

The background is a light blue gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text is centered and rendered in a clean, sans-serif font.

hanseWasser

Sludge Handling in Bremen

Lübeck 07. Sept. 2011

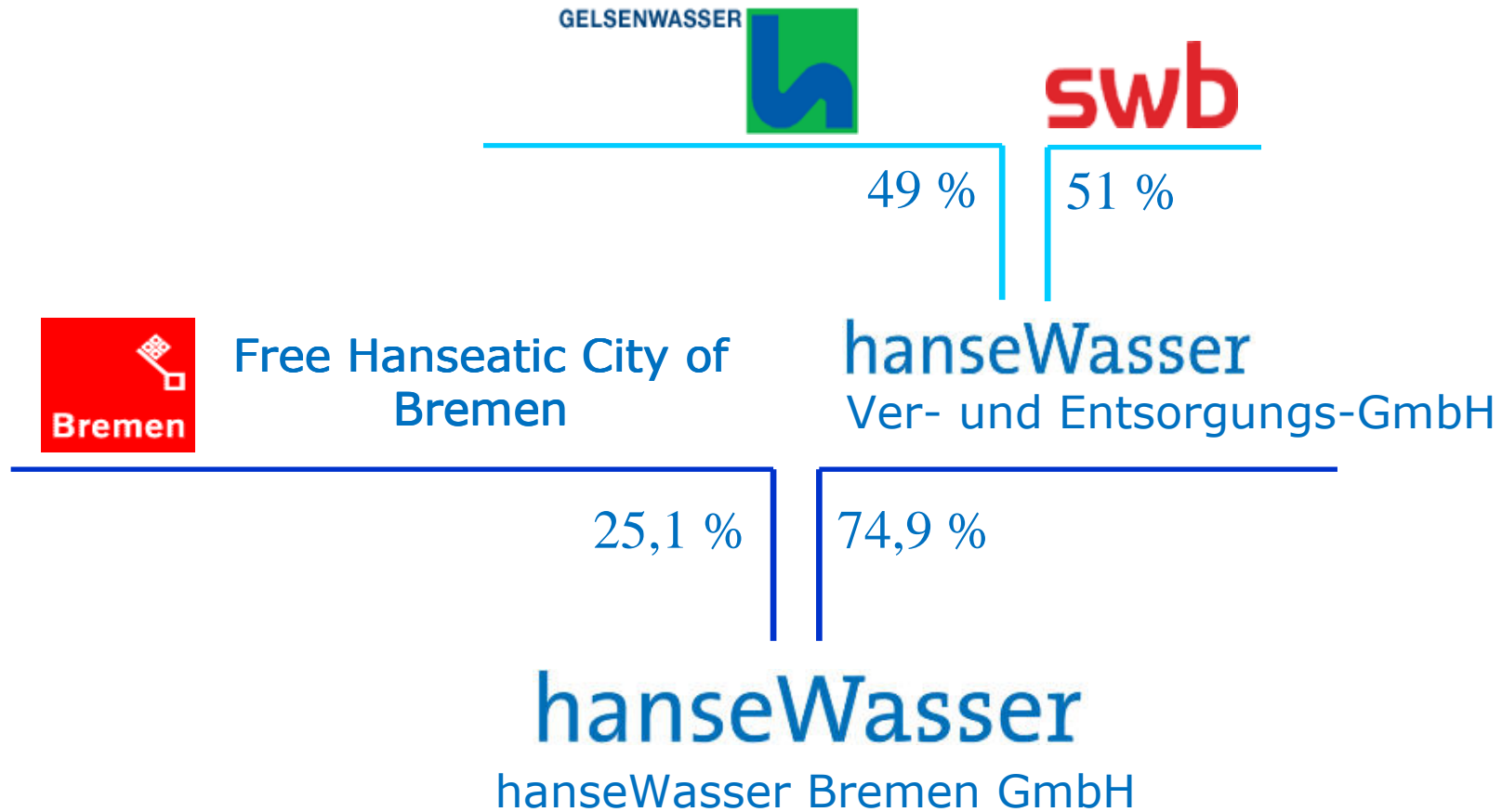
hanseWasser Bremen

Siegrid Mayer, Tel. 0421-988-1215, mayer@hansewasser.de
Rainer Könemann, Tel. 0421-988-1214, koenemann@hansewasser.de

