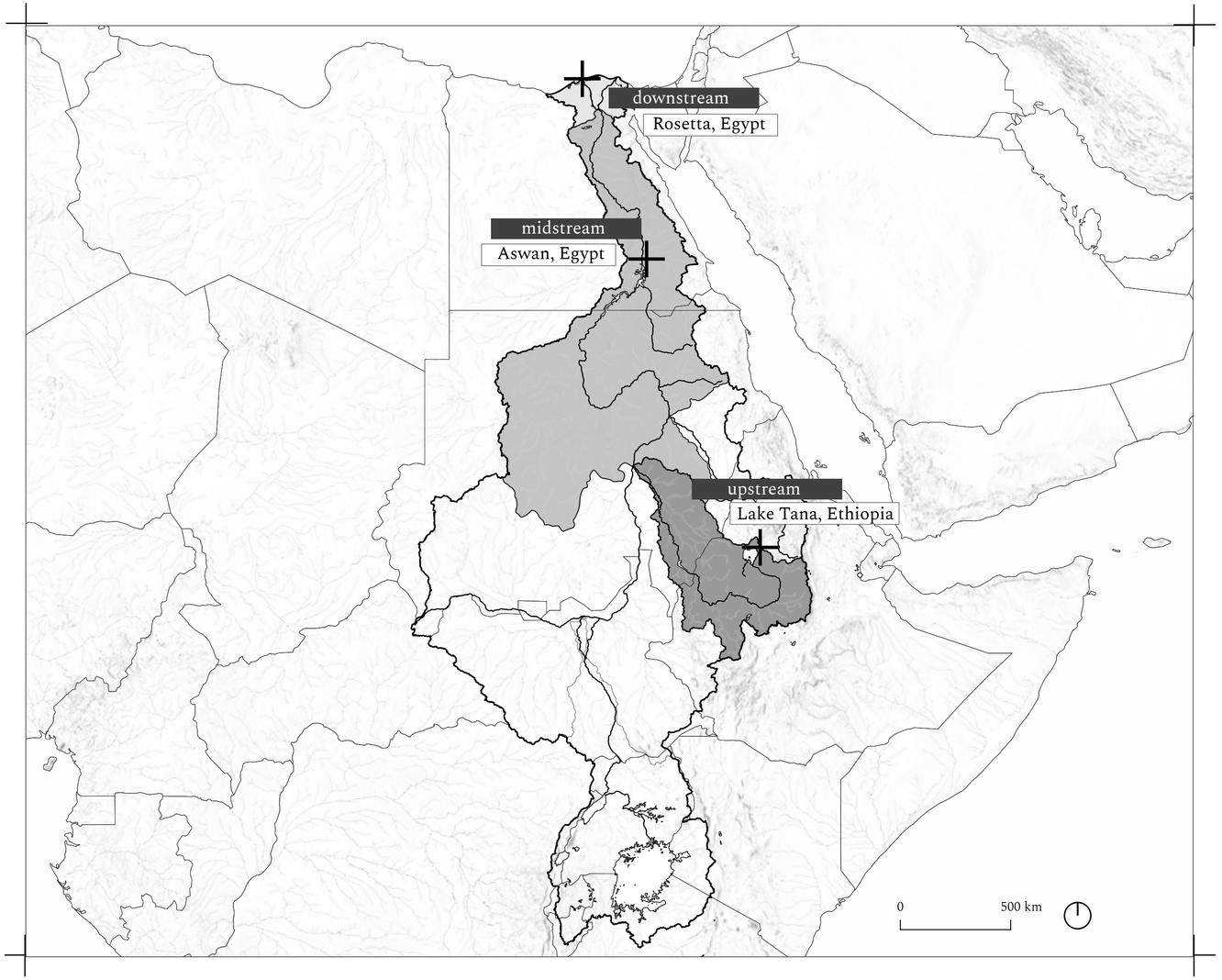
Upstreams of the Nile



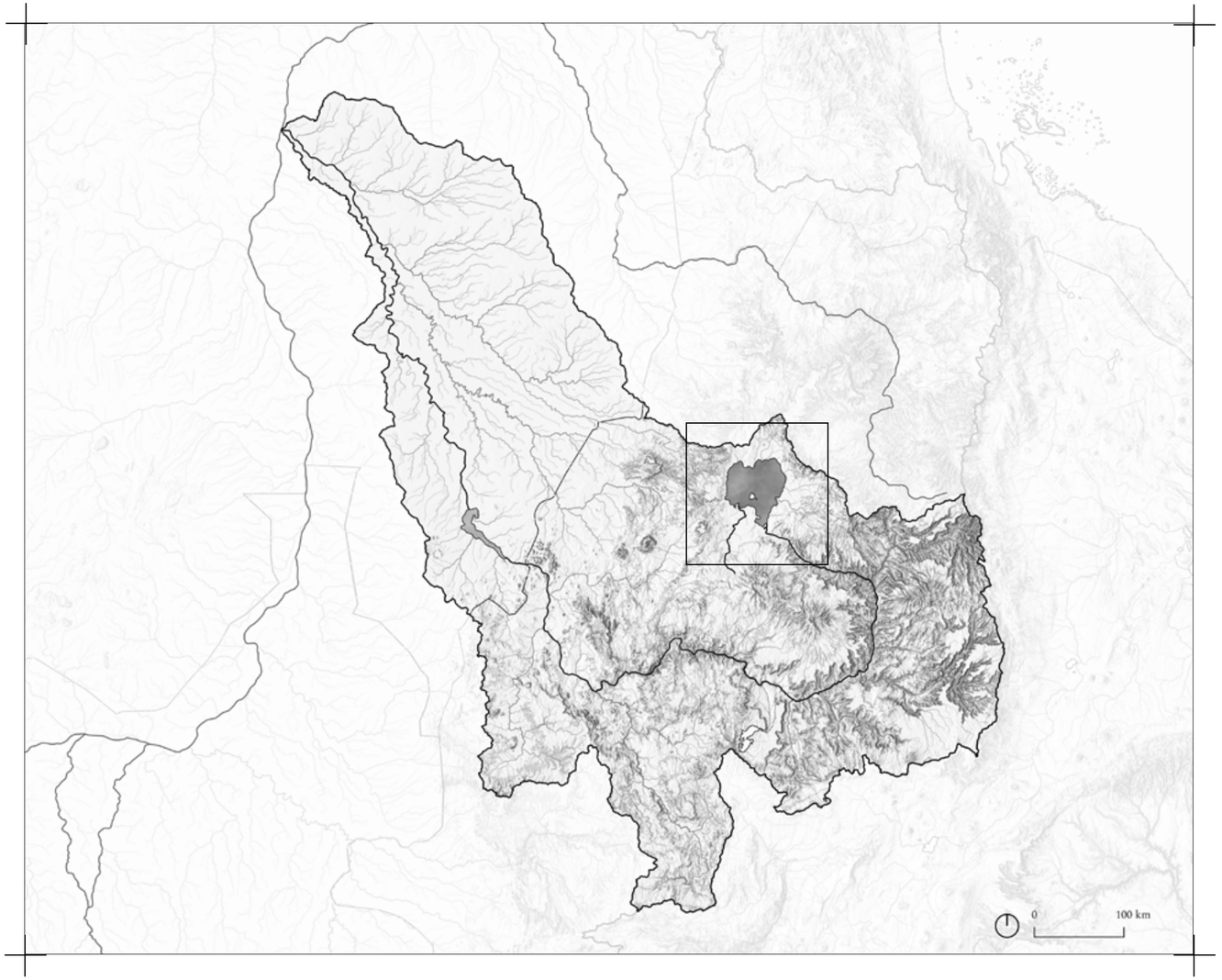
Upstreams of the Nile



Designing up-, mid-, and downstream



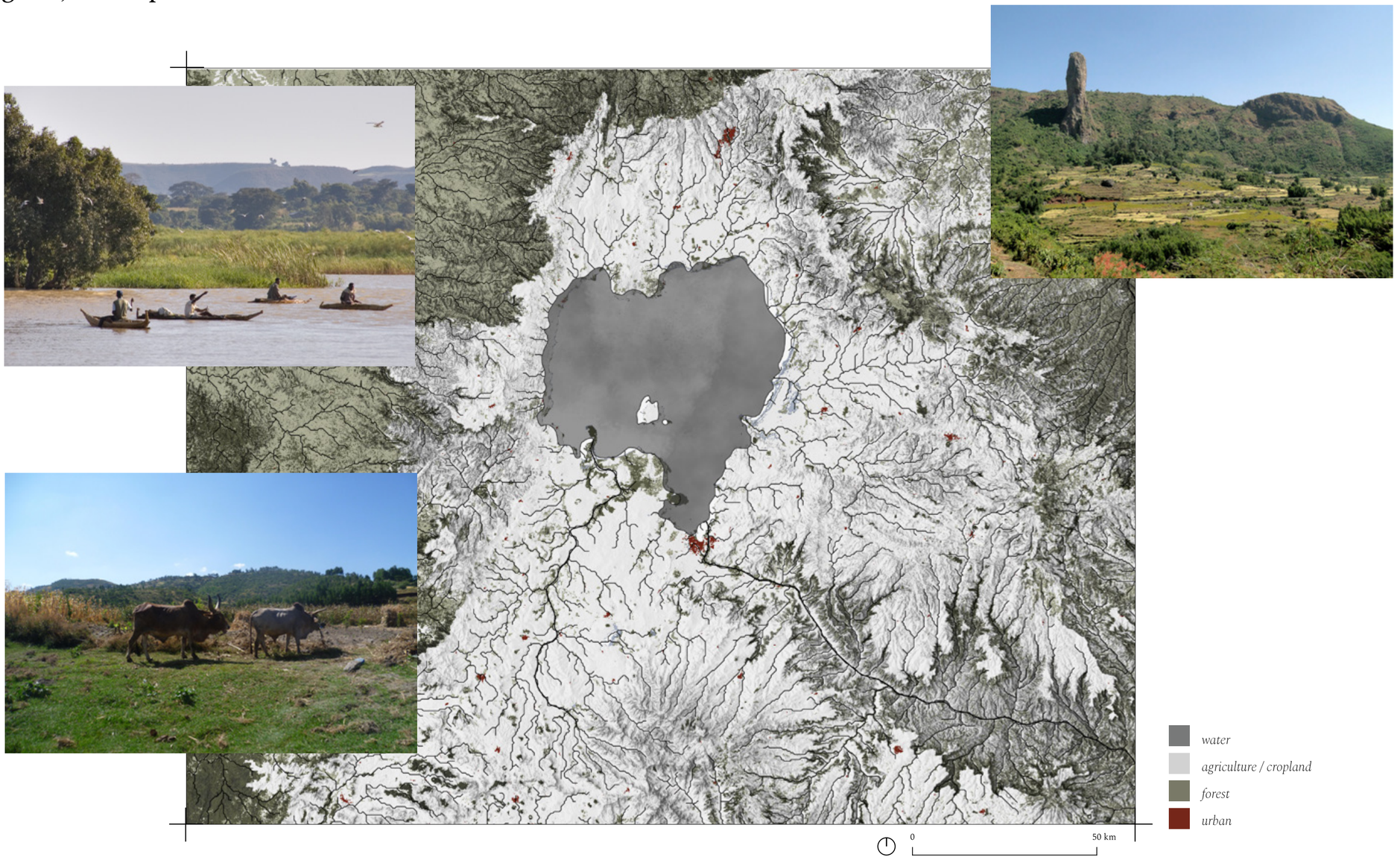
Upstream // Blue Nile



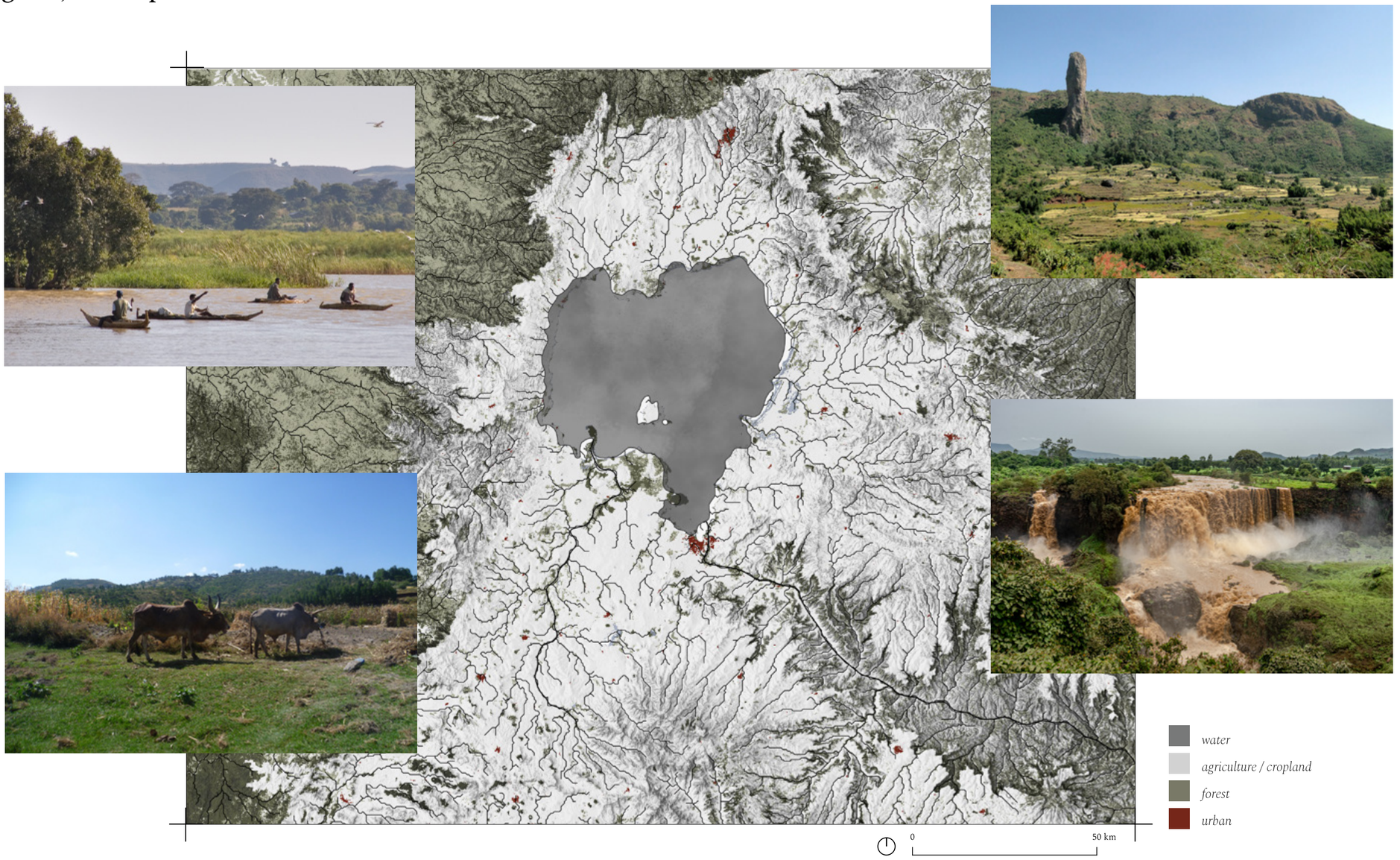
Lake Tana region, Ethiopia

Lake Tana region, Ethiopia

Lake Tana region, Ethiopia

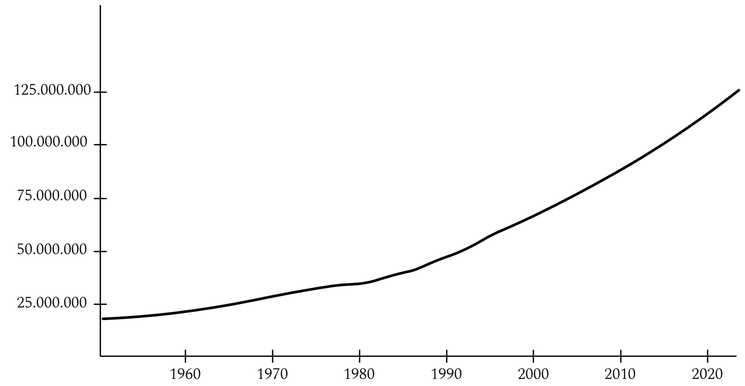


Lake Tana region, Ethiopia

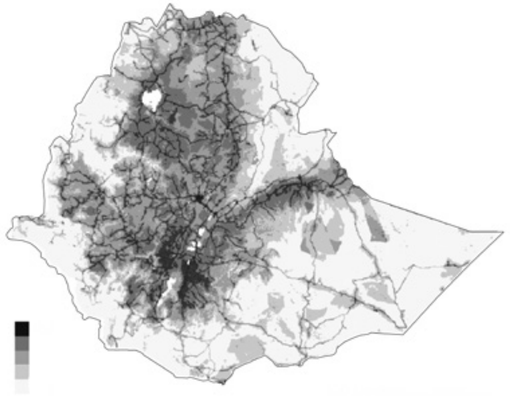


Pressure on this landscape

Population growth



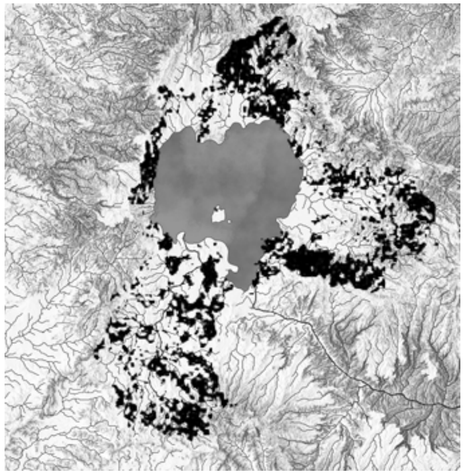
Population density (2000)



