SERVIÇOS DOS ECOSSISTEMAS NAS CIDADES

8 e 9 de Maio de 2017

Centro de Congressos do Laboratório Nacional de Engenharia Civil, Lisboa

A biodiversidade e a adaptação climática ao serviço da qualidade de vida

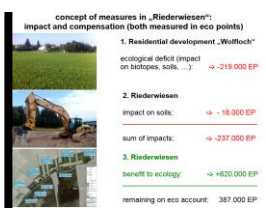
Ecological Account in Germany:

Halting the Loss of Biodiversity by Using the Polluter Pays Principle (PPP)

5 years of experience with the Eco Account decree

Prof. Dr. Christian Küpfer, Nürtingen University, Germany

Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen



Ecological Account in Germany:

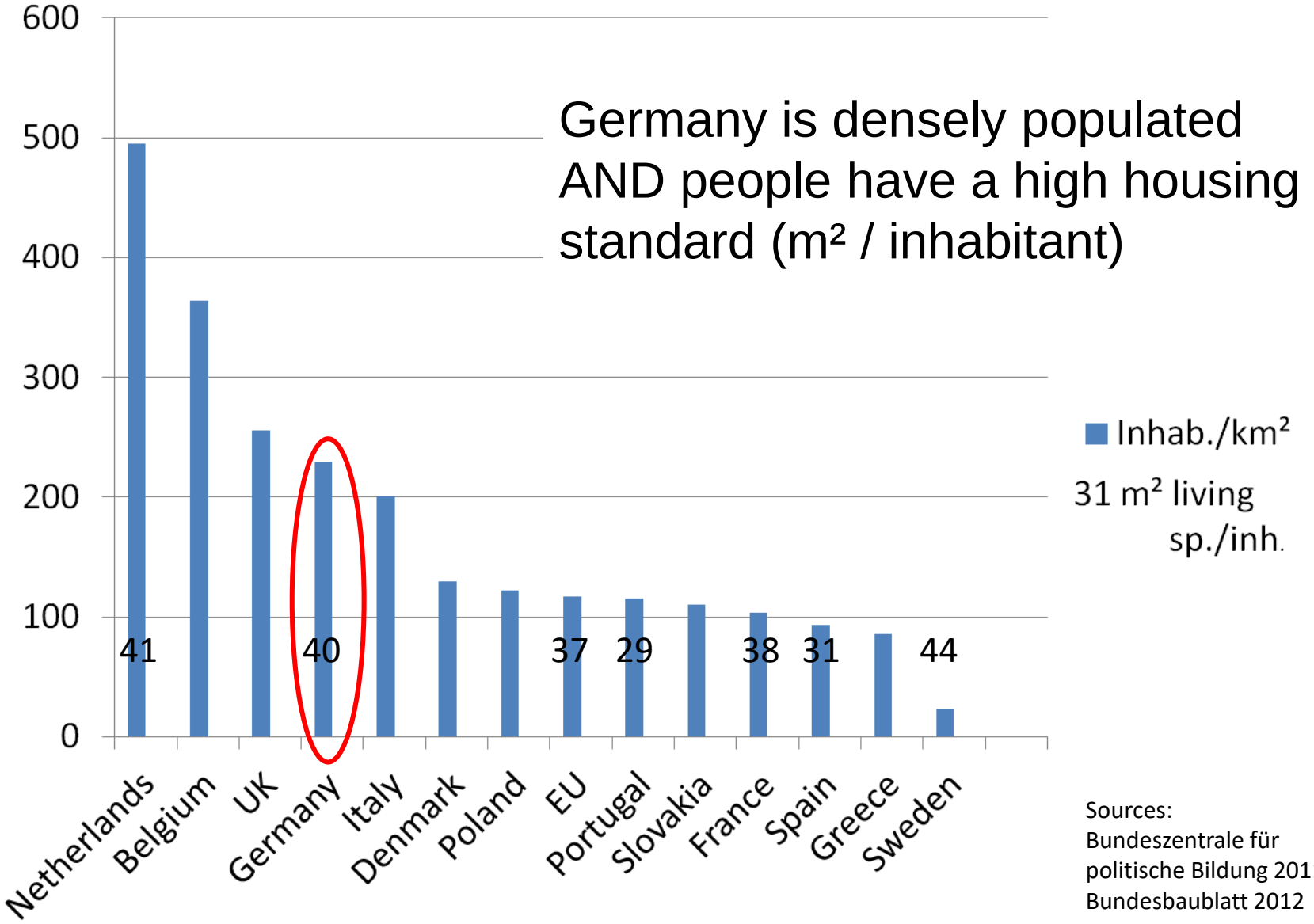
Halting the Loss of Biodiversity by Using the Polluter Pays Principle (PPP)

