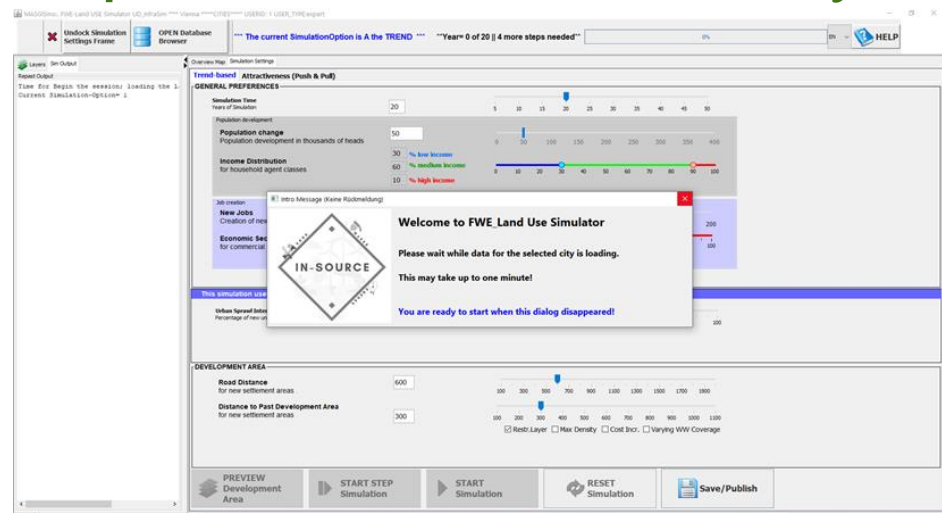
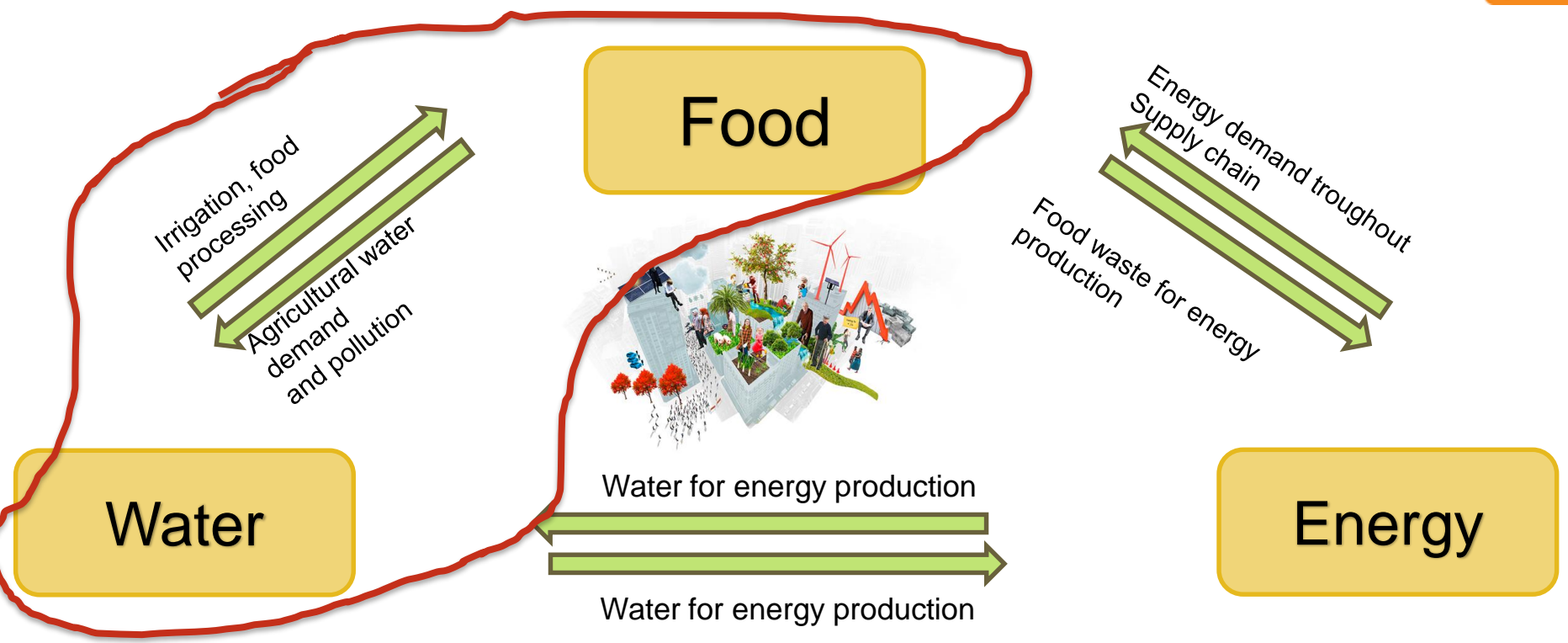