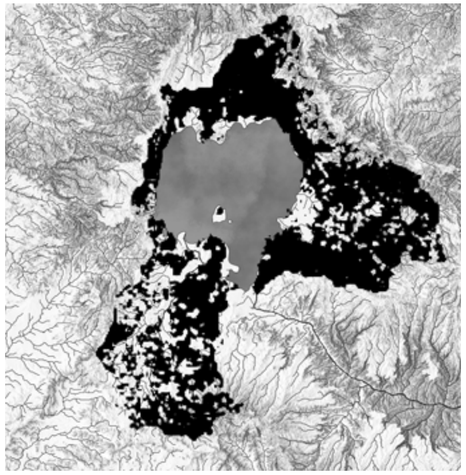
Population density (2020)

Data: WorldPop

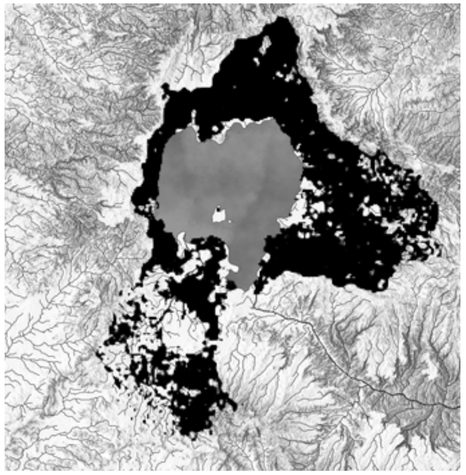
Increase in cropland



1989



2005

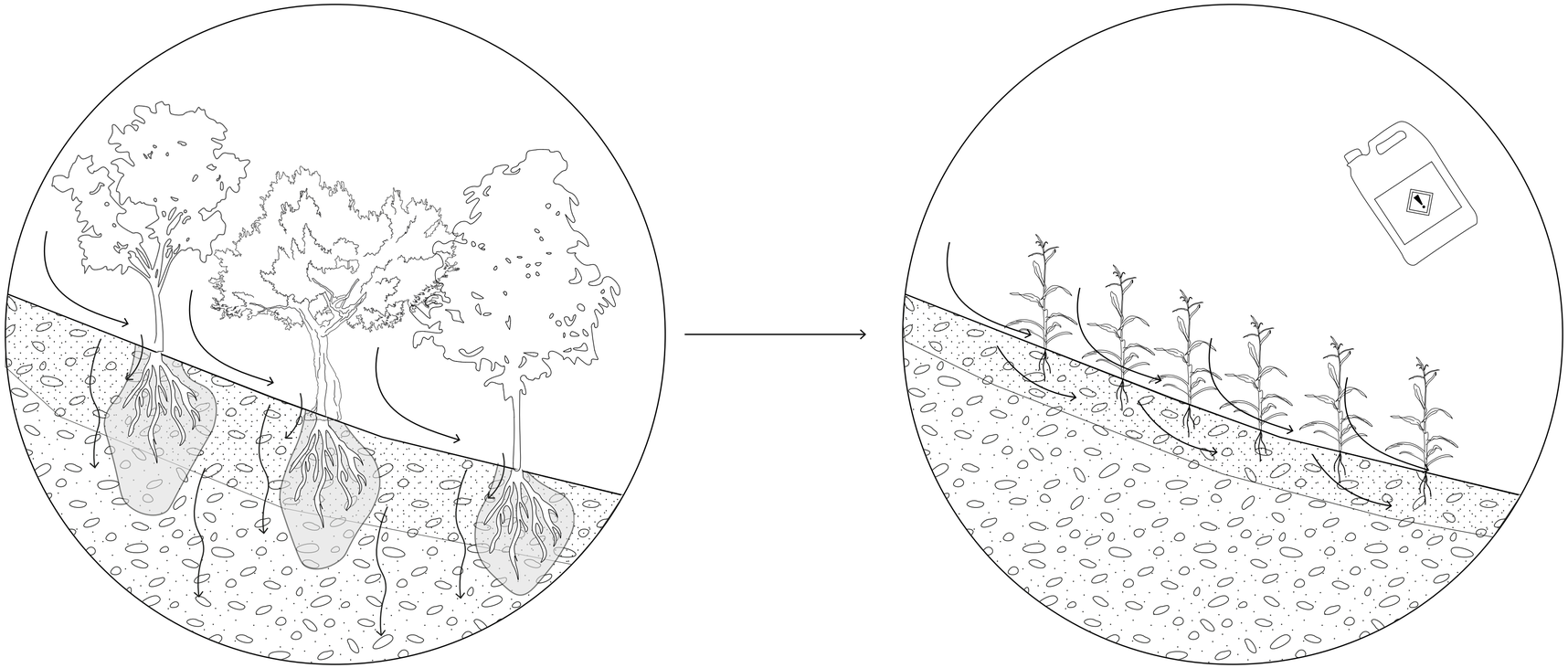


2019

cropland

Based on Tikuye et al. (2022)
Figure edited by author.