Contents

1. Introduction: Problems in densely populated regions
2. Hierarchical planning as important means
   to solve spatial and land use problems
3. Eco Account/PPP – the key instrument for
4. examples
5. Conclusions

New: not the system / method itself but its application to all (!) impacts

Population density and living space in the EU



Sources:
Bundeszentrale für politische Bildung 2011
Bundesbaublatt 2012

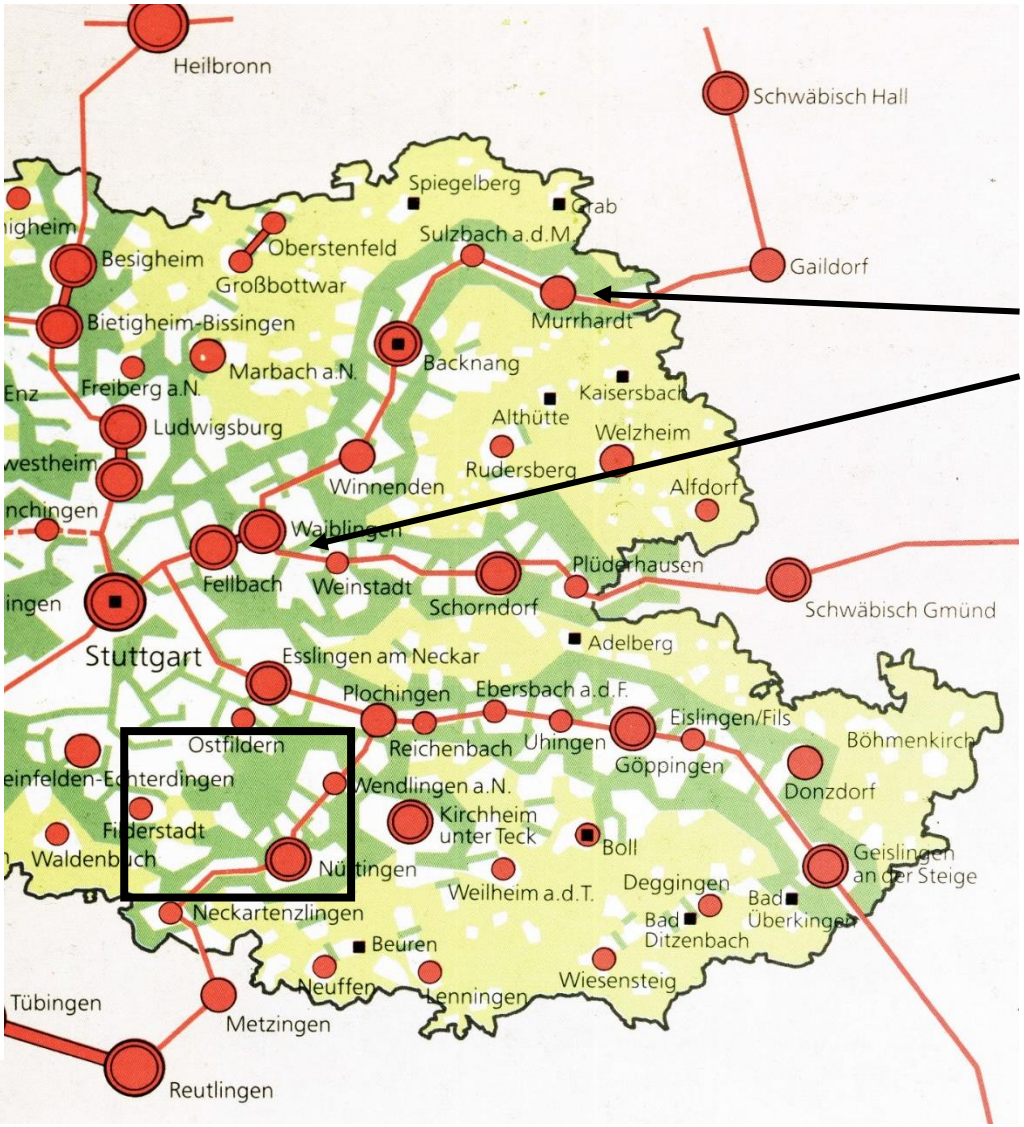
Basic planning concept: Regional Plan

To maintain ecological coherence:

defined corridors (along existing transport infrastructure)

for residential, commercial, and industrial development

…



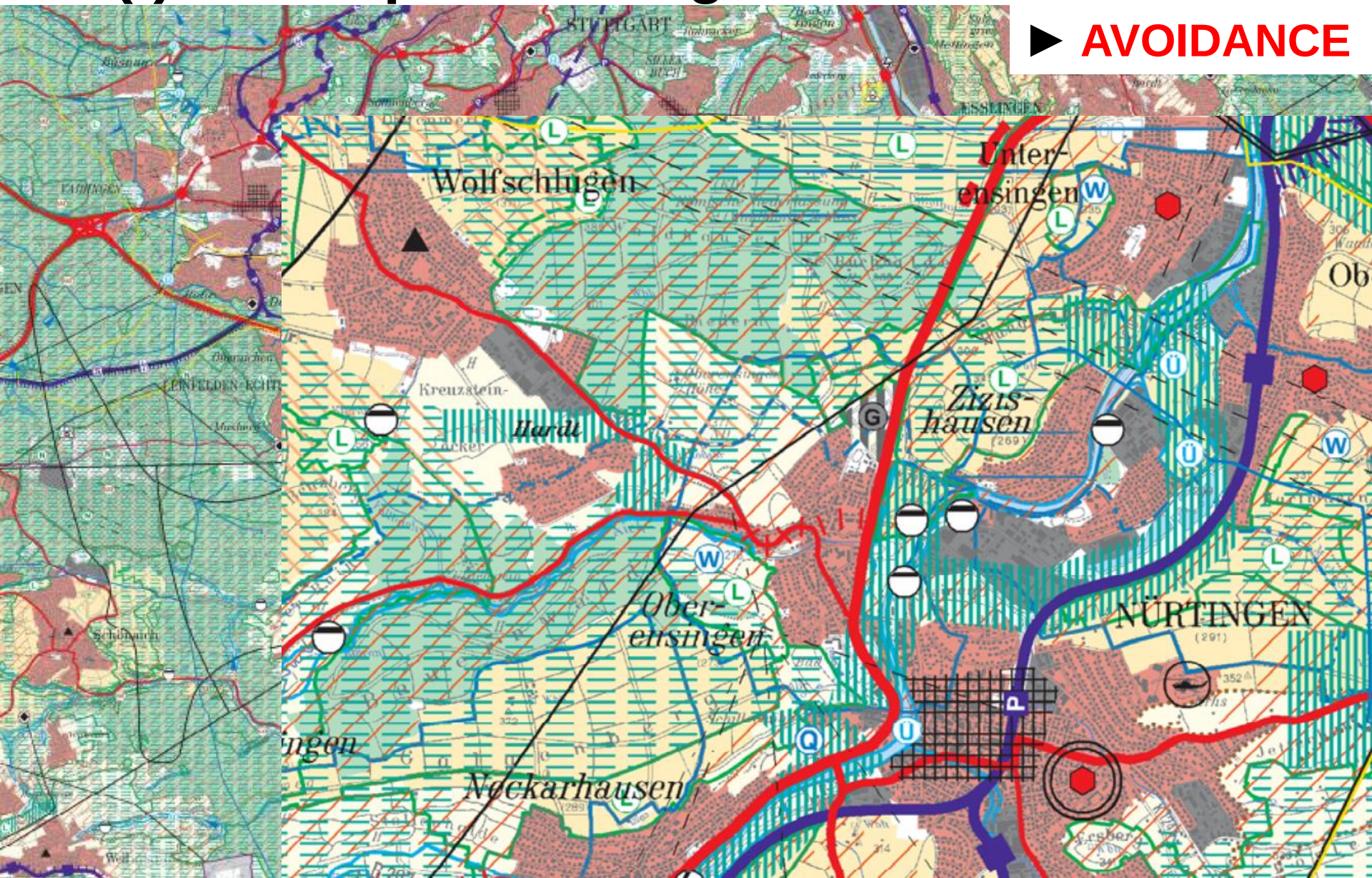
as well as definition of green belts and green breaks