FWE Land Use Simulator

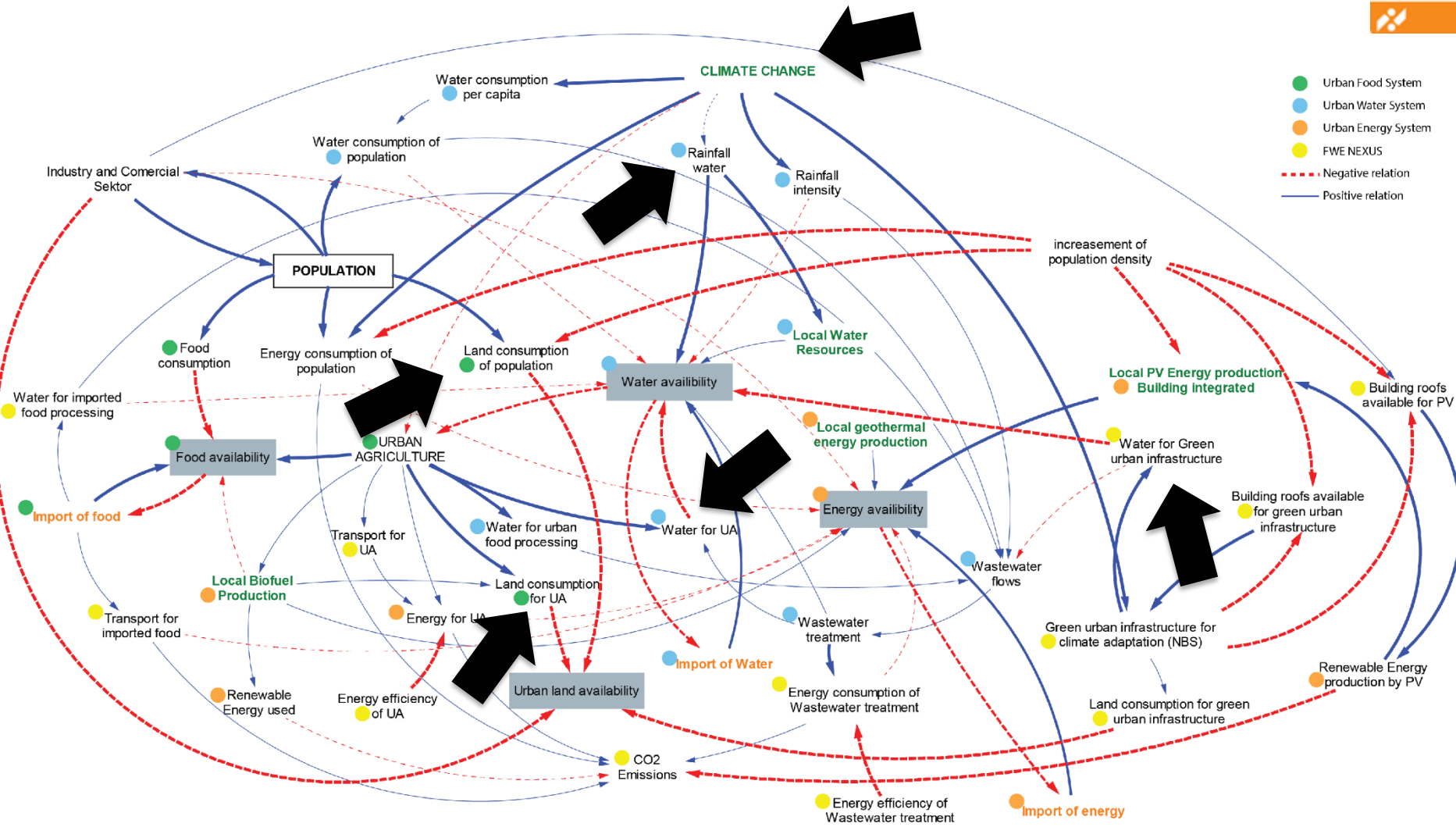
developed for the Case Study Vienna



Urban Food – Water – Energy - Nexus

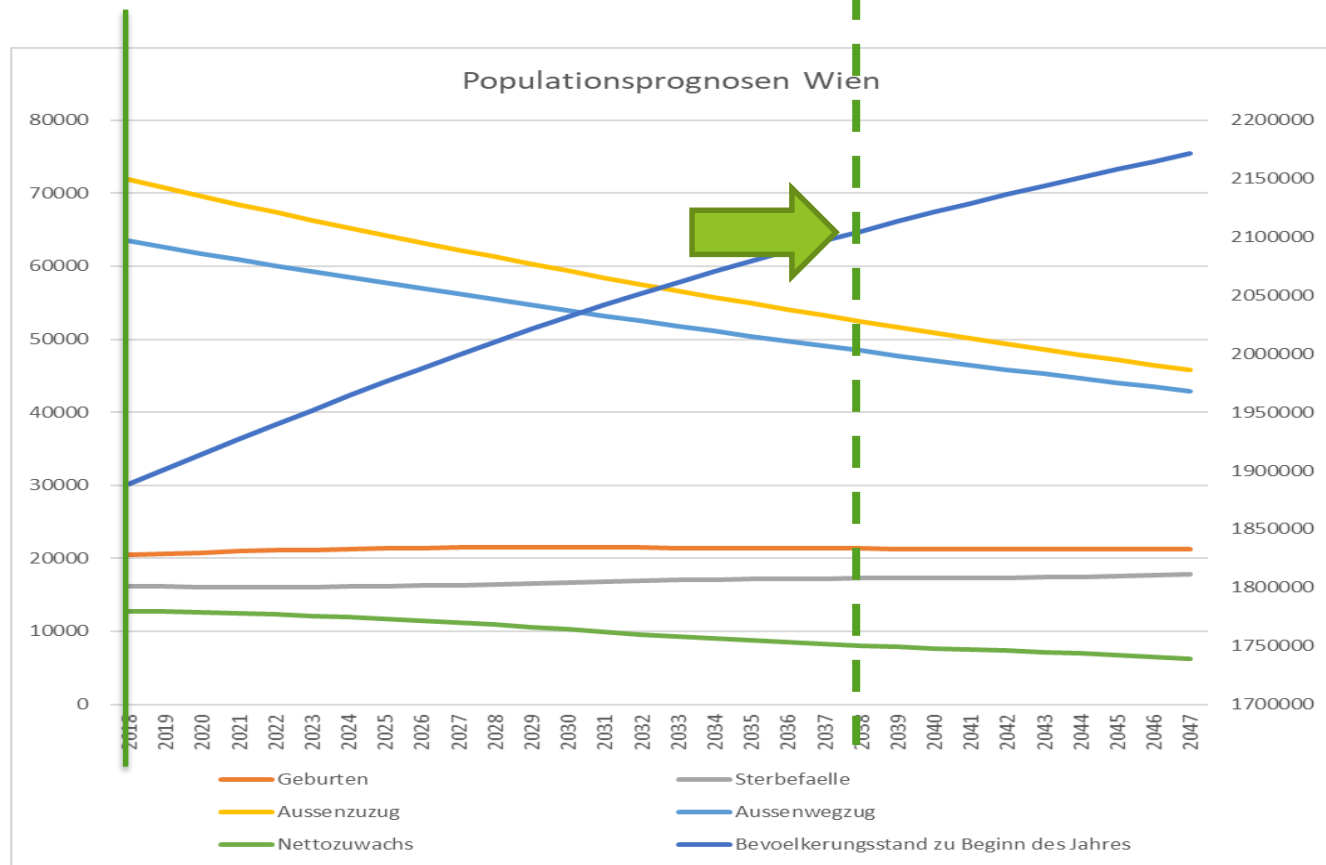


Food-Water-Energy: CLD



WATER & LAND USE: Scenarios

- INPUT
 - Population development