Deforestation & soil erosion



Deforestation & soil erosion

Graham Maclachlan (2011)
via Wikimedia Commons

Loss of fertile land

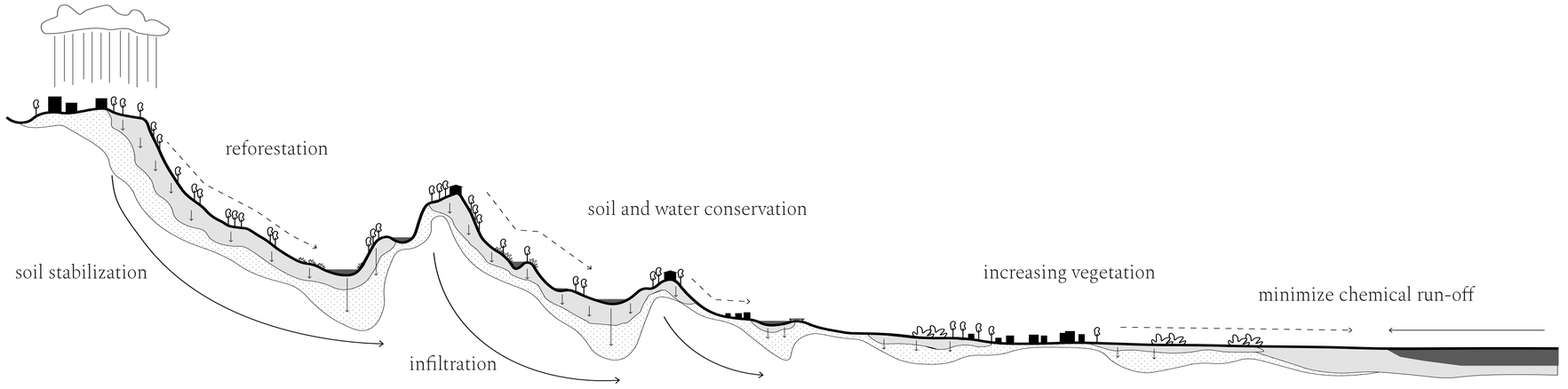
Ji-Elle (2014)
via Wikimedia Commons

Pollution & invasive species

current situation

current situation

desired situation

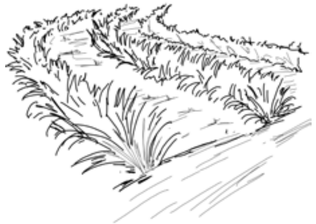


Eyebrow terraces

Fanya Chini

Home gardens

Vetiver grasses



desired situation

Slow the Flow

Allow the Flow

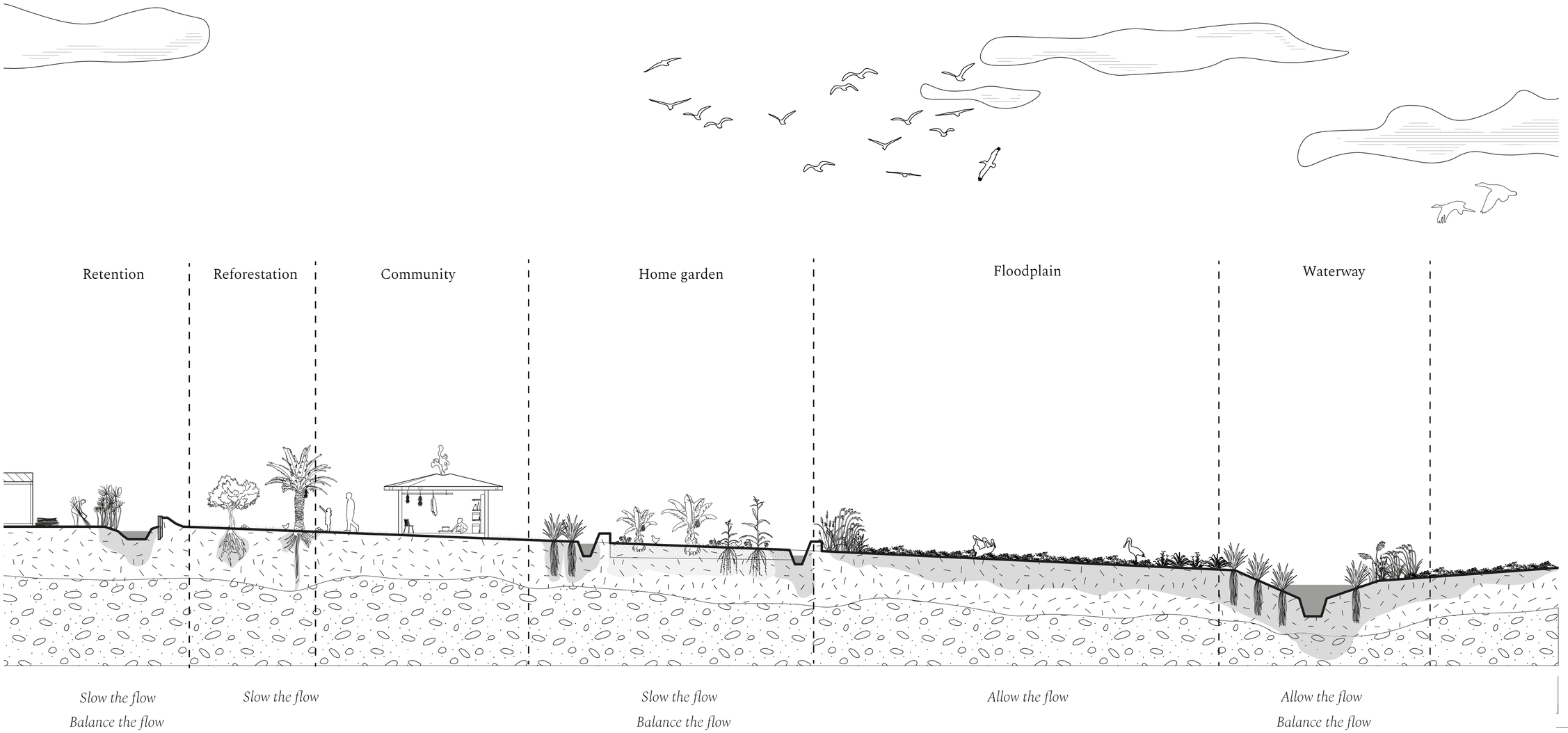
Balance the Flow

Sponge Lake Land

Sponge Lake Land

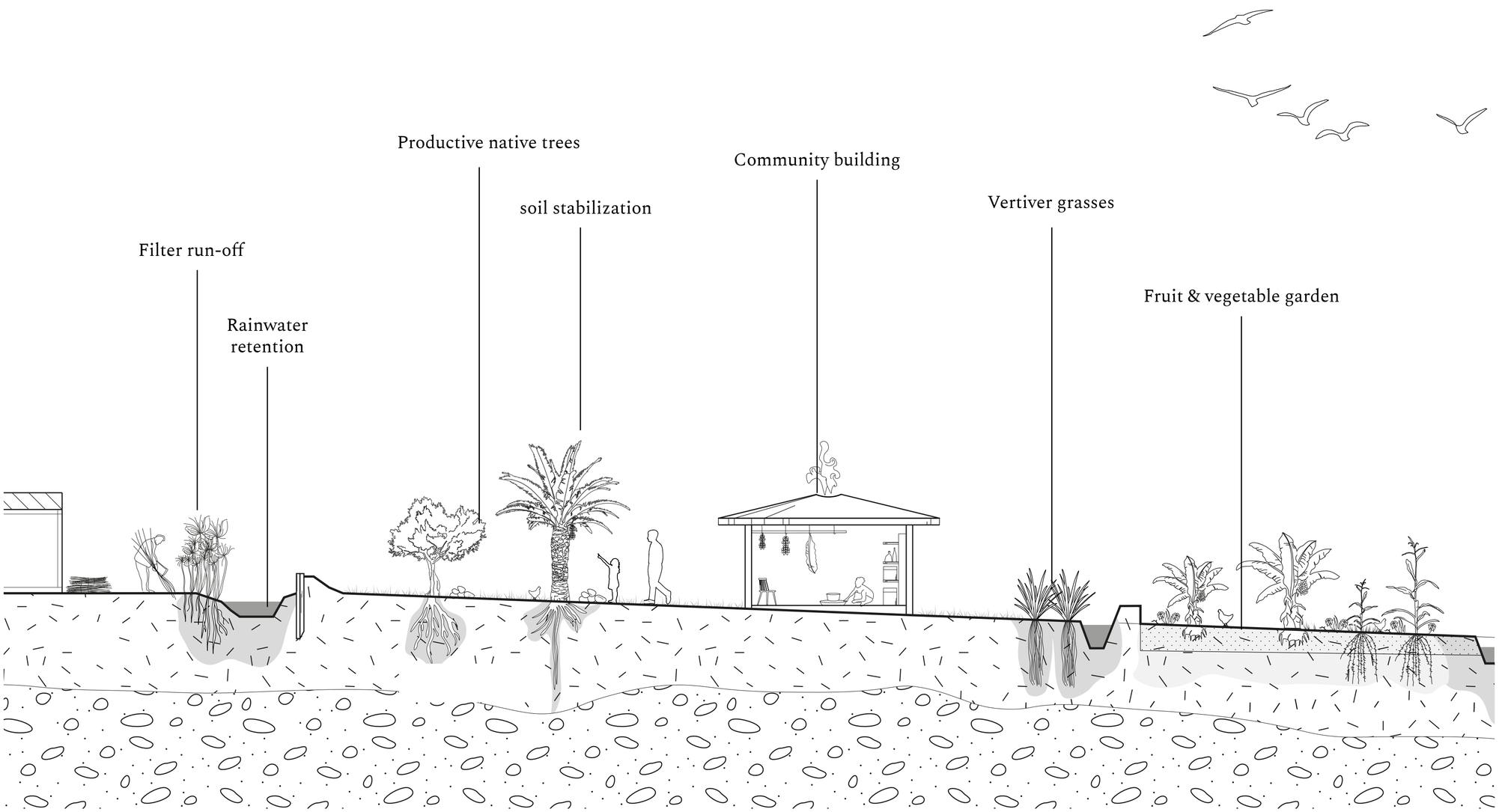
Sponge Lake Land

Sponge lake land

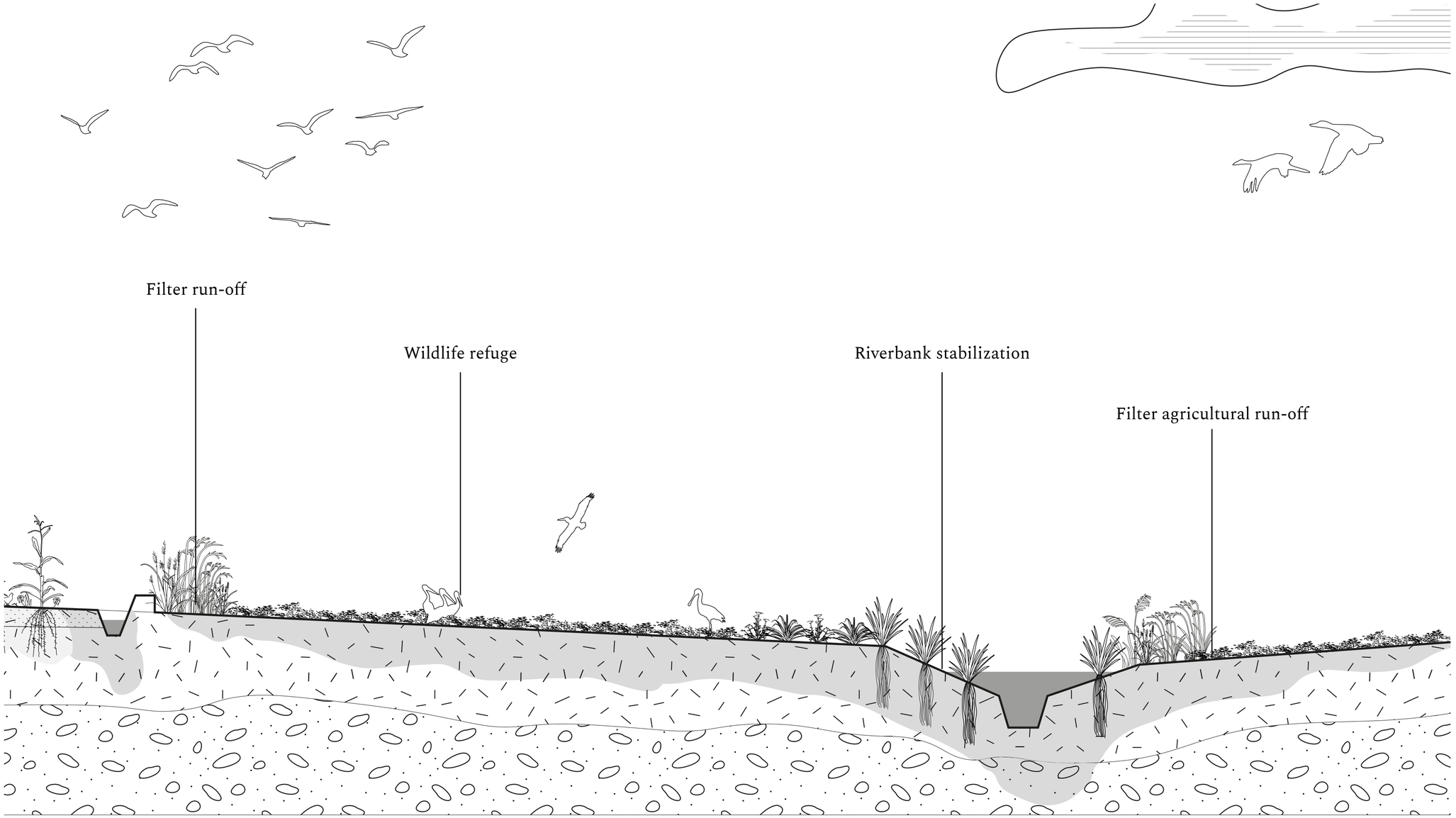


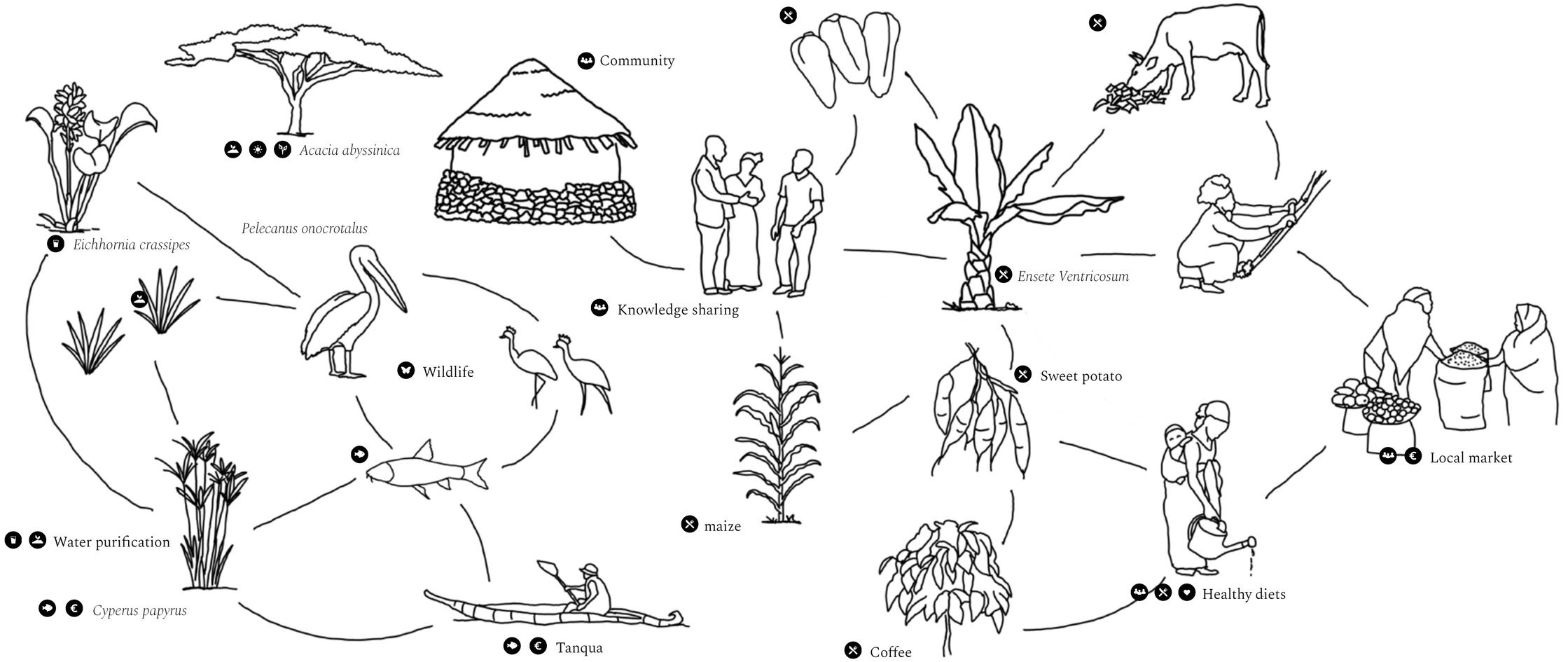
Design *Upstream*

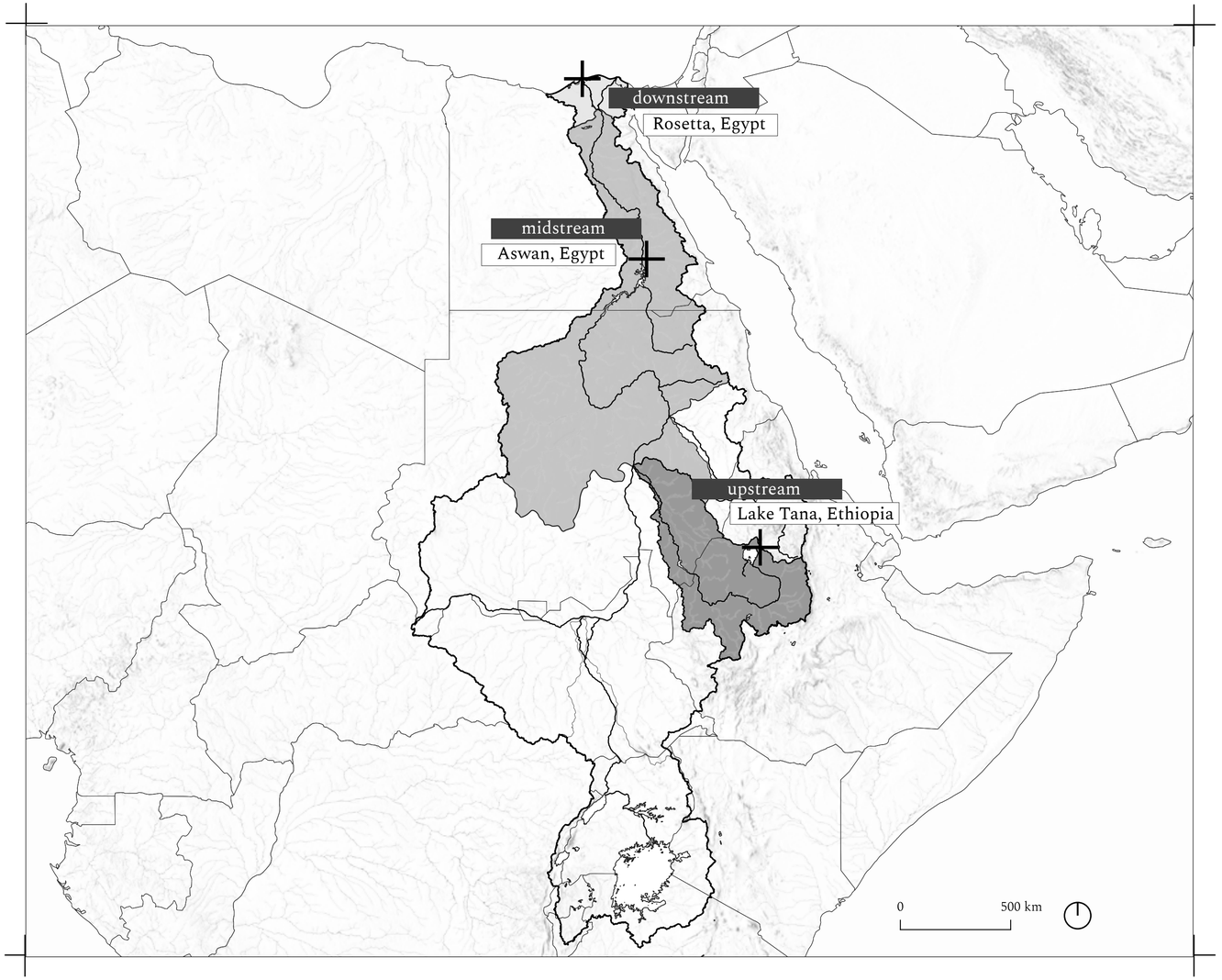
Sponge lake land



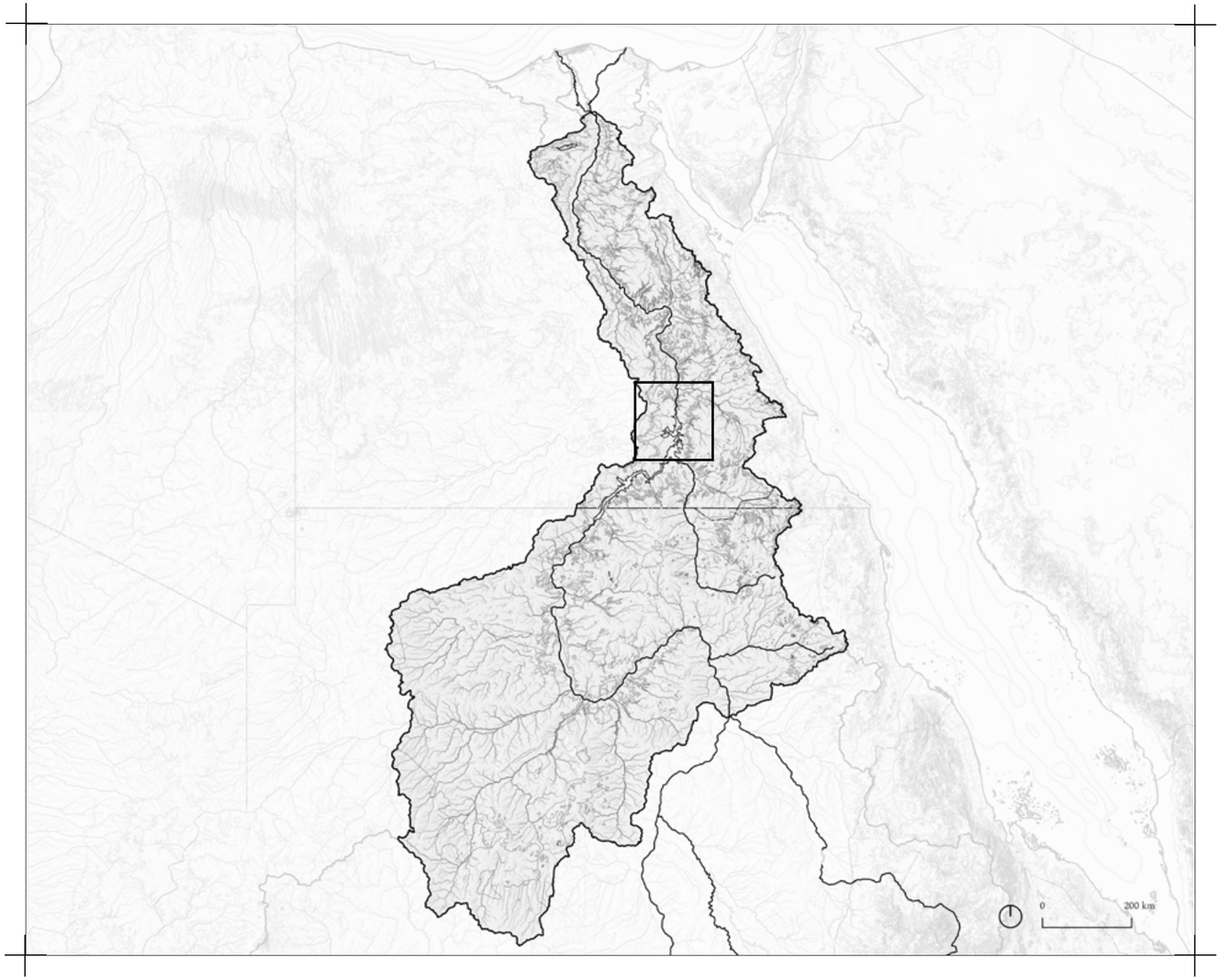
Sponge lake land




Community
Acacia abyssinica
Eichhornia crassipes
Pelecanus onocrotalus
Wildlife
Knowledge sharing
Ensete Ventricosum
Sweet potato
maize
Local market
Water purification
Cyperus papyrus
Tanqua
Coffee
Healthy diets

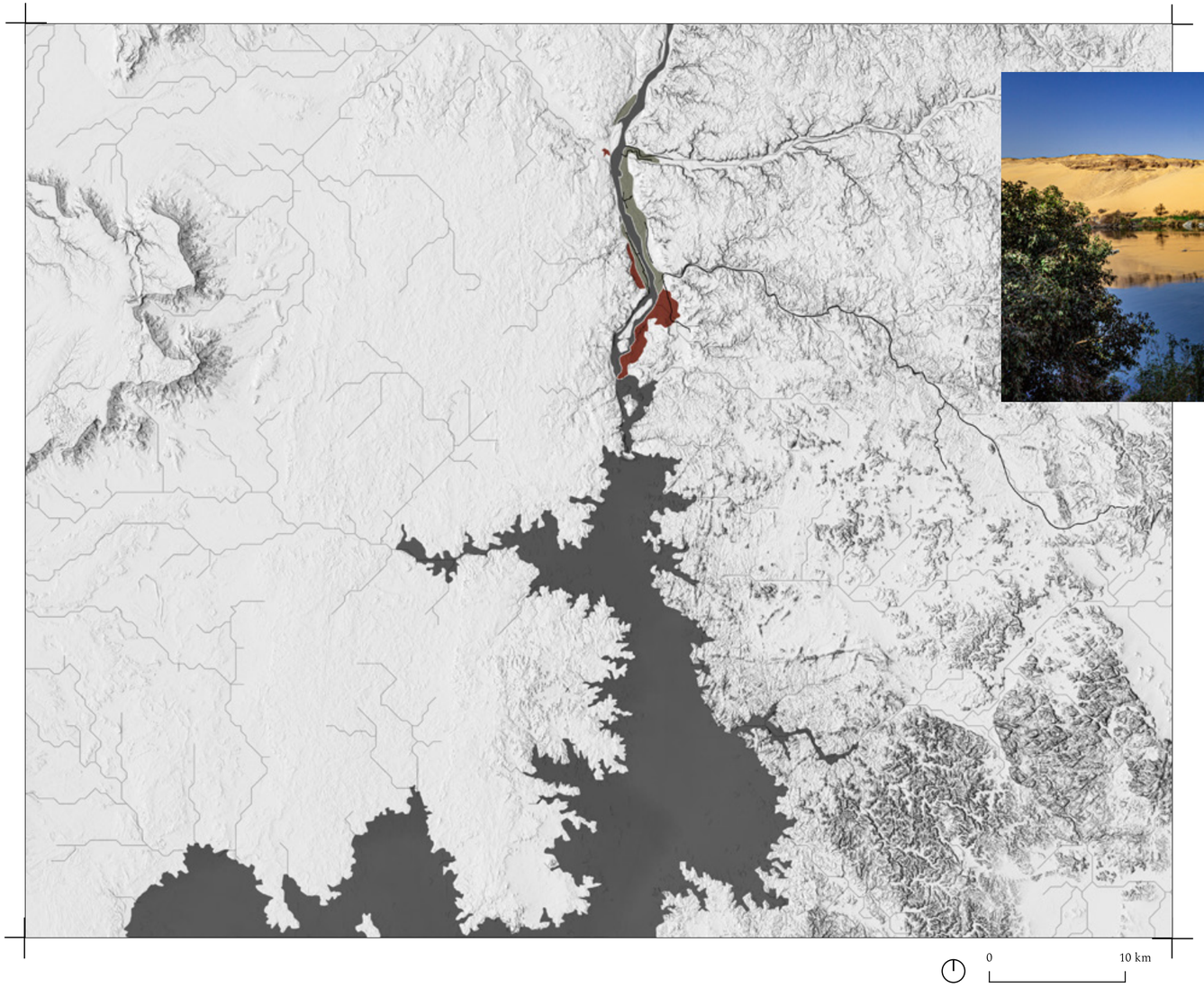

downstream
Rosetta, Egypt
midstream
Aswan, Egypt
upstream
Lake Tana, Ethiopia
0
500 km

