CDP Water Security Questionnaire 2018

Respondent: Total

W0 Introduction

Introduction

(W0.1) Give a general description of and introduction to your organization.

Total, which has produced oil and gas for almost a century, is one of the largest international oil and gas companies and a major player in low carbon energies. It is present on five continents and in more than 130 countries.

Committed to better energy, over 98,000 employees help throughout the world to provide the Group's customers with products and services that are safer, more affordable, cleaner, more efficient, more innovative and accessible to the greatest number of people. The 2017 turnover was 171.5 billion USD.

As well as conducting its business according to the highest standards of professional behaviour, Total maintains an ongoing commitment to transparency, dialogue and respect for others. The company is strategically dedicated to meeting the challenges faced by all its businesses when developing natural resources, protecting the environment, integrating our operations into host country cultures, and dialoguing with civil society.

Total's activities are divided into 4 main business segments:

- Exploration & Production of oil and natural gas.
- Gas, Renewables & Power spearheads the Group's ambitions in low carbon energies. It comprises gas and electricity activities that are developed downstream of the gas chain all the way down to end-use consumers, including through LNG and power. Its activities include power

generation, from gas and from renewables, solar, wind, and hydro, and power storage through batteries. They also include services for energy efficiency and energy access.

- Refining & Chemicals encompasses refining and petrochemical activities, renewable fuel and plastics from biomass and Hutchinson's operations. It also includes oil Trading & Shipping activities.
- Marketing & Services includes worldwide supply and marketing activities mainly of oil products and services , but also of renewables incorporated in oil products, and of gas used for mobility.

Energy is an essential resource for the development of human societies. In view of the major challenges faced by the world today, energy producers have a key role to play. It is by relying on the support provided by its governance and a diverse shareholder base that the Group will be able to fulfil its collective ambition to become a responsible energy major and to supply more reliable, more affordable, and cleaner energy to the greatest number of people. To reach this goal, Total leverages its integrated business model, which enables it to capture synergies between the different activities of the Group, its operational excellence, its technological expertise and its capacity to manage complex projects.

Total is following a clear strategy that is based on four main priorities and that integrates the challenges of climate change, using as a point of reference the 2°C Sustainable Development Scenario of the International Energy Agency (IEA):

- drive profitable and sustainable growth in Exploration & Production activities, with priority given to gas (the fossil fuel that emits the least amount of carbon dioxide) and with strict investment discipline to only develop cost competitive projects.
- improve the competitiveness of major integrated refining and petrochemical platforms.
- increase the distribution of petroleum products, particularly in high-growth regions, and offer innovative solutions and services that meet the needs of customers above and beyond the supply of petroleum products.
- expand along the full gas value chain by unlocking access to new markets, and develop profitable low carbon businesses, in particular renewable energies and biofuels.

Total intends to strengthen its involvement in the circular economy and implement a program of innovative responsible actions, particularly in the following areas: purchasing, waste management, new ranges of polymers, solarization of its own industrial sites and service stations and improved energy efficiency.

Total's challenge is to increase access to affordable energy to satisfy the needs of a growing population, while providing concrete solutions to help limit climate change and supplying its clients with an energy mix featuring a progressively decreasing carbon intensity. Total also acknowledges the growing pressure on natural resources, including water which has been identified as a priority in the group's environmental management and R&D efforts. The need to reduce water use from natural environments, to minimize Total's water dependency and to lower emissions to water in compliance with local, national and international regulations is thus clearly part of the group's priorities.

The values of respect, responsibility and exemplary conduct underpin Total's Code of Conduct and accompany priority business principles in the realms of safety, security, health, environment, integrity and human rights. It is through strict adherence to these values and principles that Total intends to build strong and sustainable growth for the Group and its stakeholders and deliver on its commitment to better energy.

(W-CH0.1a) Which activities in the chemical sector does your organization engage in?

[x] Bulk organic chemicals
[ ] Bulk inorganic chemicals
[ ] Specialty organic chemicals
[x] Specialty inorganic chemicals

(W-OG0.1a) Which business divisions in the oil & gas sector apply to your organization?

[x] Upstream
[x] Downstream
[x] Other: Solar and energy storage activities

(W0.2) State the start and end date of the year for which you are reporting data.

Start date	End date
01/01/2017	31/12/2017

(W0.3) Select the countries for which you will be supplying data.

Country
Other: Rest of world

(W0.4) Select the currency used for all financial information disclosed throughout your response.

Currency
Euros

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

[x] Companies, entities or groups over which operational control is exercised

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

[x] No

W1 Current state

Dependence

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

Please complete the following table:

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Not very important	Water is vital for all of Total's activities, and this dependency is not likely to decrease in the future. The nature of these activities is such that they have an impact and are dependent on water resources. Total's RC activities represent 80% of Total's freshwater use. At refineries and petrochemicals sites, water is mainly used to produce steam and for cooling purposes. Water availability and quality are thus essential and will remain so for business continuity, as exploration and refining activities are by nature water dependent. Freshwater is also necessary for Total's solar operations. Indirect use of fresh water is not very important given the integrated activities of Total along the entire oil & gas value chain. Total's supply chain doesn't include water intensive products such as agricultural or mining commodity products. However, indirect water use's importance is expected to rise with the development of new environmental norms.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Not very important	Total's use of non-fresh water primarily occurs in once-through cooling processes, and for maintaining reservoir pressure (EOR) in EP activities. As to Exploration & Production activities, brackish and saline water are mainly used for maintaining reservoir pressure in addition to produced water reinjection when the latter is not available in sufficient quantity. These types of waters are also used for once-through cooling purposes. It is therefore important for Total to access sufficient amounts of recycled or brackish water to pursue its activities. For the Refining & Chemicals activities, brackish water is also mainly used for once-through cooling purposes. As EOR and RC activities will remain core to Total's activities, the availability of non-fresh water will remain important. There is no specific dependency to recycled, brackish or produced water identified in Total's supply chain, as Total sources most of its materials internally.

Company-wide water accounting

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

Please complete the following table:

Water aspect	% of sites / facilities / operations	Please explain
Water withdrawals – total volumes	100%	Total water withdrawal volumes, including breakdown by source, are measured and monitored at all our operated facilities, which is a requirement from our Group environmental reporting company rule and a regulatory requirement in many countries. This indicator thus covers 100% of Total's activities and is subject to continuous monitoring, mostly on a daily basis. Water withdrawal is a KPI and volumes are measured at every operated site, including service stations. All the facilities use the group-wide reporting system (HARPE), which allows the monitoring of 32 water quantity indicators and close to 80 quality indicators, as needed. Of note, Total accounts for its extracted and discharged produced water, but does not consider produced water as a water withdrawal. Furthermore, sites with a significant water withdrawal (>500,000 m3/year) are further assessed to identify potential water related risks (see risk sections 2 and 3 for more details).
Water withdrawals – volumes from water stressed areas	100%	Total monitors the level of water stress at all of its operated facilities, especially through the Aqueduct tool. The areas considered as exposed to water stress are those with a BWS (Baseline Water Stress) equal or superior to 40%. The volume from water stressed areas is therefore monitored for Total's entire operations, and those analysis are performed and refreshed on an annual basis, to provide a continuous monitoring of water stress exposure.
Water withdrawals – volumes by source	100%	All relevant business units measure and monitor the breakdown of water withdrawal by sources, consistently using the water sources categories used in the Group's reporting system (HARPE). This indicator is thus subject to continuous monitoring mostly on a daily basis. In this tool, withdrawals are either directly measured or estimated by source, by fresh (surface or ground), brackish and saline waters. Thus 100% of Total's water withdrawal is monitored. The exception is the Marketing and Services (MS) segment, which only monitors its aggregated withdrawal volumes and therefore does not specify sources breakdown, as this is not deemed to have a significant effect on the Group's water performance. The MS activities are not directly involved in raw materials extraction and only account for approximately 1,5% of the Group's total water withdrawal.
Produced water associated with your oil & gas sector activities - total volumes	100%	The volumes of produced water and their discharge destination are accounted by the Exploration and Production branch, including the share that is immediately reinjected as part of the Enhanced Oil Recovery (EOR) process, and the share that is discharged to other water bodies. This is monitored and reported in the EP segment's environmental reporting system. This indicator is thus covered across all of Total's relevant operations and is subject to continuous monitoring on a daily basis.