**+150k-200k
in 20 years**

LAND USE Scenarios

- INPUT
 - Real Use 2008-2016 (2018)
 - TREND residential land use
 - New planned residential development areas

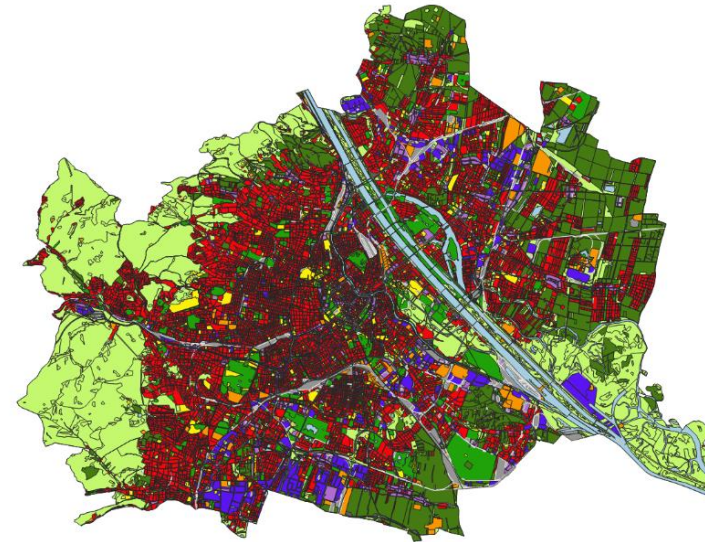


Land use based water demand for Vienna



Introduction

Basis current land use in Vienna
(Realnutzungskartierung Wien)

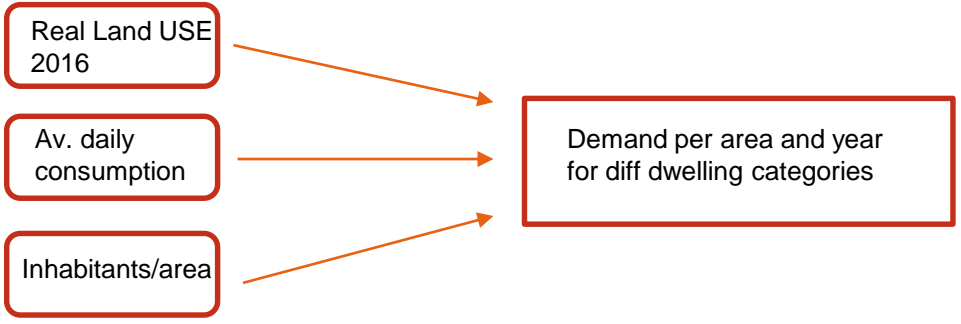


- Water demand per land use category
 - ➔ Estimation of entire water demand for Vienna
- Simulation: change of water demand due to **land use change**