Midstream



Aswan

Daliafathalla (2022)
via Wikimedia Commons



Aswan

Fanny Schertzer, 2014
via Wikimedia Commons

Daliafathalla (2022)
via Wikimedia Commons

Aswan

Fanny Schertzer, 2014
via Wikimedia Commons

Daliafathalla (2022)
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Marc Ryckaert (2012)
via Wikimedia Commons

Aswan

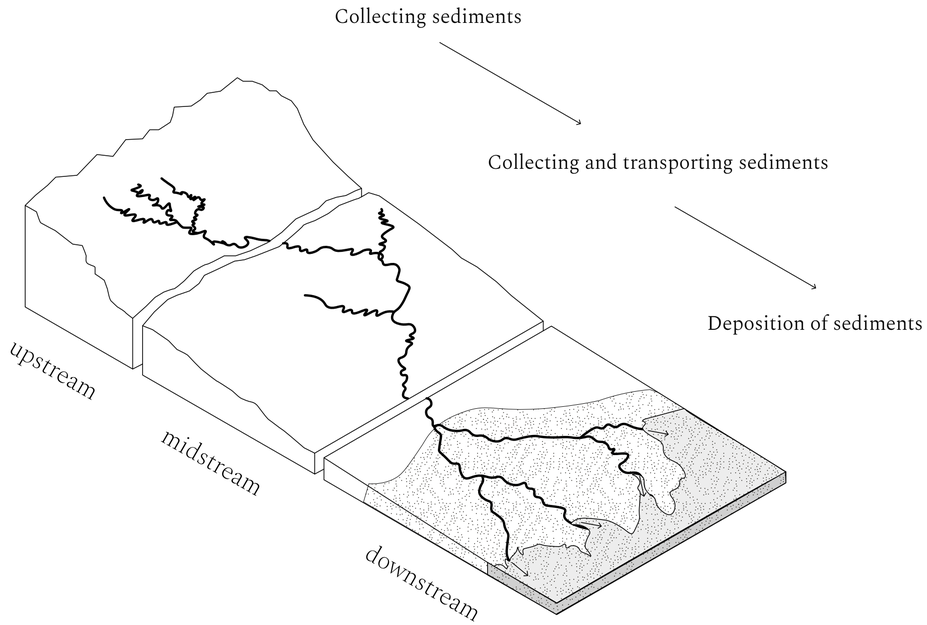
Fanny Schertzer, 2014
via Wikimedia Commons

Jorge Láscar, 2012
via Wikimedia Commons

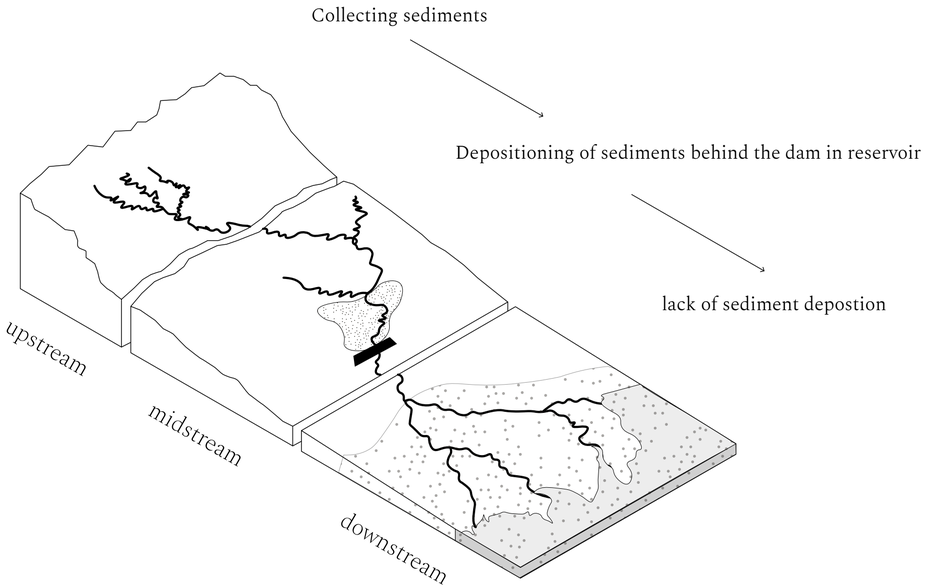
Daliafathalla (2022)
via Wikimedia Commons