created by landscape planning in the Greater Stuttgart Region

(§2+3 LplG)

Restrictions given by Regional Planning: no (!) developments in green belts and breaks

► AVOIDANCE



Important outcome of restrictive Regional Plan:

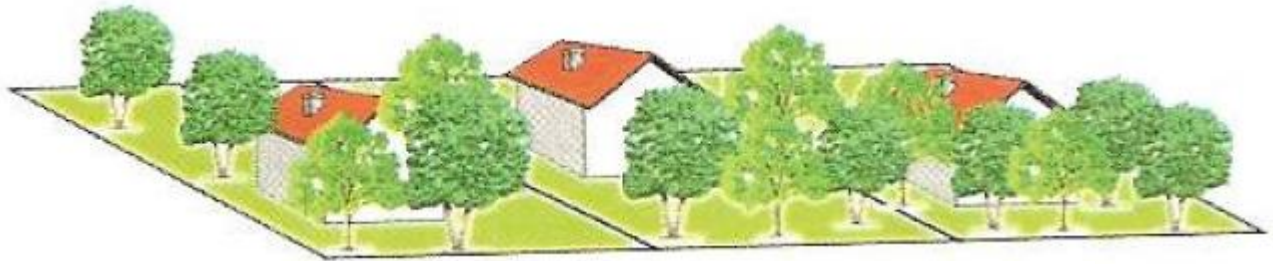
urban renewal has to be considered in Land Use Plans

► AVOIDANCE | ► MITIGATION

New developments outside existing urba areas:

§15 BNatSchG: avoid avoidable impacts, compensate the rest!

impact: new buildings, roads, pathways, …



(partial) mitigation by measures inside the impacted area

But: how much is x?

obligatory for all (!) impacts!

plus x outside impacted area

Evaluation system of existing and planned biotopes:
Ökokontoverordnung (ÖKVO; decree for offsetting impacts)

(2011: coming into force - 2016/17: evaluation / update)

ID number for type of biotope	Type of biotope (name)	Existing biotopes [EP]	Planned biotopes [EP]
33.10	wet meadow	14 / **26** / 39	14 / **26** / 34
33.41	typical meadow on fertile soils	8 / **13** / 19	8 / **13** / –
36.70	xeric grassland	22 / **37** / 50	22 / **31** / 37

Additional or reduced number of EP depending on

+ number of endangered species living in biotope above average
+ rich in structures, ecotones etc.
+ …
- number of endangered species living in biotope below average
- eutrophicated sand/or disturbed site,
- …