Per capita Demand for dwelling categories

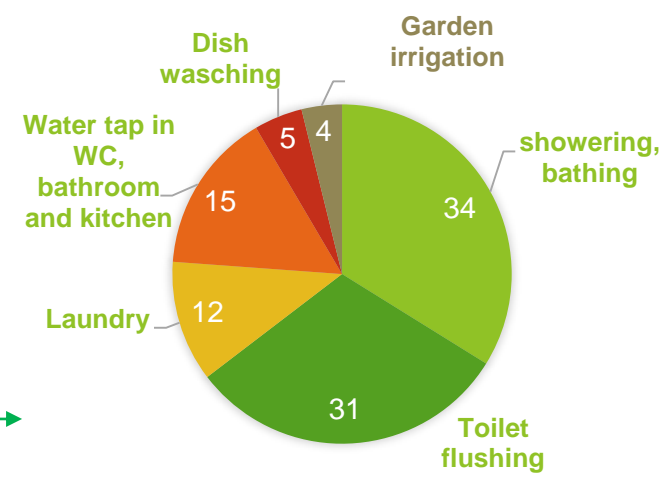
GIS-Analyse:



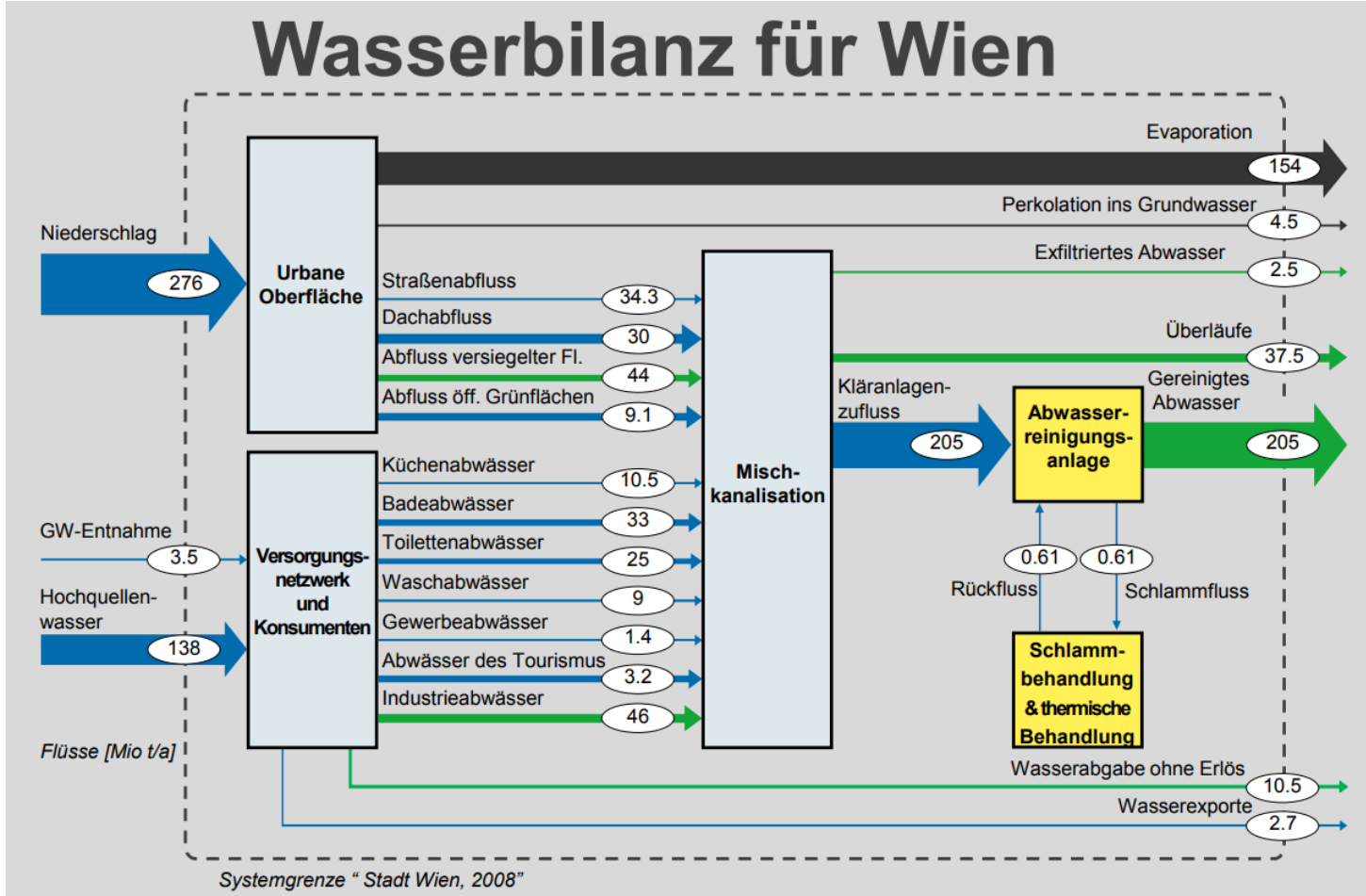
Category	m3/ha, year	l/capita, day	dwelling category
dense mixed residential area	12083	116	Wohnhaus-anlage
Garden city	3098	140	Reihen-haus
large-volume solitary housing	19605	116	Wohnhaus-anlage
sparsely populated residential area	1902	173	Einfamilien-haus
mixed use, low density, old town centre	1338	130	
Quelle	GIS-Analyse	Neunteufel 2010	