Marc Ryckaert (2012)
via Wikimedia Commons

Aswan High Dam

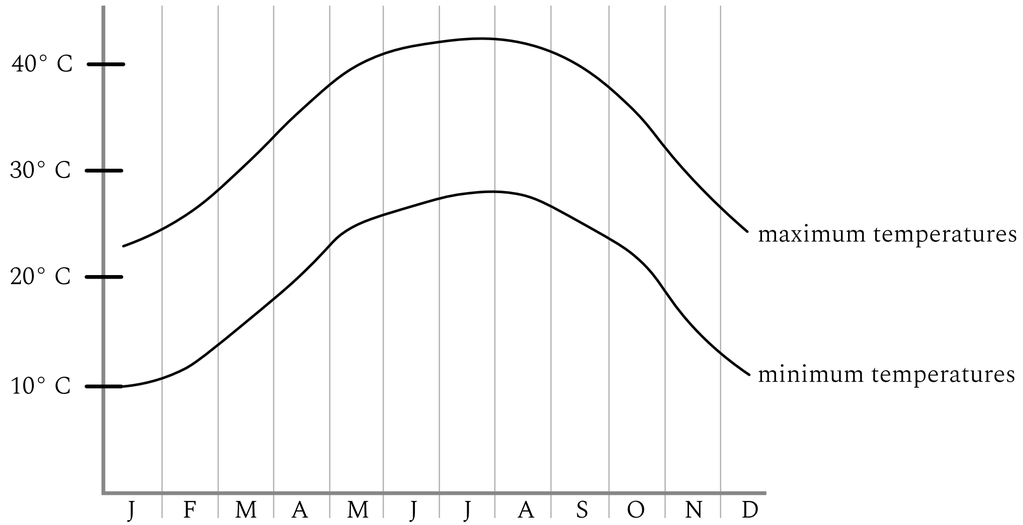


Before



After

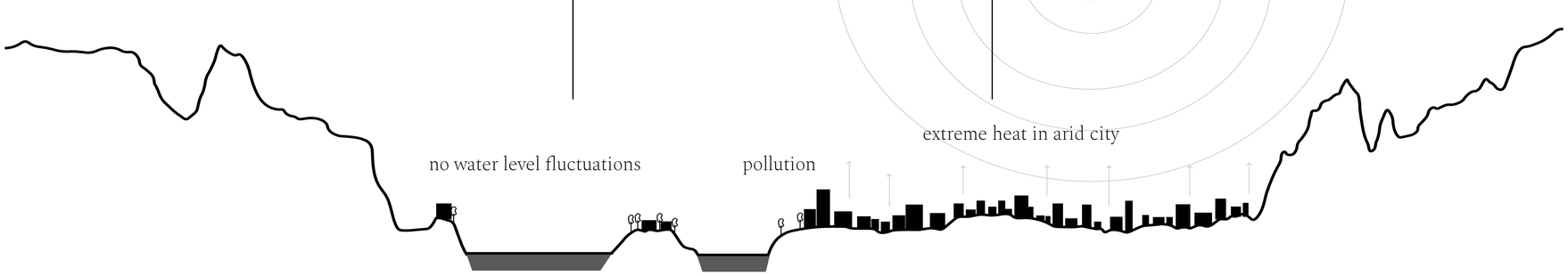
The arid landscape



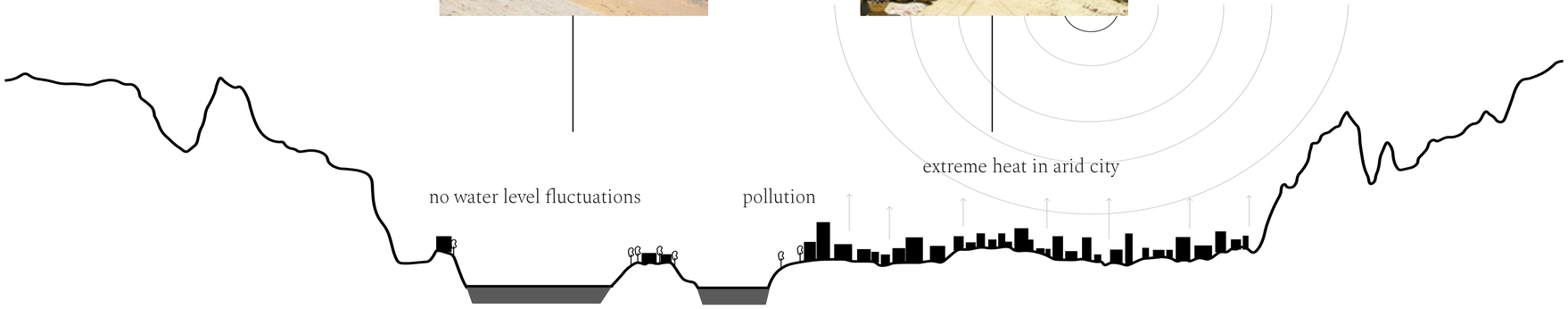
< *climatestotravel.com*

> *Vyacheslav Argenberg (2007) via Wikimedia Commons*

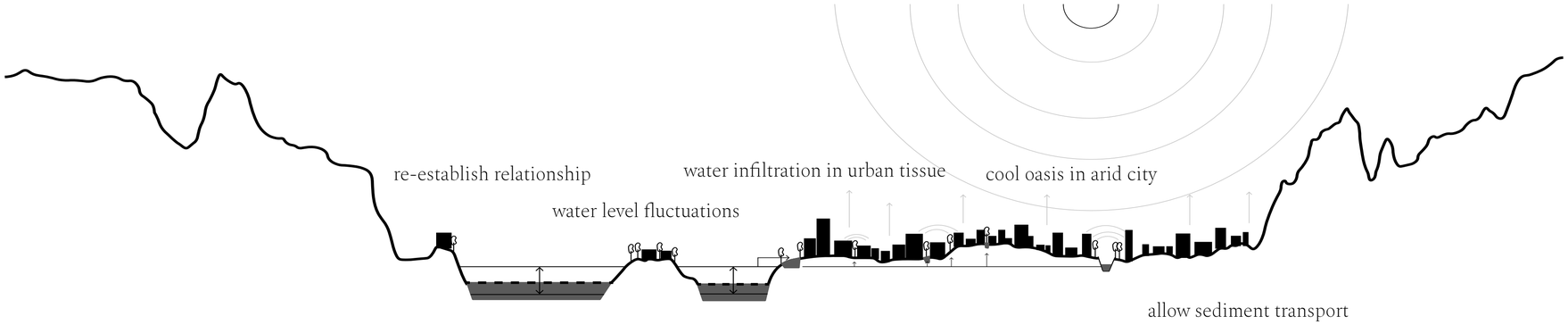
current situation



current situation



desired situation



Islamic garden style

Aquatic plants

Xeriscape

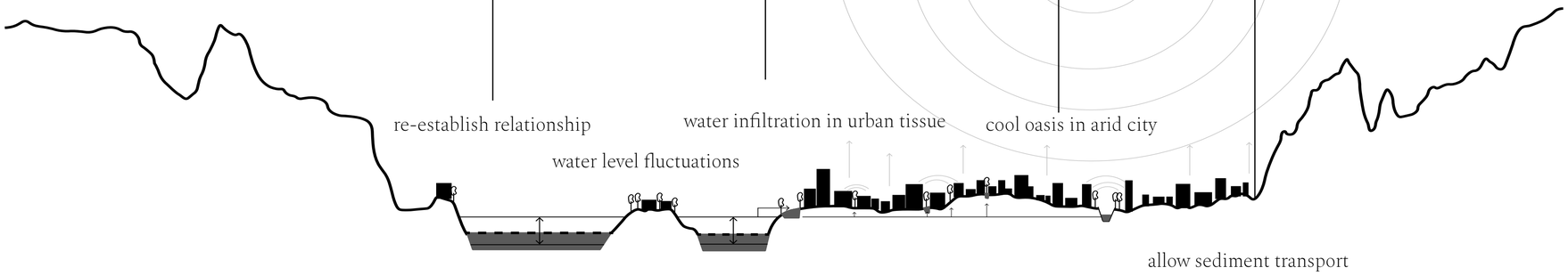
Bypass from dam reservoir

Celebrating

Water sensitive design

Creating shade

desired situation

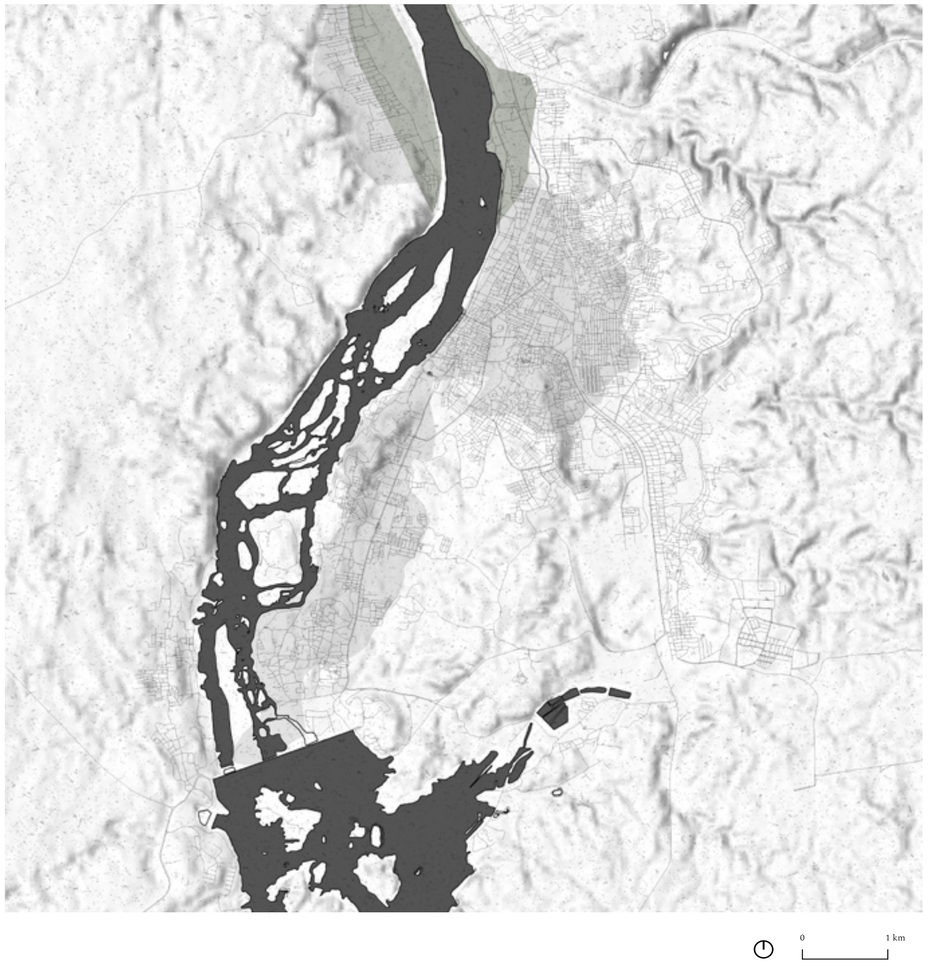


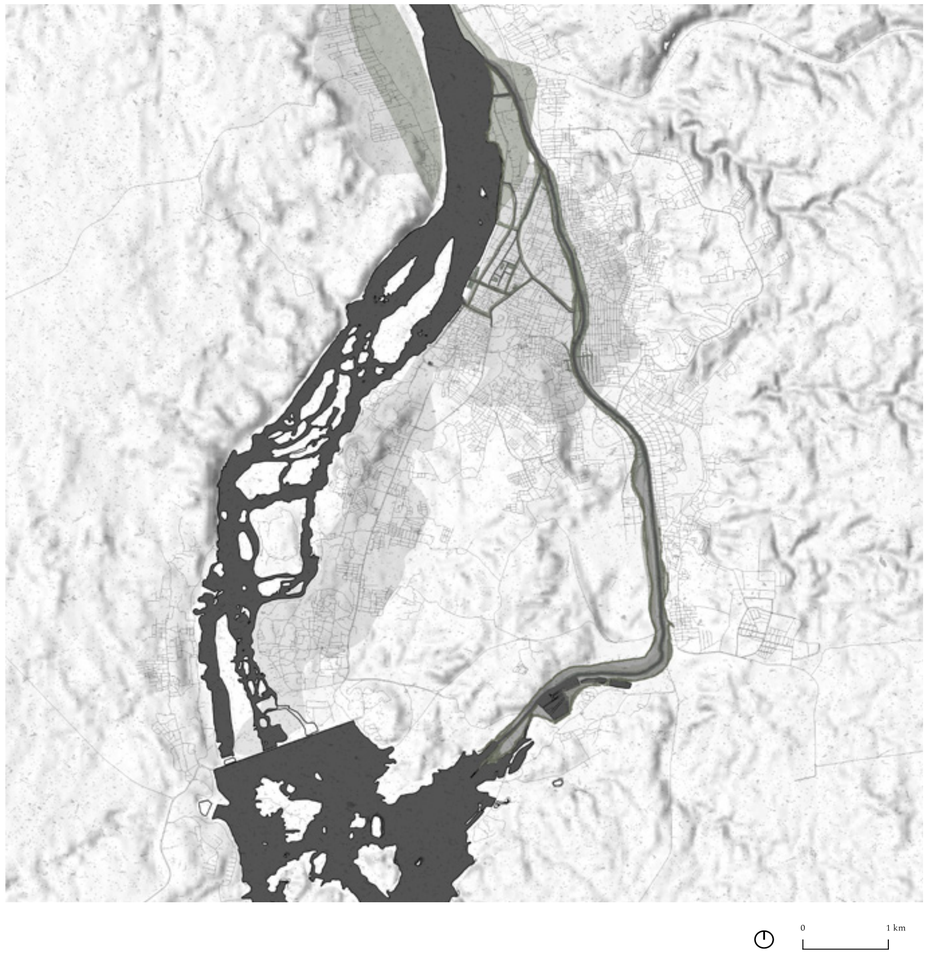
Slow the Flow

Allow the Flow

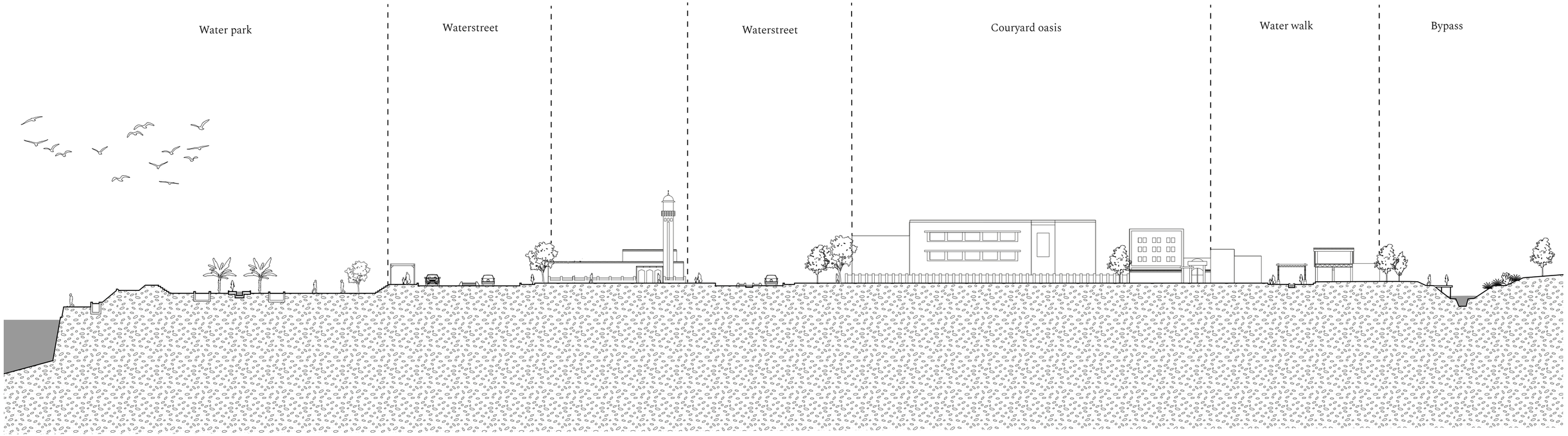
Balance the Flow

Watergardens of Aswan





Watergardens of Aswan



Watergardens of Aswan

Watergardens of Aswan

Courtyard oasis

water

urban tissue

vegetation

Watergardens of Aswan

Water Walk

water

urban tissue

vegetation

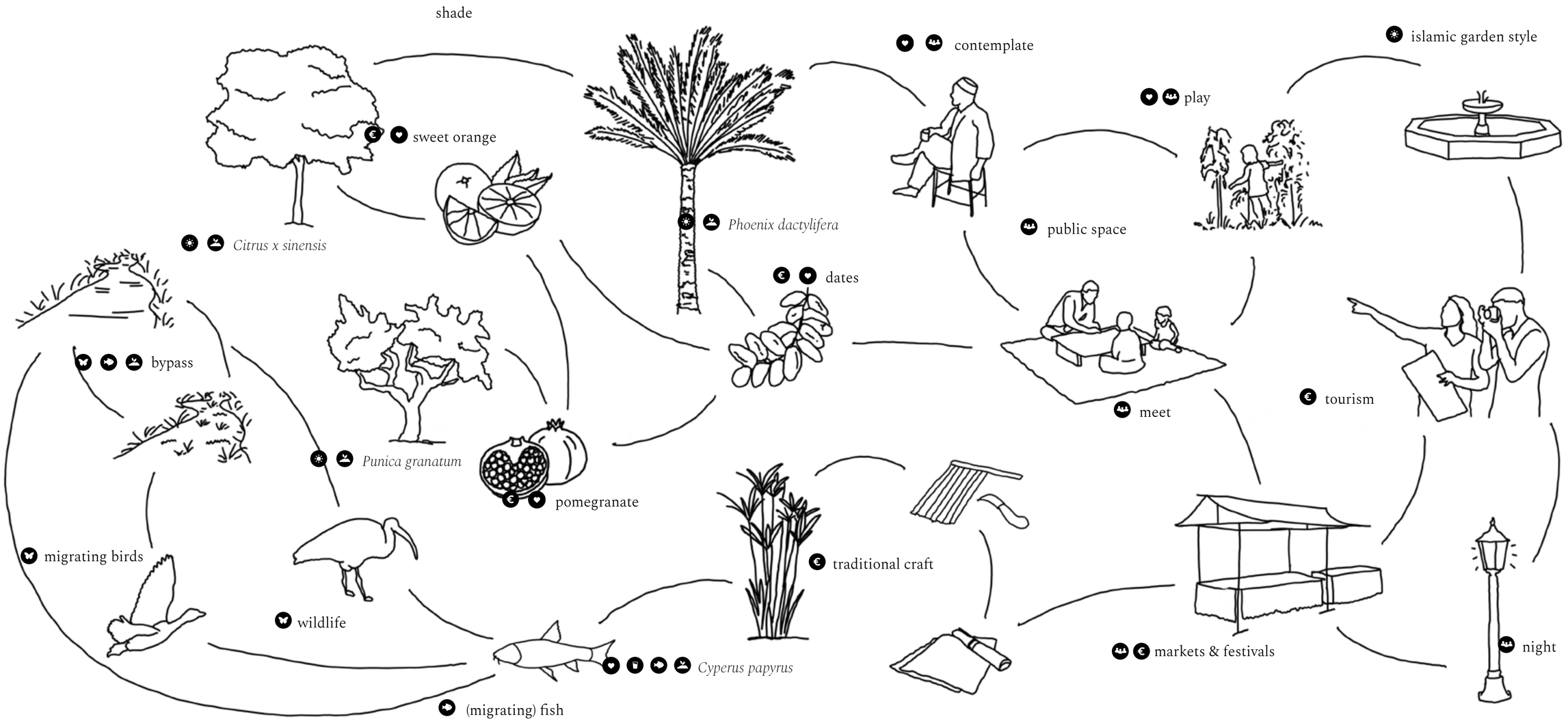
Watergardens of Aswan

Watergardens of Aswan

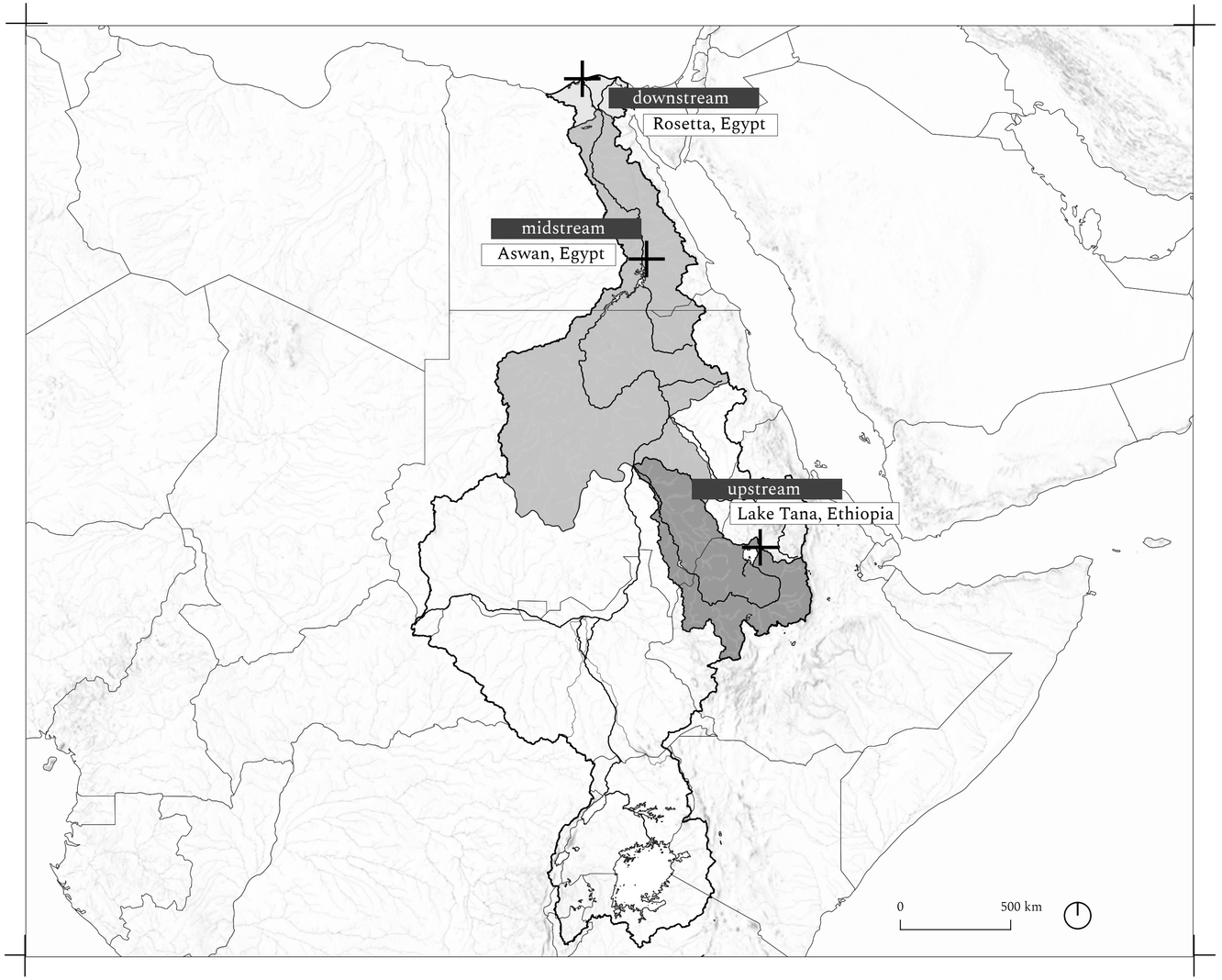
Waterpark

Watergardens of Aswan

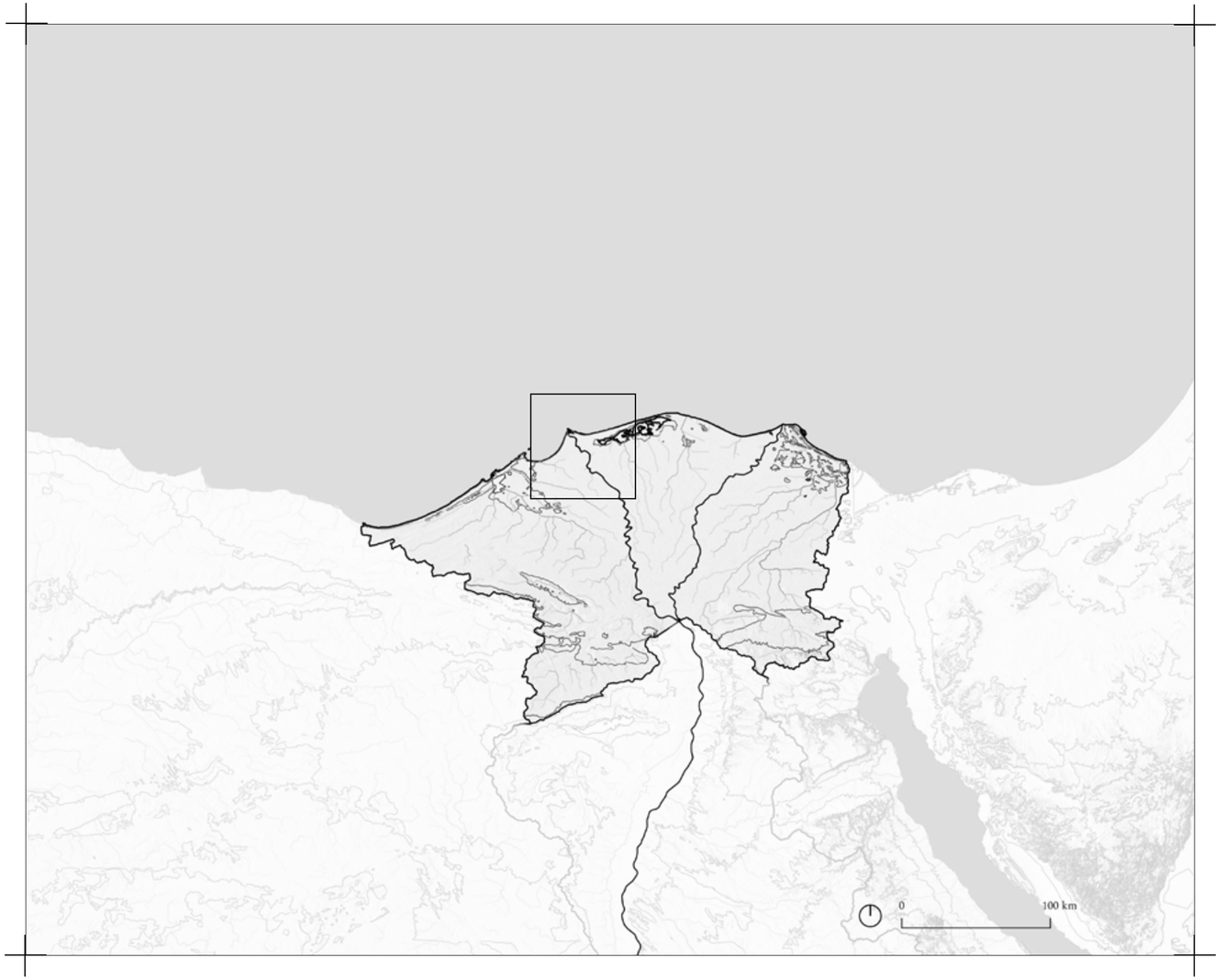
Waterpark


shade
sweet orange
Citrus x sinensis
Phoenix dactylifera
contemplate
play
islamic garden style
public space
dates
bypass
Punica granatum
pomegranate
meet
tourism
migrating birds
wildlife
traditional craft
Cyperus papyrus
(migrating) fish
markets & festivals
night