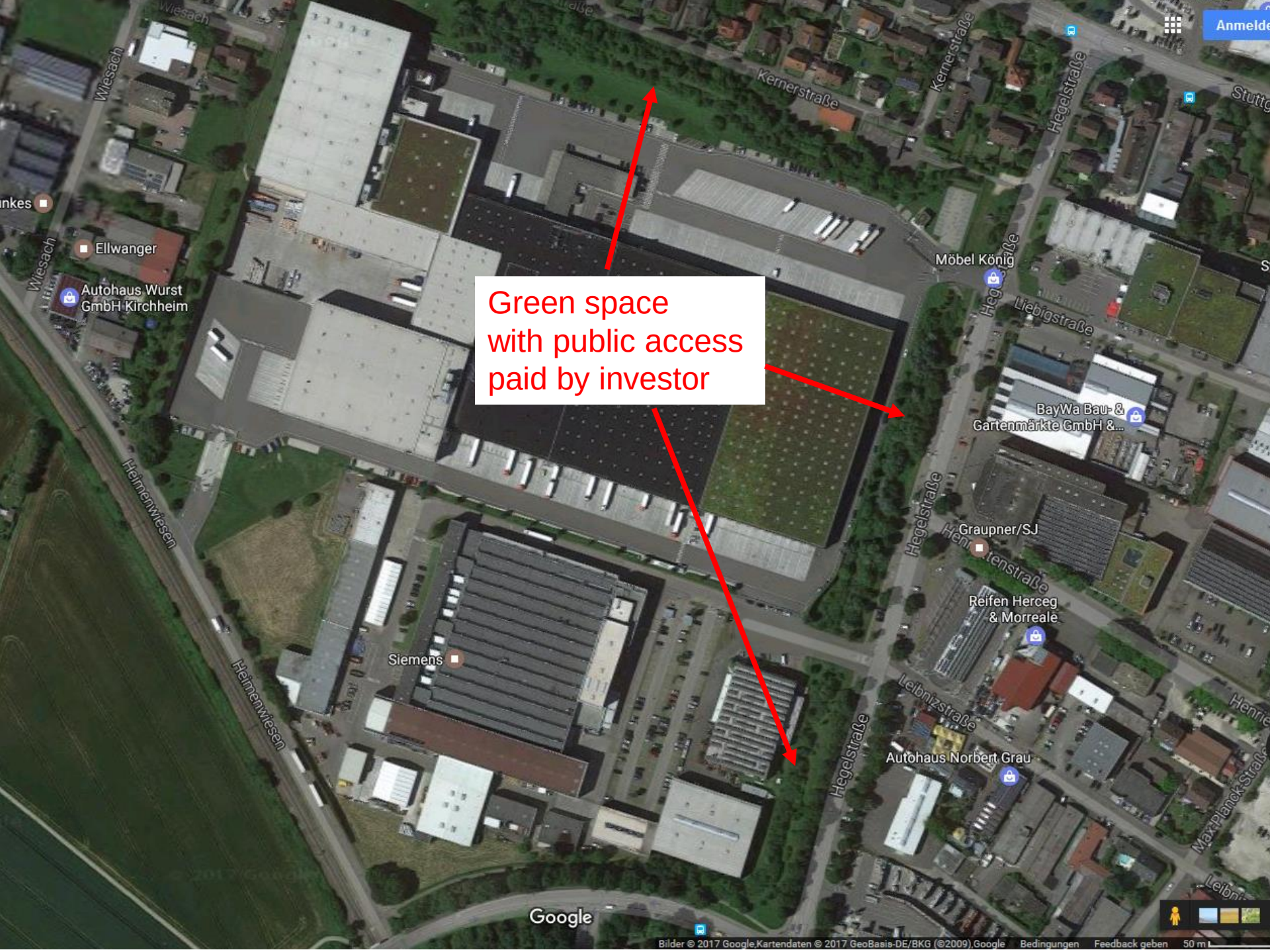
Importance of a valid evaluation system and legal regulation