Average daily water demand per capita:
130 l/capita, day (BmNT 2019, Stadt Wien 2019)

WATER DEMAND IN PRIVATE HOUSEHOLDS % FOR DIFF USE CATEGORIES IN VIENNA



Water balance of Vienna



Source: Leitner 2013

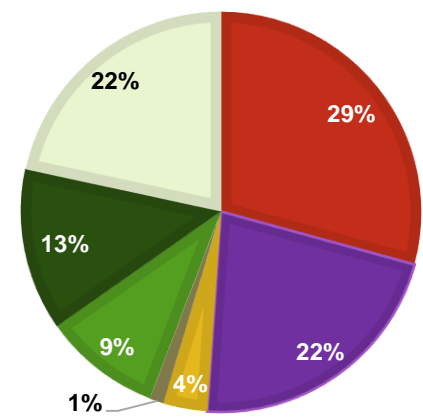


Total water demand Vienna

Kategorie	Wasserbedarf in Mio. m ³ /Jahr
Wohn- und Mischnutzung*	66,08
Geschäfts-, Kern- und Mischnutzung*	3,29
Industrie- und Gewerbe*	46,00
Soziale Infrastruktur*	7,09
Technische Infrastruktur*	0,94
Straßenraum*	2,56
Erholungs- und Freizeiteinrichtungen*	21,48
Landwirtschaft	29,56
Naturraum	48,81
Gesamt	225,81
*Davon ÖV	147,44

%-DISTRIBUTION WATER DEMAND IN VIENNA

- Wohn- u. Mischnutzung (Schwerpunkt Wohnen)
- Industrie-, Gewerbe- und Geschäftsnutzung
- soziale/technische Infrastruktur
- Straßenraum
- Erholungs- und Freizeiteinrichtungen
- Landwirtschaft
- Naturraum



Total Water Demand per Year 226 Mio. m³
 *Davon ÖV: 147 Mio. m³
 (Stadt Wien: 141 Mio. m³)