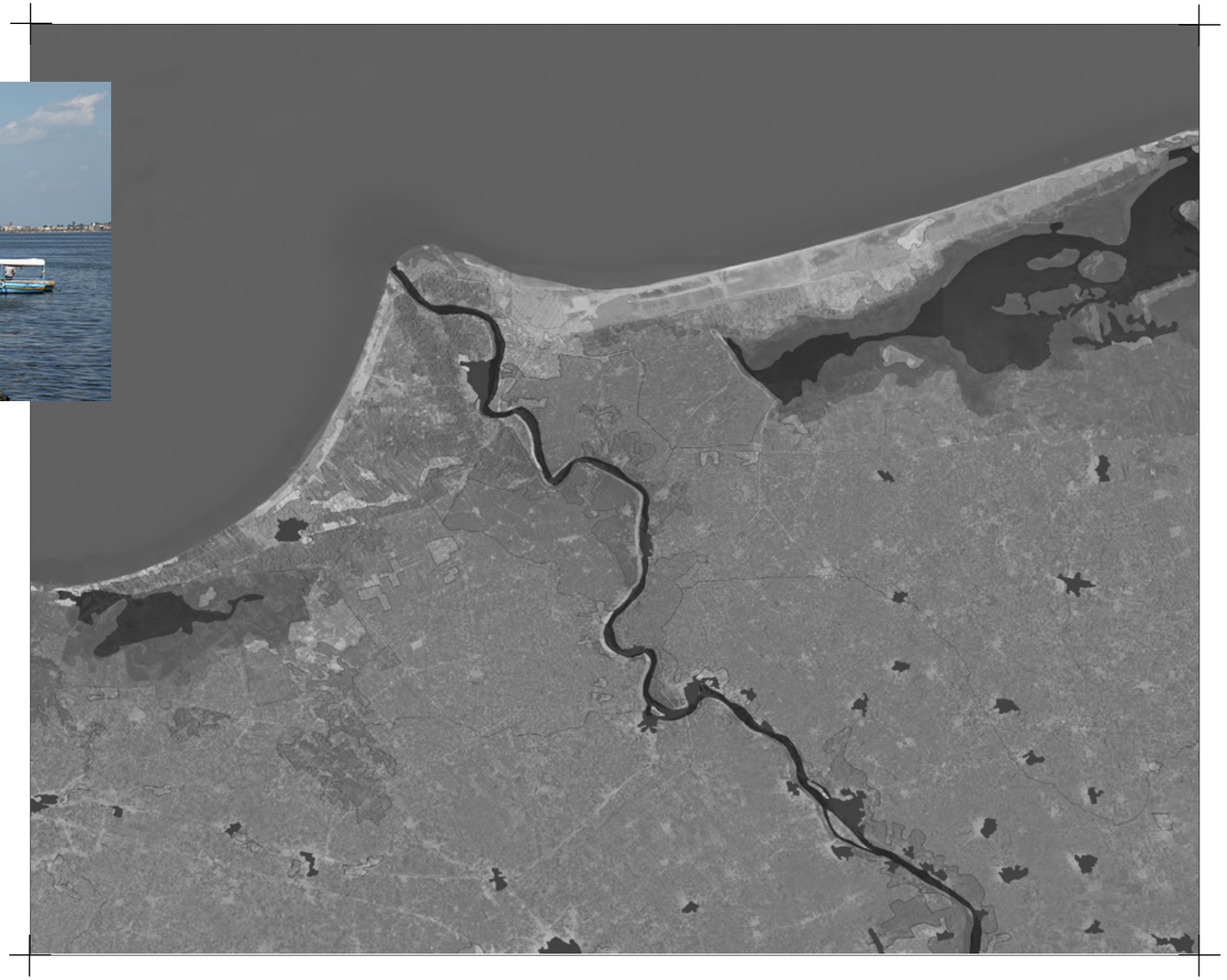
Watergardens of Aswan


downstream
Rosetta, Egypt
midstream
Aswan, Egypt
upstream
Lake Tana, Ethiopia
0
500 km

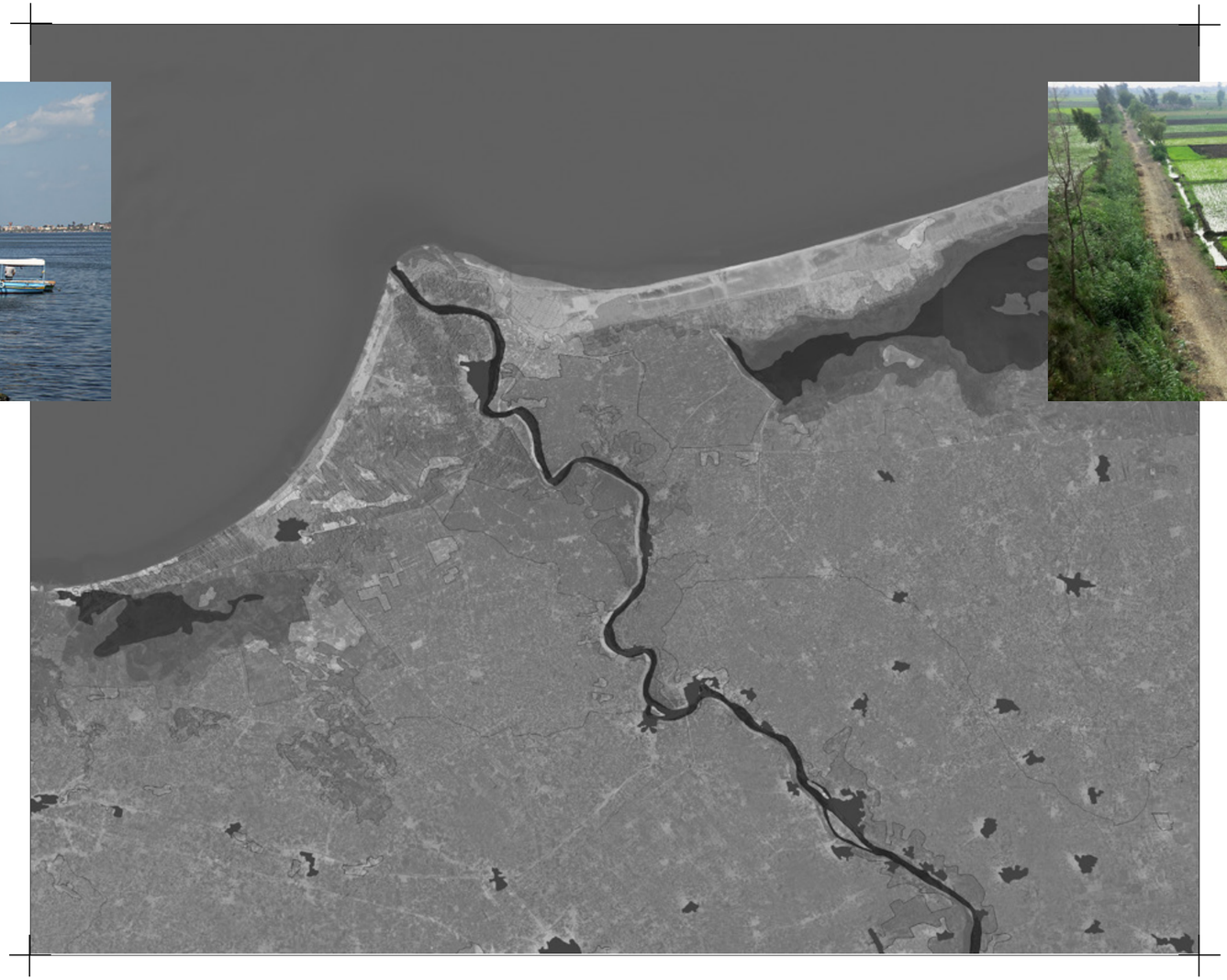
Downstream



Rosetta promotory

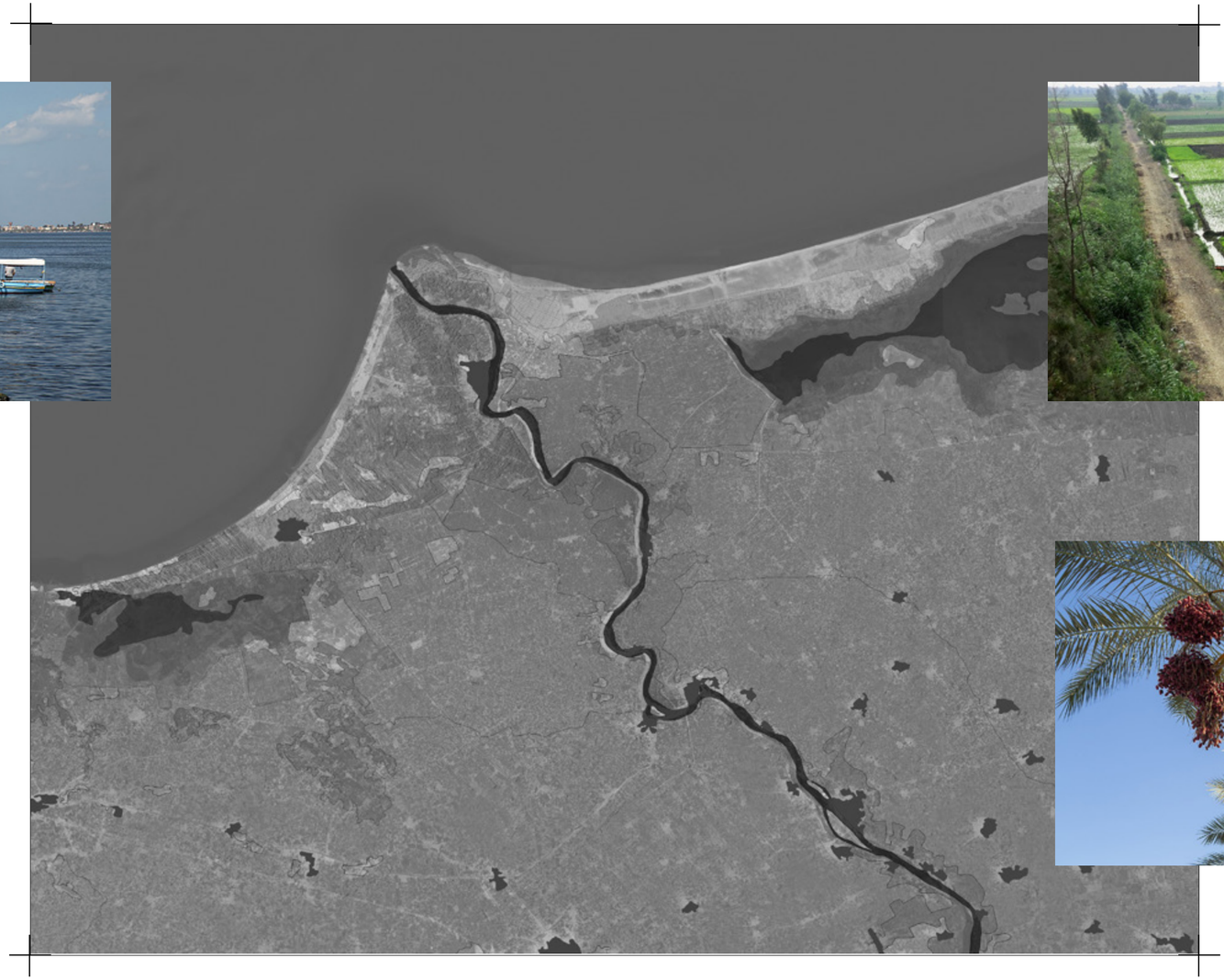


Rosetta promotory



Water Alternatives Photos, 2014
via Wikimedia Commons

Rosetta promotory



Water Alternatives Photos, 2014
via Wikimedia Commons

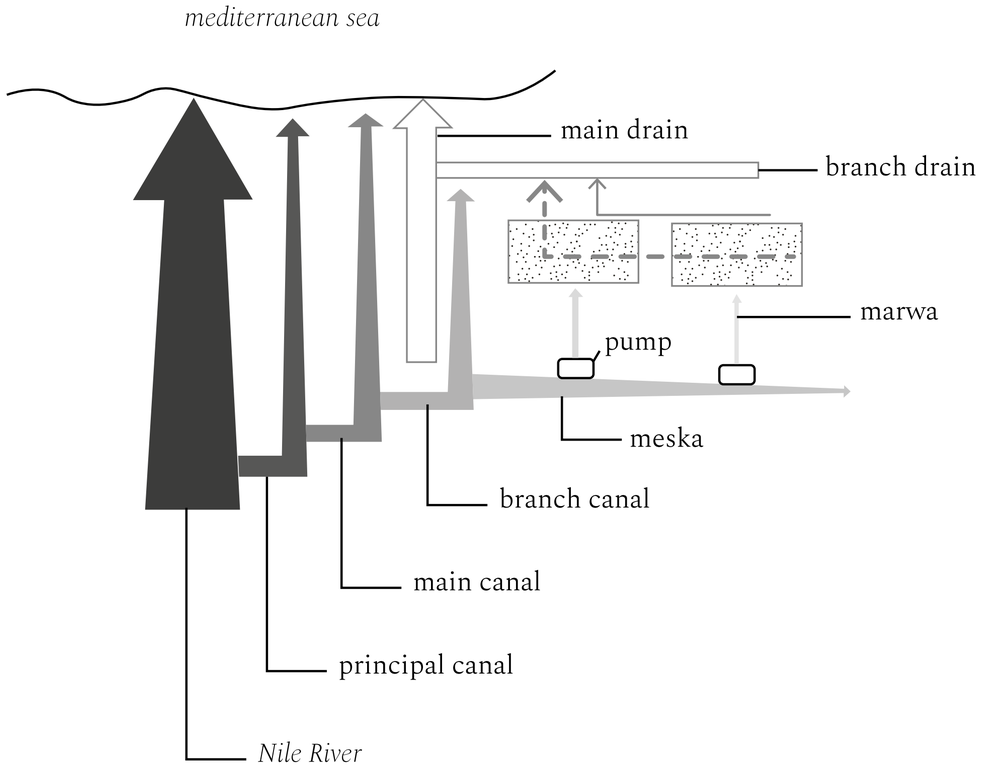
Wael Mostafa, 2017
via Wikimedia Commons

Rosetta promotory

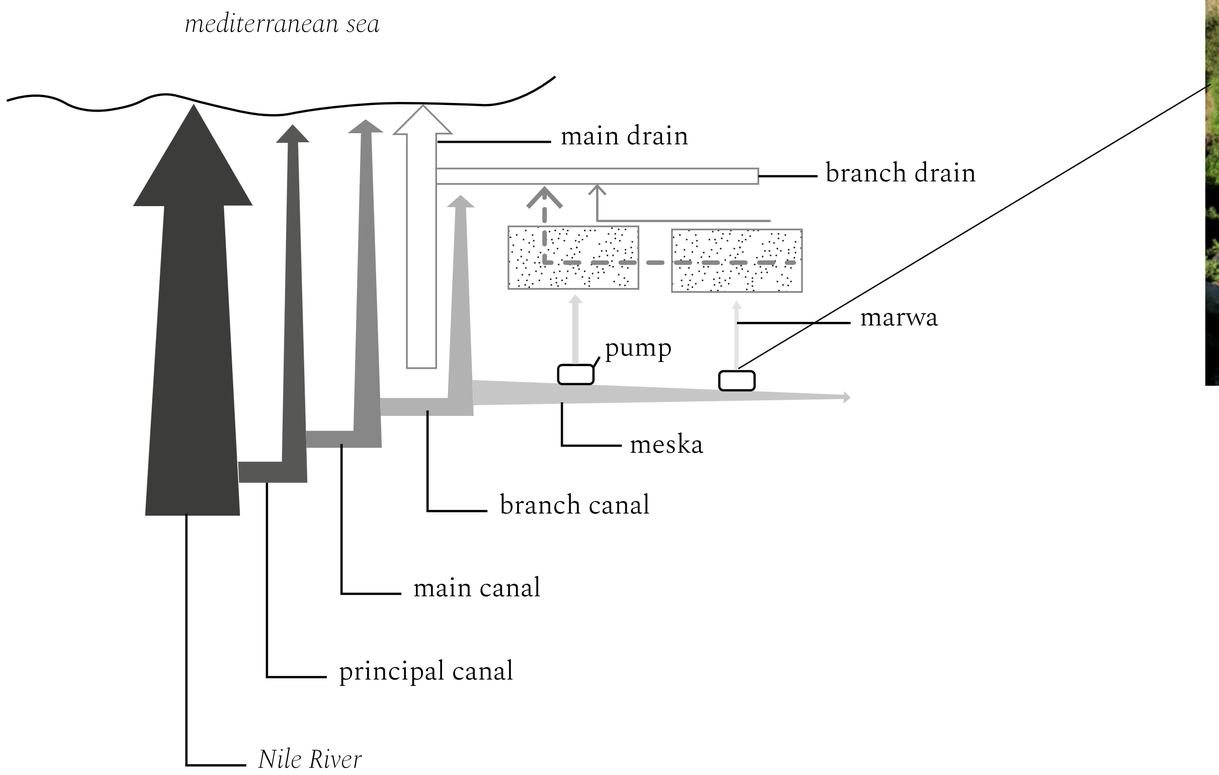
Water Alternatives Photos, 2014
via Wikimedia Commons