Water aspect	% of sites / facilities / operations	Please explain
Water withdrawals quality	100%	Total monitors the relevant parameters of its water withdrawals to ensure that its human health and process requirements are matched. The indicators that are consistently monitored through site level measurements and include standard suit biophysical parameters such as pH, water hardness, pollutant loading, salt content etc. These indicators are thus covered across all of Total's relevant operations and is subject to continuous monitoring mostly on a daily basis.
Water discharges – total volumes	76-99%	In order to optimize the Group's impact on local water resources, Total's business units measure and monitor their total water discharges, apart from the MS segment for which water discharge volumes are monitored for key sites only. Notably, water injected to the ground as part of EOR activities are accounted for. Water discharge volumes are monitored through the group environmental reporting system HARPE. This indicator is thus monitored for 100% of relevant sites, which account for 98,1% of total water withdrawal and is subject to continuous monitoring mostly on a daily basis. Water discharge for MS activities is judged not to be material as these activities represent a very limited share of the Group's water withdrawal, (1,5% in 2017) and all the water withdrawn is discharged to either surface freshwater bodies or municipal water networks. However, for two relevant MS sites (bitumen production sites), water discharge data are accounted.
Water discharges – volumes by destination	76-99%	All of Total business units report their volumes of water discharges broken down by destination for each operated facility, except in the MS segment. However, the two most relevant sites in the MS segment (bitumen and special fluids production sites) do report their water discharge by destination. For all other MS sites, all the water withdrawn is discharged back to either surface freshwater bodies or municipal water networks (and therefore does not generate any water consumption). This indicator is thus monitored for 100% of relevant sites, which account for more than 98% of total water withdrawal, and is subject to continuous monitoring mostly on a daily basis. Water discharge volumes are monitored through the group-wide reporting system HARPE. The water discharge destinations reported in the group-wide reporting system include: fresh surface water, municipal/industrial wastewater treatment plan, seawater, groundwater, wastewater for another organization.
Water discharges – volumes by treatment method	76-99%	All water discharges are systematically treated (primary and secondary treatment) across all Total's operations, except MS activities (primary treatment). However, the two most relevant sites in the MS segment (bitumen production sites) do report their water discharge by destination. For all other MS sites, all the water withdrawn is discharged back to either surface freshwater bodies or municipal water networks (and therefore does not generate any water consumption). This indicator is thus monitored for 100% of relevant sites through site-level measurements, which account for more than 98% of total water withdrawal, and is subject to continuous monitoring on a daily basis. Therefore, even though it's not formalized as an indicator, this aspect is part of the Group rules and applies to all its operating sites.
Water discharge quality – by standard effluent parameters	100%	In accordance with its publicly disclosed targets to reduce the hydrocarbon content of its water discharge at both its onshore and offshore sites, Total monitors this aspect. It is thus monitored in 100% of the group's sites. Indeed, the Group defined in early 2016 a new set of coherent environmental targets aligned with the 2010-2020 period of which to maintain hydrocarbon content of water discharges below 30 mg/l for offshore sites and below 15 mg/l for onshore and coastal sites. Total monitors close to 80 quality indicators, as needed and those are subject to continuous monitoring on a daily basis.

Water aspect	% of sites / facilities / operations	Please explain
Water discharge quality – temperature	100%	The temperature of discharged water is monitored for Total's operations and is subject to continuous monitoring mostly on a daily basis. This monitoring ensures that the relevant regulatory thresholds are consistently met for water discharge temperature.
Water consumption – total volume	100%	All of Total business units report their total volumes of water consumption for each operated facility in the group-wide reporting system, except in the MS segment where the water consumption is not judged to be significant. This indicator is subject to continuous monitoring mostly on a daily basis. MS activities account for a very marginal share of the Group's total withdrawal (1.9%), and all the water withdrawn is discharged back to either surface freshwater bodies or municipal water networks (and therefore does not generate any water consumption). However, the two most relevant sites in the MS segment (bitumen en special fluids production sites) do monitor and report their water consumption. Water consumption is thus measured at 100% of Total's sites.
Water recycled/reused	100%	The vast majority of the water recycled/reused reported by Total in this questionnaire corresponds to produced water reinjected to the ground for EOR purposes. These volumes are accounted for at group level by the EP branch through the group-wide reporting system. Water recycled in other cases is also accounted for where relevant at site level, in the group-wide reporting system HARPE. These indicators are subject to continuous monitoring on a daily basis.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Despite the lack of a quantitative indicator on the proportion of sites providing all necessary water, sanitation and hygiene services, Total does have strict internal industrial hygiene rules on health risks management, including the provision of these services. Total's global activities make the provision of services aligned with WASH guiding principles extremely relevant for its workforce, and therefore these aspects are closely monitored and part of the group's annual audit processes. Total is committed through its code of conduct and the 2015 IndustriALL agreement signed by the CEO to respect the ILO convention which requests employers to provide employees with adequate work conditions, including access to potable water, toilet facilities. The audits conducted with Goodcorp since 2002 on this aspect have never revealed any issue. As a consequence, this aspect is closely monitored beyond WASH standards, across 100% of Total's operations. These aspects are continuously monitored.

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

Please complete the following table:

Water aspect	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	516,024	About the same	According to the new questionnaire's accounting principles (which includes produced water and non-fresh water as water withdrawals), Total's total water withdrawal has been quite stable in 2017 compared to previous year, with a 5,1% increase in absolute terms (490,768 in 2016). As illustrated by the water withdrawal breakdown by source, this change is mainly driven by the rise in brackish/seawater withdrawal, due to variation in assets' operations. Of note, this data is different from the water withdrawal indicator followed in Total's annual registration document, which only accounts for the total fresh water withdrawal. As per the group Long Term Plan, there is no significant variation of this value anticipated in the next 10 years.
Total discharges	475,928	About the same	The total water discharge from Total's activities have been quite stable in 2017 compared to previous year: +8.4% (vs. 438,943 In 2016). As per the Group's Long Term Plan, there is no significant variation of this value anticipated in the next 10 years.
Total consumption	40,096	Much lower	Total's water consumption for 2017 is lower than the 2016 figure by 23% (vs. 51,824 in 2016). This evolution mainly comes from a much lower water consumption from the EP department and is calculated as the difference between total withdrawals and discharges. As per the Group's Long Term Plan, there is no significant variation of this value anticipated in the next 10 years.

(W-OG1.2c) In your oil & gas sector operations, what are the total volumes of water withdrawn, discharged, and consumed – by business division – and what are the trends compared to the previous reporting year?

Please complete the following table:

Water aspect by business division	Volume (megaliters / year)	Comparison with previous reporting year %	Please explain
Total withdrawals - Upstream	213,075	Higher	The EP segment encompasses upstream activities. Its water withdrawals have been higher compared to previous year by +13% (188,866 in 2016). This increase is due to a higher seawater withdrawal at the Angola site, for pressure maintenance purposes (+33,000 megaliters). Sea Water withdrawal is common in EP sector and does not alter any endangered resource since taken, as long as Total is concerned, in open ocean (West Africa). It is important to note that freshwater withdrawals have decreased over the same period.

Water aspect by business division	Volume (megaliters / year)	Comparison with previous reporting year %	Please explain
Total discharges - Upstream	202,058	Higher	The EP segment encompasses upstream activities. Its water discharges have been higher compared to previous year by 19% (169,338 in 2016). This is mainly due to a higher volume of sea water withdrawn for pressure maintenance purposes. Total considers that the definition of reinjected water as a discharge is not appropriate for its EP activities, since this water is reinjected in a fossil reservoir, replacing oil, and thus not causing any harm of any nature to the environment. For these reasons, Total discharges should not include water reinjected in oil reservoirs.
Total consumption - Upstream	11,017	Much Lower	The EP segment encompasses upstream activities. Its water consumption has been much lower compared to previous year by -44% (19528 in 2016). This is mainly due to a significant change in perimeter, as the SOBEGI site was transferred from the EP to the RC segment.
Total withdrawals – Downstream	295,755	About the same	The figures provided relate to the RC segment, which includes both refining and chemical activities. Its water withdrawals have been stable compared to previous year by +1% (292,911 in 2016), in line with stable production volumes.
Total discharges – Downstream	266,680	About the same	The figures provided relate to the RC segment, which includes both refining and chemical activities. Its water discharges have been stable compared to previous year, +2% (261,681 in 2016), in line with stable production volumes.
Total consumption – Downstream	29,075	Lower	The figures provided relate to the RC segment, which includes both refining and chemical activities. Its water consumption has been lower than previous year, -7% (31,230 in 2016), especially due to lower municipal water withdrawals for refining purposes.
Total withdrawals - Other business division	7,195	Much lower	The “other” segment includes solar and energy storage activities. The water withdrawals for these activities have been much lower in 2017, by -25% (8,991 in 2016). This is mainly due to a more accurate water accounting methodology, and a significant change in the ‘solar activities’ perimeter (FAB2 site closure).
Total discharges - Other business division	7,191	Lower	The “other” segment includes solar and energy storage activities. The water discharges for these activities have been lower in 2017, by -9% (7,925 in 2016).
Total consumption - Other business division	4	Much lower	The “other” segment includes solar and energy storage activities. The water consumption for these activities have been much lower in 2017, mainly due to a more accurate water accounting methodology at solar sites (1,066 megaliters consumption reported in 2016), and a significant change in the solar activities’ perimeter (FAB2 site closure).

(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.

Please complete the following table:

% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
9.74%	Much lower	WRI Aqueduct	The proportion of water withdrawn for sites located in water stressed basins is stable in 2017 compared to previous year (10.43% in 2016). Total used the Aqueduct tool to identify the relevant sites (with a baseline water stress equal or superior to 40%) and collected the water withdrawal data for those, for both 2016 and 2017. The tool's threshold to determine water stress level is widely internationally accepted as a standard. This corresponds to a "medium to high" level of water stress or higher.

(W1.2h) Provide total water withdrawal data by source.

Please complete the following table:

Source	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	231,948	About the same	Total's fresh surface water withdrawal was stable in 2017 compared to previous year, with a 1% decrease in absolute terms (234,605 in 2016). Of note, this figure includes run-through cooling water in very high quantities (more than 180,000 megalitres). Access to fresh surface water is vital for the continuity of Total's operations, especially for its downstream activities such as refining. The vast majority of the fresh water withdrawals (including cooling) were taken by the Refining & Chemicals segment in 2017. This is mostly from fresh surface water. At refineries and petrochemicals sites, water is mainly used to produce steam and for cooling units. Increasing recycling and replacing water cooling with air cooling, such as at the Normandy and Antwerp refineries, are Total's preferred approaches for reducing fresh water withdrawals. The reuse of water was also investigated at Gonfreville as part of the E4Water program.