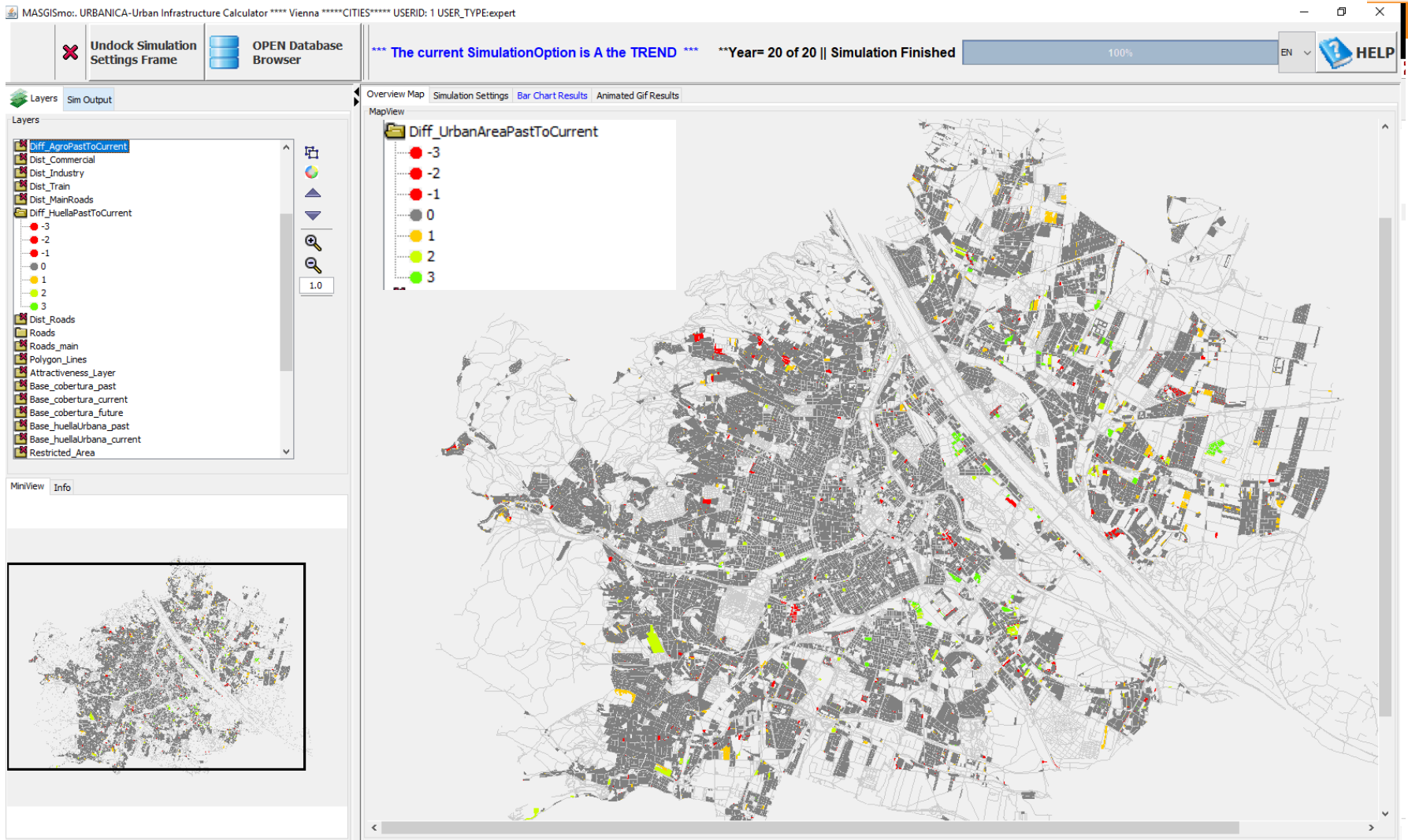
Water demand Vienna

Land use category		Mio.m ³ /a
Infrastructure	Industry & Service	46
	Social Infrastructure	7
	Mixed use	3
	Streetscape	3
	Technical Infrastructure	1
	Total:	60
Residential	Residential & Mixed use	66
Agriculture and Natural area	Recreational and leisure facilities	21
	Agriculture	30
	Natural area	49
	Total:	100
Total		226