Wael Mostafa, 2017
via Wikimedia Commons

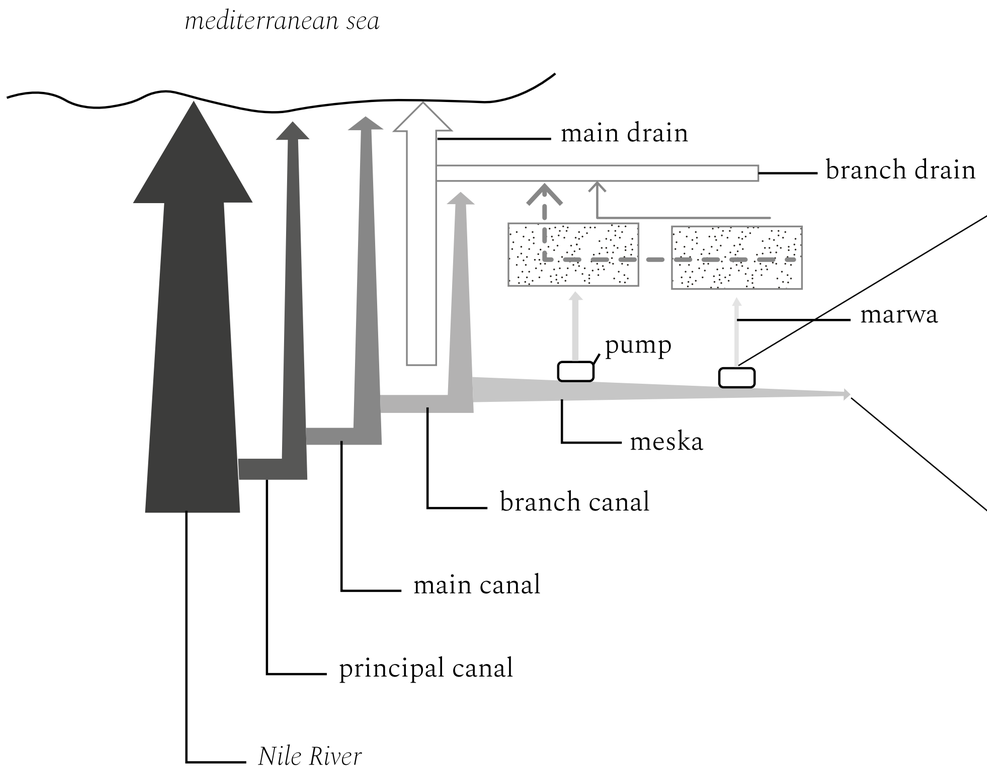
Irrigation scheme



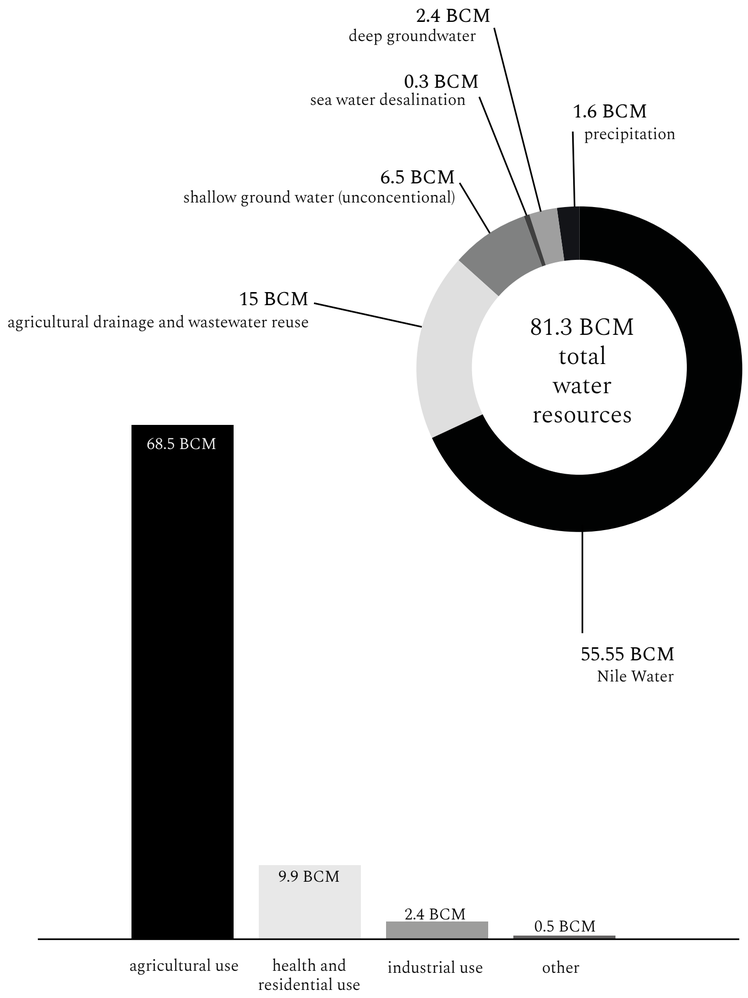
Irrigation scheme



Irrigation scheme



Water stress



Water balance, figure by Redeker et. al., 2021.
Edited by author

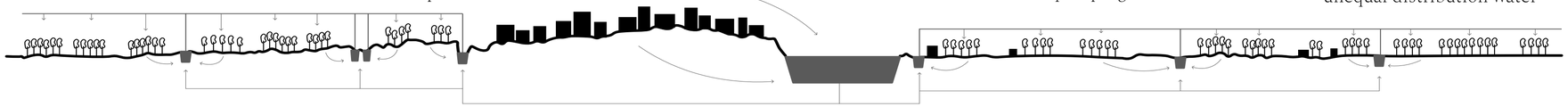
Pollution

current situation

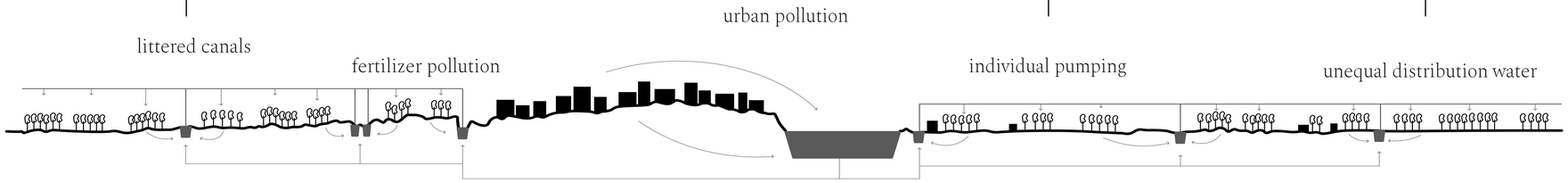
littered canals

urban pollution

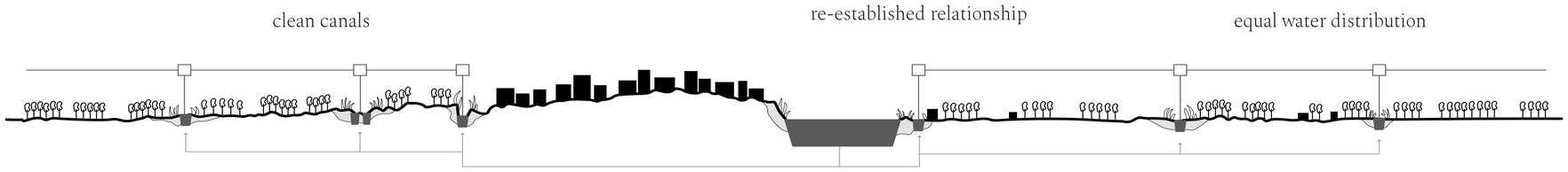
unequal distribution water



current situation



desired situation



desired situation

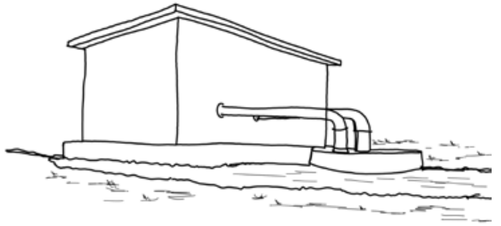
Riverbank vegetation

clean canals

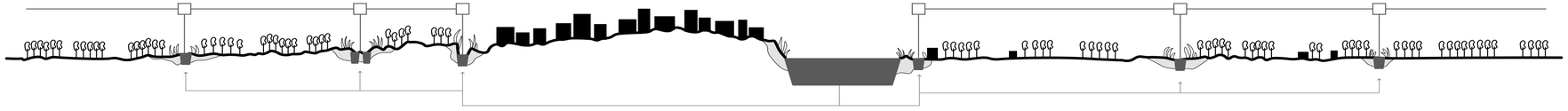
Riverbank forestry

re-established relationship

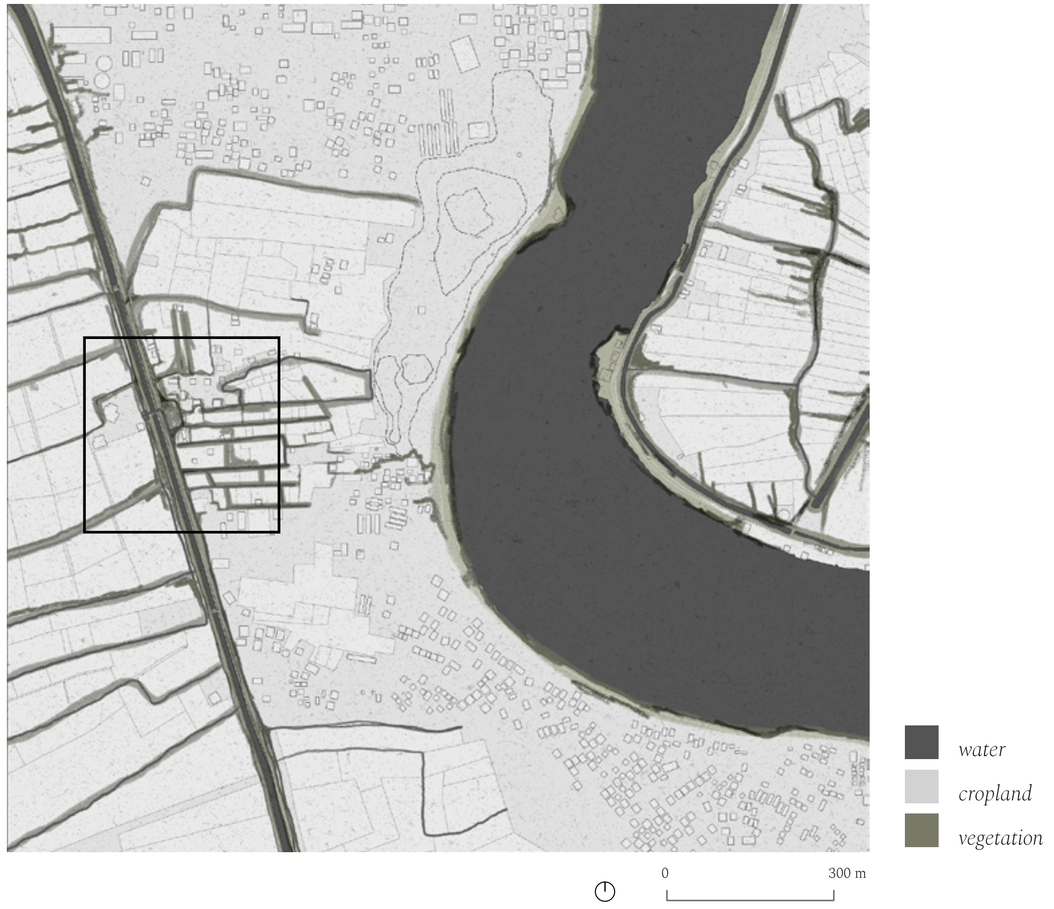
Collective pumping place



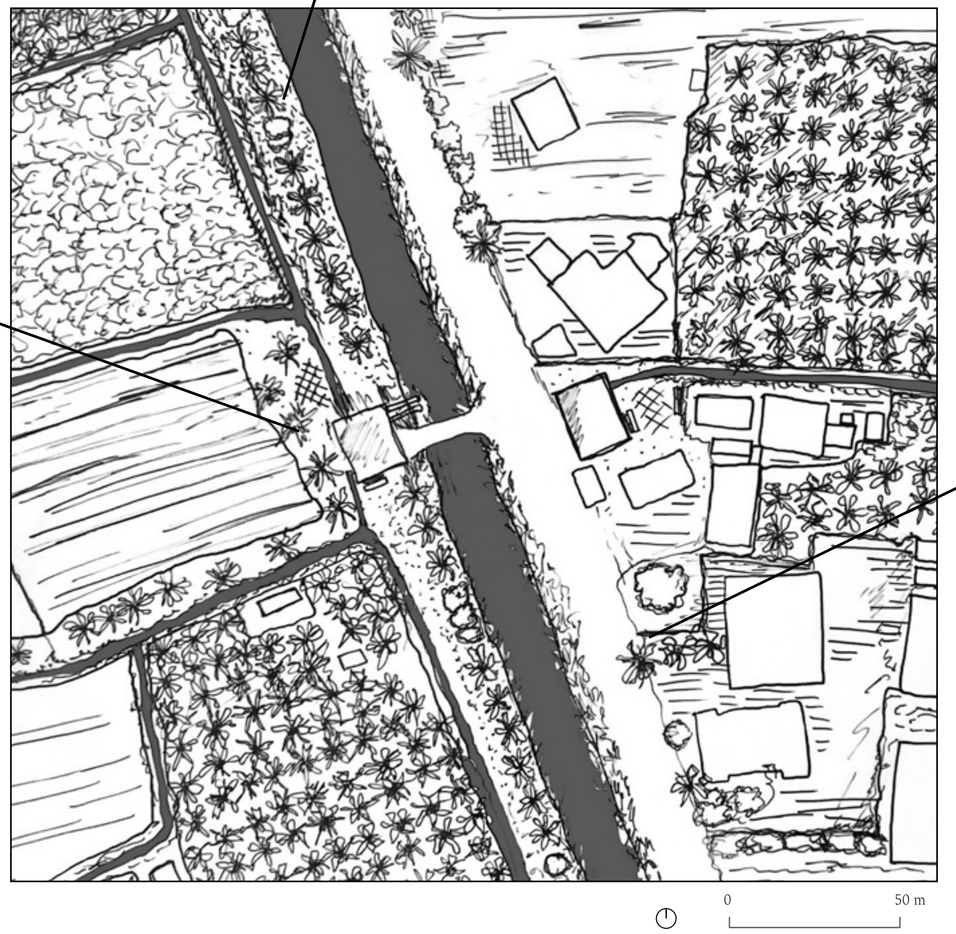
equal water distribution



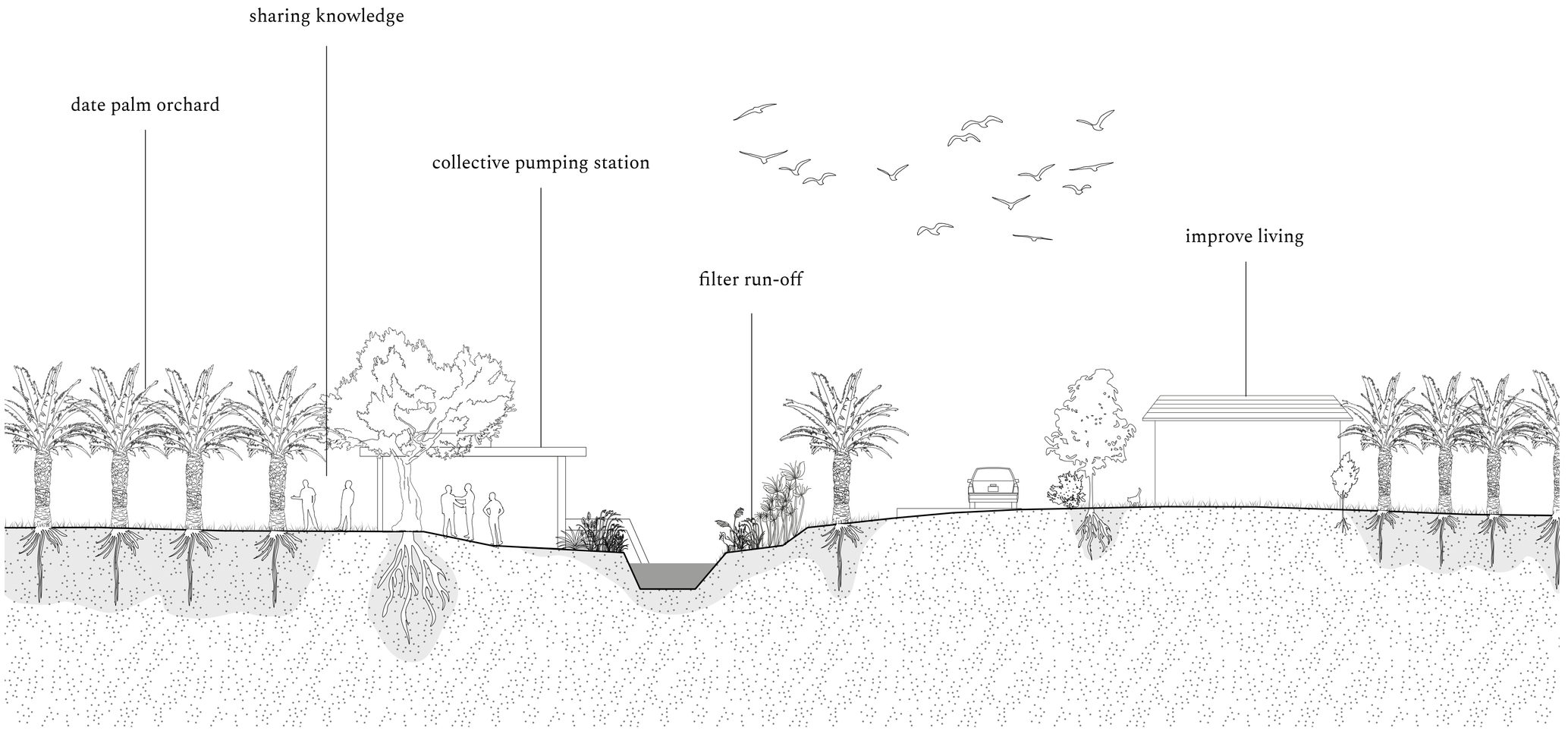
Canal Connections of Rosetta

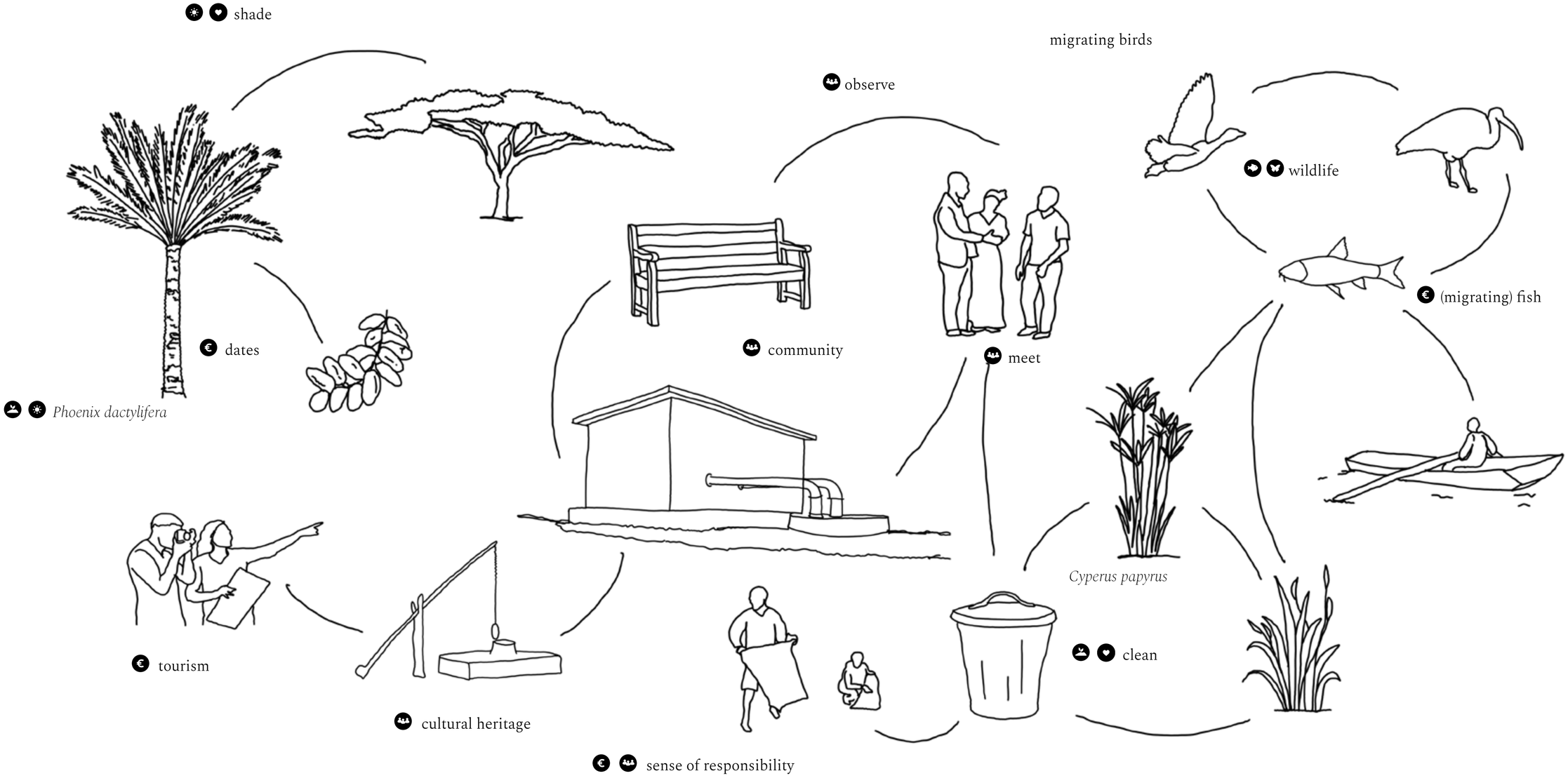


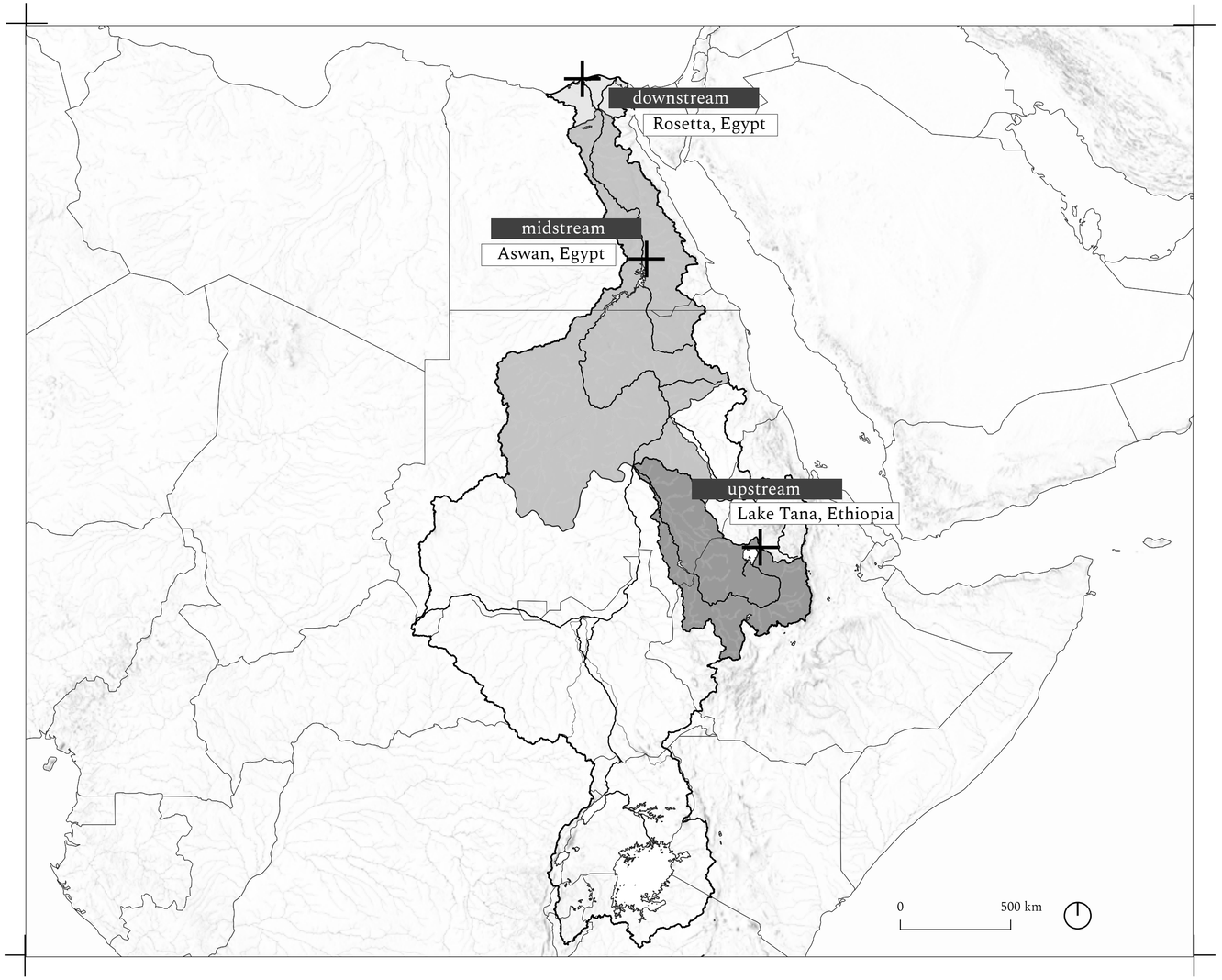
Canal Connections of Rosetta



