

Sustainable Water Management at BASF



**CEFIC Workshop: Exchange of industry best practices
Brussels, November 12, 2014**

Dr. Andrea Stoegbauer
BASF Global Environmental Technology, Ludwigshafen



The Chemical Company

BASF worldwide Sites



Status: End 2013

BASF Segments



Chemicals

Petrochemicals

Monomers

Intermediates



Performance Products

Dispersions & Pigments

Care Chemicals

Nutrition & Health

Paper Chemicals

Performance Chemicals



Functional Materials & Solutions

Catalysts

Construction Chemicals

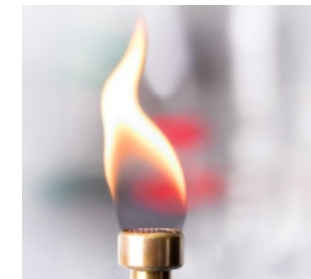
Coatings

Performance Materials



Agricultural Solutions

Crop Protection



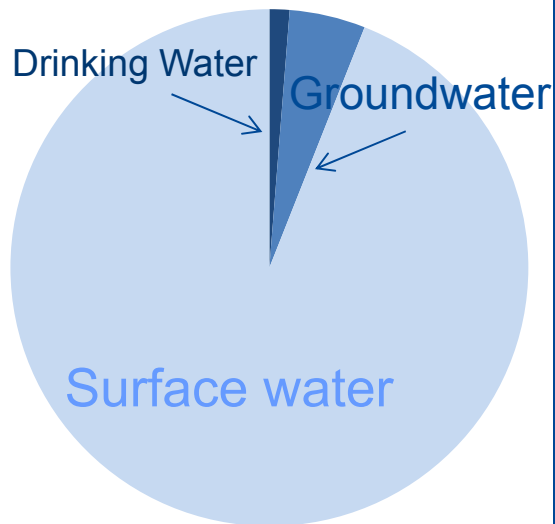
Oil & Gas

Oil & Gas

Water in the BASF Group in 2013

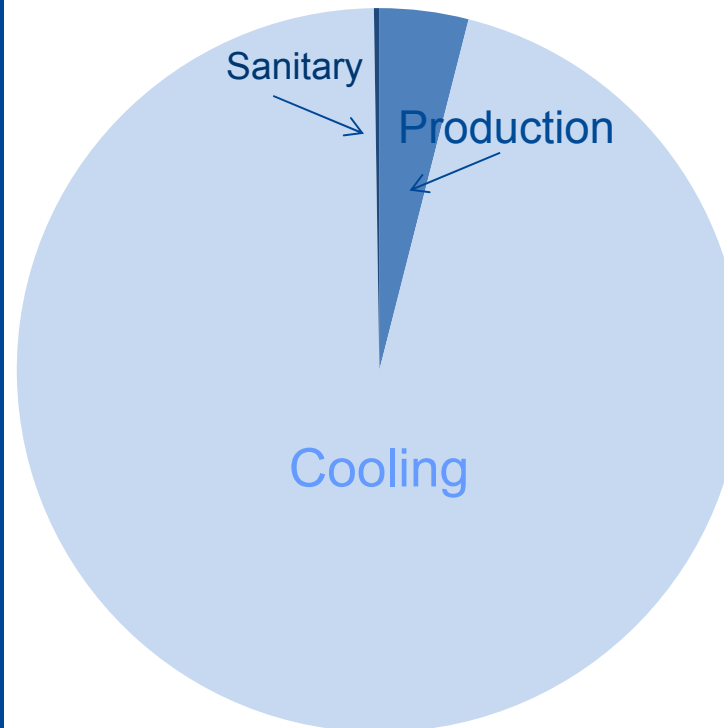
Supply

1,781 Mio m³/year



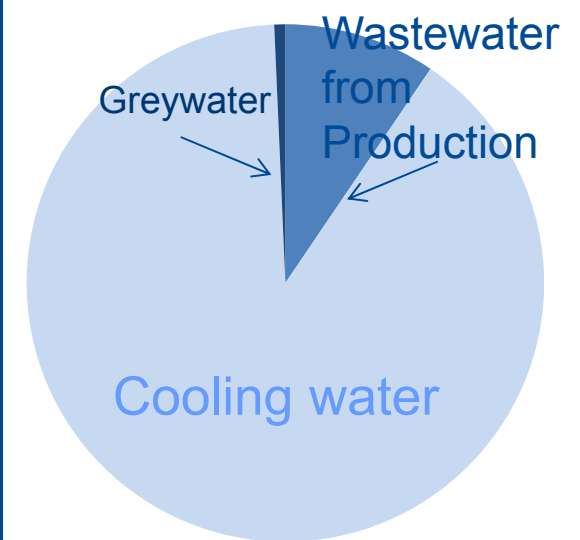
Use

5,724 Mio m³/year



Discharge

1,775 Mio m³/year



Overview of our goals

Environment (by 2020)

Energy and climate protection

- Greenhouse gases (specific) -40%
- Energy efficiency +35%
- Reduce (specific) greenhouse gas emissions of transported gas -10%

Water

- Drinking water for production -50 %
- Sustainable water management in water stress areas 100 %

Emissions to air

- Air pollutants -70%

Emissions to water

- Organic substances -80%
- Nitrogen -80%
- Heavy metals -60%

Health (each year)

Health protection

Health Performance Index comprises five criteria; Goal: score >0.9 (max. 1.0)

- Recognized occupational diseases
- Preventive medicine
- Medical emergency planning
- Health promotion
- First aid

Safety and security (by 2020)

Occupational Safety

- Work-related accidents -80 %

Transportation safety

- Transportation accidents -70%

Product safety

- Risk assessment for more than 99% of our products

Overview of our goals

Environment (by 2020)

Goal	Target
Energy and climate protection	-40%
Greenhouse gas emissions (specific)	-40%
Energy efficiency	+35%
Reduce (specific) greenhouse gas emissions of transport	-40%

Sustainable water management

at sites in water stress areas by 2020

100%



Emissions to air

■ Air pollutants -70%

Emissions to water

- Organic substances -80%
- Nitrogen -80%
- Heavy metals -60%

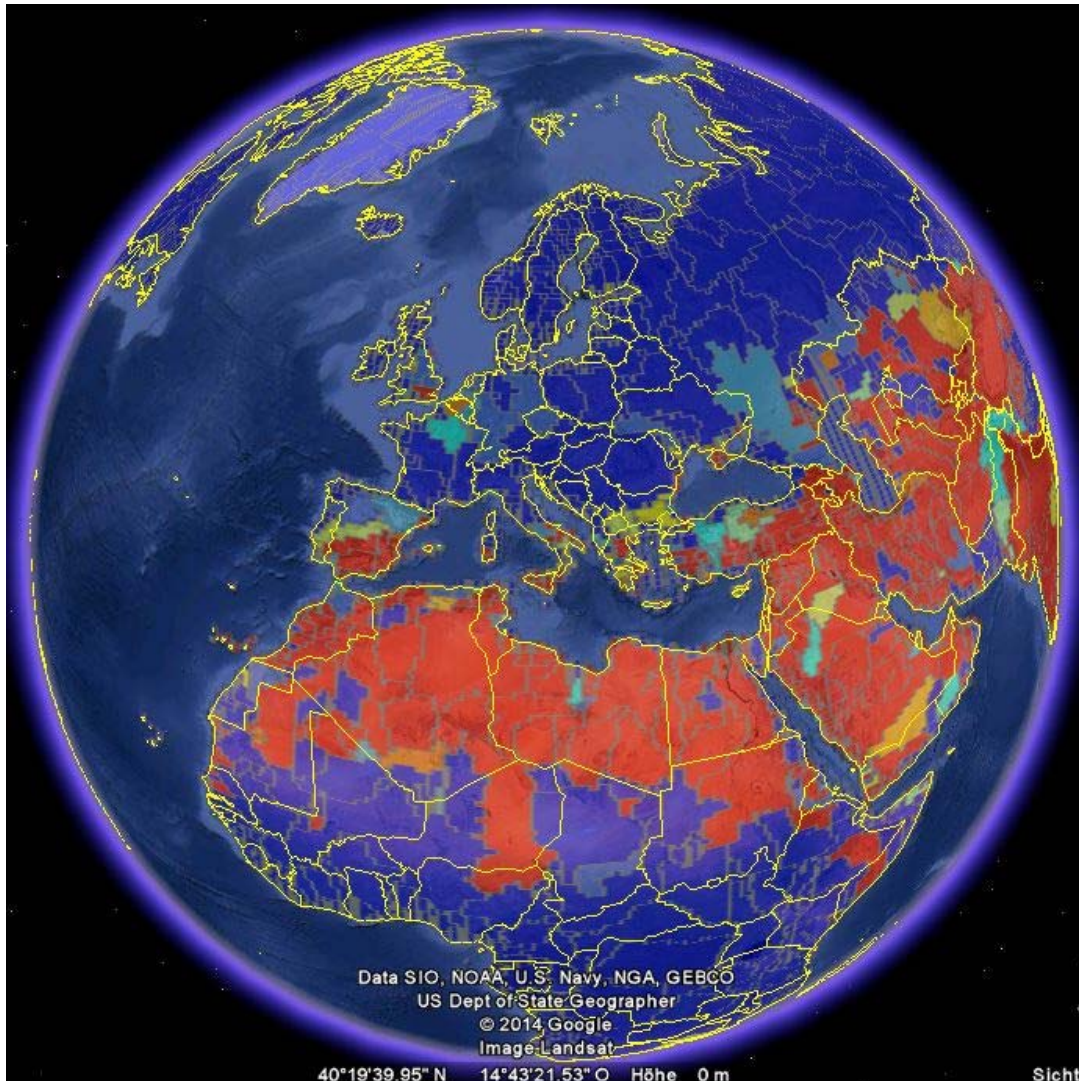
Health (each year)