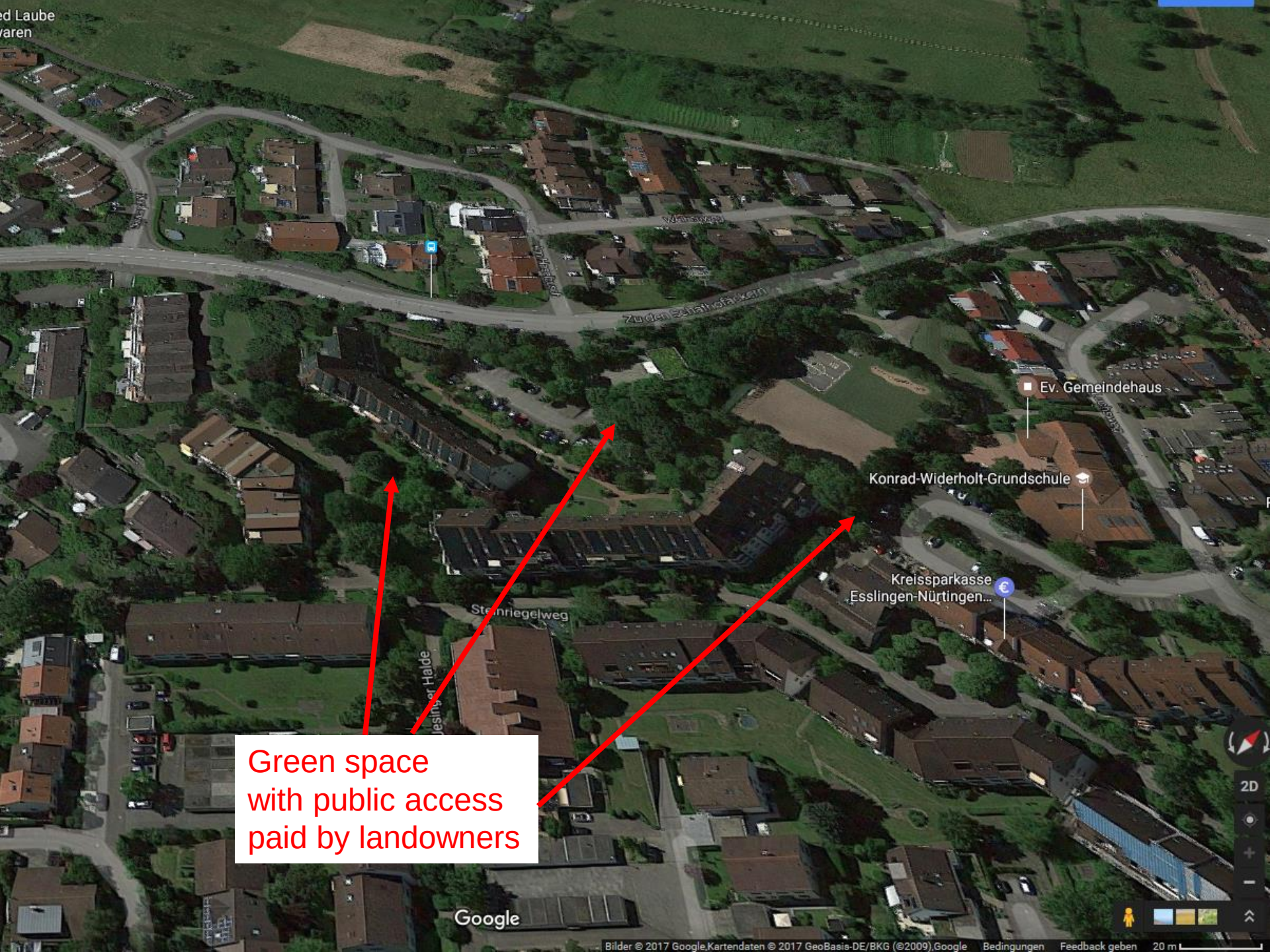
- basis for PPP: internalization of ecological cost
  ► who benefits from urbanization (= transformation farmland to urban land) has to pay for measures to balance its negative effects
- transparent for all participants in the planning process ► reliability
- very strong impacts get expensive ► avoidance, mitigation
- clear / mandatory system ► helps against arbitrariness and corruption

► **§20 Kommunalabgabengesetz** (law regulating municipal taxes):

municipalities MUST raise a tax for access roads, special pathways, parks, other urban green space, and playgrounds (up to 95%!)