Source	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Brackish surface water/seawater	Relevant	121,509	Higher	Total's brackish surface water/seawater withdrawal has been much higher in 2017 compared to previous year, with a 28% increase in absolute terms (87,269 in 2017). This has been consistently calculated through the group-wide reporting system. The main use of brackish/seawater occurs in the EP segment as a mean to maintain reservoirs pressure over time: it is therefore vital for the continuity of Total's operations. Non-fresh water withdrawal for Total's activities consist almost entirely of open ocean seawater, which is by essence an infinite resource, not conflicting with any other usage and thus not causing any water security issue. The withdrawal increase reflects the project portfolio evolution, as illustrated by the Pazflor (Angola) site. The rise in Pazflor's production has implied a significant rise of seawater withdrawal at Group level. In the RC segment, brackish water/seawater is only used for once-through cooling purposes.
Groundwater – renewable	Relevant	16,661	Lower	Total's groundwater withdrawal has been lower in 2017 compared to previous year, with a 13% decrease in absolute terms (18,865 in 2016). This has been consistently calculated through the group-wide reporting system and is mainly due to lower withdrawals for the refining activities. The MS segment accounts for a non-significant share of the Group's total withdrawal (only 1.9% of the Group's total freshwater withdrawal) therefore its water withdrawal breakdown by source is not monitored. As per the Group's Long Term Plan, a significant reduction of this figure is expected, starting in 2018.
Groundwater – non-renewable	Not relevant			Total does not withdraw non-renewable groundwater resources for its operations (except produced water), and therefore this indicator is not applicable.
Produced water	Relevant	99,168	About the same	Total's produced / processed water withdrawal has been stable in 2017 compared to previous year, with a 1% decrease in absolute terms (100,200 in 2016), due to a comparable volume of activity. Produced water is not considered as a water withdrawal by Total, as it is "unlocked" and therefore made available, rather than withdrawn from existing water resources. This has been consistently calculated through the group-wide reporting system where relevant. This indicator accounts for EP activities produced water only since processed water is already accounted for in the others water withdrawal indicators. The produced/processed water indicator is not relevant for the MS segment. As per the Group's Long Term Plan, no significant variation of this value is anticipated in the next 10 years.

Source	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Third party sources	Relevant	46,739	Lower	Water withdrawals from third-party sources (mainly municipal supply) has been lower in 2017 compared to previous year by 7% (49,827 megalitres in 2016). This is mainly due to a lower municipal supply withdrawal from the refining activities in 2017. As per the Group's Long Term Plan, no significant variation of this value is anticipated in the next 10 years.

(W1.2i) Provide total water discharge data by destination.

Please complete the following table:

Destination	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	253,093	About the same	Total's water discharge to fresh surface water has been stable in 2017 compared to previous year, (254,299, 0% increase). It is relevant to Total's activities, especially due to cooling processes, whereby water is withdrawn and discharged back to fresh surface water bodies. This is mainly due to a stable amount of water "used" (withdrawn and discharged) for cooling and EOR purposes. As per the Group's Long Term Plan, there is no significant variation of this value anticipated in the next 10 years.
Brackish surface water/seawater	Relevant	55,909	Higher	Total's water discharge to non-fresh surface water/seawater has increased in 2017 compared to previous year: +10% (vs. 50,782 in 2016). It is relevant to Total's activities, especially due to its offshore operations. This is due to a rise in water discharge to brackish/seawater in the RC branch. As per the Group's Long Term Plan, there is no further increase of this value anticipated in the next 10 years.

Destination	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Groundwater	Not relevant			The figure of 156,771 ml/year includes non-fresh water used (withdrawn and discharged) for EOR purposes. This volume is much higher than last year, by 31% (119,872 in 2016), due to higher reservoirs pressure maintenance activities (Enhanced Oil Recovery, EOR). It is therefore relevant for Total's operations. Total does not consider EOR as discharge to groundwater (not discharged to a water body as it is a fossil resource) and does not discharge water to phreatic groundwater resources aside from this activity. Thus the use of the term discharge to groundwater is improper and a special mention for discharge to reservoir should be created. EOR is vital for O&G and a key for its growth. EOR Is also perceived as the best way to handle produced water and neutralize their possible impact to environment. As per the Group's Long Term Plan, there is no further increase of this value anticipated in the next 10 years.
Third-party destinations	Relevant	10,155	Much lower	Total's water discharge to third party destinations has decreased in 2017 compared to previous year: -27% (vs. 13,990 in 2016). It is mainly relevant for its onshore downstream activities. This difference is mainly due to a better water accounting approach in solar activities. As per the Group's Long Term Plan, no significant variation of this value is anticipated in the next 10 years.

(W-OG1.2j) What proportion of your total water use do you recycle or reuse in your operations associated with the oil & gas sector?

Please complete the following table:

Business division	% recycled and reused	Comparison with previous reporting year	Please explain
Upstream	1-25%	About the same	This high percentage reflects the important proportion of produced water that is reinjected into wells as part of the reservoirs pressure maintenance (Enhanced Oil Recovery process, EOR) process. This proportion is comparable to previous year (26,9% in 2016). Water reinjection reduces Total dependency on local water resources for its exploration and production (EP) activities. This proportion is likely to remain stable in the coming years as reinjection is part of Total's standard EP practices.

Business division	% recycled and reused	Comparison with previous reporting year	Please explain
Downstream	1-25%	About the same	The volume of water recycled/reused in downstream (refining) activities is negligible compared to total water withdrawal for this branch (0,38% in 2016), and is likely to remain so in the future. Even though Total does work on identifying local opportunities for water recycling/reuse, this proportion is likely to remain marginal in the future due to limited recycling/reuse opportunities. Water recycling practices are extremely difficult to implement for oil & gas downstream activities, especially due to regulatory constraints. However, the RC branch is maximizing its harvest and use of rainwater, which decreases its water withdrawals.
Other business division	1-25%	Higher	Total's proportion of water reuse for this group of activities is higher than previous year (0,55% in 2016). The reuse/recycling occurs in the solar segment, as several opportunities have been developed on solar farms. This may enable water recycling/reuse to be higher in the future (especially in the maintenance process), and therefore decrease this activity's dependence on local water withdrawal.

Water intensity

(W-CH1.3) Do you calculate water intensity for your activities in the chemical sector?

[x] No, and we have no plans to do so in the next two years

(W-OG1.3) Do you calculate water intensity for your activities associated with the oil & gas sector?

[x] Yes

(W-OG1.3a) Provide water intensity information associated with your activities in the oil & gas sector.

Please complete the following table:

Business division	Water intensity value	Numerator: water aspect	Denominator: unit of production	Comparison with previous reporting year	Please explain
Upstream	0.12	Total freshwater withdrawals	Barrel of oil equivalent	Lower	This metric is expressed in cubic meters of total freshwater withdrawal for the entire group, per boe produced. Both data (total freshwater withdrawal and total production) are essential in the company reporting and are key performance indicators: these are reported to external stakeholders and are part of the group's strategic monitoring. This ratio was 0,134 for 2016, which represents a 10% decrease. Based on this water indicator, Total does work towards the continuous improvement of its activities' water efficiency: capex investments, research programs, products' life cycle analysis.

W2 Business impacts

Recent impacts on your business

(W2.1) Has your organization experienced any detrimental water-related impacts?

[x] Yes

(W2.1a) Describe the water-related detrimental impacts experienced by your organization, your response, and the total financial impact.

Please complete the following table:

Country	River basin	Type of impact driver	Primary impact driver	Primary impact
Belgium	Escaut (Schelde)	Physical	Pollution incident	Other: Marginal disruption to operations

Description of impact	Primary response	Total financial impact	Description of response
During a fuel delivery (MS segment), an accidental leakage to municipal wastewater occurred. This was due to a tank being out of order. The volumes accidentally discharged were very limited. The impact for Total was a very marginal discontinuity in the site's operations, as no site closure was experienced.	Other: Emergency management	0	The site management immediately stopped the delivery and the necessary measures were taken, including placing a cover to avoid further contamination. The financial impact was negligible for Total, as no site closure was experienced. In order to prevent future spills, the tank was clearly labelled as being out of order.

Country	River basin	Type of impact driver	Primary impact driver	Primary impact
France	Rhine	Physical	Pollution incident	Other: Marginal disruption to operations

Description of impact	Primary response	Total financial impact	Description of response
During a fuel delivery, a truck had an accident and approximately 250 litres of fuel were spilled over the road, which was not water-proof. The volumes accidentally discharged were very limited. The impact for Total was a very marginal discontinuity in the site's operations, as no site closure was experienced.	Other: Emergency management	0	Total's site management, local authorities and the supplier involved collaborated to clean the spill and avoid further water resources contamination. The financial impact was negligible for Total, as no site closure was experienced.

Compliance impacts

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

[x] No

W3 Procedures

Potential water pollutants management procedures

(W-CH3.1) How does your organization identify and classify potential water pollutants associated with its activities in the chemical sector that may have a detrimental impact on water ecosystems or human health?

See our response to question W-OG3.1.

W-CH3.1a) Describe how your organization minimizes adverse impacts of potential water pollutants on water ecosystems or human health. Report up to ten potential pollutants associated with your activities in the chemical sector.

Please complete the following table:

Potential water pollutant	Value chain stage	Description of water pollutant and potential impacts	Management procedures	Please explain

(W-OG3.1) How does your organization identify and classify potential water pollutants associated with its activities in the oil & gas sector that may have a detrimental impact on water ecosystems or human health?

Notably due to its extractive activities, Total places a strong focus on its water pollution risk management, especially potential contamination by hydrocarbons. The different frameworks Total refers to in its water pollutants management are both regulatory and from industry best practices. Regulatory frameworks relevant to its activities can be national/supranational regulations (such as the European REACH standards or the SEVESO classification, which applies to certain sites) or international conventions (such as the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean or the OSPAR). Total also follows industry best practices in terms of water pollutants management, from organizations including the IOGP, IPIECA or CONCAWE. When the regulations in place are less stringent than industry best practices, Total would refer to the latest as its standard.

More practically, the approach implemented to identify and classify potential water pollutants relies on the Dose Related risk and Effect Assessment Model (DREAM), which was developed as part of the E-RMS project involving Norwegian authorities, the Sintef and several O&G companies (including Total). The DREAM allows the analysis of a water discharge components and their relative contribution to environmental risks. This technology has been implemented since 2001 to model the EP segment discharges and identify potentially harmful pollutants for which impact has to be reduced. This model is subject to regulatory monitoring is some countries such as Norway, and its wider application to Total's activities has resulted in corrective measures being implemented (e.g. a disperser installed at the Djeno site in Congo). This approach is applicable to both chronic and accidental pollutions

(water discharge contents, accidental spills etc.), and take both human health and environmental impacts into account. Potential impacts of pollutants mismanagement include the alteration of local ecosystems (due to products' toxicity, bioaccumulation, absence of biodegradation, eutrophication…) and health impacts on local communities (through drinking water contamination for instance). For the selection and supply of chemicals, Total uses those risks (toxicity, bioaccumulation…) as selection criteria, favouring the less impactful options.

In terms of emergency preparedness for potential oil spills, the Group companies can call on in-house human and material resources (Fast Oil Spill Team, FOST) and benefit from assistance agreements with the main third-party organizations specialized in the management of hydrocarbon spills (OSRL, GI-WACAF, CEDRE, etc.).

As to its value chain, water pollution risks are part of the parameters integrated in Total's suppliers' assessment, especially through the identification of those with production sites in Ramsar protected areas. Total engages with its clients on water pollution risks through environmental labelling/information on its products, by providing regulatory end-of-life information, thereby helping to prevent leakage to the environment (petrochemical products for instance).

(W-OG3.1a) How does your organization identify and classify potential water pollutants associated with its activities in the oil & gas sector that may have a detrimental impact on water ecosystems or human health?

Potential water pollutant	Business division	Description of water pollutant and potential impacts	Management procedures	Please explain
Hydrocarbons	• Upstream • Downstream	Hydrocarbons are organic compounds that naturally occur in crude oil. If massively released to the environment (during production, transport or refining) through water discharge or accidental spills, hydrocarbons can significantly impact natural environments (both fauna and flora). The scale of impacts generated can vary depending on the volume of hydrocarbons discharged and can go from very localized impacts for minor spills to major environmental impacts for large oil spills. Chronic potential impacts related to hydrocarbon releases in effluents are possibly reaching an Environmental Impact Factor (EIF) above 10,000 according to Norwegian Continental shelf (NCS) standards.	• Compliance with effluent quality standards • Measures to prevent spillage, leaching, and leakages • Community / stakeholder engagement • Emergency preparedness	Managing water effluent quality standards in its exploration/production activities allows Total to manage the risk of having a significant detrimental impact over the natural environments its activities interact with. This risk is monitored through a yearly target of maintaining the hydrocarbon content of its water discharge below certain thresholds (15 mg/l for onshore sites and 30 mg/l offshore), and had 100% of its sites meeting those targets in 2017. This is a worldwide group objective, which is complemented by risk analysis based on the DREAM model (EIF), in order to go beyond those objectives (ex: static mixers installed in Congo to improve effluent dispersion. This performance is even better for coastal downstream sites: 1 mg/l. Total's approach Combines thresholds and risk analysis, and on this basis treatment systems are adapted to pollution risk reduction. Moreover, Total engages with local stakeholders such as regulators and local communities to ensure compliance with all the relevant norms and prevent human contamination. In terms of emergency preparedness, the Group companies can call on in-house human and material resources (Fast Oil Spill Team, FOST) and benefit from assistance agreements with the main third-party organizations specialized in the management of hydrocarbon spills (OSRL, GI-WACAF, CEDRE, etc.). As to oil spills risks, the Group reports the number of Tier 1 and Tier 2 events as defined by the API and the IOGP. In accordance with industry best practices, Total also monitors accidental liquid hydrocarbon spills of more than one barrel.

Potential water pollutant	Business division	Description of water pollutant and potential impacts	Management procedures	Please explain
Chemicals	• Upstream	Chemical products are mostly used by Exploration and Production activities. However, the group's management norms are applicable for all of its activities. This includes sludges, drilling fluids, etc. Mismanagement of chemicals can lead to harmful products being released into the environment. This can affect local ecosystems, both in terms of fauna (e.g. toxic products' impact on biodiversity) or flora (e.g. lower soil fertility). The scale of impacts generated can vary depending on the volume of chemicals discharged and can go from very localized impacts for minor chemical discharges to significant environmental impacts for large chemical mismanagement events (pollution of water resources for instance). The scale of impacts generated can vary depending on the volume of hydrocarbons discharged and can go from very localized impacts for minor spills to major environmental impacts for large oil spills. Chronic potential impacts related to hydrocarbon releases in effluents are possibly reaching an Environmental Impact Factor (EIF) above 10.000 according to Norwegian Continental shelf (NCS) standards.	• Compliance with effluent quality standards • Measures to prevent spillage, leaching, and leakages • Community / stakeholder engagement • Emergency preparedness	For the management of chemical products, Total refers to both relevant regulatory norms (such as the CLP at European level) and industry best practices. The ISO 14001 principles have been implemented at group level in company rules (for toxic products storage and confinement for instance) and cascaded at site level as well. These principles are set in the environmental management system MAESTRO, which details the HSE management principles (ISO 14001 standards). This is completed by specific documents for the management of the different categories of potential pollutants (sludges, drilling fluids, chemicals storage, guide on polluted sites and soils, accident management, guide to prevent local population water pollution etc.) DREAM modelling is also applied to maintain Environmental Impact Factors (EIF) at an acceptable level. Total is also applying a very stringent policy in terms of formulation for the drilling fluids, in order to avoid detrimental chemical discharge. Chemicals are also present in hydrotest water (water used to test pipelines). Total has put in place specific procedures to limit as much as possible the use of chemicals during those tests and based on a risk approach, to achieve zero harmful impact related to the discharge of those fluids For its chemical supply, Total applies environmental criterion pertaining to ecotoxicity, bioaccumulation and biodegradation to select the most environmentally friendly chemicals. Moreover, Total engages with local stakeholders such as regulators and local communities to ensure compliance with all the relevant norms and prevent human contamination. In terms of emergency preparedness, Total has documented group wide emergency response procedures.

Potential water pollutant	Business division	Description of water pollutant and potential impacts	Management procedures	Please explain
Cuttings	• Upstream	Drill cuttings are the broken bits of solid material removed as part of O&G wells drillings. Improper disposal of the resulting waste can lead to water pollution, especially at offshore sites. The scale of impacts generated can vary depending on the volume and nature of mismanaged cuttings, and the sensitivity of the sediment community (benthos). Shannon-Winner indexes could be significantly affected and get much lowar than 2 by improper release of high hydrocarbon content drilling wastes.	• Compliance with effluent quality standards • Measures to prevent spillage, leaching, and leakages • Community / stakeholder engagement • Emergency preparedness	Cuttings are subject to the same risk assessment approach. In certain countries Total applies a “zero discharge” policy, particularly for drilling waste (drill cuttings) which are brought back to shore and treated appropriately to avoid any discharge to the sea. Moreover, Total engages with local stakeholders such as regulators and local communities to ensure compliance with all the relevant norms and prevent human contamination. In terms of emergency preparedness, Total has documented group wide emergency response procedures.

Risk identification and assessment procedures

(W3.3) Does your organization undertake a water-related risk assessment?

[x] Yes, water-related risks are assessed

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Please complete the following table:

Value chain stage	Coverage	Risk assessment procedure	Frequency of assessment	How far into the future are risks considered?	Type of tools and methods used	Tools and methods used	Comment
Direct operations	Full	Water risks are assessed as part of an enterprise risk management framework	Annually	More than 10 years	• Tools on the market • International methodologies • Other	• IPIECA Global Water Tool • GEMI Local Water Tool • WRI Aqueduct • Life Cycle Assessment • Internal company methods • Other: DREAM / ERMS Tool	Given the integrated nature of its activities, the group mainly focuses on its direct operations with a comprehensive company-wide risk assessment approach, but also looks at suppliers' exposure where relevant. Water resources management is evaluated and monitored during risk management committees, where it has been identified as a key risk factor. Water-related risks are systematically evaluated as part of projects' environmental impact assessment in their prospect and design phases.
Supply chain	Partial	Water risks are assessed as part of an enterprise risk management framework	Six-monthly or more frequently	2 to 5 years	• Tools on the market • International methodologies	• Life Cycle Assessment • Environmental Impact Assessment • Other: PROTEUS	Total's supply chain doesn't include water intensive products such as agricultural or mining commodities but supply chain water risks are assessed where relevant. The GRP segment sources photovoltaic devices for its solar power activities. Total has performed a life cycle analysis of these devices, including water in line with the ISO14046 standard. Total is currently installing solar panels on 5000 petrol stations of its network.
Other stages of the value chain	None						

(W3.3b) Which of the following contextual issues are considered in your organization's water-related risk assessments?