Structure of this Presentation

- Who and What is hanseWasser?
- Sludge amounts and its Treatment
- Ways of Disposal
- Perspectives

Shareholders and Company Profile



Shareholders and Company Profile



hanseWasser 2009

- 2 wastewater treatment plants.
Capacity: >1.15 Mio. inhabitant equivalents
- Catchment area: Bremen and surroundings
- 2.300 km of sewage system in Bremen alone
- 60 Mio. m³/a of sewage and stormwater
- 1.000 industrial and commercial firms
- 394 employees, 20 trainees
- 80 Mio. € volume
- 509,1 Mio. € balance sheet total
- 460,3 Mio. € fixed assets

Sewage Sludge Treatment in Bremen

- Quantities: 16.000 t dm
- Digestion
- Dehydration
- Disposal of

Sewage Sludge Disposal: "Disposalmix"

Agricultural Utilization of Sewage Sludge



Co-Incineration in Waste Incineration Power Plants



Co-Incineration in Coal-fired Power Plants



Thermal Utilization Sewage Sludge Mono-incineration



Sewage Sludge Disposal Paths Bremen

Disposal path	1994	2002	2006
Landfill	8 %	46 %	0 %
Agriculture	92 %	54 %	45 %
Incineration	0 %	0 %	47 %
Landscaping	0 %	0 %	8 %

Sewage Sludge Disposal Paths Bremen

Disposal path	2007	2010	Prognosis 2015
Agriculture	44 %	54 %	46 %
Incineration	54 %	39 %	54 %
Others	2 %	7 %	0 %

Sewage Sludge Disposal / -Use

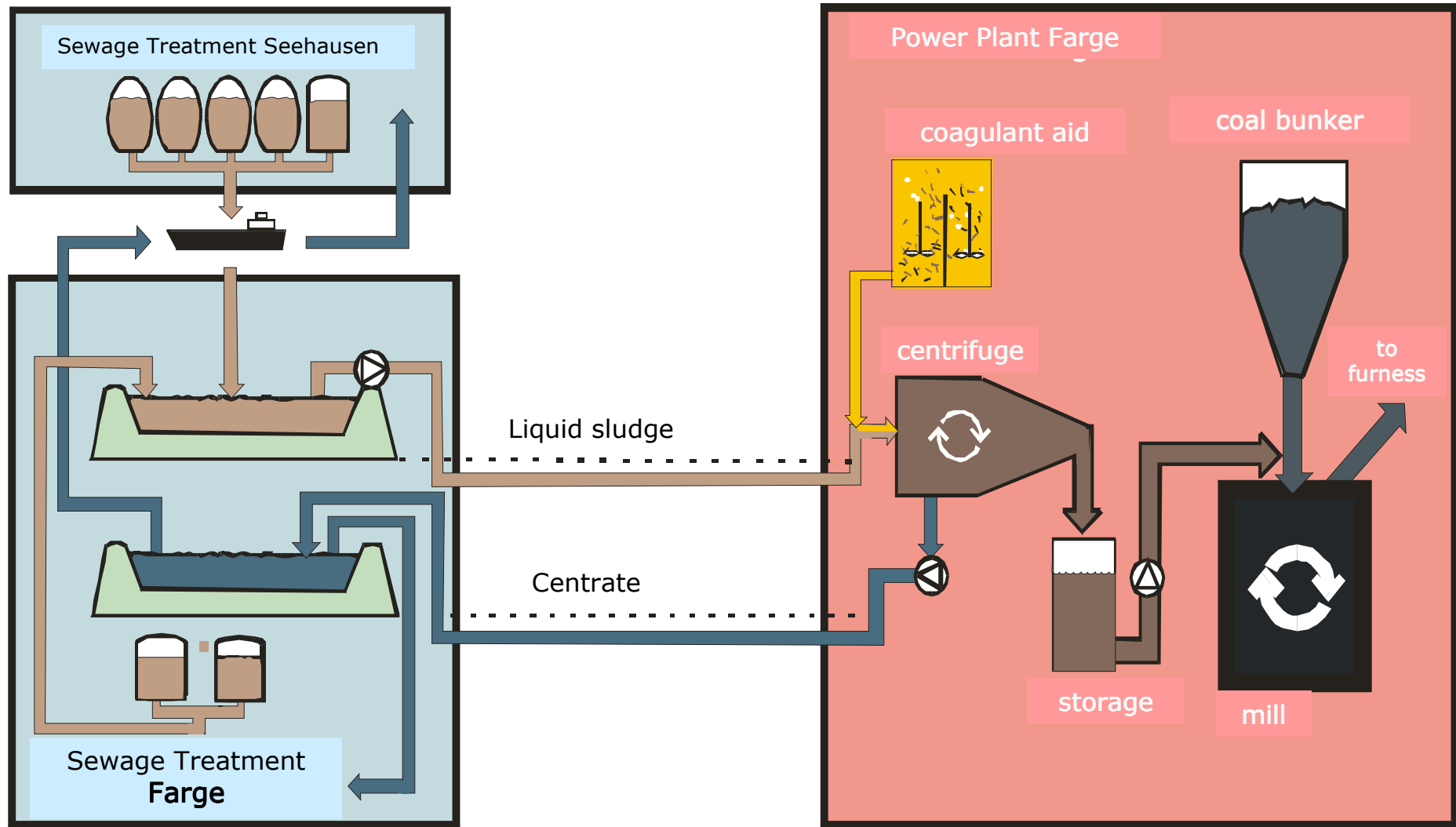
- Landfill Edeweicht until 2005
- Agricultural use on land
- Co-incineration power plant i.e. Bremen-Farge
- Mono-incineration HSE Hamburg
- Waste incineration power plant

Sewage Sludge Landfill Edewechterdamm

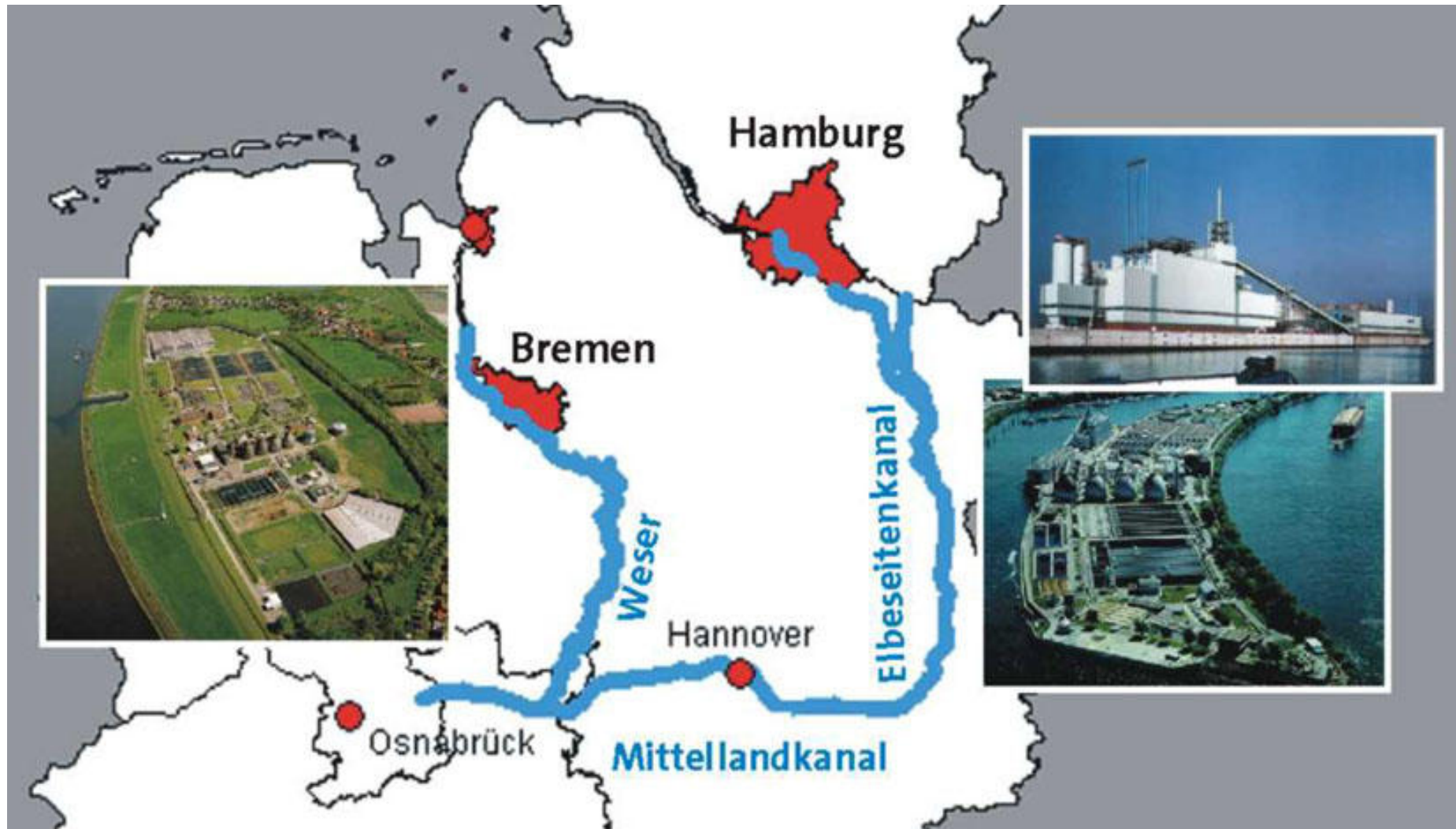


It has become a habitat for a great variety of species

Co-incineration Coal-fired Power Plant Bremen-Farge



Sewage Sludge Monoincineration in Hamburg



Sewage Sludge Use on Land

- Low emissioned and nutrient rich sewage sludges
- Customized fertilization
- Fertilization consulation by own agricultural engineers
- QLA: quality ensured utilization

QLA - quality assurance

Acceptance / Distribution of QLA-quality assurance:

- more than 100 wastewater treatment plants take part
- Amount of QLA-sludges to date: 79.000 to dm/a
(equals 13% of agriculturally used sewage sludges in Germany)
- In Lower Saxony/Bremen QLA-sludges: 48.500 to dm/a
(equals 35% of agriculturally used sludges)

Requirements to QLA-quality assurance



Special Quality- and Test Specifications:

Kategorie 1 Basic materials	Kategorie 2 Endproducts	Kategorie 3 Application conception
<ul style="list-style-type: none"> • Quality assurance professional (QSB) • Indirect discharge monitoring • Analysis of basic materials • Documentation of direct deliveries 	<ul style="list-style-type: none"> • Heavy metals and environmental chemicals • Analysis (frequencies) • Requirements to hygienisation 	<ul style="list-style-type: none"> • Quality representative Utilization (QBV) • Utilization according to good professional practice • Advice and monitoring

Legislative Framework

Limiting values – Heavy metals (mg/kg dm)

Parameter	Pb	Cd	Cr	Cu	Ni	Hg	Zn
AbfKlärV (1992)	900	10	900	800	200	8	2.500
AbfKlärV (2011)	150	3,0	120	850	100	2	1.800
DüMV	150	1,5	2 (Cr ^{VI})	--	120	1,0	--
Bremian sewage sludge	55	1,06	40,6	243	25,6	0,53	950