are ALLOWED to raise a tax for other non-covered expenses for residential or commercial site development like compensatory measures


Green space
with public access
paid by investor
Kernerstraße
Hegelstraße
Liebigstraße
Wiesach
Ellwanger
Autohaus Wurst
GmbH Kirchheim
Möbel König
BayWa Bau- &
Gartenmärkte GmbH &...
Graupner/SJ
Reifen Herceg
& Morreale
Siemens
Heimenwiesen
Leibnizstraße
Autohaus Norbert Grau
Max-Planck-Straße
Google
Bilder © 2017 Google,Kartendaten © 2017 GeoBasis-DE/BKG (©2009),Google
Bedingungen
Feedback geben
50 m


Ev. Gemeindehaus
Konrad-Widerholt-Grundschule
Kreissparkasse Esslingen-Nürtingen...
Steinriegelweg
Zu den Reisholfäcken
Green space
with public access
paid by landowners
Google
Bilder © 2017 Google,Kartendaten © 2017 GeoBasis-DE/BKG (©2009),Google
Bedingungen
Feedback geben
20 m
2D

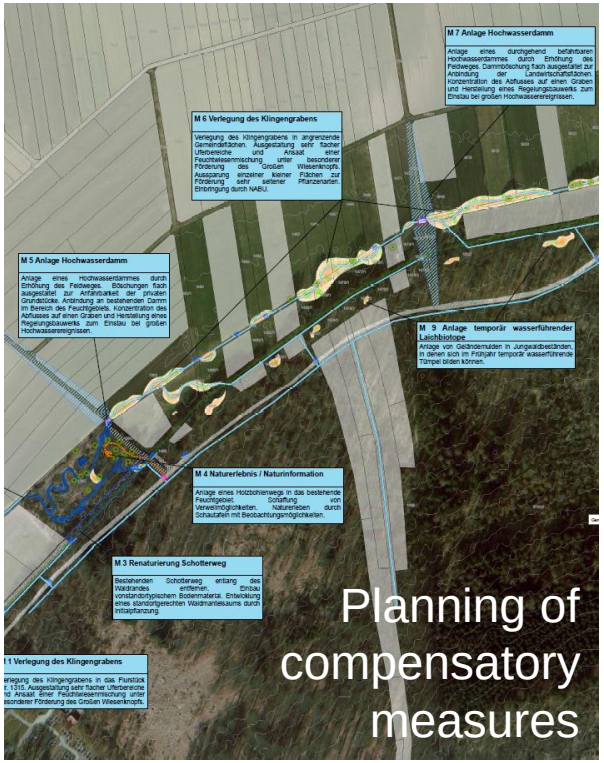
compensation of impacts:
quantified through Eco Account System / financed through PPP

Residential/ commercial development

-> cost for ground, infrastructure, **and ecological compensation**

-> paid by property owners **(≈ 2% extra)**

Polluter Pays Principle



Importance of the Polluter Pays Principle

Investor (private) Community (public)	Advantage	Disadvantage
without using PPP	externalized environmental cost, high interest of investment -	administration has to take over the cost to re-establish ecological functions, green infrastructure etc. ¥: no compensatory measures

Ex. 1: mitigation inside

impacted area

M 5a

M 9

„external“ compensation:
- measures to maintain CEF
- measures to compensate impacts
(natural woodlands)