Please complete the following table:

Contextual issue	Relevance & inclusion	Please explain
Water availability at a basin/catchment level	Relevant, always included	Total continuously monitors its water resources use at site level (water withdrawal). This is done through the internal reporting system (HARPE). Current water availability and quality are annually reported at Group level, which fulfils the Group's annual reporting requirements. The same process is conducted at site level to meet local regulatory requirements. This allows the identification of priority sites that are environmentally sensitive in terms of water resources (> 500,000 m3/year, threshold set by Total). For these sites, a risk assessment through the Local Water Tool (LWT) is performed, which includes an analysis of water availability and quality parameters at local level. Total's strategy for estimating future changes in water availability on a local level will rely on its sites' monitoring and its water risk management strategy (sites screening, Local Water Tool, valuation). The regular update of Local Water Tool assessments is essential to ensure that water management is aligned with any changes in water resources availability (including from Climate Change). This is seen as a potential key risk for Total's future activities relating to water (in particular for RC). The current Local Water Tool results consider Climate Change as an externality, although challenging to quantify (thus the need for robust monitoring and updating of the Local Water Tool to allow for adaptive management at the site level).
Water quality at a basin / catchment level	Relevant, always included	Total continuously monitors its effluents quality, over which Total has set public targets. This is done through the internal reporting system (HARPE). Current water availability and quality are annually reported at group level, which fulfils the group's annual reporting requirements. Both water withdrawals and discharges are subject to quality monitoring at local (site) level, and therefore part of the group-wide water risks assessment. The same process is conducted at site level to meet local regulatory requirements.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	Total actively engages with its key stakeholders (local communities, NGOs, government bodies, etc.) on all subjects, including water use. Total has tools in place to manage potential stakeholder conflicts including those potentially linked to water: Stakeholder Relationship Management (SRM+) is Total's internal tool to identify stakeholders' expectations and build relevant action plans to address them, during projects' complete lifecycle. Total also sets grievance mechanisms where relevant in order to adequately manage its local stakeholders relations. For the sites identified as priorities, the risk assessment performed through the Local Water Tool includes current local reputation and social activism parameters. Through Total's group-wide stakeholders' relationship management system (SRM+), trends analysis are conducted to identify potential future stakeholders conflicts at local level. Grievance mechanisms have also been set where relevant, in order to anticipate potential stakeholders' conflicts. Total also closely monitors its media and NGO coverage. This is based on internal company knowledge, as each entity has a dedicated workforce to manage stakeholder relations and anticipate potential future conflicts.

Contextual issue	Relevance & inclusion	Please explain
Implications of water on your key commodities / raw materials	Relevant, always included	Total's main commodities are oil and gas, which are essentially supplied internally by its EP segment. The application of risk management processes such as the Global and Local Water tools and the use of internal company knowledge thus directly assesses the current implications of water on Total's key commodities or raw materials. For RC activities, in addition to oil, water as a commodity is essential for industrial processes (steam production, cooling water). RC water risk management also relies on internal company knowledge and uses the internal monitoring system. The same applies for Total's renewable power activities. This dimension is thus a key part of Total's water risk management.
Water-related regulatory frameworks	Relevant, always included	Local regulations and water tariffs are likely to affect the continuity of Total's operations and are consistently tracked and monitored by relevant affiliates (in particular for the refining and chemical segments, which are generally located in developed countries with water pricing). For the sites identified as priorities, the risk assessment performed through the Local Water Tool includes current water regulatory frameworks and water tariffs parameters. Total monitors potential regulatory changes at corporate, affiliates and sites levels. As part of the company annual long-term plan exercise, the potential impact of future regulatory changes on Total's CAPEX is assessed. A yearly regulatory watch is also provided by ERM. The future potential regulatory changes upon water are therefore embedded in Total's risk assessment process is thus based on internal company knowledge.
Status of ecosystems and habitats	Relevant, always included	The impact of Total's activities on ecosystems and habitats at local level are systematically assessed through environmental impact assessment studies. Total identifies the levels of risk of its sites that withdraw more than 500,000 m³ per year and which are located in areas potentially exposed to water resource risks, this using the Local Water Tool (LWT). The risk assessment performed through the Local Water Tool includes current local ecosystems (based on UNE(P)-WCMC PROTEUS program data) and watershed ecosystems parameters with a specific focus on protected wetlands (Ramsar). Estimates of future potential changes in the status of ecosystems and habitats at a local level are part of the parameters included on the Local Water Tool assessment for priority sites. Priority sites are defined as sites that withdraw more than 500,000 m³ per year and which are located in areas potentially exposed to water resource risks. In addition, Total's GIS tool (HSEQ maps) provides monthly updates on ecosystems and habitats status and some potential future protected areas (UNESCO), through the MOU with UNE-WCMC program PROTEUS (annual costs: 100 KUSD).
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Total's global activities make the provision of services aligned with WASH guiding principles extremely relevant for its workforce, and therefore these aspects are closely monitored and part of the Group's regular audit processes. Total is committed through its code of conduct and the 2015 IndustriALL agreement signed by the CEO to respect the ILO convention which requests employers to provide employees with adequate work conditions, including access to potable water, toilet facilities. The audits conducted with Goodcorp since 2002 on this aspect have never revealed any issue. It is thus integrated through external audit and internal company knowledge (monitoring).

Contextual issue	Relevance & inclusion	Please explain
Other contextual issues, please specify	Not relevant, explanation provided	No further contextual issue has been identified as relevant for Total's operations.

(W3.3c) Which of the following stakeholders are considered in your organization's water-related risk assessments?

Please complete the following table:

Stakeholder	Relevance & inclusion	Please explain
Customers	Relevant, always included	In order to optimize its relationships with its stakeholders and anticipate potential risks (such as brand reputation damage), Total has implemented an internal Stakeholder Relationship Management methodology known as SRM+ to professionalize the societal approach of its units, affiliates and sites. SRM+ is designed to help users identify and map their main stakeholders, engage with them and understand their perceptions and challenges. This information can then be leveraged to devise an action plan for building long-term relationships, and thus assess and manage the associated risks. For its relevant activities, Total engages with its customers upon its responsible management of water resources through internal and external certifications, such as Total Eco Solutions products, sites' ISO14001 certifications, "cradle to cradle" certification for renewable. For individual customers (MS activities only) Total engagement method include grievance mechanisms at local level and ad-hoc awareness raising initiatives. Each MS entity at the lowest level of granularity is required to maintain a complaint register, gathering potential claims from local stakeholders which allows stakeholders relations management (all categories).
Employees	Relevant, always included	As primary stakeholders and key to Total's activities, employees are part of the SRM+ stakeholder relationship management system, and hence potential risks linked to water are monitored. The main employee-related risk would be a discontinuity of operations (lack of freshwater availability at site level for instance). Also, through the ISO14001 EMSs, employees are able to report on water-related risks at site level. The identified risks are then assessed internally via the EMS management to determine how to best manage these.
Investors	Relevant, always included	Total's investors are involved in the company's strategic decisions, especially through AGM voting, and are thus key to the business continuity. The main risk for this category of stakeholders is to affect Total's access to capital markets. In addition to CDP disclosure, Total's Registration Document contains a specific chapter on water management that provides transparent information on the Group's most material subjects including water. Total also discloses its environmental information, including water-related KPIs, to the Global Compact initiative, the CDP and numerous rating agencies, such as but not limited to DJSI, Sustainalytics and the GRI. More broadly, Total's transparency towards financial markets means that investors' appreciation of the potential water risks affecting Total, and therefore their perception of Total's resilience, is constantly taken into account. Total also proactively participates in the elaboration of environmental norms for the financial sector (IFC EHS guidelines for Oil & Gas for instance).

Stakeholder	Relevance & inclusion	Please explain
Local communities	Relevant, always included	Local communities are part of the SRM+ system described above and hence potential risks linked to water are monitored. Local communities are a key stakeholder for a resource sharing point of view (eg farming and livestock, fishing neighboring activities). Where relevant, Total has implemented local grievance mechanisms to engage with local communities and therefore assess and anticipate conflict risks. For certain projects, a net positive water impact has been generated. For instance, in Yemen, the company provides 300-1,000 m^3 of freshwater/day to local communities.
NGOs	Relevant, always included	As key interlocutors to ensure its Total business' sustainability, NGOs are primary local stakeholders. These are part of the SRM+ stakeholder relationship management system, and hence potential risks linked to water are factored in Total's water risks assessment (such as brand reputation damage or litigation for instance). Total engages proactively with NGOs through several local partnerships (e.g. GIZ in Uganda, in order to support local communities water resources protection). Where relevant, Total has implemented local grievance mechanisms to engage with local NGOs and anticipate conflict risks.
Other water users at a basin / catchment level	Relevant, always included	Given the important volumes of water required for Total's activities (especially in the RC segment), maintaining a constructive a constructive dialogue with other water users at a local level is essential. The use of the SRM+ stakeholder management system, and the implementation local grievance mechanisms allow Total to engage with other local water users and anticipate conflict of use risks (which could result in brand reputation damage or litigation for instance). Specific engagement points with this stakeholder category also include potential water reuse opportunities for third parties (e.g. Cray Valley water cooling). In terms of risk assessment, the Local Water Tool allows the identification of other water users and any potential water use conflicts (different water categories: surface water, groundwater, municipal and network supplied water, brackish water, seawater and salty groundwater).
Regulators	Relevant, always included	Total conceptualizes and develops its projects in partnership with regulators in order to meet all relevant regulations, and therefore manage regulatory risks. As part of its annual Long Term Plan exercise, Total anticipates future regulatory changes that are likely to affect its CAPEX. As a consequence, regulators are systematically factored in its water-related risk assessments. Moreover, Total proactively participates in public consultations over regulatory changes. Example: consultation on the transposition of European regulation into French Law regarding water discharge. This participation is made either directly or through the relevant professional organizations (CONCAWE, UIC, UFIP, IOGP).
River basin management authorities	Relevant, always included	As coordinators of local water resources, river basin management authorities are relevant stakeholders to Total's projects. The associated risk would be that Total loses its licence to operate. Where relevant, Total engages with river basin management authorities through direct dialogue, in order to ensure the compliance of its operations with local water management rules, and thus adequately manage water-related risks (water quotas or environmental permits). These are part of the SRM+ stakeholder relationship management system. For example, in the Mahakam delta (Indonesia), Total has maintained a constant dialogue with the local government in charge of river basin management. In France, Total has engaged with the Seine watershed regulatory authority concerning the closure of one of its open-loop cooling system (Normandy refinery).

Stakeholder	Relevance & inclusion	Please explain
Statutory special interest groups at a local level	Relevant, always included	On a general basis, Total engages proactively with local interest groups at local level to optimize its "social license to operate" and manage the associated operational risks. Where relevant, Total engages and maintains a constant dialogue with local fishery associations for instance. This is the case in French Guyana. As another instance of relations with special interest groups, Total also has a unique partnership with a veterinary center specialized in managing oiled aquatic fauna. These groups are identified in the SRM+ internal system, and hence potential risks linked to water are factored in Total's water risks assessment.
Suppliers	Relevant, always included	Suppliers are part of the SRM+ stakeholder relationship management system and hence potential risks linked to water are factored in Total's water risks assessment. An environmental and social risk appraisal for our supply chain was conducted and focused on human rights, sustainability, energy efficiency, resource efficiency (water, minerals, utilities, waste). To date, Total's suppliers are not deemed to include significant users of water, namely none are providing the Group with raw agricultural products / by-products (that are by definition water intensive). This position will evolve depending on the development of biofuels activities by the Group, as agricultural products are more exposed to water risks. Moreover, in accordance with the UNEP-WCMC Proteus approach, Total requires its suppliers to disclose whether their production plants located in Ramsar areas, which places a significant focus on protected wetland areas. This includes new suppliers as well as existing ones.
Water utilities at a local level	Relevant, always included	As part of its project feasibility studies, Total engages with local water utilities through dialogue and contractual agreements, to ensure the continuity of its access to local water resources. Water costs from water utilities are factored into risk assessments through the Long-Term Plan annual assessment, which anticipates OPEX rise due to higher water costs. The Local Water Tool assessment also incorporates this parameter, which helps managing the risk of discontinuity in water supply from local water utilities.
Other stakeholder, please specify	Not relevant, explanation provided	The categories listed above encompass Total's stakeholders categories.

(W3.3d) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

The evaluation of water-related risks is core to the systematic environmental impact assessment along all project assessment phases. Each assessment is followed by a stage-gate review and a decision process regarding the go / no go of the project; so water risks are fully integrated into project assessments. Detailed studies relating to water management are established according to projects' scope and nature. For instance, water-related risks analyses at every step of the Djeno Water treatment project in Congo have resulted in 72 MUSD being invested in 2016 to debottleneck water treatment, maintain water treatment performance and allow additional water flow from new development projects.

In terms of strategic integration of water related issues, a prospective approach of water risks' potential impact on Total's operations is undertaken annually as part of the Long-Term Plan, with prediction for next 10 years includes water use and produced water production / injection / discharge. This exercise is presented at the highest management level of the company and is thus embedded into the group's strategy. It includes an evaluation of the costs associated with water-related CAPEX / OPEX, which allows an alignment of Total's strategy with the evolution of water-related risks: the evolution of regulatory requirements, and their potential consequences on the company's CAPEX are for instance part of the assessment.

For operating sites, further to the assessment process, sites potentially exposed to water risk or with a significant impact on water resources conduct a Local Water Tool assessment, which includes other relevant risks (Supply reliability, resource and treatment costs, water stress, climate change risk,…). Continuous monitoring of water risks is ensured through the Group-wide reporting systems. The identification of significant water-related risks is reported to the relevant management level (up to Board level if needed) and corrective actions are implemented.

W4 Risks and opportunities

Risk exposure

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

[x] Yes, only within our direct operations

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

Any investment, sale or financial commitment is subject to different levels of decision-making based on financial thresholds. Financial expenditures associated with water-related risks are the indicator used by Total to define substantive change.

Substantive financial impacts defined as the amount of CAPEX involved in the particular project under analysis. Based on "financial significance" thresholds, the environmental risks will be assessed through different processes and undergo different levels of validation. These thresholds are segment-specific, but the general rule is that decisions on water-related risks with minor CAPEX implications are taken at site level. Then, decisions with significant CAPEX implications are taken at branch level, while decisions with very significant CAPEX implications will be discussed and approved by the Group's executive committee.

Different levels of water risk exposure have been defined for the projects reviewed by the Group's executive committee (and branch committees), ranging from low risk (No competition for the resource, water not usable for anything else by future generations or available in unlimited quantities) to very high risk (Very large volumes of fresh water with usage conflicts in a watershed under severe water stress, in a country with low per capita income and very weak water supply infrastructures). These are therefore levels of strategic risks.

As an illustration, E&P activities have different significance thresholds as exploration is considered as a riskier activity than existing developments, due to the risk of generating no return if exploration is unsuccessful. A project involving more than 10 million USD of CAPEX will therefore be considered as significant for exploration, while the threshold is set at 40 USD million for development projects. The project will be considered very significant (and thus discussed at executive committee level) above 20 USD million for exploration, while the threshold is set at 80 USD million for development projects.

Hence substantive change is defined based on activity-specific CAPEX thresholds, and water-related CAPEX are discussed through this particular process. For instance, water-related risks analysis at every step of the Djeno Water treatment project in Congo have resulted in 72 million USD being invested in 2016 to debottleneck water treatment, maintain water treatment performance and allow additional water flow from new development projects. Due to the nature of Total's activities, this approach to water risks related changes is applied to Total's direct operations, where the vast majority of water risks are concentrated. It is also applied to Total's assets operated by third parties.

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
2	Less than 1%	This quantification is based on the Local Water Tool (LWT) analysis, which was run for 17 priority sites in total as of 2017. The two sites identified (out of 451 sites that withdrew freshwater in 2017) are refining sites which have a non-negligible contribution to the group's revenues and could thus have a substantive financial and strategic impact, should these be affected by water risks.

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive impact on your business, and what is the potential business impact associated with those facilities?

Country	River basin	Number of facilities exposed to water risk	% company-wide facilities this represents
France	Seine	1	Less than 1%

% company's global oil & gas production volume that could be affected by these facilities	% company's total global revenue that could be affected	Comment
1-25	1-25	The Grandpuits refinery (part of the Refinery and Chemicals segment) has been identified as exposed to water-risks following its assessment through the Local Water Tool (LWT). The Grandpuits refinery accounts for 5,9% of Total's global refined production. However, historical data show that production is marginally affected by water-related risks. Taking an extremely conservative approach (forecasting a partial site closure on the driest months of the year), the proportion of Total's refining production that could be affected can been estimated at 1.6%. Hence the proportion of global production that would be affected should local water risks materialize is not significant. Of note, the Grandpuits refinery has been extended, including an enhanced water management plan (water recycling and rainwater harvest) in order to specifically reduce water risks exposure (both water withdrawal and discharge). R&D studies are undergoing in order to deepen the water management efforts on this site even further.

Country	River basin	Number of facilities exposed to water risk	% company-wide facilities this represents
France	Loire	1	Less than 1%

% company's global oil & gas production volume that could be affected by these facilities	% company's total global revenue that could be affected	Comment
1-25	1-25	The Donges refinery (part of the Refinery and Chemicals segment) has been identified as exposed to water-risks following its assessment through the Local Water Tool (LWT). The Donges refinery accounts for 10,5% of Total's global refined production. However, historical data show that production is marginally affected by water-related risks. Taking an extremely conservative approach (forecasting a partial site closure on the driest months of the year), the proportion of Total's refining production that could be affected can been estimated at 2.7%. Hence the proportion of global production that would be affected should local water risks materialize is not significant.

Water-related risks and response

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Please complete the following table.

Country	River basin	Type of risk	Primary risk driver	Primary potential impact	Company-specific description	Timeframe
France	Seine	Physical	Increased water stress	Reduction or disruption in production capacity	Based on the Global Water Tool, the Grandpuits refinery has been identified as being in a water stressed area: its annual Renewable Water Supply indicator (Projections for 2025) has been quantified in the 500 to 1,000 m^3/person/year range. This corresponds to a water scarcity condition (source: WRI, Projections for 2025). Therefore, Grandpuits' operations could be affected due to conjunctural lower availability of water resources, which are necessary for its operations and could thus affect its production. The Champigny groundwater reserves have been constantly decreasing and might be further affected by climate change. Moreover, Total's further development projects may be allocated equal or lower development permits.	1-3 years

Magnitude of potential impact	Likelihood	Potential financial impact	Explanation of financial impact	Primary response to risk	Description of response	Cost of response	Explanation of cost of response
Low	Likely	5,000,000	The Grandpuits refinery accounts for 5,9% of Total's global refined production. However, historical data show that production is marginally affected by water-related risks. Taking an extremely conservative approach (forecasting a partial site closure on the driest months of the year), the proportion of Total's refining production that could be affected can been estimated at 0.16% per year. The potential financial impact magnitude of 5M€ was calculated using the average revenue margin (ERMI).	Infrastructure maintenance	Total has engaged with public policy makers over the area water management. The Capex/investment costs have been estimated based on equipment and workforce costs. According to the feasibility study realised Infrastructure investment could include the installation of additional ultrafiltration units. Other response strategies include: engagement with stakeholders in the river basin, increased capital expenditure, promoting best practice and awareness and water management incentives. The response is therefore underway.	5 million euros	Investment costs in the range of 1-10 million euros are being assessed to finance the site's technical improvements on water management, including the installation of additional ultrafiltration units. Investment decision is pending.This is not significant at Group level but does represent a significant cost at site level, due to stringent operating margins.

Country	River basin	Type of risk	Primary risk driver	Primary potential impact	Company-specific description	Timeframe
France	Loire	Physical	Increased water stress	Reduction or disruption in production capacity	Based on the Global Water Tool, the Donges refinery has been identified as being in a water stressed area 100% of Donges' water supply is from municipal water utilities. In case of a very low seasonal water supply to local water utilities, the Donges refinery may experience water rationing, due to competition with local water users. Indeed, Total's water use locally competes with human uses of potable water. Local potable water costs are also high. Moreover, water discharges are operated in a water body with very sensitive ecosystems.	1-3 years

Magnitude of potential impact	Likelihood	Potential financial impact	Explanation of financial impact	Primary response to risk	Description of response	Cost of response	Explanation of cost of response
Low	Likely	10,000,000	The Donges refinery accounts for 10,5% of Total's global refined production. However, historical data show that production is marginally affected by water-related risks. Taking an extremely conservative approach (forecasting a partial site closure on the driest months of the year), the proportion of Total's refining production that could be affected can been estimated at 0.27% per year. The potential financial impact magnitude of 10M€ was calculated using the average revenue margin (ERMI).	Infrastructure maintenance	A study to identify potential alternative water supply (with residual water) is currently ongoing. The cost estimates have been derived from this study. Other response strategies include: engagement with stakeholders in the river basin, increased capital expenditure, promoting best practice and awareness and water management incentives. The response is therefore underway.	5 million euros	Investment costs in the range of 1-10 million euros could be necessary to rely on alternative water supply. The cost estimates have been derived from the site-specific water study. This is not significant at Group level but does represent a significant cost at site level, due to stringent operating margins.

(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?

Please complete the following table:

Primary reason	Please explain
Risks exist, but no substantive impact anticipated	Total operates along the entire oil and gas value chain, and therefore has integrated its raw material supply within its operational perimeter: therefore water-risks mainly occur in its direct operations and not in its value chain. The group activities' diversification has generated ties with new value chains (solar power, biofuels, batteries…) with inherent water issues. These are integrated in the group's risk strategy through value chain specific analysis (products' lifecycle analysis for instance). For instance, lifecycle analysis have been performed on solar panels manufacturing, polymers (leading to the development of polymers integrating recycled materials up to 50%). However, the related water risks (water footprint of solar panels for instance) are currently not anticipated to have a substantive impact over the Group as a whole.

Water-related opportunities

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

[x] Yes, we have identified opportunities, and some/all are being realized

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Please complete the following table.

Type of opportunity	Primary water-related opportunity	Company-specific description & strategy to realize opportunity	Estimated timeframe for realization	Magnitude of potential financial impact	Potential financial impact	Explanation of financial impact
Efficiency	Improved water efficiency in operations	As a major Oil & Gas company, Total has an opportunity to lead water research and set industry best practices in this field. R&D offers the opportunity of economic and environmental performance improvements, via reducing water risks, decreasing water costs and thus improving business resilience. In order to realize this opportunity, a comprehensive research program on water management (10M€ budget, about 20 full time researchers, worldwide collaborations with selected universities and consortia) has been developed at the Group level, to provide solutions to be implemented locally taking into account the technical, economic, environmental specificities and to provide a local content to the benefit of stakeholders. Support to and collaboration with innovative start-up companies is also part of the strategy to provide more efficient and cost effective solutions to respond to local expectations. Initiatives and collaborations with other oil companies are also part of the strategy, implemented to test new technologies under real conditions, share and exchange with peers facilitating progresses to both parties. Part of the research activity on water management is used to develop intellectual property and build a capability for differentiation.	> 6 years	Medium	0	The primary purpose of this research program is to improve industry's best practices on water management. Even though it could lead to water efficiency and savings, no direct financial impact is expected.

Type of opportunity	Primary water-related opportunity	Company-specific description & strategy to realize opportunity	Estimated timeframe for realization	Magnitude of potential financial impact	Potential financial impact	Explanation of financial impact
Efficiency	Improved water efficiency in operations	The improvement of water efficiency represents a significant opportunity of economic and environmental performance improvements for Total, via reducing water risks, decreasing water costs and thus improving business resilience. Total has implemented several tools to benefit from water cost savings, especially in its Refinery and Chemicals activities. Total's Refinery and Chemicals activities are the most water intensive (approximately 80% of the Group's total water withdrawal) and therefore concentrate most of the effort to improve water efficiency. This is achieved through several water optimization actions, such as the group-wide total water optimization guide and the development of the water reuse tool. Between 2013 and 2016, the Refining & Chemicals business segment partnered with Ondeo Industrial Solutions (Suez group) in the ambitious E4Water European project. Seven pilot research projects were conducted at Total's petrochemicals plant at the Normandy platform. A 1.2 million € budget was allocated to test three water treatment processes (wastewater from the site's water treatment plant, cooling water and cooling blowdown). Pertinent technologies were identified to reduce pollutants and water consumption.	> 6 years	High	1,000,000	The order of magnitude of potential savings due to lower water-related OPEX is 1 million € / year.

Type of opportunity	Primary water-related opportunity	Company-specific description & strategy to realize opportunity	Estimated timeframe for realization	Magnitude of potential financial impact	Potential financial impact	Explanation of financial impact
Markets	Stronger competitive advantage	As Total evolves in very competitive markets, differentiating its products with an optimized environmental performance is a clear business opportunity for Total. Therefore, Total regularly performs new products' lifecycle assessments over several environmental indicators including water, which ensures these products and their supply chain resilience. The optimized water footprint of Total's solar devices provides these products with a competitive advantage in a very competitive market. In the MS segment, Total has developed its offering of environmentally optimized products. Indeed, the "Total Ecosolutions" internal label only features on products for which a life-cycle analysis has demonstrated a reduced environmental impact (including water use reduction) compared to market standards. As another case study of this integration, in the Gas and Renewable Power (GRP) segment several solar panel models are "cradle to cradle" certified. the Cradle to Cradle Certified Products Program is a comprehensive product quality standard that evaluates product design, manufacturing and sourcing practices as well as corporate citizenship and ethics principles. This certification provides a comparative advantage to these panels and includes an assessment of products' water footprint. As an indication of the financial implications of this opportunity, the GRP related revenues were 2.5 billion USD in 2016.	> 6 years	Medium-high	4,000,000	Should the water efficiency parameter allow an increase of the GRP segment profits by 1%, the order of magnitude of the impact would be 4 million euros.

Type of opportunity	Primary water-related opportunity	Company-specific description & strategy to realize opportunity	Estimated timeframe for realization	Magnitude of potential financial impact	Potential financial impact	Explanation of financial impact
Efficiency	Improved water efficiency in operations	The exploration of water reuse opportunities in Total's most consuming sites is done across all relevant business segments. In 2018 for instance, the reuse of water will be investigated in one site producing photovoltaic panels. In the MS segment, Total explores the development of water recycling from car wash at petrol stations, in order to optimize its water efficiency, and ensure business continuity in case of droughts. In some regions, car dry washing solutions is also considered to adapt to local water stress conditions. A study to obtain a complete mapping and evaluation of opportunities for beneficial water reuse was started at the end of 2016 (KERDOS).	> 6 years	Medium	1,000,000	The order of magnitude of potential savings due to lower water-related OPEX is 1 million € / year.
Markets	Improved community relations	Acceptability is a key aspect of Total's projects, especially in the EP and RC segments. Total's ambition in this respect is to generate a net positive water impact is being generated for local communities where possible, hence lowering the risk of local stakeholders' conflicts. Yemen is a case study, as Total provides 300-1,000 m^3 of freshwater/day to local communities. More broadly, Total is committed to be the sustainable energy major, including water resources management at a local level.	Current - up to 1 year	Medium	0	No direct financial benefit is expected from this type of opportunity.
Markets	Stronger competitive advantage	The risks associated with water management are anticipated through the Long-Term Plan (LTP), which is a prospective exercise undertaken annually. It includes water production/injection/discharge analysis over the next 10 years. It analyses the CAPEX risks associated with water management, notably taking into account potential changes in the regulatory contexts to which the Group is exposed. From an investor's point of view, this prospective approach provides a competitive advantage to the company in terms of risk management.	> 6 years	High	15,000,000	Due to a better water-related risks anticipation, it can be estimated that the LTP prevents the quantifed water-related risks. This provides an order of magnitude for avoided negative financial impacts of approximately 15 million euros.

W5 Facility-level water accounting

Facility-level water accounting

(W5.1) For each facility referenced in W4.1c, provide coordinates, total water accounting data and comparisons with the previous reporting year.

Please complete the following table.

Facility reference number	Facility name (optional)	Country	River basin	Latitude	Longitude	Oil & Gas sector business division
Facility 1	Grandpuits refinery	France	Seine	48°35'20'' North	2°56'51'' East	Downstream

Total water withdrawals (megaliters/year) at this facility	Comparison of withdrawals with previous reporting year	Total water discharges (megaliters/year) at this facility	Comparison of discharges with previous reporting year	Total water consumption (megaliters/year) at this facility	Comparison of consumption with previous reporting year	Please explain
2,511	About the same	1,420	Lower	1,091	Higher	Grandpuits' water data are in line with the previous year due to a comparable level of activity. Discharge to fresh surface water has been lower, which implies a higher water consumption.

Facility reference number	Facility name (optional)	Country	River basin	Latitude	Longitude	Oil & Gas sector business division
Facility 2	Donges refinery	France	Loire	47°18'44'' North	2°04'14'' West	Downstream

Total water withdrawals (megaliters/year) at this facility	Comparison of withdrawals with previous reporting year	Total water discharges (megaliters/year) at this facility	Comparison of discharges with previous reporting year	Total water consumption (megaliters/year) at this facility	Comparison of consumption with previous reporting year	Please explain
4,066	About the same	2,993	About the same	1,073	Higher	Donges' water data are in line with the previous year due to a comparable level of activity. Municipal water withdrawal has been higher, which implies a higher water consumption.

(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.

Please complete the following table.

Facility reference number	Facility name	Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Brackish surface water/seawater
Facility 1	Grandpuits refinery	317	0

Groundwater (renewable)	Groundwater (non-renewable)	Produced water	Third party sources	Comment
1,913	0	0	281	The Grandpuits refinery primarily relies on the Champigny groundwater and has increased its capacity to harvest rainwater.

Facility reference number	Facility name	Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Brackish surface water/seawater
Facility 2	Donges refinery	0	0

Groundwater (renewable)	Groundwater (non-renewable)	Produced water	Third party sources	Comment
0	0	0	4,066	The Donges refinery only relies on municipal water for its water supply.

(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

Please complete the following table.