AbfKlärV = Sewage Sludge Regulation

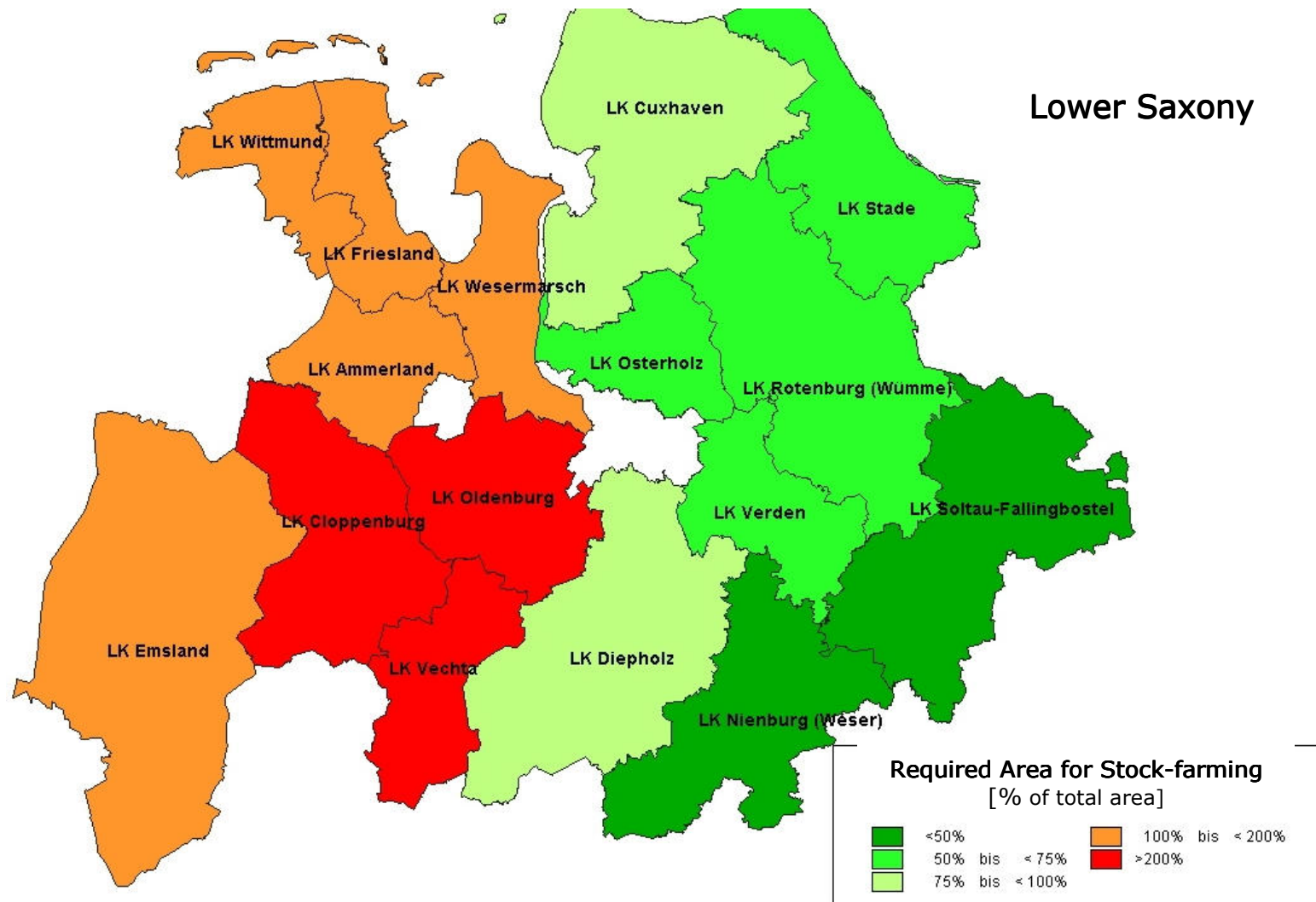
DüMV = Fertilizer Regulation

Changes in Agriculture

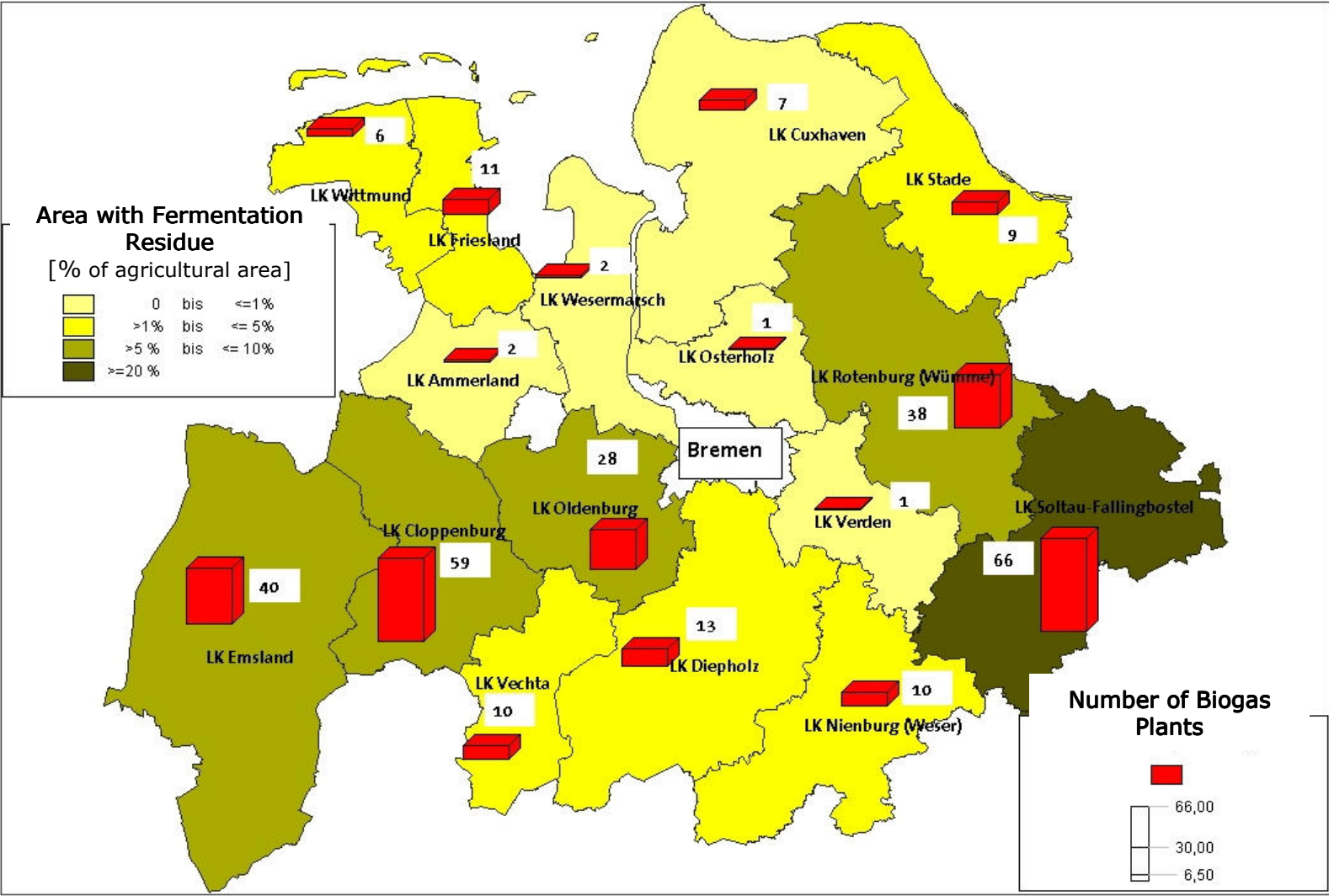
Developements on the Agricultural Fertilizer Market

- Prices for mineral fertizers have drastically increased
- The content of phophorus in soil has decreased in farming regions
- In livestock intensive areas there is a big offer of organic fertilizer with simultaneous good supply of the soil
- By growing number of biogas plants somes regions experience a new kind of pressure in competition

Required Area for Phosphates from Stock-farming



Biogas Plants



Sewage Sludge Disposal Paths in Germany

Disposal Paths	2004	2009	Prognosis 2015
Landfill	4 %	0 %	0 %
Agriculture	31 %	30 %	25 %
Incineration	35 %	52,5 %	65 %
Landscaping	27 %	14,5 %	10 %

Incineration Capacities in Germany

Capacities 2009	approved	available
Mono-incineration	554.750	90 %
Coal-fired power plants	716.500	70 %
Waste incineration plants	119.300	80 %
Cement plants	89.000	95 %
Total	1.479.550	1.180.815

Quelle: Dr. Schmitz, E.ON



hanseWasser

Thank You for Your
Attention