Canal Connections of Rosetta




shade
migrating birds
observe
wildlife
(migrating) fish
dates
Phoenix dactylifera
community
meet
Cyperus papyrus
tourism
cultural heritage
clean
sense of responsibility


downstream
Rosetta, Egypt
midstream
Aswan, Egypt
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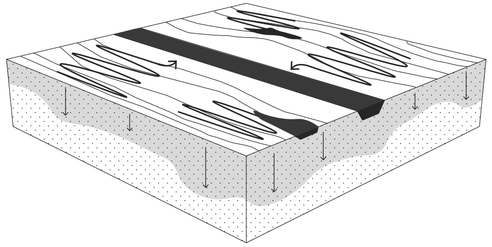
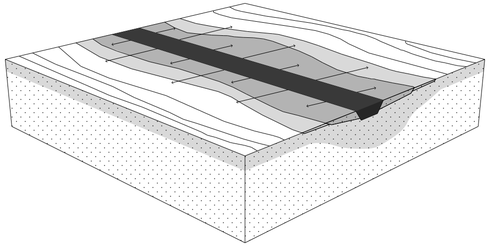
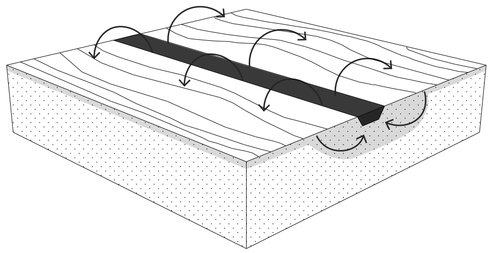
Lake Tana, Ethiopia
0
500 km



slow the flow



allow the flow



balance the flow

Three local landscape architecture designs

Upstream

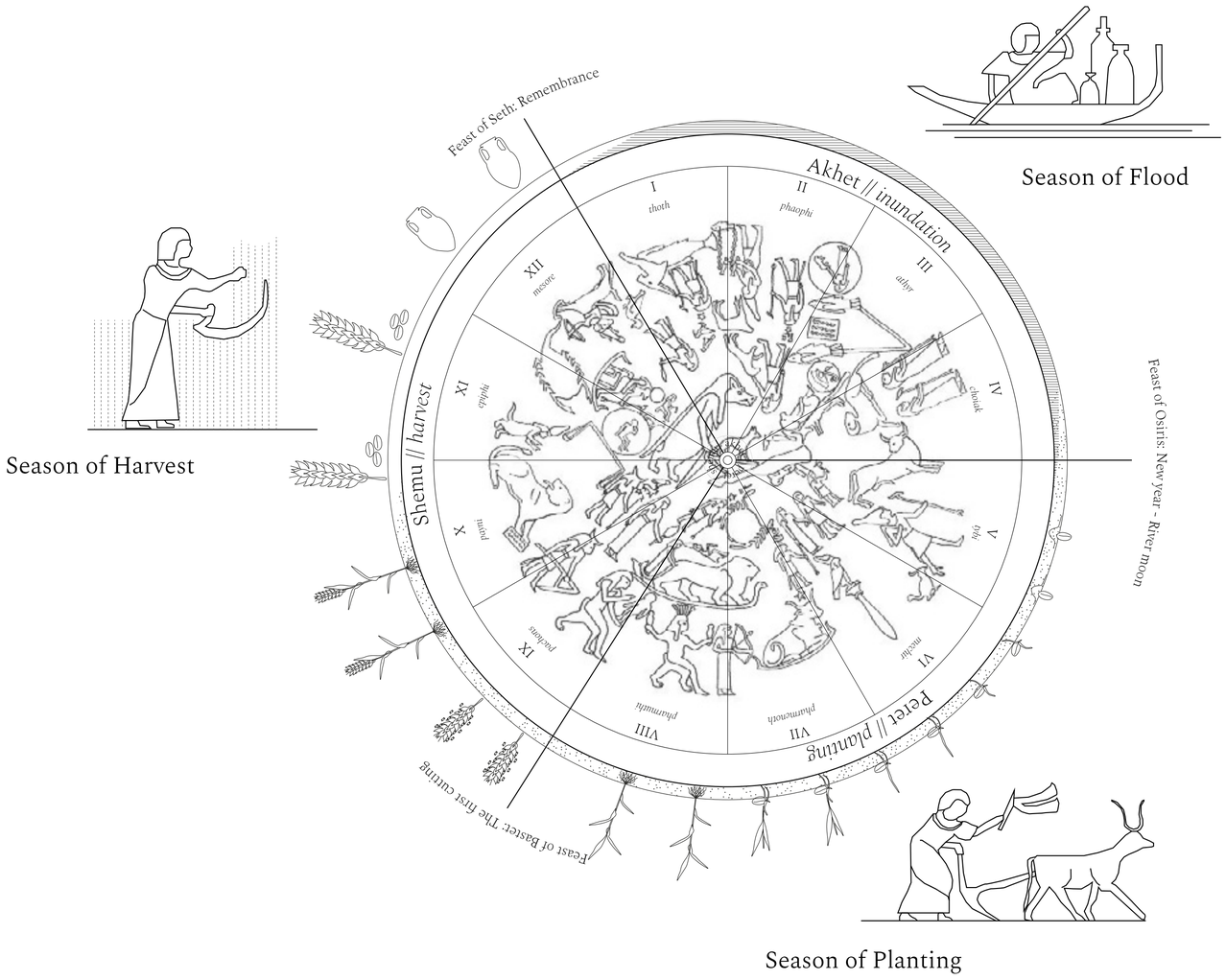
Sponge Lake Land of Tana

Midstream

Watergardens of Aswan

Downstream

Canal Connections of Rosetta


Feast of Seth: Remembrance
Akhet // inundation
I
thoth
II
phaophi
III
athyr
IV
choiak
V
tybi
VI
mechir
VII
phamenoth
VIII
pharmuthi
IX
pachons
X
payni
XI
epiphi
XII
mesore
Shemu // harvest
Peret // planting
Feast of Osiris: New year - River moon
Feast of Basket: The first cutting
Season of Harvest
Season of Flood
Season of Planting