

Brownfields and Gap Sites as Potential for Sustainable Urban Development – A Survey of German Cities and Towns

CABERNET 2014

Tailored & Sustainable Redevelopment towards Zero Brownfields -
4th International Conference on Managing Urban Land

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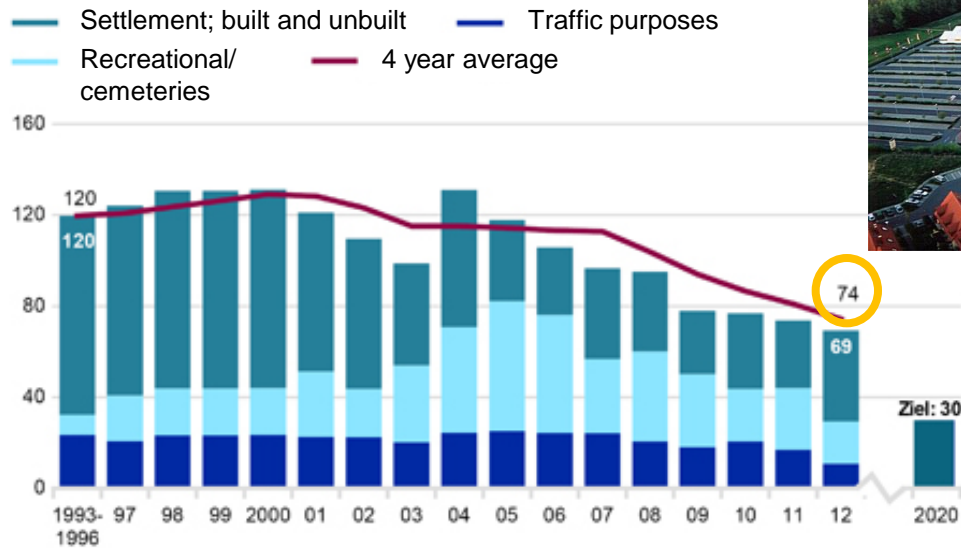


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- Concept
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Background

Increase in land use for settlement and traffic purposes in Germany:



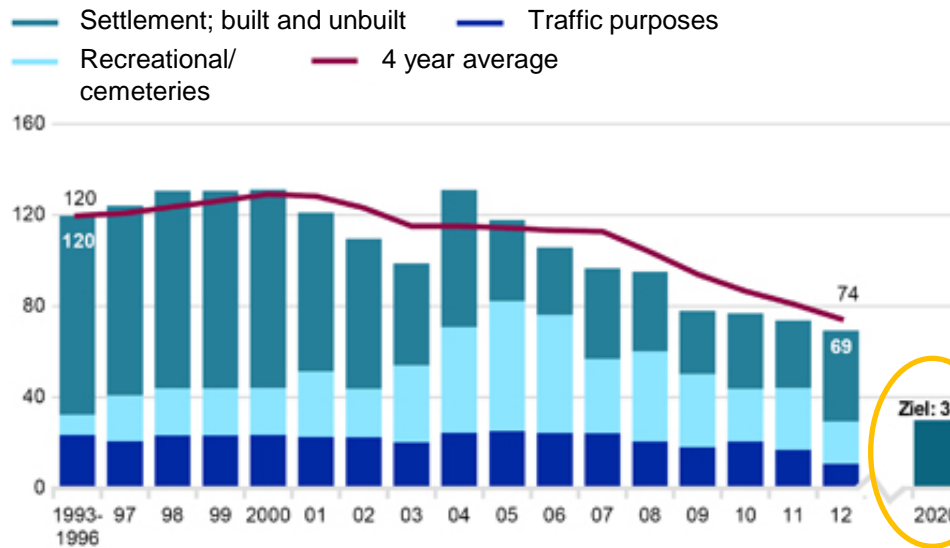
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74 hectares \approx 183 acres \approx 106 Soccer fields **per day**
 (1 ha = 10.000 m² = 2.47 ac)

Background

Increase in land use for settlement and traffic purposes in Germany:



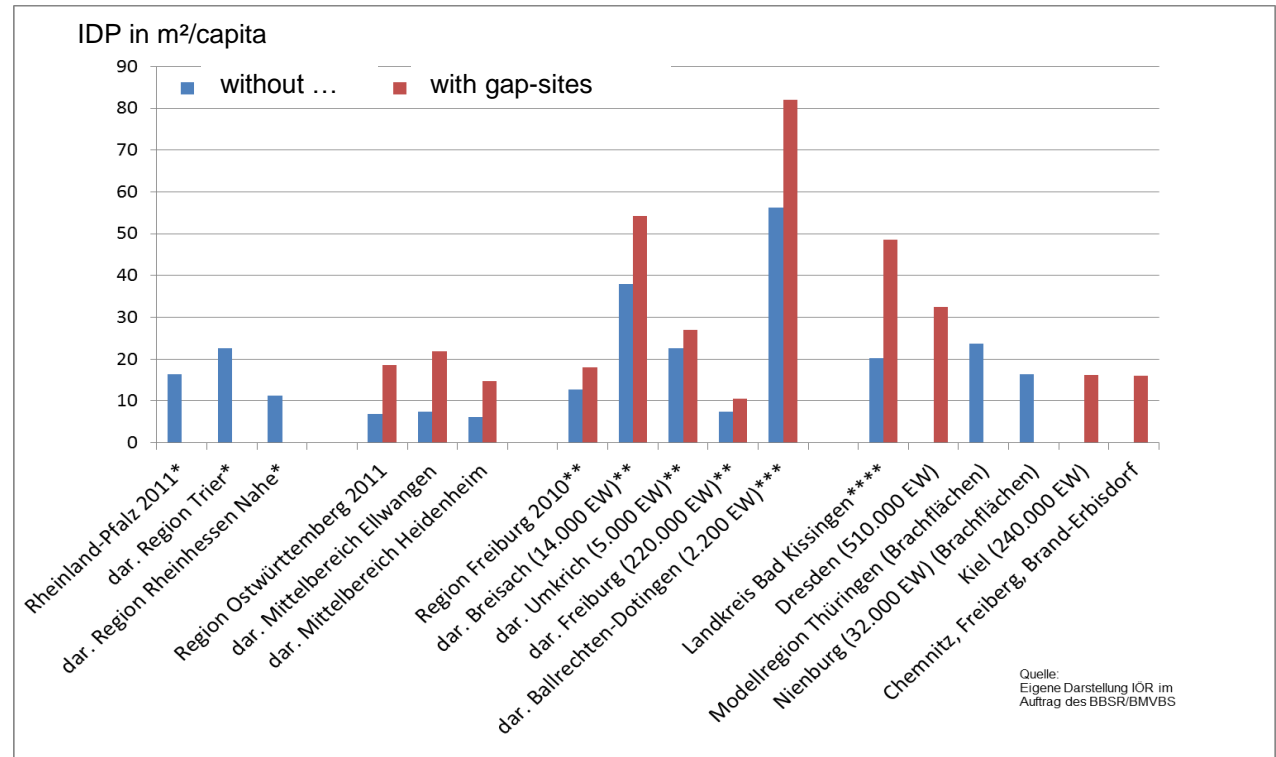
National Strategy for Sustainable Development target: **30ha/day** by 2020

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The use of brownfields and gap sites within existing settlement areas - „**Infill development potentials (IDP)**“ - helps to reduce additional land use.

How much potential do we have?

Existing **local/ regional data** reveals very **different methodology and scope:**



* Including gap-sites > 2.000 m²

** including „low density areas“

*** including „low density areas“ and partly development sites at the perimeter of settlements (so-called *Arrondierungsflächen*)

**** low density plots, vacant housing, vacant farm settlements, residual use farm settlements, industrial/commercial brownfields without use

How much potential do we have?

Different scope and results of previous estimates for Germany (ha):

Estimates by	1992	1996	2000	2003	2004	2006	2008
Settlement area without use (UGR)	121.100	133.300	158.200		150.200		132.900
Brownfields (UBA)		125.000 - 128.000	139.000		168.000		
Settlement and traffic area without use (UBA)					176.000		
Re-use potentials (BBR)				49.000		63.000	

Sources:

- Ferber, U.; Grimski, D.; Glöckner, S.; Dosch, S. (2010): Stadtbrachenpotenziale: Von Leuchttürmen und Patchwork. Informationen zur Raumentwicklung H.1: 1-11.
- Bundesamt für Bauwesen und Raumordnung (BBR) (2004): Bauland- und Immobilienmärkte in Deutschland Ausgabe 2004. Berichte Band 19
- Kommission Bodenschutz des Umweltbundesamtes (KBU) (2009): Flächenverbrauch einschränken – jetzt handeln. Empfehlungen der Kommission Bodenschutz beim Umweltbundesamt.
- Statistisches Bundesamt (2012): Umweltnutzung und Wirtschaft. Tabellen zu den Umweltökonomischen Gesamtrechnungen. Teil 5: Flächennutzung, Umweltschutzmaßnahmen.
- Umweltbundesamt (2003): Reduzierung der Flächeninanspruchnahme durch Siedlung und Verkehr. Materialienband. Texte 90/03.

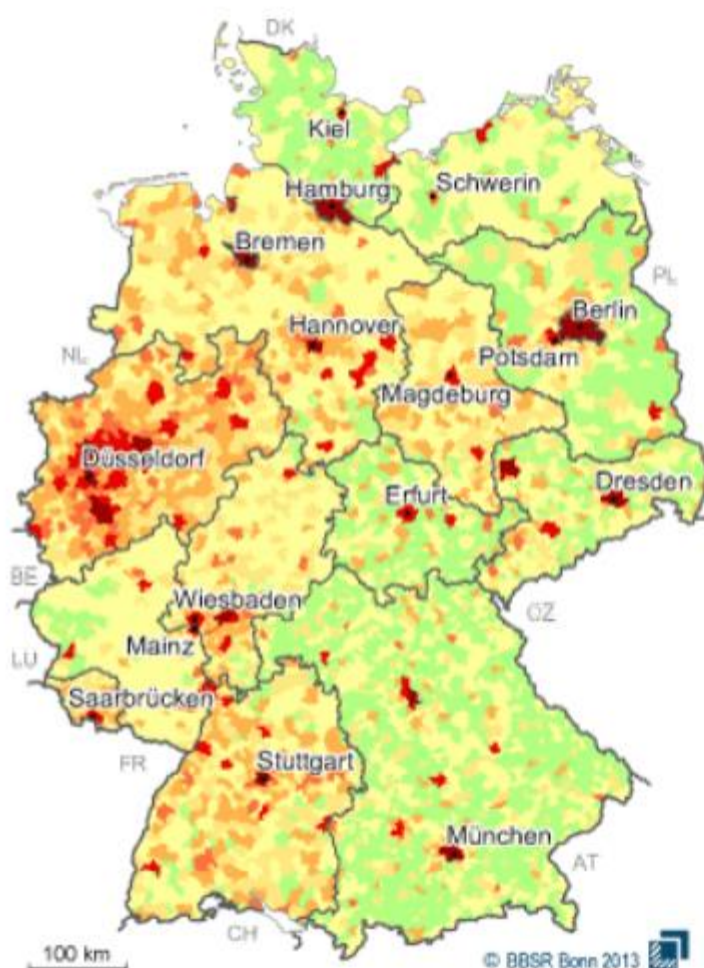
How much potential do we have?

- Survey for the German Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR):
„Measures for the Reduction of Land Use – Infill Development Potentials“
- Leibniz Institute of Ecological Urban and Regional Development, Dresden; **G. Schiller, H. Oertel, G. Meinel, R. Hecht**
Partner: **PROJEKTGRUPPE STADT+ENTWICKLUNG**, Leipzig
- **Survey of german cities and towns** with respect to quantities and management of brownfields and gap sites as a basis for **nationwide and regional projections** of IDP
- Exploration of options for (partly) automated GIS-based identification of IDP (see Robert Hecht)

Survey concept

- Scope
 - 11.255 cities and towns (“communities”; 100%)
 - 1.315 surveyed (11,7%; contacted sample)
 - 451 valid cases (34% or 4% resp.; realized sample)
- Sampling
 - Sampling Matrix: Municipality-types by 16 federal states

Survey concept



Types of Municipalities (BBSR)

Large Cities

- große Großstädte um 500.000 Einwohner und mehr
- kleinere Großstädte unter 500.000 Einwohner

Medium size cities

- größere Mittelstädte mit Zentrum 50.000 Einwohner und mehr
- kleinere Mittelstädte mit Zentrum 20.000 bis 50.000 Einwohnern

Smaller towns

- größere Kleinstädte mit Zentrum 10.000 Einwohner und mehr
- kleine Kleinstädte mit Zentrum wenig 5.000 bis 10.000 Einwohnern oder grundzentraler Funktion

Rural communities

Datenbasis:
Laufende Raumbewertung
des BBSR
Geometrische Grundlage:
BKG, Gemeinden und Gemeindevert
31.12.2011

Survey concept



Types of Municipalities (BBSR)

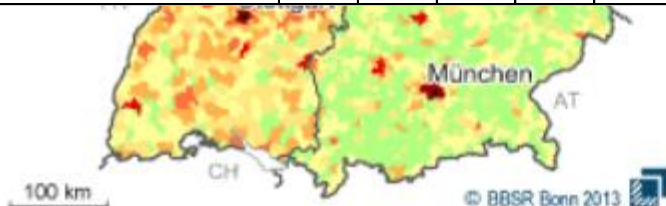
Large Cities

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- kleinere Großstädte unter 500.000 Einwohner

Medium size cities

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Gezogene Gesamtstichprobe, absolut		SH	HH	NI	HB	NW	HE	RP	BW	BY	SL	BE	BB	MV	SN	ST	TH	gesamt
100%	Große Großstadt	0	1	1	1	5	1	0	1	2	0	1	0	0	2	0	0	15
100%	Kleinere Großstadt	2	0	7	1	24	4	4	8	6	1	0	2	1	1	2	2	65
36%	Mittelstadt in GSR	4	0	14	0	44	14	4	36	10	3	0	5	0	4	2	1	141
10%	Kleinstadt in GSR	12	0	23	0	6	11	28	30	19	3	0	5	3	6	5	2	153
20%	Landgemeinde in GSR	42	0	0	0	0	4	9	5	42	0	0	4	5	4	1	11	127
36%	Mittelstadt außerh. GSR	0	0	15	0	20	5	2	52	11	1	0	4	3	7	12	9	141
10%	Kleinstadt außerh. GSR	28	0	68	0	12	15	168	43	51	2	0	6	47	19	21	24	504
5%	Landgemeinde außerh. GSR	25	0	1	0	0	4	14	4	54	0	0	13	13	8	4	29	169
11,7%	Gesamt	113	1	129	2	111	58	229	179	195	10	1	39	72	51	47	78	1315



Datenbasis:
 Laufende Raumbewertung
 des BBSR
 Geometrische Grundlage:
 BKG, Gemeinden und Gemeindevert
 31.12.2011

Survey concept

- Scope
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 - 1.315 surveyed (11,7%; contacted sample)
 - 451 valid cases (34% or 4% resp.; realized sample)
- Sampling
 - Sampling Matrix: Municipality-types by 16 federal states
- Municipalities contacted by e-mail
- Online questionnaire
- Complementary qualitative case studies (in particular data validation): 16 on-site, 14 by telephone

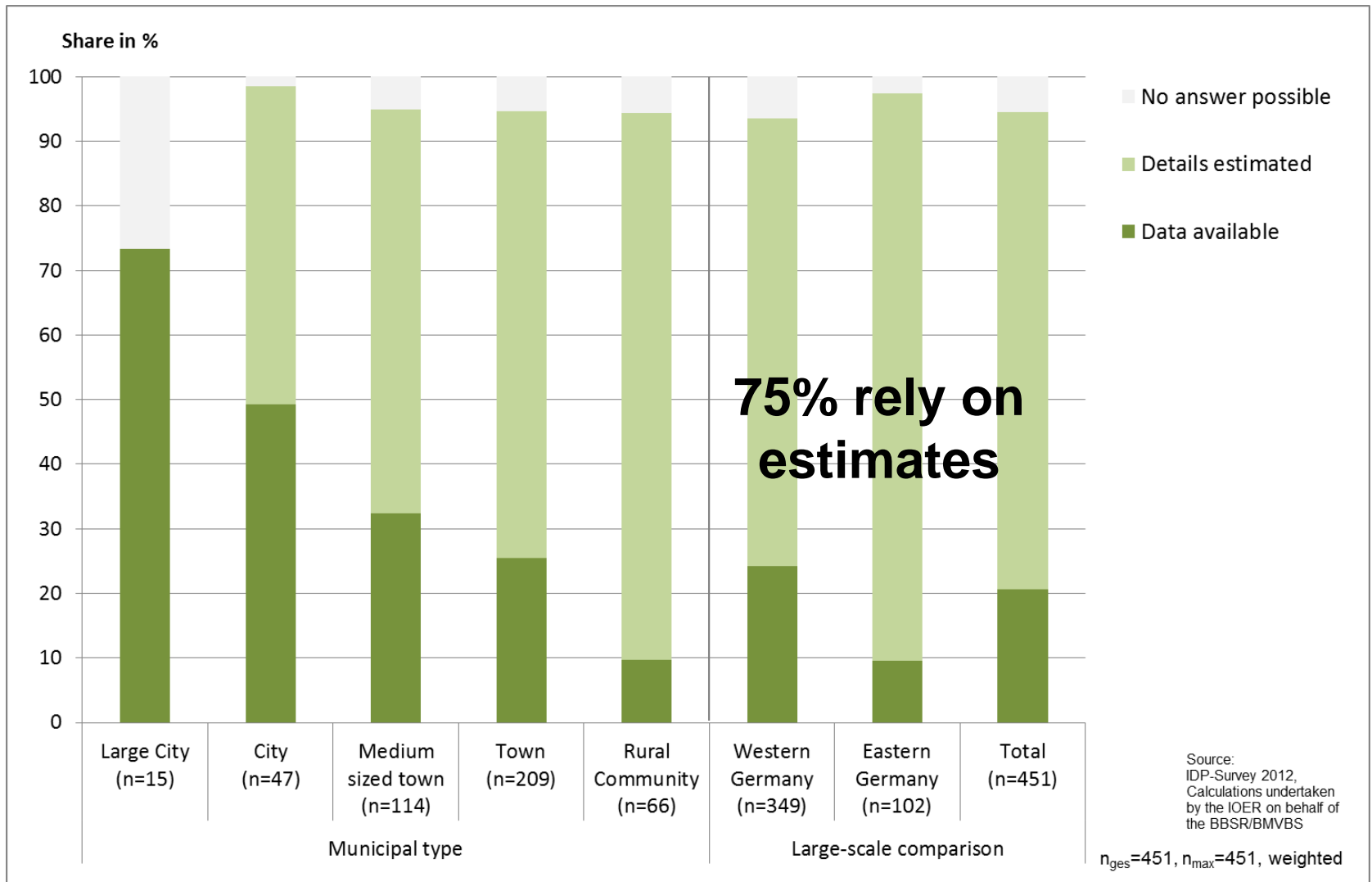
Terms defined for the survey

- **Infill sites:** Public and private plots / areas in established settlement areas (according to German legislation § 34 BauGB as well as B-plan sites according to § 30 BauGB). Development sites at the perimeter of settlements (“Arrondierungsflächen”) are not regarded as offering infill development potential.
- **Potential:** Public or private sites within established settlement areas which offer space for infill development regardless of market availability and concrete intentions of use. They do not have to serve as likely sites for construction but may as well be developed as green space for leisure and recreation.

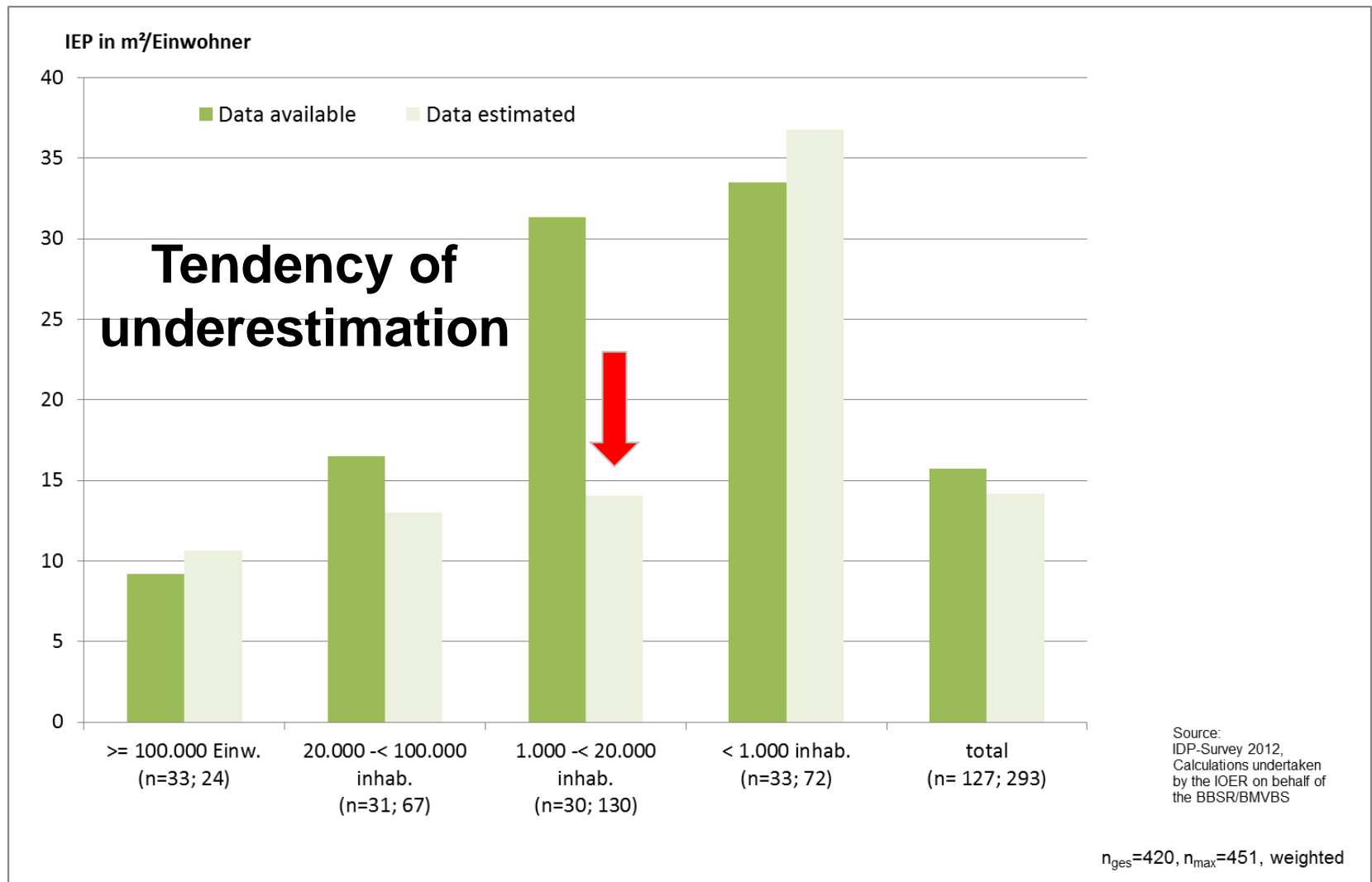
Terms defined for the survey

- **Brownfields** are abandoned or temporarily used **built-up sites**, e.g. industrial wasteland, conversion wasteland, infrastructural and transportation brownfields, commercial brownfields, residential brownfields, abandoned buildings, post-agricultural sites as well as cultural and social brownfields.
- **Gap-sites** are **non built-up sites** that offer potential for development (individual plots or a small number of contiguous plots) which lie within established or newly built settlement areas.

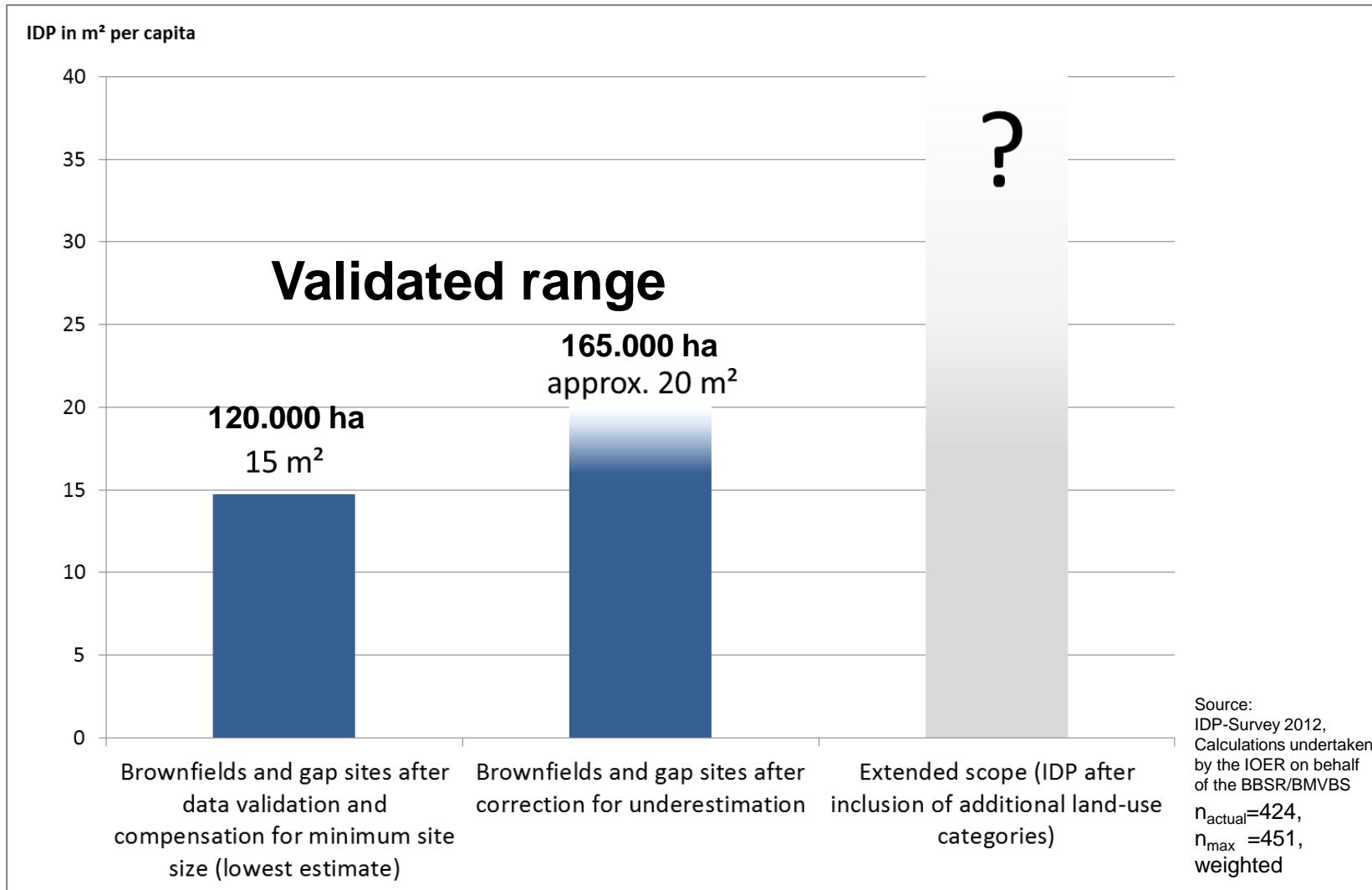
Results: Data Sources



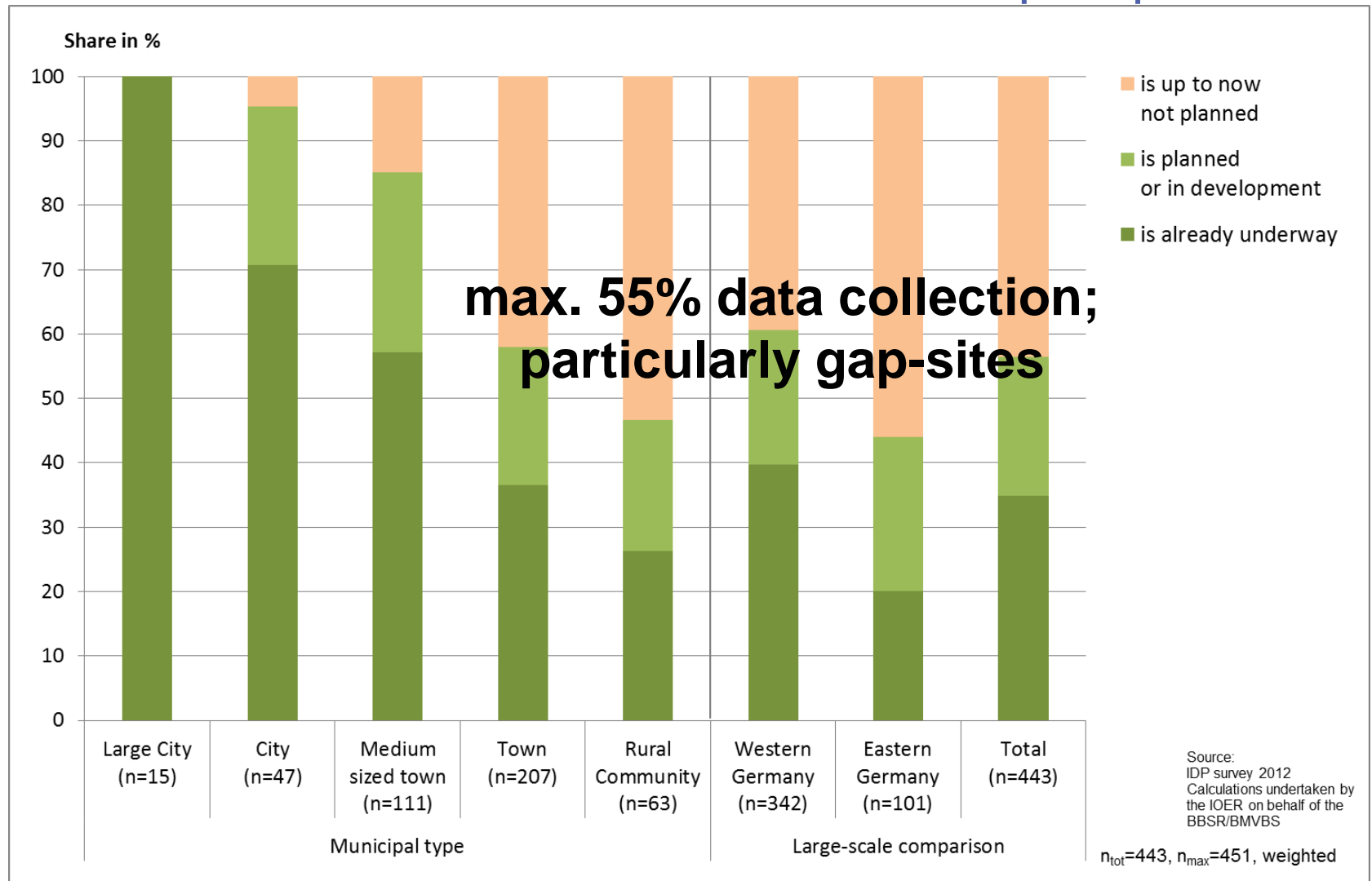
Comparison: Data available / estimated



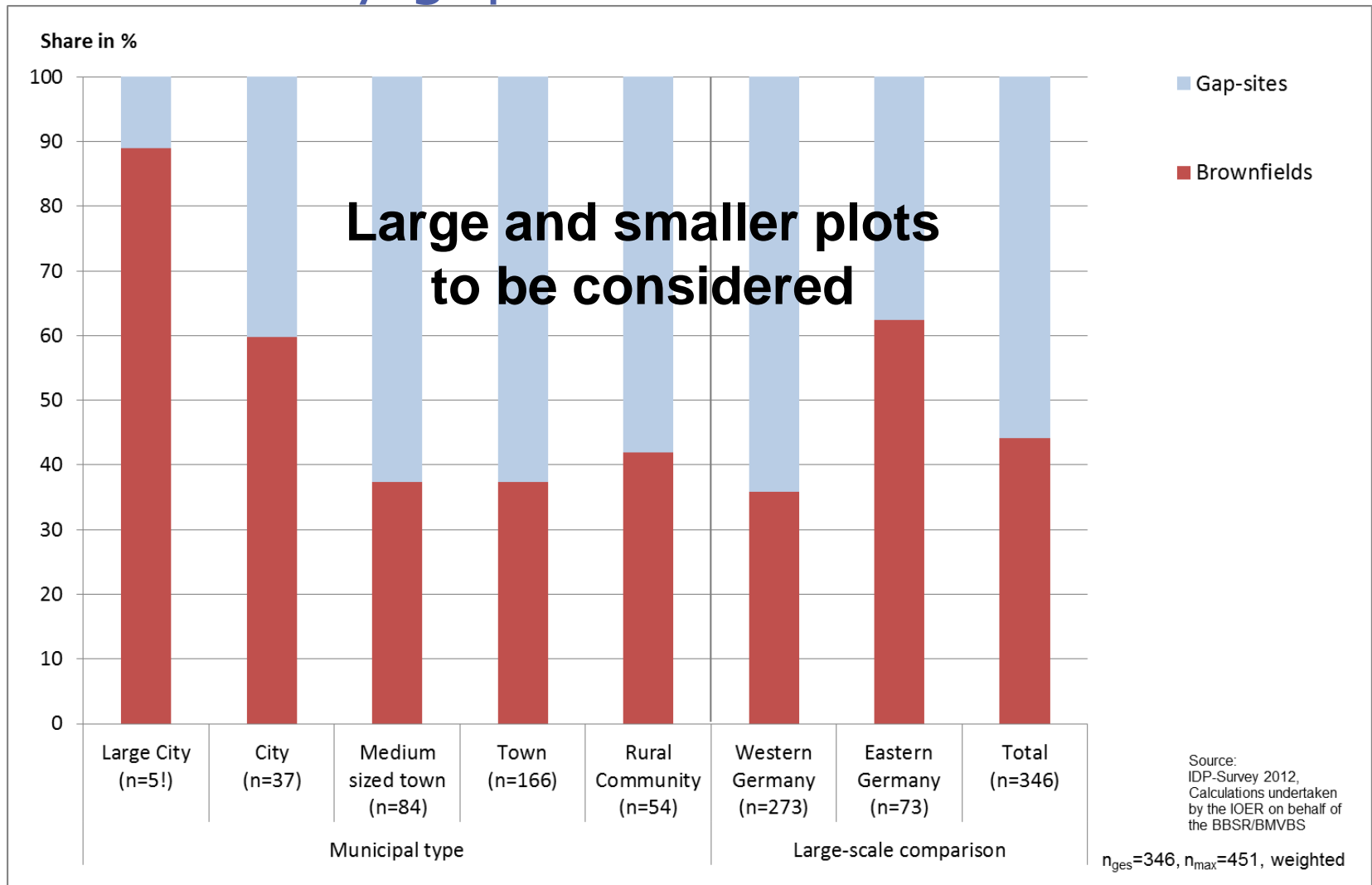
IDP m² per capita / national average



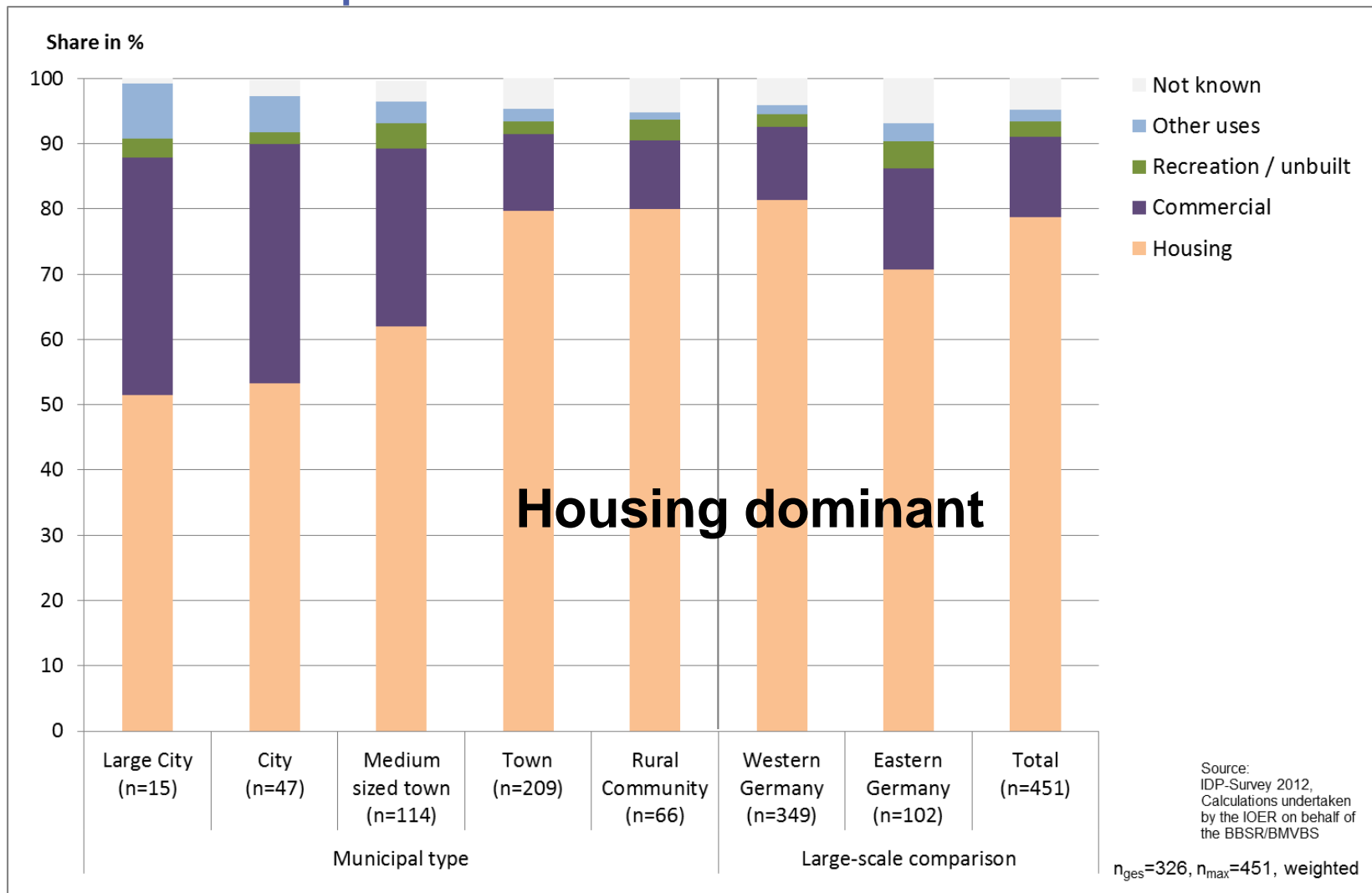
IDP data collection: Situation and prospects



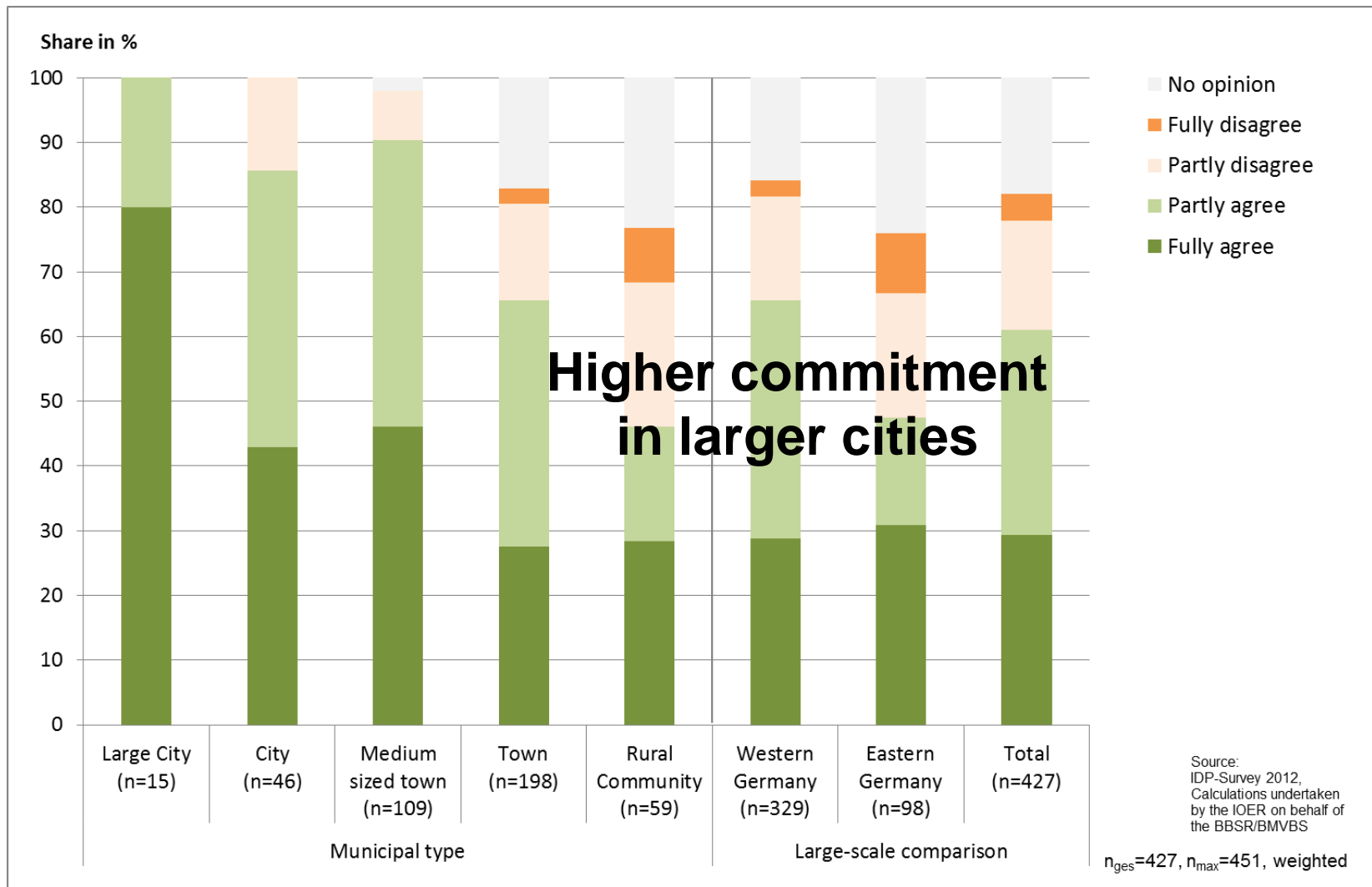
IDP by gap-sites and brownfields



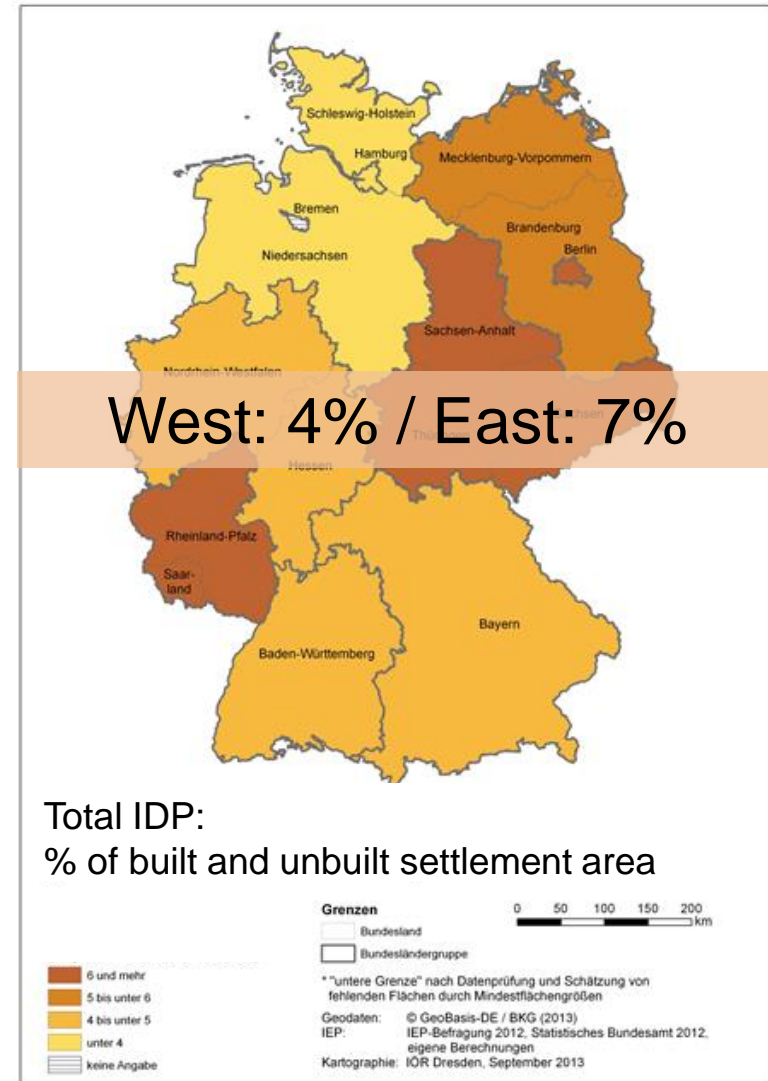
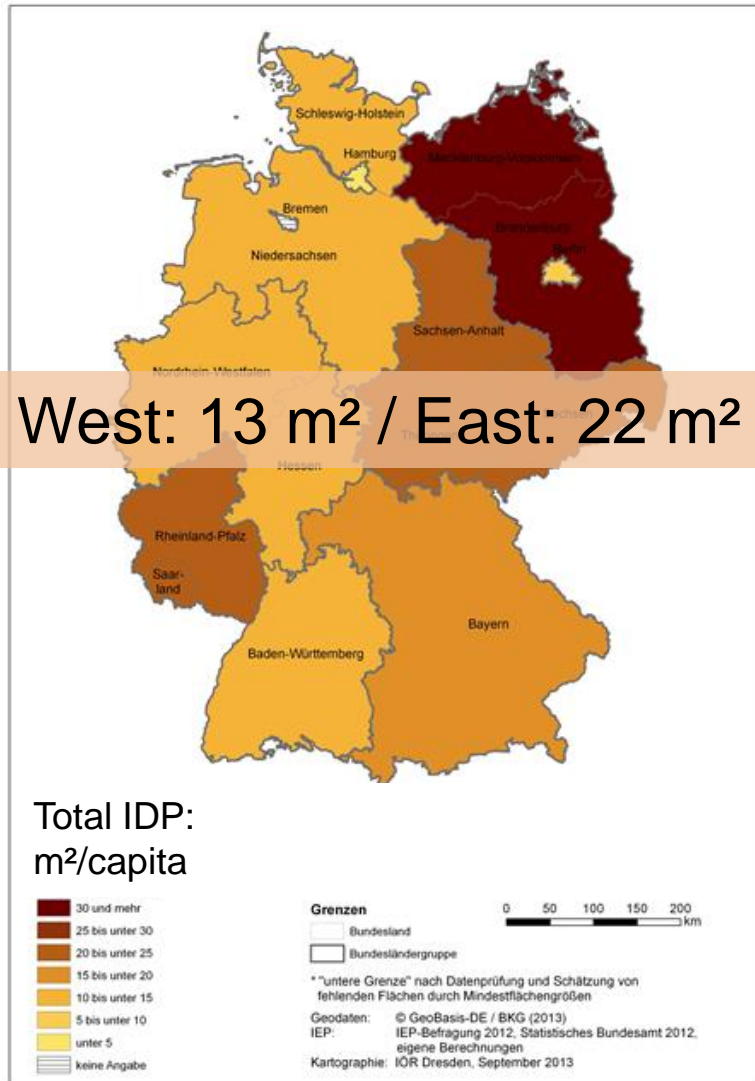
Expected future uses of IDP



Infill development as a priority task?



Large scale regional differences



Summary

- 15-20 m² per capita infill development potential
i.e. 5-7 % of the built and unbuilt settlement area
- Land-use demand could in Germany be satisfied
as infill development for roughly 5 years
- Land use management often based on estimated data:
Need for systematic data collection and implementation
of IDP cadasters
- (Partly) automated generation of IDP Information may in
future be of considerable support (positive feedback
from the case study municipalities)

You want more?

- Web-site: google „BBSR Innenentwicklungspotenziale“
http://www.bbsr.bund.de/BBSR/DE/FP/ReFo/Staedtebau/2011/UmsetzungInnenentwicklungspotenziale/01_Start.html?nn=438822
- English web-site: google „BBSR infill development potentials“
http://www.bbsr.bund.de/BBSR/EN/RP/GeneralDepartmentalResearch/UrbanDevelopment/InfillDevelopmentPotentials/01_Start_dossier.html?nn=387184¬First=true&docId=795984
- Publication of full results for Download:
http://www.bbsr.bund.de/BBSR/DE/Veroeffentlichungen/Sonderveroeffentlichungen/2014/Innenentwicklungspotenziale_D.html?nn=438822
(German but with an extended English abstract)
- Printed copy (free): gabriele.bohm@bbr.bund.de,
reference: „Innenentwicklungspotenziale“

Thank you for your attention!

During this presentation
in Germany an additional hectare
of land was used
for settlement and traffic purposes ...