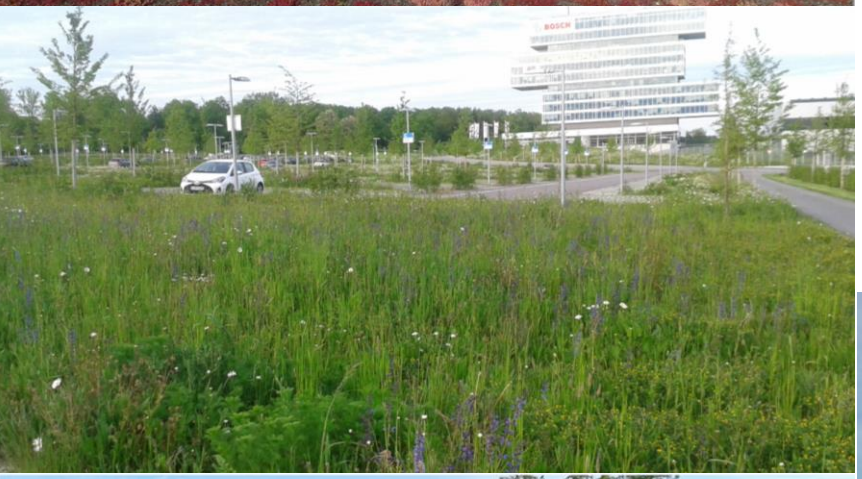
M 3

M 4

impact and its
„internal“mitigation

source: Google maps

All measures are to be paid by the developer!



BOSCH Research Centre, Renningen (BB):

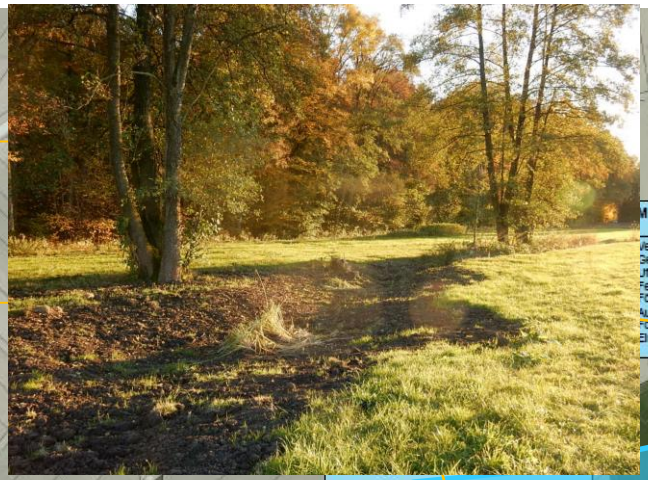
green roofs (water, local climate)

high quality grassland around parkings

additional tree plantings (fruit / insects)

Example 2: compensatory measures in „Riederwiesen“:

avoid flooding / improve biodiversity / create sustainability (farmers!)



Meanders, broadered creek, amorphous forms more humid spots / areas

Forest and forest edge temporary spawning areas

5.000 m³ water retention for flooding prevention (100 years period)

Example 2: compensatory measures in „Riederwiesen“: impact and compensation (both measured in eco points, EP)

1. Residential development „Wolfloch“

ecological deficit (impact on biotopes, soils, …): ⇨ -219.000 EP

2. Riederwiesen

impact on soils: ⇨ - 18.000 EP

---

sum of impacts: ⇨ -237.000 EP

3. Riederwiesen

benefit to ecology: ⇨ +620.000 EP

---

remaining on Eco Account: +387.000 EP

Ecological Account in Germany:

Halting the Loss of Biodiversity by Using the Polluter Pays Principle (PPP)

Conclusions

1. A powerful, mandatory regional planning helps to conserve biodiversity and is the basis to face spatial challenges
   ► AVIODANCE
   ► MITIGATION
2. Notably in densely populated regions, Eco Accounts play a key role in Germany to achieve sustainability: from 2011 on, compensation rate has risen strongly!
   ► COMPENSATION
3. The conservation of biodiversity needs a legal frame, liability and money: compensatory concepts can be driven by / financed through the Polluter Pays Principle
   ► IMPLEMENTATION

SERVIÇOS DOS ECOSSISTEMAS NAS CIDADES

8 e 9 de Maio de 2017

Centro de Congressos do Laboratório Nacional de Engenharia Civil, Lisboa

A biodiversidade e a adaptação climática ao serviço da qualidade de vida

thank you for your attention!

Further information:

www.stadtlandfluss.org (website partly in English, French and Portuguese)

contact:
christian.kuepfer@hfwu.de

Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen