

**Module: Introduction****Page: W0. Introduction****W0.1****Introduction**

**Please give a general description and introduction to your organization.**

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 112,000 employees at the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized in five segments: Chemicals, Performance Products, Functional Materials & Solutions, Agricultural Solutions and Oil & Gas. BASF generated sales of more than €70 billion in 2015. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (AN). Further information on BASF is available online on our homepage, [www.basf.com](http://www.basf.com).

BASF has subsidiaries in more than eighty countries and supplies products to a large number of business partners in nearly every part of the world. We operate 6 Verbund sites and 353 additional production sites worldwide. Our Verbund site in Ludwigshafen is the largest integrated chemical complex in the world that belongs to a single company. The number and quality of our patents attest to our power of innovation and long-term competitiveness. We filed around 1,000 new patents worldwide in 2015. For the seventh time in succession, we headed the rankings in the Patent Asset Index in 2015 - a method which compares patent portfolios industry-wide. This once again underscores BASF's power of innovation.

The company purpose "we create chemistry for a sustainable future" has embedded sustainability even further within the company. Within the journey of contributing to a more sustainable future, water was identified as a key topic for BASF. Increasing world population, the change in consumer behaviour and increasing demand for higher standards of living all characterize the importance of water stewardship.

To promote water stewardship and to increase BASF's resilience towards this resource we pursue the goal of establishing sustainable water management at all sites in water stress areas and at all Verbund sites by 2025 by applying the European Water Stewardship (EWS) standard. After introducing the standard at our European sites in 2013, we furthered its implementation in China and North and South America in 2015. In 2015, external audit awarded us once again with the gold-level certification for our extensive application of the EWS standard and water management at the production site in Tarragona, Spain. Our Verbund site in Ludwigshafen received the EWS standard gold-level certification in 2014.

In order to prevent unanticipated emissions and the pollution of surface or groundwater, we create water protection strategies for our production sites. This is mandatory for all production plants as part of the Responsible Care initiative. The wastewater protection plans involve evaluating wastewater in terms of risk and drawing up suitable monitoring approaches. We use audits to check that these measures are being implemented and complied.

Based on the findings of IPCC AR5 (and subsequent studies e.g. Aqueduct Water Risk Atlas by WRI), we analyzed all BASF Verbund sites worldwide in terms of future water stress. Consequential, we do not expect climate change to have a significant impact on the water supply at these sites in the near future.

We use our eco-efficiency analysis to evaluate products and processes with respect to their emissions to water and their freshwater consumptive use. BASF assesses its value to society - economic, social and environmental benefits and costs - in monetary terms using PwC's TIMM method. The scope includes the supply chain (tier 1 to tier n), own operations and customer industries. With regard to water, emissions and consumption are integrated. Using the Sustainable

Solution Steering® method BASF conducted sustainability assessments of its entire product portfolio. Products and solutions related to €2 billion in sales make a particular contribution to water improvements in the value chain.

In order to continue improving our processes and identify further potential for environmental protection, especially in water use, we established a globally active group of water experts.

With these initiatives and projects, among others, BASF is able to use its expertise and innovation to find sustainable solutions to growing water related issues, such as scarcity or quality, worldwide.

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## W0.2

### Reporting year

**Please state the start and end date of the year for which you are reporting data.**

Period for which data is reported
Thu 01 Jan 2015 - Thu 31 Dec 2015

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## W0.3

### Reporting boundary

**Please indicate the category that describes the reporting boundary for companies, entities, or groups for which water-related impacts are reported.**

Other: BASF Group's scope of consolidation for its financial reporting comprises BASF SE, with its headquarters in Ludwigshafen, Germany, and all of its fully consolidated material subsidiaries. Joint operations are proportionally consolidated. Shares in joint ventures and associated companies are accounted for, if material, using the equity method in the BASF Group Consolidated Financial Statements.

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## W0.4

## Exclusions

Are there any geographies, facilities or types of water inputs/outputs within this boundary which are not included in your disclosure?

Yes

### W0.4a

## Exclusions

Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion
Administrative sites (e.g. sales offices)	BASF only reports water inputs/outputs for its production sites. The water inputs/outputs from its various administrative sites are not collected since their contribution to BASF's total water inputs/ outputs is not significant (<0.1%)
Associated/affiliated companies over which BASF has significant influence but does not have financial control (so-called B-companies) or from subsidiaries that are considered to be immaterial from a BASF point of view (so-called C-companies)	The contribution of the water inputs/outputs from BASF's B- and C-companies to BASF's total water inputs/outputs is not significant (< 2%). Thus, they are not collected and reported.

## Further Information

**Module: Current State**

**Page: W1. Context**

### W1.1

Please rate the importance (current and future) of water quality and water quantity to the success of your organization

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital for operations	Important	We use water as a coolant, solvent and cleaning agent, as well as to produce our products. 94 % of our water supply is taken from surface/brackish water, 5 % from groundwater and 1 % from drinking water. BASF is committed to a responsible water use along the entire value chain. BASF has a broad range of different products like basic chemicals, polymers, coatings, solvents or performance products and customers in nearly every industry. The amounts of freshwater needed across the value chain heavily depends on the product and on the sector. For instance, the production of basic chemicals such as hydrocarbons produced in our Steamcracker require high amounts of process steam and of water for cooling purposes. Many of our suppliers are chemical factories with similar requirements and the primary use of water as a solvent or as a coolant.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital for operations	Important	We recirculate water as much as possible in order to withdraw less from supply sources. 85% of the water use is for cooling purposes 15% is for production. Depending on availability and local conditions, we also use brackish water. In 2015, reusable wastewater from third parties amounted to 1Mm3. BASF is committed to a responsible water use along the entire value chain. The amount of recycled or brackish water needed across the value chain heavily depends on the product and on the sector. Water for cooling is vital for production. For instance, brackish water is one of the cooling water sources in our production site in Antwerp. Many of our suppliers are chemical factories with similar requirements and the primary use of water as a solvent or as a coolant.

## W1.2

For your total operations, please detail which of the following water aspects are regularly measured and monitored and provide an explanation as to why or why not

Water aspect	% of sites/facilities/operations	Please explain
Water withdrawals- total volumes	76-100	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). Data entry and maintenance have precise reporting

Water aspect	% of sites/facilities/operations	Please explain
		requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally. 100% of BASF production sites are monitored for total volumes of water withdrawals.
Water withdrawals- volume by sources	76-100	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). Data entry and maintenance have precise reporting requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally. 100% of BASF production sites are monitored for total volumes of water withdrawals.
Water discharges- total volumes	76-100	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). Data entry and maintenance have precise reporting requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally. 100% of BASF production sites are monitored for total volumes of water withdrawals.
Water discharges- volume by destination	76-100	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). Data entry and maintenance have precise reporting requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally. 100% of BASF production sites are monitored for total volumes of water withdrawals.
Water discharges- volume by treatment method	76-100	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). Data entry and maintenance have precise reporting requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally. 100% of BASF production sites are monitored for total volumes of water withdrawals.
Water discharge quality data- quality by standard effluent parameters	76-100	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). Data entry and maintenance have precise reporting requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally. 100% of BASF production sites are monitored for total volumes of water withdrawals.
Water consumption- total volume	76-100	For the calculation on corporate level, we use the water balance data. For the evaporation loss we assume 1.5% of the closed-circuit cooling water. We calculate a water consumption value at

Water aspect	% of sites/facilities/operations	Please explain
Facilities providing fully-functioning WASH services for all workers	76-100	<p>production site level individually for each site. 100% of BASF production sites are monitored for total volumes of water supply.</p> <p>BASF signed the “Pledge for Access to Safe Water, Sanitation and Hygiene at the Workplace” (WASH) of the World Business Council for Sustainable Development (WBCSD). By signing the pledge, BASF strengthened its commitment to provide access to water, sanitation and hygiene at the workplace at an appropriate level of standard for all employees. The Occupational Medicine and Health Protection Department is responsible for the management of occupational health of BASF employees, and the coordination and auditing of occupational medicine in 100 % of BASF production sites worldwide. Part of this responsibility are the topics sanitation and hygiene at the workplace. Sites are audited on a regularly basis (53 audits in 2015).</p>

**W1.2a**

**Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations**

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
Fresh surface water	1396000	About the same	Fresh surface water is the most important source for water supply. Brackish water supply at one site was accidentally documented as fresh surface water in our Responsible Care database. In order to maintain an accuracy of our water data, BASF herewith publishes the revised results. Therefore, the result presented in the 2015 BASF Report differs from CDP.
Brackish surface water/seawater	191000	Much lower	The use of Brackish surface water /Seawater is lower than last year because of divestiture of a major user. Brackish water supply at one site was accidentally documented as fresh surface water in our Responsible care database. In order to maintain an accuracy of our water data, BASF herewith publishes the revised results. Therefore, the result presented in the 2015 BASF Report differs from CDP.

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
Rainwater	0	Not applicable	Not relevant at global scale, rainwater collection at few sites.
Groundwater - renewable	76000	About the same	We do not yet distinguish between renewable and non-renewable groundwater supply in our BASF Responsible Care database, but most groundwater supply comes from renewable resources.
Groundwater - non-renewable	0	Not applicable	We do not yet distinguish between renewable and non-renewable groundwater supply in our BASF Responsible Care database, but most groundwater supply comes from renewable resources.
Produced/process water	0	Not applicable	Produced/process water not a relevant withdrawal source
Municipal supply	22000	About the same	Municipal supply is mainly drinking water.
Wastewater from another organization	1000	Higher	Use of wastewater from other organizations started in Tarragona in 2014 and was implemented in 2015.
Total	1686000	Lower	Total amount of water withdrawn was slightly reduced because of efficiency improvements and BASF divested parts of the business which used considerable amounts of water.

#### W1.2b

**Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations**

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Fresh surface water	1414000	About the same	Fresh surface water is the most important source for supply as well as for

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
			discharge.
Brackish surface water/seawater	179000	Lower	Some sites are located nearby the coast and brackish water is the destination for discharge.
Groundwater	13000	About the same	Water discharge via soil to water beneath the soil surface or water discharge into isolated geological formations.
Municipal/industrial wastewater treatment plant	20000	About the same	Includes all water treated in a WWTP, which is not operated by BASF - municipal and private owned WWTP.
Wastewater for another organization	0	About the same	Not relevant at global scale
Total	1626000	Lower	Total amount of water discharged was slightly reduced because of efficiency improvements and BASF divested parts of the business that used considerable amounts of water.

#### W1.2c

**Water consumption: for the reporting year, please provide total water consumption data, across your operations**

Consumption (megaliters/year)	How does this consumption figure compare to the last reporting year?	Comment
119960	Lower	Water consumption is defined as "the amount of water that is used but not returned to its original source" (definition ISO 14046). For the calculation on corporate level, we used a new calculation methodology leading to slightly lower consumption numbers. For the evaporation loss, we assume 1.5% of the recirculated cooling water.

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**W1.3**

**Do you request your suppliers to report on their water use, risks and/or management?**

Yes

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**W1.3a**

**Please provide the proportion of suppliers you request to report on their water use, risks and/or management and the proportion of your procurement spend this represents**

<b>Proportion of suppliers %</b>	<b>Total procurement spend %</b>	<b>Rationale for this coverage</b>
1-25	1-25	With our sustainability-oriented supply chain management, we contribute to risk management by raising our suppliers' awareness of our expectations and standards. We count on reliable supply relationships and want to make our suppliers' sustainability contribution transparent. BASF is a founding member of the Together for Sustainability (TfS) initiative for the global standardization of supplier evaluations and auditing's. TfS aims to develop and implement a global program for the responsible supply of goods and services and improve suppliers' environmental and social standards. To select suppliers with a high sustainability risk we developed risk matrices based on sector and country risks. We request the selected suppliers to respond questionnaires including how the supplier's water policy is implemented, wastewater is discharged, protection concepts for wastewater effluents are handled and how water related environmental impact is reduced. We use EcoVadis assessments, TfS audits and BASF EHS audits to obtain pertinent information BASF implemented a risk response process that defines BASF-specific follow-up measures. We drive these processes through a sustainability-oriented IT tool. The suppliers are incentivized by the possibility to share their TfS assessment and TfS audit results with multiple customers and therefore avoid double audits and assessments.

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**W1.3b**

**Please choose the option that best explains why you do not request your suppliers to report on their water use, risks and/or management**

Primary reason	Please explain
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**W1.4**

**Has your organization experienced any detrimental impacts related to water in the reporting year?**

No

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**W1.4a**

Please describe the detrimental impacts experienced by your organization related to water in the reporting year

Country	River basin	Impact indicator	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
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**W1.4b**

Please choose the option below that best explains why you do not know if your organization experienced any detrimental impacts related to water in the reporting year and any plans you have to investigate this in the future

Primary reason	Future plans
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**Further Information**

**Module: Risk Assessment**

**Page: W2. Procedures and Requirements**

**W2.1**

**Does your organization undertake a water-related risk assessment?**

Water risks are assessed

**W2.2**

**Please select the options that best describe your procedures with regard to assessing water risks**

Risk assessment procedure	Coverage	Scale	Please explain
Comprehensive company-wide risk assessment	Direct operations and supply chain	All facilities and suppliers	BASF has chosen an integrated enterprise risk management (ERM) approach because of the importance of a consistent risk management for different topics, the advantages through identification of overlaying or interdependent risks and better manageability compared to separate risk assessments. As part of ERM, BASF has established a specific company-wide process to effectively identify, assess, and manage risks and opportunities associated with environmental topics including water. ERM is based on the integrated framework provided by COSO. Water is part of our Responsible Care Management System that comprises the global rules, standards and procedures for

Risk assessment procedure	Coverage	Scale	Please explain
			environment, health and safety including the assessment of water risks at site level. Integral part of our procurement sustainability risk management process is the assessment of our suppliers regarding their sustainability performance, including water. We pursue a risk-oriented approach with clearly defined follow-up processes. We have developed risk matrices to identify suppliers with a high sustainability risk. We have integrated water criteria and different water scenarios into our processes for investment decisions as well as in our processes for capital expenditures for property, plant and equipment. This will enable decisions based on a comprehensive evaluation of the risks and opportunities related to water.

### W2.3

Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider risks for each assessment

Frequency	Geographic scale	How far into the future are risks considered?	Comment
Every two years	Country	3 to 6 years	To identify challenges at an early stage we accomplish materiality analysis with external support at regular intervals (every 3 years). Water is one out of eight identified key material aspects.
Six-monthly or more frequently	Country	1 to 3 years	The Enterprise Risk Management is a specific company-wide process to effectively identify, assess, and manage risks and opportunities associated with environmental topics including water. The Board is informed twice per year with the Report Summary.
Six-monthly or more frequently	Facility	3 to 6 years	The Responsible Care Management System is the framework for our voluntary commitments regarding environmental topics. Regular audits help ensure that standards are met.
Annually	River basin	3 to 6 years	Identification of production sites located in water stressed regions is made on an annual basis.
Annually	Facility	3 to 6 years	Use of European Water Stewardship standard at production sites in water stressed regions to evaluate water risks. After introducing the standard at our European sites in 2013, we furthered its implementation in China and North and South America in 2015.
Annually	Country	3 to 6 years	To improve supplier performance and to have long term business relationships with suppliers

Frequency	Geographic scale	How far into the future are risks considered?	Comment
			BASF initiates supplier assessments by the company EcoVadis and ESG audits by third party audit companies within the "Together for Sustainability" (TfS) context.

#### W2.4

**Have you evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy?**

Yes, evaluated over the next 5 years

#### W2.4a

**Please explain how your organization evaluated the effects of water risks on the success (viability, constraints) of your organization's growth strategy?**

At BASF, we create chemistry for a sustainable future. We have strategically embedded sustainability into our company as a significant driver for growth. Our sustainability management has three responsibilities: minimizing risks, taking advantage of business opportunities and establishing relationships with our stakeholders based on trust. We use the materiality analysis to constantly enhance our sustainability management. Water has been identified as one of the major sustainability challenges. This has been confirmed again by an update of the materiality analysis in 2013, showing that "water" is one out of eight key material aspects for BASF. How to deal with water quality as well as water quantity is therefore an important part of our strategy, e.g. possible water shortages at production sites can impact business operations and cause higher costs.

As a consequence we adapted our strategy to deal with these risks.

Water is integrated into the development and implementation of our business units' strategies and research projects.

With our approach Sustainable Solution Steering we evaluate the sustainability performance (including all water related topics) of our product portfolio. This detailed analysis and transparent classification allow us to both improve individual solutions and steer the entire portfolio to ensure long-term business growth.

We have integrated water criteria into our processes for investment decisions as well as in our processes for capital expenditures for property, plant and equipment. This will enable decisions, which are based on a comprehensive evaluation of the risks and opportunities related to water availability and water quality.

At sites where water scarcity could hinder the expansion of production capacities preventive actions (reduce, reuse, recycle) are evaluated and implemented.

W2.4b

What is the main reason for not having evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy, and are there any plans in place to do so in the future?

Main reason	Current plans	Timeframe until evaluation	Comment

W2.5

Please state the methods used to assess water risks

Method	Please explain how these methods are used in your risk assessment
<p>Internal company knowledge                      Life Cycle Assessment                      Maplecroft Global Water Security Risk Index                      WBCSD Global Water Tool                      WRI Aqueduct                      Other: PwC's TIMM Tool, TfS "Together for Sustainability" (EcoVadis assessments, TfS audits by third party audit companies), European Water Stewardship (EWS) Standard, Water Stress Index quantification by Pfister et. Al. 2009, Community Advisory Panels (CAPs), Responsible Care (RC), Enterprise Risk Management, Integrated Biodiversity Assessment Tool (IBAT)</p>	<p>To assess water related risks BASF aims to cover various value chain elements, of which each one requires efficient and dedicated methods. The operational scope covers our own worldwide activities, a large part of our supply chain and also the downstream value chain. Integration on company level is reached through Enterprise Risk Management as the overarching framework for risk assessment. Why methods were selected: TfS - worldwide initiative of chemical companies for the standardization of supplier evaluations and auditing to improve suppliers' environmental and social standards. Maplecroft Index identifies ESG risks across the supply chain. PwC's TIMM tool assesses value to society - economic, social and environmental benefits and costs - in monetary terms including supply chain, own operations and customer industries. Responsible Care (RC) Management System comprises global rules, standards and procedures for environmental and health protection. EWS standard - evaluate the water situation &amp; increase the resilience of BASF's production sites in water stress areas. ERM – company-wide process to identify, assess, and manage risks and opportunities. Pfister &amp; WBCSD global Water Tool are used to identify production sites in water stress areas. WRI Aqueduct helps to understand where and how water risks and opportunities are emerging worldwide. Community</p>

Method	Please explain how these methods are used in your risk assessment
	advisory panels aim to promote open exchange between citizens and our site management with the goal of strengthening trust in our activities. IBAT provides basic risk screening on biodiversity. LCA is used to evaluate and improve impacts on product and process levels.

**W2.6**

**Which of the following contextual issues are always factored into your organization's water risk assessments?**

Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB). It is filled with data from all BASF sites around the world. By applying the European Water Stewardship (EWS) standard (See "Other: EWS" in question W2.5) at all sites in water stress areas and all Verbund sites by 2025 BASF analyses water availability and water management at local level.
Current water regulatory frameworks and tariffs at a local level	Relevant, included	Water withdrawals and wastewater discharges comply with national, state and local regulations and permit authorization. BASF environmental and advocacy experts are engaged in constant dialogue with stakeholders including local authorities (See "internal company knowledge" in question W2.5). Contractual agreements with authorities on reduced abstractions during periods of extreme weather conditions (high temperatures) are in place. We do participate in partnerships at watershed level which focus on sustainable water management e. g. ICPR International Commission for the Protection of the Rhine.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included	To be aware of conflicts we provide transparent communication about our activities and take on critical questions. We have a particular responsibility toward our production sites' neighbours, and discuss current issues with them e. g. in Community Advisory Panels (See "Other: Community Advisory Panels (CAPs) in question W2.5)
Current implications of water on your key commodities/raw materials	Relevant, included	BASF is committed to multiple-source sourcing in order to address certain risks such as quality issues, availability and price volatility of raw materials. Within BASF Procurement, a dedicated team handles single-source situations (See "internal company knowledge" in question W2.5).

Issues	Choose option	Please explain
Current status of ecosystems and habitats at a local level	Relevant, included	In 2015, we investigated our production sites around the world to discover which are located near internationally protected areas. We did not discover any impact of our activities on biodiversity in these protected areas in 2015. To do so, we used the Tool IBAT (See "Other: IBAT" in question W2.5)
Current river basin management plans	Relevant, included	We factor current river management plans into our risk assessments to be aware of potential limitations and opportunities that may arise. This is also part of the European Water Stewardship (EWS) standard set down by the European Water Partnership, which we use at our Verbund sites and our sites in water stressed regions. (See "Other: EWS" in question W2.5)
Current access to fully-functioning WASH services for all employees	Relevant, included	BASF signed the "Pledge for Access to Safe Water, Sanitation and Hygiene at the Workplace" (WASH) of the World Business Council for Sustainable Development (WBCSD). By signing the pledge, BASF strengthened its commitment to provide access to water, sanitation and hygiene at the workplace at an appropriate level of standard for all employees. The Occupational Medicine and Health Protection Department is responsible for the management of occupational health of BASF employees, and the coordination and auditing of occupational medicine in BASF group companies worldwide. Part of this responsibility are the topics sanitation and hygiene at the workplace. Sites are audited on a regularly basis. Tasks and responsibilities are defined in the Group directive Occupational Medicine & Health Protection (See "internal company knowledge" in question W2.5).
Estimates of future changes in water availability at a local level	Relevant, included	We pursue the goal of establishing sustainable water management at all Verbund sites and all our sites in water stress areas by 2025 by applying the European Water Stewardship (EWS) standard set down by the European Water Partnership (See "Other: EWS" in question W2.5). Part of this evaluation is the current and future water availability at local level.
Estimates of future potential regulatory changes at a local level	Relevant, included	Water withdrawals and wastewater discharges comply with national, state and local regulations and permit authorizations. To identify and evaluate the future potential of regulatory changes of sustainability issues including water water, BASF environmental and advocacy experts are actively involved in external networks like business associations and we engage in constant dialogue with our stakeholders including competent authorities. (See "internal company knowledge" in question W2.5) We do participate in partnerships at watershed level that focus on sustainable water management e. g. ICPR International Commission for the Protection of the Rhine.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included	It is important for us to establish relationships with our stakeholders based on trust to be aware of possible conflicts. We provide transparent communication about our activities and take on critical questions. We have a particular responsibility toward our production sites' neighbours, and discuss current issues with them e. g. in Community Advisory Panels (See "Other: Community Advisory Panels (CAPs)" in question W2.5)
Estimates of future implications of water on your key commodities/raw materials	Relevant, included	BASF strives to increase its resilience to water risks along the value chain. Therefore, BASF assesses the impact of its operations on society in monetary terms, using PwC's TIMM methodology (See "Other: PwC's TIMM tool" in question W2.5). The general scopes includes the supply chain (tier 1 to tier n), own operations and customer industries. Water consumption hotspots and water emissions within the supply

Issues	Choose option	Please explain
		chain/along the value chain are considered. The assessments reinforce that water risks are a highly location specific.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Regularly we investigate our production sites around the world to discover which are located near internationally protected areas and evaluate if there is an impact of our activities on biodiversity in these areas. To do so, we use the Tool IBAT (See "Other: IBAT" in question W2.5) BASF has established a network of sustainability farms in Europe, where we cooperate with professional farmers and independent experts to investigate how modern agriculture can go hand-in-hand with measures to support the environment, local wildlife and plant species.
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Relevant, included	We have integrated water criteria and different water scenarios into our processes for investment decisions as well as in our processes for capital expenditures for property, plant and equipment. This will enable decisions, which are based on a comprehensive evaluation of the risks and opportunities related to water. Based on the findings of IPCC AR5 (and subsequent studies e.g. Aqueduct Water Risk Atlas by WRI), we analyzed all BASF Verbund sites worldwide in terms of future water stress. We do not expect climate change to have an (substantial) impact on the water supply at these sites in the near future. See "WRI Aqueduct" in question W2.5)
Scenario analysis of regulatory and/or tariff changes at a local level	Relevant, included	Scenario analysis of potential regulatory and or tariff changes is integrated into our processes for investment decisions as well as in our processes for capital expenditures for property, plant and equipment. To be aware of water stress development in the future that will influence regulatory and tariff changes at local level we use publicly available tools to evaluate water stress at local level. (See "WBCSD Global Water Tool" in question W2.5)
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Relevant, included	BASF wants to further increase resilience to water risks at the production sites. We have integrated scenarios about stakeholder expectations regarding water into our processes for investment decisions. With CAPs we discuss future stakeholder expectations at local level. (See "Community advisory panels" in question W2.5).
Scenario analysis of implications of water on your key commodities/raw materials	Relevant, included	BASF wants to further increase resilience to water risks in the supply chain. Studies to identify water consumption hotspots and water scarcity risks within the supply chain are conducted. They use the ESCHER methodology (See "Other: ESCHER tool" in question W2.5) and considers future scenarios regarding water.
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Scenario analysis of potential changes to ecosystems and habitats is integrated into our process for investment decisions. Our Responsible Care managers estimate the impacts associated with new plants on the habitats and ecosystems at site level. (See "Other: Responsible Care Management" in question W2.5)
Other		

W2.7

Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
Customers	Relevant, included	The trust of customers and consumers is essential for the success of BASF. BASF's customer portfolio ranges from major global customers and medium-sized regional businesses to local workshops. We align our business models and sales channels with the respective customer groups and market segments. We ensure uniformly high standards for product stewardship worldwide and offer our customers training in the safe use of our products e.g. for several herbicides we developed instructions for water protection to enable our customers to easily and reliably optimize the use of our product.
Employees	Relevant, included	Our employees are fundamental to achieving the goals of our "We create chemistry" strategy. In keeping with our corporate strategy, we integrate sustainability including water topics into our day-to-day business. Our employees work in interdisciplinary teams on innovative processes and products for a sustainable future. Our innovative strength lies in our global team of highly qualified employees with various specializations. The methods used to promote increasing awareness towards environmental topics and continuous improvement of operational management includes trainings of our employees.
Investors	Relevant, included	We are in close dialog with the capital market and rating agencies. We conduct roadshows and attend conferences across Europe to also meet with socially responsible investors (SRI). At these events, we discuss various sustainability topics including water and BASF's approach towards these. In addition, one section of our SRI capital market story covers water topics. This presentation is available on our website.
Local communities	Relevant, included	A fixed component of our sustainability management is continuous exchange with our stakeholders. We provide transparent communication about our activities and take on critical questions. We have a particular responsibility toward our production sites' neighbours, and discuss current issues with them in Community Advisory Panels. With the Creator Space™ format we collaborate with partners on challenges such as water accessibility in Mumbai
NGOs	Relevant, included	A fixed component of our sustainability management is continuous exchange with our stakeholders including NGOs. For instance, together with the EWP (European Water Partnership) we worked on criteria and indicators for sustainable water management. BASF is a member of AWS (Alliance for Waterstewardship) that gives us the opportunity to be part of the future development of the AWS system and to learn their expectations. We conduct regularly Materiality analysis including stakeholder concerns.
Other water users at a local level	Relevant, included	We do participate in partnerships at watershed level that focus on sustainable water management. The dialog with different stakeholders helps us to learn their expectations. e. g. ICPR (International Commission for the Protection of the Rhine), CUACSA (Comunitat d'Usuaris d'Aigües de la Cubeta de Sant Andreu de la Barca).
Regulators	Relevant, included	Water withdrawals and wastewater discharges have to comply with national, state and local regulations and permit authorizations. To identify and evaluate the future potential of regulatory changes of sustainability issues including

Stakeholder	Choose option	Please explain
		water we are actively involved in external networks like business associations. We engage in constant dialogue with our stakeholders including local authorities.
River basin management authorities	Relevant, included	We do participate in partnerships at watershed level that focus on sustainable water management e. g. ICPR International Commission for the Protection of the Rhine. The dialog with different stakeholders helps us to learn their expectations.
Statutory special interest groups at a local level	Relevant, included	We do participate in partnerships at watershed level that focus on sustainable water management. For instance, in Tarragona we work together with companies in the industry area and with the local community.
Suppliers	Relevant, included	With our sustainability-oriented supply chain management, we pursue two primary goals: we aim to strengthen our suppliers' awareness of our standards and expectations, and shape their contribution to sustainable development in a transparent manner. BASF expects from their suppliers to minimize their impact on biodiversity, climate change and water scarcity, according to the BASF Supplier Code of Conduct.
Water utilities/suppliers at a local level	Relevant, included	BASF expect their suppliers to minimize their impact on biodiversity, climate change and water scarcity, according to the BASF Supplier Code of Conduct. Part of the European Water Stewardship Standard, we implement at our Verbund sites and at sites in waterstressed regions, is the dialog with the water utilities regarding sustainable water supply.
Other		

## W2.8

Please choose the option that best explains why your organisation does not undertake a water-related risk assessment

Primary reason	Please explain
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## Further Information

**Module: Implications**

**Page: W3. Water Risks**

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**W3.1**

**Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?**

Yes, direct operations only

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**W3.2**

**Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk**

Water is an element of BASF's risk management, which identifies and evaluates opportunities and risks as early as possible to take appropriate measures in order to seize opportunities and minimize risks. The aim is to avoid risks that pose a threat to BASF's continued existence and to make improved managerial decisions to create lasting value. We understand substantive change to be any event that can negatively impact the achievement of our short-term operational or long-term strategic goals. In order to effectively measure and manage identified opportunities and risks, we quantify these in terms of probability and economic impact in the event they occur. We use statistical methods to aggregate opportunities and risks into risk factors. This way, we achieve an overall view of opportunities and risks at a portfolio level, allowing us to take effective measures for risk. If a risk is identified which could have an impact on earnings of more than €10 million, it must be immediately reported to the Board of Executive Directors.

For BASF's direct operations, main causes for substantive change related to water are an interruption or a significant reduction of production. To identify sites that cause substantive change to their business due to water risks, we use a screening process as follows (reviewed annually):

- Identifying sites located in water stressed areas (water stress index according to Pfister et al.)
- Determining whether these sites are considered strategic and account for high sales volume (>1 % of BASF's global sales volume)

Sites that satisfy both criteria are considered to face a risk and hence have the potential to cause substantive changes to our business.

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**W3.2a**

**Please provide the number of facilities\* per river basin exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure and the proportion this represents of total operations company-wide**

Country	River basin	Number of facilities exposed to water risk	Proportion of total operations (%)	Comment
United States of America	Brazos River	1	Less than 1%	Freeport is one of BASF's six Verbund sites and is located in a water stressed area. The site is a leading producer of basic chemicals, intermediates and fiber intermediates, with 25 plants and more than 770 employees.
China	Yangtze River (Chang Jiang)	1	Less than 1%	Shanghai BASF Polyurethane Company Limited (SBPC) is located in a water stressed area. The site has four manufacturing plants.

### W3.2b

Please provide the proportion of financial value that could be affected at river basin level associated with the facilities listed in W3.2a

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected within the river basin	Comment
United States of America	Brazos River	% global production volume	1-5	In the event of reduced water availability, the volume of production could be negatively affected.
China	Yangtze River (Chang Jiang)	% global production volume	1-5	In the event of reduced water availability, the volume of production could be negatively affected.

### W3.2c

Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Brazos River	Physical-Increased water scarcity	Plant/production disruption leading to reduced output	In the event of reduced water availability, the volume of production could be negatively affected, as well as the possibility to invest in new production plants.	>6 years	Probable	Low-medium	Other: Implementation of Water Stewardship Standard	The implementation of the water stewardship standard requires moderate personnel costs (0,5 FTE) due to the fact that it can built on our established Responsible Care® Management System and the experience of an EHS expert team at the site. If necessary measures are identified, e.g. infrastructure investments the costs depend on the kind of the measure.	Implementation of Water Stewardship Standard to assess the water situation and prioritize further actions if necessary e.g. infrastructure development.
China	Yangtze River (Chang Jiang)	Physical-Increased water scarcity	Plant/production disruption leading to reduced output	In the event of reduced water availability the volume of production	>6 years	Unlikely	Low-medium	Other: Implementation of Water Stewardship Standard	The implementation of the water stewardship standard requires moderate	Implementation of Water Stewardship Standard to assess the water situation and prioritize

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				could be negatively affected					personnel costs (0,5 FTE) due to the fact that it can built on our established Responsible Care® Management System and the experience of an EHS expert team at the site. If necessary measures are identified, e.g. infrastructure investments the costs depend on the kind of the measure.	further actions if necessary e.g. infrastructure development.

W3.2d

Please list the inherent water risks that could generate a substantive change in your business operations, revenue or expenditure, the potential impact to your supply chain and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
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W3.2e

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your direct operations that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
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W3.2f

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your supply chain that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
Risks exist, but no substantive impact anticipated	BASF sources its raw materials worldwide. The partial disruption of supply for a specific material due to water related issues is an identified, but non-substantial risk. Part of our response strategy is the reduction of the number of single source products and the management concept of supplier selection in geographically diverse areas. The assessment of the sustainability performance of our suppliers is an integral part of our procurement sustainability risk management process. We identify the sustainability risk on a yearly basis. We pursue a risk-oriented approach with supplier assessments and audits worldwide on a regularly basis and clearly defined follow-up processes. We have developed risk matrices that help us identify suppliers with a high sustainability risk given their respective country. For this purpose, we use the service provider Maplecroft that computed ESG rating of countries. Furthermore, the

Primary reason	Please explain
	service provider RepRisk provides us with information if any suppliers have been observed in connection with negative sustainability incidents. BASF is a founding member of "Together for Sustainability" (TfS) an initiative of leading chemical companies for the global standardization of supplier evaluations and audits. This initiative aims to develop and implement a global program for the responsible supply of goods and services and improve suppliers' environmental and social standards.

W3.2g

Please choose the option that best explains why you do not know if your organization is exposed to water risks that could generate a substantive change in your business operations, revenue or expenditure and discuss any future plans you have to assess this

Primary reason	Future plans

**Further Information**

**Page: W4. Water Opportunities**

W4.1

Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?

Yes

W4.1a

Please describe the opportunities water presents to your organization and your strategies to realize them

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
Company-wide	Other: Increase the proportion of products that contribute particularly to sustainability in the value chain, and are characterized by, on average, higher growth rates and profitability.	Using the Sustainable Solution Steering® method BASF conducted sustainability assessments (also with regard to water) of its entire product portfolio. In 2015, our so-called Accelerators that offer a substantial sustainability contribution in the value chain generated about 26.6% of total BASF sales. Products and solutions related to €2 billion in sales make a particular contribution to water improvements in the value chain. We want to increase the proportion of “Accelerator” products in the long term: in other words, products that contribute particularly to sustainability in the value chain, and are characterized by, on average, higher growth rates and profitability. To realize this BASF identifies future opportunities continuously. A systematic strategic approach is carried out by our central Science Relations & Innovation Management department. The operating units and R&D departments identify opportunities on a project basis. Intensive exchange with our customers and partners from industry and science leads to the identification of market trends and opportunities.	1-3 years	We aim to increase the number of Accelerator solutions to 28% by 2020 in order to further improve the sustainability contribution made by BASF and its customers.
Company-wide	Other: New products, new applications	BASF is one of the leading suppliers of products to clarify the raw water used for the production of drinking water, treating the wastewater stream and reducing sludge volumes as well as for the treatment of industrial process water and the protection of desalination plants, cooling towers and boilers. Enhancing innovation: In order to strengthen the business and to expand the market position BASF is working on development of new products and technologies for all relevant water treatment segments. Exact statements on the financial implications cannot be made. Nevertheless, scenario techniques respecting uncertainties and probabilities of success enable us to generate a possible range of outcomes. Concerning our R&D investments in Water Chemicals, in 2020 we expect	1-3 years	Development of new products and technologies for all relevant water treatment segments.

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
		€50 million of our turnover and €11 million of our EBITDA from innovations that have been in the market for less than 5 years.		
Company-wide	Other: Water purification: drinking water, wastewater and sludge treatment.	<p>Create synergies between equipment and chemicals; help our customer to implement solutions for water recycling, reuse, savings and drinking water treatment. The ZETAG® flocculant technology (cationic polyacrylamide flocculants) has been used in the sludge dewatering process. Optimizing the dewatered biosolids is essential to maintain the sustainability and efficiency of the process. Higher cake solids reduce the energy required for transporting and disposing at a landfill. If the cake is dry enough it can be incinerated as fuel to generate energy. In consequence the separation process is tailored, cost-effective and efficient. The MAGNAFLOC® LT coagulant / flocculant technology is used for potable water treatment applications for the clarification of raw surface waters. The products in the MAGNAFLOC® LT range of organic coagulants and high molecular weight flocculants can be used for a wide range of solid/liquid separation situations. The flocculants enable highly efficient and cost-effective effluent treatment, while the coagulants can be used in more demanding processes, such as colour removal for example. The SOKALAN® antiscalant portfolio for thermal desalination and reverse osmosis applications is preventing scale in desalination processes and is allowing efficient operations and minimizing maintenance outages.</p>	Current-up to 1 year	Zetag® ULTRA has a positive effect on the carbon footprint of the treatment facility, as it leads to higher cake solids.
Company-wide	Other: New revenue opportunities; Expansion of the BASF water treatment technology portfolio	Further development of the technologies transferred. Continuing to seek valuable partnerships. In 2011, BASF acquired the ultrafiltration specialist inge GmbH, which broadened BASF's technology base and helped to expand its market position in water treatment business. inge GmbH secured a major contract in 2013 for participating at a major desalination project in Ghana. The plant can provide 60,000 cubic meter of drinking water per day for approximately 500,000 people in the Teshie-Nungua region.	Current-up to 1 year	Ultrafiltration specialist inge GmbH broadened BASF's technology base
Company-	Other: Water use: cooling water,	Create synergies between equipment and chemicals; help	1-3 years	Trilon®M is used as an alternative

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
wide	boiler water, process water, agriculture, household water	our customer to implement solutions for water recycling, reuse, savings and drinking water treatment. BASF strives for growth by expanding production capacities for more sustainable products such as the chelating agent Trilon®M, which is used as an alternative to phosphates in dishwasher detergents. BASF dishwashing tab based on TRILON®, improves the cleaning effect of detergents and cleaning agents and has an excellent ecological profile. TRILON® has emerged as the preferred alternative to phosphate in modern, high-performance, ecological dishwashing detergents. The outstanding eco-toxicological profile of TRILON® has been confirmed by extensive long-term studies. TRILON® is a global market standard for sustainable cleaning solutions.		to phosphates in dishwasher detergents.
China	Other: Water purification: drinking water, wastewater and sludge treatment.	Focus on innovation to be able to become leading provider of chemical solutions for water recycling, reuse, water savings and drinking water treatment. BASF started up a new production plant for water treatment chemicals in Nanjing, China, at the end of 2012. In addition, BASF has converted its manufacturing facilities from copper based acrylamide to the own developed bio-acrylamide process, a precursor to polyacrylamide flocculants. Further capacity expansion projects for polyacrylamide are under investigation in all regions to underpin BASF's position as one of the leading players in providing flocculants to the emerging Chinese and Asian market and to allow our customers to comply with stricter regulatory standards globally.	Current-up to 1 year	Strengthen production capacities
Company-wide	Other: Agricultural Solutions. Solid revenues by long-standing business	Contribution to social dimension of sustainable development. When applied to standing water where mosquitoes and other insects breed, Abate® kills the larvae before they develop into mature insects. ABATE® larvicide controls malaria and other vector-borne diseases by controlling the pests that spread them. ABATE® is highly effective at low use-rates. When used according to label directions, ABATE® poses low risk to humans, fish, birds and other non-targeted organisms. The World Health	Current-up to 1 year	An easy and most effective way to control mosquitoes and other insects throughout a community is to treat standing water with a larvicide.

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
		Organization approvals are based upon studies done with ABATE®.		
Company-wide	Other: Developing crops with higher yields and that are more resistant to adverse environmental conditions such as drought	By 2030, it is estimated that the global market for seeds and plant biotechnology will be worth in excess of US\$30 billion. We expect significant additional gross trait sales in 2020 from our plant biotechnology R&D pipeline. We anticipate growing license revenues over the next few years from our partners by expanding commercialization of e.g. the drought-tolerant corn in the coming years. We anticipate license revenues in the tens of millions per year. For example, in 2013 we have launched a new drought-tolerant corn hybrid (Genuity® DroughtGuard™), the first-ever drought biotech trait.	>6 years	In the field of plant biotechnology, we have been collaborating with Monsanto since 2007 to develop higher yielding crops and crops that are more resistant to adverse environmental conditions such as drought.
Company-wide	Other: Polyurethanes. Revenue opportunities: diverse use potential; broad market	Development of products to meet customers' demand for eco-friendly and cost-saving products. ELASTOPAVE® is a novel approach to the construction of paths, open spaces and roads surfaces. The ground is not sealed and can breathe because the porous covering surface is water permeable. Applications are walkways, parking areas, patios, pedestrian zones or for private use.	Current-up to 1 year	Elastopave® mixed with gravel or stones can be used to construct a stable water permeable surface
Company-wide	Other: Agricultural Solutions	Increase market penetration of product to meet customers' demand for resource efficient products, while reducing groundwater pollution. Vizura® is a nitrification inhibitor, which slows down the transformation of urea- and ammonia-based nitrogen fertilizers to nitrate in soil. As a consequence less nitrate is available in soil for leaching to groundwater, reducing nitrogen losses for the farmers and contributing to water protection.	1-3 years	Vizura® reduces nitrate leaching to groundwater
Company-wide	Other: Products and technologies help to address the mining industries water challenges and make an essential contribution to reaching water savings	Development of water-saving products to meet customers' demand for eco-friendly and cost-saving products. Water plays a significant role in most mining processes. Our Rheomax® technology is used in mining to separate solids from water when treating overburden. Rheomax® DR offers superior flocculating performance compared to conventional benchmark flocculants. Rheomax® DR is effective for many different kinds of ores, creating more robust aggregates. More water can be recovered at the thickener and be	Current-up to 1 year	Providing solutions to use and recovery of water for the mining industry.

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
		<p>reverted back in the process. Less fresh water is needed for the operation and impact on local water availability can be reduced. Beyond that, Rheomax® DR shows strong performance also in saline environments and enables the use of sea water in mines' processes. The volume of wastewater to be discharged is reduced, and as a consequence the residue footprint is diminished. CCD washing efficiency is increased and recovery of leached metal is improved. Energy can be saved due to reduced pumping pressure. Savings in the cost of recovery or replenishment of process water can be achieved. Rheomax® ETD can recover more than 80% of process water, compared with the industry standard of 75%. The mining industry can therefore reduce the land footprint needed to store overburden and – because of the faster rate of soil drainage – can begin sooner with renaturation. We aim to increase our sales of Rheomax® ETD by more than 10% every year through 2020.</p>		
Other: Asia	Other: Integrated solution to improve water efficiency and reduce emissions to water	<p>Development of products and processes to help tanners fulfill latest ecological legislations and cost savings. Where required, to tap on synergies between the leather chemicals unit and the water solutions unit to provide integrated solutions for complex challenges on emissions to water. Chemical waste released into water is a major environmental challenge for the tanning industry in Asia. To address this need, BASF has developed DryFast – a unique beam house innovation that provides improved efficiency and reduces water use. The new process reduces water usage by up to 60%, and produces cleaner effluents with sludge reduction by up to 50%. It also minimizes processing time, making DryFast a leading choice for tanners especially in fast growing regions.</p>	1-3 years	DryFast helps tanners to improve efficiency and reduce water use.
Company-wide	Other: Water purification: drinking water, wastewater and sludge treatment.	<p>Create synergies between equipment and chemicals; help our customer to implement solutions for water recycling, reuse, savings and drinking water treatment. BASF has identified opportunities with respect to water and provides a range of products to meet current and future needs. The</p>	1-3 years	Ultrafiltration modules enable production of drinking water from different waer sources.

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
		<p>key drivers for future development are: increased global water stress, health protection and demand for sustainable solutions. To get drinking water in the high quality BASF is offering ultrafiltration modules based Multibore® membranes. Using UF enables the production of drinking water from surface water, well water and spring water. It can be used in the pretreatment of seawater in desalination plants, and as a treatment for wastewater. The 2016 introduced new UF module within the dizzer® XL series offers 80 m<sup>2</sup> of active filtration area and yields about 14% increase in output compared with the existing 70 m<sup>2</sup> version.</p>		

**W4.1b**

Please choose the option that best explains why water does not present your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain
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**W4.1c**

Please choose the option that best explains why you do not know if water presents your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain
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**Further Information**

**Module: Accounting**

**Page: W5. Facility Level Water Accounting (I)**

**W5.1**

**Water withdrawals: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a**

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
Facility 1	United States of America	Brazos River	Freeport/ TX/ BASF Corporation	8339	About the same	Change is not substantive. High proportion of the water is used for cooling.
Facility 2	China	Yangtze River (Chang Jiang)	Shanghai/ Caojing/ SBPC/ BASF	1515	About the same	Change is not substantive. High proportion of the water is used for cooling. Slight decrease of water used for production due to ongoing conservation measures that are possible at highly integrated production sites.

Further Information

Page: W5. Facility Level Water Accounting (II)

W5.1a

Water withdrawals: for the reporting year, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.1

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
Facility 1	8029	0	0	235	0	0	76	0	Fresh surface water is the main water source. High proportion of the water is used for cooling. Groundwater increased due to additional tests of water well quality.
Facility 2	1461	0	0	0	0	0	53	0	Fresh surface water is the main water source. High proportion of the water is used for cooling. Leaks of underground pipeline have been resolved, therefore recognizable decrease in municipal water withdrawals.

**W5.2**

**Water discharge: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a**

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain
Facility 1	6007	About the same	Change is not substantive. Before discharge, water is treated through different methods depending on type and degree of contamination.
Facility 2	784	Lower	Reduction in cooling water discharge due to cool weather conditions.

**W5.2a**

**Water discharge: for the reporting year, please provide water discharge data, in megaliters per year, by destination for all facilities reported in W5.2**

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
Facility 1	5628	0	0	378	0	Destination of water discharge mainly surface water. Water used in production is treated in BASF operated wastewater treatment plant.
Facility 2	0	763	0	21	0	Destination of water discharge mainly surface water. Water used in production is treated in BASF operated wastewater treatment plant. Leaks of underground pipeline have been resolved, therefore recognizable decrease in groundwater discharge.

**W5.3**

**Water consumption: for the reporting year, please provide water consumption data for all facilities reported in W3.2a**

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
Facility 1	4470	Higher	Consumption mainly attributed to evaporation losses during recirculating cooling. Consumption was higher due to temporary increased recirculation rate.
Facility 2	730	About the same	Change is not substantive. Consumption mainly attributed to evaporation losses during recirculating cooling.

**W5.4**

**For all facilities reported in W3.2a what proportion of their water accounting data has been externally verified?**

Water aspect	% verification	What standard and methodology was used?
Water withdrawals- total volumes	76-100	KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit was conducted using the International Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.
Water withdrawals- volume by sources	76-100	KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit was conducted using the International Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.
Water discharges- total volumes	76-100	KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit was conducted using the International

Water aspect	% verification	What standard and methodology was used?
		Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.
Water discharges- volume by destination	76-100	KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit was conducted using the International Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.
Water discharges- volume by treatment method	76-100	KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit was conducted using the International Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.
Water discharge quality data- quality by standard effluent parameters	76-100	KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit was conducted using the International Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.
Water consumption- total volume	76-100	The underlying data for the calculation of the water consumption are audited by KPMG AG Wirtschaftsprüfungsgesellschaft. The audit was conducted using the International Standard of Assurance Engagements 3000 and the International Standard of Assurance Engagements 341. KPMG AG Wirtschaftsprüfungsgesellschaft procedures included e.g.: Reviewing the consistency of GRI G4 in-accordance option 'Comprehensive'.

**Further Information**

**Module: Response**

**Page: W6. Governance and Strategy**

**W6.1**

**Who has the highest level of direct responsibility for water within your organization and how frequently are they briefed?**

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
Board of individuals/Sub-set of the Board or other committee appointed by the Board	Scheduled - twice per year	

**W6.2**

**Is water management integrated into your business strategy?**

Yes

**W6.2a**

**Please choose the option(s) below that best explain how water has positively influenced your business strategy**

Influence of water on business strategy	Please explain
Alignment of public policy positions with water stewardship goals	Our company is committed to the sustainable use of water resources. Water withdrawals and wastewater discharges comply with national, state and local regulations and permit authorities. We pursue the goal of establishing sustainable water management at all Verbund sites and all sites in water stress areas by 2025 applying the European Water Stewardship (EWS) standard set down by the European Water Partnership. To align our water stewardship goals with public policy positions we do participate in partnerships at watershed level, such as ICPR International Commission for the Protection of the Rhine.
Establishment of sustainability goals	We have published a number of corporate global goals to support BASF's company purpose "We create chemistry for a sustainable future". To promote water stewardship at our production sites we have expanded the goal: Establish sustainable water management at all Verbund sites and all sites in water stress areas by 2025 applying the European Water

Influence of water on business strategy	Please explain
	Stewardship (EWS) standard set down by the European Water Partnership.
Greater due diligence	The evaluation of opportunities and risks including the topic water already plays a significant role during the assessment of potential acquisition targets. Detailed analysis and quantification are conducted as part of due diligence.
Introduction of water management KPIs	BASF collects data on water supply, water use, and water discharge at site level in a global database, named Responsible Care® Database (RCDB) to systematically measure progress. Data entry and maintenance have precise reporting requirements. Training sessions are conducted to ensure that the same data standards are implemented around the world. We publicly report the information for the entire company in the annual BASF report and the database is audited externally.
Investment in staff/training	Our employees' individual development is important to us. We want to recognize and promote talent early on, and our life-long learning concept provides the basis for remaining the best team and meeting the various challenges of the market. In Mumbai, India, our employees shaped a jamming session on responsible water consumption within the Creator Space™ events 2015.
Water resource considerations are factored into location planning for new operations	We have integrated water criteria into our processes for investment decisions as well as in our processes for capital expenditures for property, plant and equipment. This will enable decisions, which are based on a comprehensive evaluation of the risks and opportunities related to water.
Water resource considerations are factored into new product development	With our approach Sustainable Solution Steering we evaluate the sustainability performance (including all water related topics) of our product portfolio. This detailed analysis and transparent classification allow us to both improve individual solutions and steer the entire portfolio to ensure long-term business growth.
Water resource considerations are factored into new market exploration	Chemistry significantly contributes to innovative water treatment solutions. Enhancing innovation: in order to strengthen the business and to expand the market position BASF is working on development of new products and technologies for all relevant water treatment segments. BASF is building up internal R&D capacities and external networks with key players in Water Solutions.
Publicly demonstrated our commitment to water	We show our commitment to sustainable water use in international partnerships and initiatives. As a member of the European Water Partnership (EWP), we played a decisive role in the development of the European Water Stewardship (EWS) standard, a voluntary industry standard. BASF co-developed and tested this water stewardship approach for agriculture. We are a member of the WBCSD Water Group. BASF hosted a globally travelling Creator Space to connect experts, makers, initiatives and products to discover solutions together. The discussion in Mumbai, India was about the possibilities to improve access to safe affordable water through change in technology, policy and behaviour.
Water is factored into procurement directives	Water is part of BASF's Supplier Code of Conduct that clearly describes and communicates the expectations towards our suppliers. Our General Conditions of Purchase include a reference to our expectations and requirements with regard to environmental, social and governance standards. There is a dedicated Sustainability Risk Management in Procurement Guideline and also various cross-references to sustainability (including water) in the overarching Procurement Guideline BASF Group.
Greater supplier diversification	BASF is committed to multiple-source sourcing in order to address certain risks including water related topics. Our aim is to reduce the number of single source products. Also BASF selects its suppliers in geographically diverse areas.
Greater supplier engagement	In 2015, we continued the collaborations begun in China and Brazil in 2014 to instruct suppliers on sustainability standards.

Influence of water on business strategy	Please explain
	We have developed a training program together with the East China University of Science and Technology in Shanghai, and plan to educate around 2,000 suppliers by 2019. We are pursuing the same approach in Brazil together with the Espaço ECO® Foundation. Through these cooperation, 485 suppliers already received training in 2015. We queried about 1500 suppliers on their commitment to the values of our "Supplier Code of Conduct" in 2015. Furthermore, our buyers are encouraged to incorporate BASF's "Supplier Code of Conduct" into their communications with suppliers for example in strategic supplier dialogues or in regular supplier meetings.
Tighter supplier performance standards	As a founding member of the chemical industry initiative "Together for Sustainability" (TfS), BASF engages in dialogs with suppliers to continuously improve the working and environmental conditions in global supply chains including social as well as environmental aspects of water. As an outcome, the initiative's members conducted a total of 2580 sustainability assessments and 179 audits in 2015.

**W6.2b**

**Please choose the option(s) below that best explains how water has negatively influenced your business strategy**

Influence of water on business strategy	Please explain
Increased capital expenditure	Our goal of reducing unanticipated emissions to water has driven increased capital expenditures into wastewater treatment facilities and analytical instrumentation. At our sites in Ludwigshafen, Germany, and Geismar, Louisiana, we invested on expanding online wastewater monitoring in order to detect unanticipated emissions at an even earlier stage. These new monitoring systems allow us to track and analyze relevant pollutants even more quickly and reliably, and to take measures if necessary. We were also able to further optimize the performance of the wastewater treatment facilities at our Kuantan site in Malaysia.

**W6.2c**

Please choose the option that best explains why your organization does not integrate water management into its business strategy and discuss any future plans to do so

Primary reason	Please explain
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**W6.3**

**Does your organization have a water policy that sets out clear goals and guidelines for action?**

Yes

**W6.3a**

**Please select the content that best describes your water policy (tick all that apply)**

Content	Please explain why this content is included
Publicly available Company-wide Performance standards for direct operations Performance standards for supplier, procurement and contracting best practice Commitment to customer education Incorporated within group	BASF's company-wide water policy is publicly available and demonstrates the commitment to responsible water use in our production sites, water catchment areas as well as along the entire value chain. Part of the policy is BASF's Responsible Care Management System (RCMS) to ensure environmental and health protection for direct operations as well as for the value chain. It comprises global rules, standards and procedures e.g. to use water as sparingly as possible, to further reduce emissions to water. Component of RCMS are EHS documents that apply throughout the BASF Group and cover EHS topics directly linked to water. To indicate also the social and health aspects BASF's water policy acknowledges the human right to water. Our water policy includes performance standards for supplier, procurement and contracting best practice to secure BASF's raw materials supply and boost suppliers awareness. New and existing suppliers are selected and evaluated also with respect to environmental and social standards. Water is part of BASF's Supplier Code of Conduct, which describes the expectations towards our suppliers e.g. to minimize impact regarding water scarcity and our General Conditions of Purchase.

Content	Please explain why this content is included
environmental, sustainability or EHS policy Acknowledges the human right to water, sanitation and hygiene	Part of our water policy is the commitment to customer education. We support our customers in the safe handling and use of our chemicals e.g. for several herbicide we developed instructions for water protection to enable customers to easily and reliably optimize the use of our product.

**W6.4**

**How does your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) during the most recent reporting year compare to the previous reporting year?**

Water CAPEX (+/- % change)	Water OPEX (+/- % change)	Motivation for these changes

**Further Information**

**Page: W7. Compliance**

**W7.1**

**Was your organization subject to any penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting year?**

Yes, not significant

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**W7.1a**

Please describe the penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations and your plans for resolving them

Facility name	Incident	Incident description	Frequency of occurrence in reporting year	Financial impact	Currency	Incident resolution
BASF Company Ltd, Ulsan, Korea	Fine	Wastewater from Ulsan pigment site that contained Mn (3 times higher than the discharge permissible limit) was released to Ulsan sewage treatment plant.	1	377000	EUR(€)	Conducted incident investigation to identify the root causes followed by series of rectification measures (e.g. review of wastewater management documents, training of relevant staff)

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**W7.1b**

What proportion of your total facilities/operations are associated with the incidents listed in W7.1a

0.3%

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**W7.1c**

Please indicate the total financial impacts of all incidents reported in W7.1a as a proportion of total operating expenditure (OPEX) for the reporting year. Please also provide a comparison of this proportion compared to the previous reporting year

Impact as % of OPEX

Comparison to last year

Impact as % of OPEX	Comparison to last year
0.1	No change

#### Further Information

**Page: W8. Targets and Initiatives**

#### W8.1

**Do you have any company wide targets (quantitative) or goals (qualitative) related to water?**

Yes, targets and goals

#### W8.1a

**Please complete the following table with information on company wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made**

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Other: Assessing and implementing sustainable Water management	Water stewardship	We want to introduce sustainable water management at 100% of our production sites in water stress areas and at all Verbund sites by 2025. We pursue this by applying the European Water Stewardship (EWS) standard. In total, around 22% of our production sites were located in water stress areas in 2015. We	Other: % of production sites	2010	2025	36.2%

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
		introduced the standard at our European sites in 2013 and furthered its implementation in China and North and South America in 2015.				
Other: Reduction of withdrawal of drinking water for production	Water stewardship	We want to reduce the withdrawal of drinking water for production processes in 50 % by 2020.	Other: % reduction of withdrawal of drinking water	2010	2020	56%
Other: Reduce emissions to water	Water stewardship	We pursue the goal of reducing emissions of organic substances to water in 80 % by 2020.	Other: % reduction of emissions	2002	2020	100%
Other: Reduce emissions to water	Water stewardship	We pursue the goal of reducing emissions of nitrogen to water in 80 % by 2020.	Other: % reduction of emissions	2002	2020	100%
Other: Reduce emissions to water	Water stewardship	We pursue the goal of reducing emissions of heavy metals to water in 60 % by 2020.	Other: % reduction of emissions	2002	2020	100%
Other: Increase sustainability of our product portfolio	Other: Increase sales of sustainable products	We pursue the goal to increase the proportion of sales generated by Accelerator products (products that contribute particularly to sustainability in the value chain, also with regards to water) to 28% by 2020	Other: % sales generated by Accelerator products	2014	2020	72%

#### W8.1b

Please describe any company wide qualitative goals (ongoing or reached completion during the reporting period) and your progress in achieving these

Goal	Motivation	Description of goal	Progress
Providing access to WASH in workplace	Other: Promote and maintain the health, well-being and productivity of all	In 2013, BASF signed the "Pledge for Access to Safe Water, Sanitation and Hygiene at the Workplace" (WASH) of the World Business Council for Sustainable Development (WBCSD). By signing the	The Occupational Medicine and Health Protection Department is responsible for the management of occupational health of BASF employees, and the coordination and auditing of occupational medicine in

Goal	Motivation	Description of goal	Progress
	employees.	pledge, BASF strengthened the commitment to provide access to water, sanitation and hygiene at the workplace at an appropriate level of standard for all employees in 100% of our facilities.	BASF group companies worldwide. Part of this responsibility are the topics Sanitation and Hygiene at the workplace. All sites are audited regularly. The fulfilment of this goal is a continuous process. The number of occupational medicine and health protection audits in 2015 is 53.
Strengthen links with local community	Other: Protect licence to operate	An important part of our sustainability management is continuous exchange with our stakeholders. We have a particular responsibility toward our production sites' neighbours, and discuss current issues with them in Community Advisory Panels. These panels aim to promote open exchange between citizens and our site management with the goal of strengthening trust in our activities.	In 2015 we developed global recommendations for the Community Advisory Panel system to strengthen the CAPs serving as a human rights grievance mechanism.
Educate customers to help them minimize product impacts	Other: Stakeholder engagement	In order to ensure that our products pose no risk to people or the environment when they are used responsibly and in the manner intended, we provide extensive information on our chemical sales products to our customers and the public with safety data sheets. We also offer our customers training in the safe use of our products and keep them informed early on of any changes in regulations.	We have a global database in which we maintain and evaluate continuously updated environmental, health and safety data for our substances and products. With our global goals for risk assessment, we are supporting the implementation of initiatives such as the Global Product Strategy (GPS) of the International Council of Chemical Associations (ICCA). GPS is establishing worldwide standards and best practices to improve the safe management of chemical substances. In addition, we are also involved in workshops and training seminars in developing countries and emerging markets. In 2015, for example, we conducted training sessions for chemical industry representatives on GPS in China, and Thailand. In order to facilitate public access to information, we are participating in the setup of an ICCA online portal that provides more than 4,600 GPS safety summaries.
Engagement with suppliers to help them improve water stewardship	Recommended sector best practice	In 2015, we continued the collaborations, begun in China and Brazil in 2014, to instruct suppliers on sustainability standards. We have developed a training program together with the East China University of Science and Technology in Shanghai, and plan to educate around 2,000 suppliers by 2019. We are pursuing the same approach in Brazil together with the Espaço ECO® Foundation. Additionally, we	Through the collaborations in Brazil and China 485 suppliers already received training in 2015. Together with the TfS initiative, we conducted a Supplier Day in São Paulo, Brazil and we held our first global Supplier Day in Ludwigshafen in order to set up new modes of collaboration together with selected suppliers, in 2015. TfS also held a joint conference in Shanghai, China, with the China Petroleum and Chemical Industry Federation

Goal	Motivation	Description of goal	Progress
		raise awareness about sustainability topics in supplier days and conferences.	(CPCIF) with the goal of enhancing mutual understanding of the challenges associated with the sustainability.
Sustainable agriculture	Recommended sector best practice	In order to help preserve biodiversity and natural resources using modern agriculture, BASF established a European farm network. Within this network, we are developing biodiversity promotion measures together with farmers with experts from science and nature conservation organizations. The goal is to grow the farm network into a global network by 2020.	Currently, there are more than 15 farms in the Farm Network, located in Germany, France, the UK, Italy, Poland and the Czech Republic showing how modern farming throughout Europe can help protect ecosystems
Watershed remediation and habitat restoration, ecosystem preservation	Risk mitigation	With the Mata Viva project in Brazil, BASF together with partners have worked for more than 25 years on the protection of water quality, the conservation of soil, and the creation of areas to preserve native vegetation and wild life. Realizing that education is the catalyst for long-term change the program developed an educational module aimed to promote environmental conservation and ownership of the concepts of sustainability, integrating society, economic development and biodiversity. Some of the program solutions are Agricultural Land Planning, Environmental Adaptation (Rural Environmental Registry, Mending Project changed and degraded areas, restoration, lectures, Legal Reserve compensation) and Biodiversity Studies.	In the last 10 years the program was spread to 95 Brazilian cities and helped to restore more than 670 hectares of land. The educational module helped to train more than 2,000 teachers, benefiting about 188,000 students. Since 2005 the program has been in the hands of the Espaço Eco foundation, set up by BASF in cooperation with the German government.
Other: Avoid unanticipated emissions	Risk mitigation	In 2010 we started a global project to review the water protection concepts. The goal is that 100 % of our sites reviewed the water protection concepts by end of 2015. The aim of the project is to reduce unintentional emissions to water at an early stage.	This project was started in 2010. In 2015 100 % of the production sites reviewed their water protection concept.
Providing access to WASH in local communities	Other: Improving Quality of Life in communities surrounding BASF sites	With the aim to completely eradicate open defecation and support the government's Swachh Bharat initiative, BASF and the non-profit organization Citizens Foundation for Better India are working to improve sanitation in the community surrounding BASF's production site in Dahej.	Residents of Dahej Village can now enjoy better sanitation with 230 new, clean household toilets in the community. The project also comprised of establishment of a waste management system for 561 households and the launch of an educational program to strengthen the community's awareness and capacities towards Water, Sanitation and Hygiene (WASH) along with waste

Goal	Motivation	Description of goal	Progress
			management.

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W8.1c

Please explain why you do not have any water-related targets or goals and discuss any plans to develop these in the future

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**Further Information**

**Module: Linkages/Tradeoff**

**Page: W9. Managing trade-offs between water and other environmental issues**

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W9.1

**Has your organization identified any linkages or trade-offs between water and other environmental issues in its value chain?**

Yes

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W9.1a

**Please describe the linkages or trade-offs and the related management policy or action**

Environmental issues	Linkage or trade-off	Policy or action
Energy use	Linkage	Energy is needed to transport cooling water (our main use for water) at our BASF production sites. Water works provide cooling water for the site and have a significant energy requirement. This energy is consumed for operating the water works (pumping of cooling water) and operating cooling towers, which lower the temperature of recycled cooling water.
Use of energy and chemicals	Linkage	Over the last several years, a project has been initiated to investigate production plants at the BASF Ludwigshafen site one-by-one in order to identify optimization potential with respect to, for example, water use. Re-use of condensate: At BASF, the steam supply is provided through the heating and evaporation of de-mineralized water in chemical production plants with exothermic process as well as in our (primarily gas-fed) power plants. Through the use of this steam as a heating medium, large amounts of condensate (water between ~80-100°C) result. This condensate is typically cooled by mixing with river water and either first treated or returned directly to the Rhine River. However, at BASF this condensate is re-used in various ways. By reusing this water, the amount of de-mineralized water required is reduced. This saves production costs for de-mineralized water, such as energy and chemicals. Further, through such measures, the capacity of the current demineralization plant is sufficient allowing new investment to be delayed. Secondly, in addition to the re-use of this water, its heat capacity is very often used. For example, during the winter, this condensate preheats river water to its required inlet temperature for production of de-mineralized-water, which saves steam use. Both of the above benefits also have benefits in terms of reduced energy use.
Greenhouse gas emissions	Linkage	The emissions of BASF-operated wastewater plants of 240,000 t CO <sub>2</sub> in 2015 are accounted for in our Scope 1 or Scope 2 emissions, and reported in our response to the Investor CDP climate change Information Request. The CO <sub>2</sub> emissions from non-BASF operated wastewater treatment plants of 31,600 t CO <sub>2</sub> in 2015 are accounted for in Category 5 of Scope 3 emissions, and also reported in our response to the Investor CDP Information Request. The CO <sub>2</sub> emissions were calculated as follows based on a TOC (Total Organic Carbon) material balance. It is assumed that 30% of the influent organic carbon load is insoluble and inert as well as the non-biodegradable TOC in the effluent. It is also assumed that the 25% of the remaining biotreatable TOC is converted into biosludge during biotreatment. The residual TOC, which is about 50% of the total influent TOC, was converted into CO <sub>2</sub> . The CO <sub>2</sub> emissions were calculated from the residual TOC with a conversion factor of CO <sub>2</sub> /TOC=3.67.
Energy use	Trade-off	We have decreased our specific water use in recent years, for instance, by intensively re-circulating water. However, we do not want the re-circulation of water to result in an increase in energy use, for instance when the water has to be re-cooled, or in other negative impacts on the environment. Re-cooling re-circulated water, for example, has a greater energy demand and results in higher CO <sub>2</sub> emissions compared with the preparation of such water through the operation of water works. Therefore, increasing the amount of recycled water is challenging our climate protection goal 2020 (to reduce greenhouse gas emissions per metric tonnes of sales products (-40%) relative to 2002). Typically, re-cooling re-circulated water is needed during the summer months. Nonetheless, the catchment, processing and transport of water also require energy.
Energy use	Linkage	We produce market and sell products and technologies for handling water and wastewater which can be used in water production and improve water quality and therefore helps our value chain partners to use water more efficient and save energy. e.g. Innovative flocculants help to thicken and dry sewage. For every 1% of water removed from sludge 5% of transport costs are saved and this contributes to reduce CO <sub>2</sub> emissions.
Renewables resources	Trade-off	Responsible resource procurement and management is an integral part of our strategy. However, cultivation of renewable resources creates a demand for water in the production area. In 2015, around 5.8% of the raw materials BASF purchased

Environmental issues	Linkage or trade-off	Policy or action
		<p>worldwide were from renewable resources. BASF further established its “biomass balance” method on the market (<a href="http://www.basf.com/biomassbalance">www.basf.com/biomassbalance</a>). This method uses renewable raw materials from certified sustainable production in place of fossil resources from the very beginning of the value chain in the existing Production Verbund. BASF uses two kinds of materials in the biomass balance approach: certified renewable resources and waste based raw materials. Renewable resources certification must suffice the Renewable Energy Directive – RED which is e.g. covered by the certification system ISCC (International Sustainability &amp; Carbon Certification). The Renewable Energy Directive e.g. includes criteria for water management, efficient water use, conservation, water quality, means for planning ecological water supply, identification of challenges, handling of challenges and monitoring. (<a href="http://www.aireg.de/de/red-richtlinie.html">http://www.aireg.de/de/red-richtlinie.html</a>) E.g. since 2013, we have provided our customers with 1,4-butanediol on a commercial scale using sugars as a renewable feedstock based on a licensing agreement with the company Genomatica Inc. Butanediol and its derivatives are used, for example, to manufacture plastics for the automotive and textile industries.</p>

**Further Information**

**Module: Sign Off**

**Page: Sign Off**

**W10.1**

**Please provide the following information for the person that has signed off (approved) your CDP water response**

Name	Job title	Corresponding job category
Margret Suckale	Member of the Board of Directors BASF SE, furthermore Industrial Relations Director and Site Director of Ludwigshafen	Board/Executive board

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**W10.2**

Please select if your organization would like CDP to transfer your publicly disclosed response strategy from questions W1.4a, W3.2c and W3.2d to the CEO Water Mandate Water Action Hub.

Yes

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**Further Information**

[CDP 2016 Water 2016 Information Request](#)