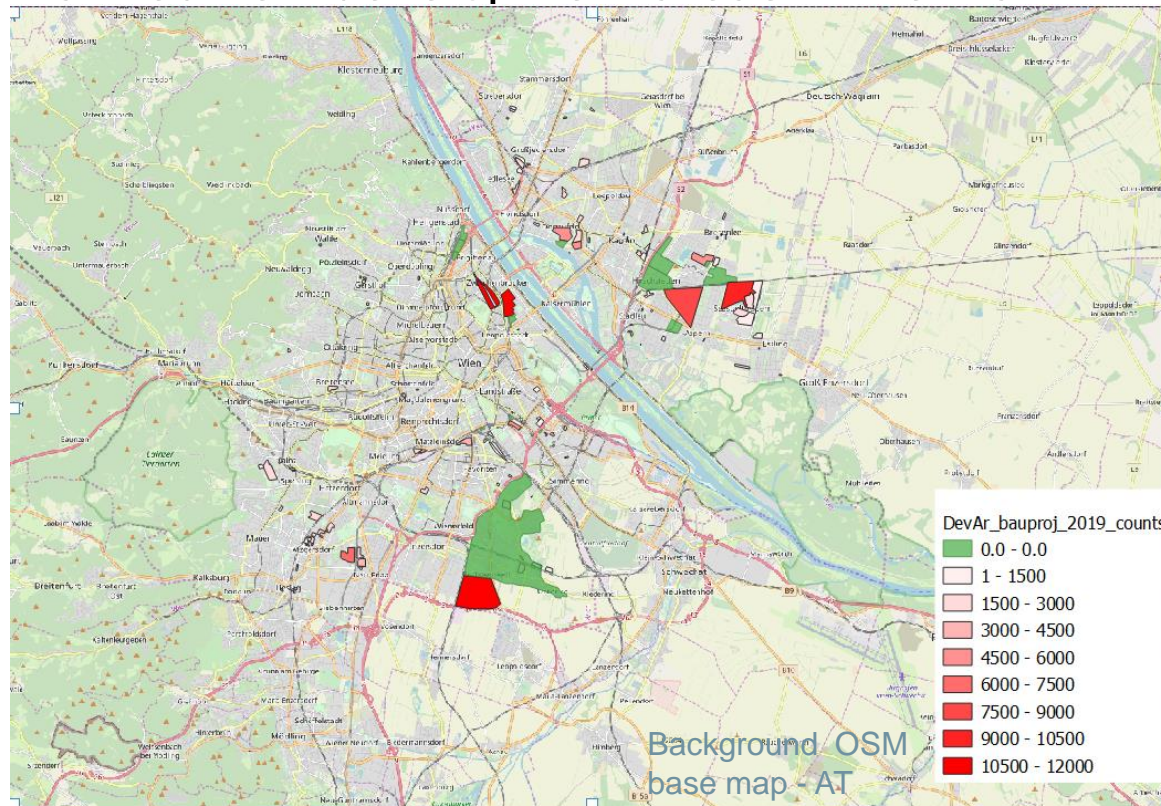
LUC Modelling with UD_InfraSim

Change of real use classes residential



WATER & LAND USE: Scenario INPUT

- INPUT
 - Planned new development areas in Vienna!



Restricted Growth Areas

MASGISmo: FWE-Land Use Simulator UD_InfraSim **** Vienna *****CITIES***** USERID: 1 USER_TYPE:expert

Undock Simulation Settings Frame OPEN Database Browser *** The current SimulationOption is A the TREND *** **Year= 0 of 20 || 4 more steps needed** 0% EN HELP

Layers Sim Output Overview Map Simulation Settings

Layers

- Diet_Commercial
- Diet_Industry
- Diet_Train
- Diet_MainRoads
- Diff_UrbanAreaPastToCurrent
- Diet_Roads
- Roads
- Roads_main
- Polygon_Lines
- Attractiveness_Layer
- Base_LU_past
- Base_LU_current
- Base_LU_future
- Base_urbanArea_past
- Base_urbanArea_current
- Restricted_Area**
- 1
- baseGrid
- PubTr_Train
- Industry_area
- Commercial_area
- DietRoadSupply
- DietEnergySupply
- DietPubTrSupply
- DietWaterSupply

566666

MapView