Goal	Target
Health performance	score >0.9 (max. 1.0)
Recognize and prevent occupational health risks	preventive medicine
First aid	health promotion

Safety and security (by 2020)

Goal	Target
Work-related accidents	-80%
Transportation accidents	-70%
Product safety	Risk assessment for more than 99% of our products

Water Stress Areas Worldwide



Severe Water Stress:

≥ 60% of available water are consumed by households, agriculture, and industry.

Red = Severe Water Stress

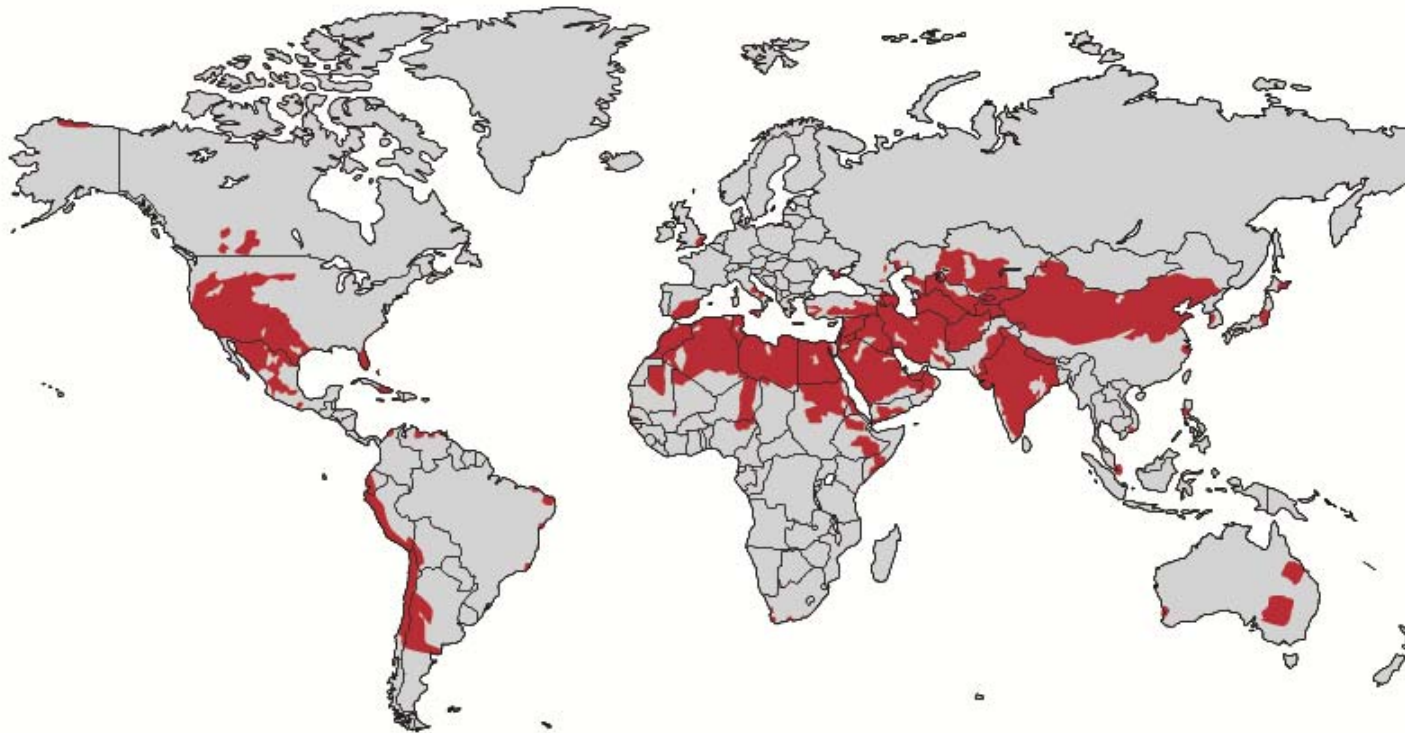
Blue = Low Water Stress

intermediate colors = moderate
Water Stress

Water Stress Areas
(Pfister et al. 2009)

BASF-Sites in Water Stress Areas

Regional Overview



Severe water stress areas
Adapted from: Pfister et. al., 2009

- 63 sites globally (22% of total BASF production sites) are located in water stress areas (Status 2013)
- Implementation of sustainable water management based on EWS-Standard

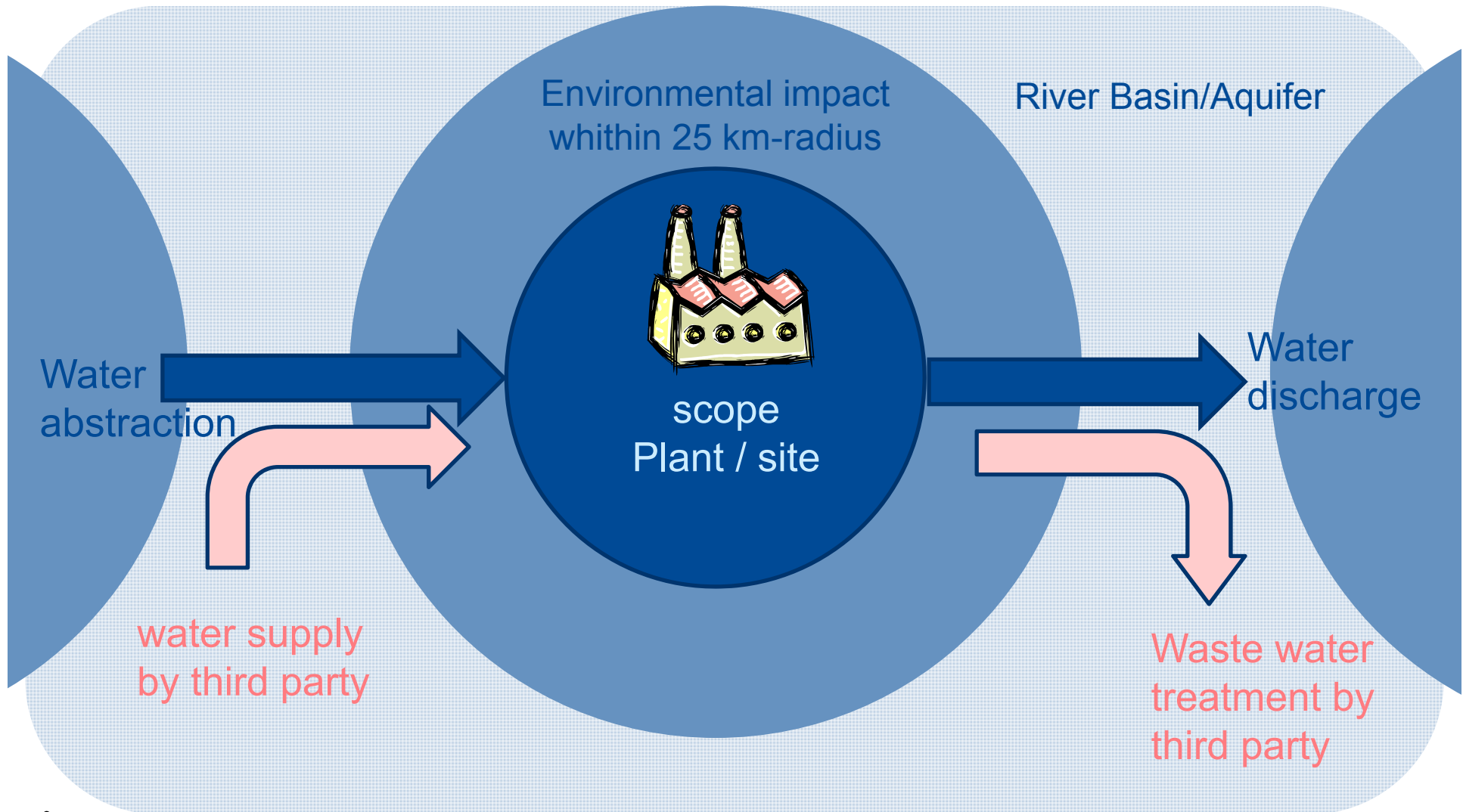


water stress areas ()

STANDARD

Sustainable Water Management

Scope of Assessment



Sustainable Water Management

Benefits of EWS-Standard



- Detailed tool for compiling water related information and understanding complexity of supply logistics
- Raises awareness around the resource water and related risks (Long term availability of water sources, status of water quality, HCV-areas)
- Provides a basis for advancing the water issue with stakeholders
- External certification as communication tool



BASF Tarragona in 2013

BASF Ludwigshafen in 2014