Facility reference number	Facility name	Fresh surface water	Brackish surface water/Seawater	Groundwater	Third party destinations	Comment
Facility 1	Grandpuits refinery	1,420	0	0	0	The Grandpuits refinery discharges all of its water to surface freshwater.
Facility 2	Donges refinery	2,993	0	0	0	The Donges refinery discharges all of its water to surface freshwater.

(W5.1c) For each facility referenced in W5.1, provide the volume and proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.

Facility reference number	Facility name	Volume recycled or reused (megaliters/year)	% recycled or reused	Comparison with previous reporting year	Please explain
Facility 1	Grandpuits refinery	463	11-25%	About the same	In line with CDP's approach, recycled water at the Grandpuits refinery encompasses water and wastewater (treated or untreated) that has been used more than once, in order to reduce water withdrawals. This applies only to freshwater. Grandpuits's water recycling capacity has been recently increased in order to reduce local water risks.
Facility 2	Donges refinery	0	None	About the same	No water recycling/reuse opportunity has been identified and implemented yet at the Donges refinery.

(W5.1d) For the facilities referenced in W5.1, what proportion of water accounting data has been externally verified?

Response options

Water aspect	% verified	What standard and methodology was used?
Water withdrawals – total volumes	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water withdrawals – volume by source	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water withdrawals – quality	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.

Water aspect	% verified	What standard and methodology was used?
Water discharges – total volumes	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water discharges – volume by destination	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water discharges – volume by treatment method	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water discharge quality – quality by standard effluent parameters	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water discharge quality – temperature	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.
Water consumption – total volume	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.

Water aspect	% verified	What standard and methodology was used?
Water recycled/reused	76-100	Total's environmental data are externally audited annually as part of its CSR data audit process. This audit is standardized by the French "Grenelle 2" law and is realised by accredited auditors only. Data are checked from the highest level of consolidation, down to the lowest at site level. Yearly variations are particularly analysed and justifications are challenged to detect any data mistake. Concerning field-level verification, data are validated based on a representative sample of sites.

W6 Governance

Water policy

(W6.1) Does your organization have a water policy?

[x] Yes, we have a documented water policy that is publicly available

(W6.1a) Select the options that best describe the scope and content of your water policy.

Please complete the following table.

Scope	Content	Please explain
Company-wide	• Description of business dependency on water • Description of business impact on water • Description of water-related performance standards for direct operations • Description of water-related standards for procurement • Reference to international standards and widely-recognized water initiatives • Company water targets and goals • Commitment to align with public policy initiatives, such as the SDGs • Commitments beyond regulatory compliance • Commitment to water-related innovation • Commitment to stakeholder awareness and education • Acknowledgement of the human right to water and sanitation • Recognition of environmental linkages, for example, due to climate change	Total's water policy and performance across the entire Group are part of its annual disclosure. It is publicly available in its Registration Document which covers the entire scope of its activities. Water management is part of the Group's environmental framework, which incorporates following core principles for action: identification of priority sites, global risk management and impacts on water resources in the EMS, monitoring and integration of changes. In addition to the water indicators monitored internally, Total's policy sets publicly disclosed performance standards and targets beyond compliance with local regulations, with strict targets on the hydrocarbon content of its water discharge. Total's water policy is a central aspect of the company's EHS policy. The Group's R&D roadmap has a specific focus on optimizing water management, based on Total business's water dependency, and identifying the technologies to meet production targets.

Board oversight

(W6.2) Is there board level oversight of water-related issues within your organization?

[x] Yes

(W6.2a) Identify the position(s) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Chief Executive Officer (CEO)	The head of People and Social Responsibility (PSR) at Total is part of the company's board and is responsible for HSE considerations at board level. As such, this individual oversees environmental (including water) related activities across the year and gathers the necessary expertise to support those topics at board level. This position is thus the best interface between operations and board level. In addition, during the HSE annual performance review, the CEO checks particularly the environmental stakes relating to water and is ultimately responsible for managing the Group's environmental performance, which includes water-related issues.

(W6.2b) Provide further details on the board's oversight of water-related issues.

Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Scheduled - some meetings	• Monitoring implementation and performance • Overseeing acquisitions and divestiture • Overseeing major capital expenditures • Reviewing and guiding annual budgets • Reviewing and guiding business plans • Reviewing and guiding major plans of action • Reviewing and guiding risk management policies • Reviewing and guiding strategy • Reviewing and guiding corporate responsibility strategy • Reviewing innovation/R&D priorities • Setting performance objectives	The Board accounts for water related issues in the definition of Total's strategy in several ways. First, water issues are part of Total's constant dialogue with its stakeholders: Total's reference document, which includes an environmental performance review, is signed by the CEO and therefore discussed annually at board level. This performance (including indicators such as water withdrawals or water discharge hydrocarbon contents) is also discussed at the Annual General Meeting with shareholders, which is also discussed at board level. The publicly disclosed objectives such as the water discharge standards are therefore discussed and supported at board level. The head of PSR ensures that water issues are constantly taken into consideration during strategic discussion: water risks analysis and results are discussed at board level, as appropriate. Relevant water topics are also brought to the board's attention by Total's branches (EP, RC, MS and GRP) representatives when relevant for their activities. Significant CAPEX decisions related to water are for instance part of board's discussion (Water reuse expenditures for RC sites, new effluent filters expenditures, R&D programs etc.). The integration of water related issues also relies on the CORISK approach, whereby any significant modification to Total's operational perimeter is presented and analysed by the risk committee, including all HSE risks. This analysis is then presented to the executive committee (COMEX).

Management responsibility

(W6.3) Below board level, provide the highest-level management position(s) or committee(s) with responsibility for water-related issues.

Please complete the following table.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on water-related issues	Please explain
Chief Sustainability Officer (CSO)	Both assessing and managing water-related risks and opportunities	Quarterly	At Group level, water-related issues are managed by the head of the HSE committee. The head of People and Social Responsibility (PSR) at Total is responsible for HSE considerations at executive committee level. As such, this individual oversees environmental (including water) related activities across the year and gathers the necessary expertise to support those topics at board level. This position is thus the best interface between operations and board level. The Head of PSR is Total's CSO. As to Total's operations, these issues are managed at branch level by the HSE manager of each branch (4 individuals) who cover a wide range of water-related topics: water risks assessment and management, financial implications (CAPEX) for water management improvement, reporting issues around water, regulatory matters at local level etc. All of these issues are managed at branch level, and then taken to the performance committee level. Performance committee occurs quarterly.

Employee incentives

The questions in this section are presented to high-impact sectors only and will not be displayed here unless you opted to view sector-specific questions.

W-OG6.4 Do you provide incentives to C-suite employees or board members for the management of water-related issues?

Response options

[x] Yes

(W-FB6.4a/W-CH6.4a/W-EU6.4a/W-OG6.4a/W-MM6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues?

Type of incentives	Who is entitled to benefit from these incentives?	Indicator for incentivized performance	Please explain
Monetary reward	Chief Executive Officer (CEO)	Effluent quality improvements	As specified in Total's 2017 Registration document, a share of its CEO's variable remuneration is allocated based on the company's CSR performance. In 2017, this share was 25% of the personal contribution element of its variable remuneration. Environmental issues are part of this performance, especially climate-related, but also covers some water aspects. The company's commitment to water effluents quality standards (publicly disclosed targets) are part of this overall assessment.

Public policy engagement

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

[x] Yes, direct engagement with policy makers
[x] Yes, trade associations
[x] Yes, funding research organizations
[ ] Other

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

Total has adopted a lobbying ethics charter that is published on its website (www.total.com). It governs Total's practices and ensures that our publicly stated positions are consistent with those conveyed through our lobbying, either directly or indirectly, through professional organizations or associations. The consensus required by these organizations does not always reflect our position. In such cases, Total believes that it is preferable to promote its ideas from within by working to convince its peers of to adopt its position, rather than leave the discussions. Total's participation in these organizations, beneficial in many ways including sharing of best practices, does not prevent us from publicly defending our positions, even when they differ from those of the organizations to which Total belongs. In the event of a difference, Total's position prevails. Mindful of the need to be fully transparent on Environment-related issues, Total is committed to publishing a list of all of the professional organizations and associations of which Total is a member.

The Environment steering committee is a cross-functional committee, under the responsibility of the Director of Environment and Societal Expertise division and which includes representatives of diverse divisions such as HSE, Legal, R&D, External Commitments and Strategy & Climate. The Environment steering committee is Total's main tool to ensure that activities that influence policy are consistent with our overall strategy.

W7 Business strategy

Strategic plan

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

Please complete the following table:

Aspect of strategic business plan	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	21-30	As part of its Long-Term Plan exercise, Total does anticipate significant risks and opportunities factors, including those water-related, usually over a time horizon of 10 years. This time horizon is relevant to Total due to the rapidly changing context it evolved in. The water risks considered include local water stress conditions, water-pollution related risks such as regulatory risks, physical risks associated with resilience… On a longer-term perspective (typically 25 to 30 years), installation designs are defined to integrate any stress related to water issues, whether these stresses pertain to CAPEX or OPEX. These issues are thus integrated into CAPEX decision making (such as the Djeno significant CAPEX use), assets investment or divesture etc. and therefore into long-term business objectives.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	21-30	As part of its Long-Term Plan exercise, Total does anticipate significant risks and opportunities factors, including those water-related, usually over a time horizon of 10 years. This time horizon is relevant to Total due to the rapidly changing context it evolved in. The water risks considered include local water stress conditions, water-pollution related risks such as regulatory risks, physical risks associated with resilience… On a longer-term perspective (typically 25 to 30 years), installation designs are defined to integrate any stress related to water issues, whether these stresses pertain to CAPEX or OPEX. These issues are integrated into CAPEX decision making (such as the Djeno significant CAPEX use), assets investment or divesture etc. and therefore into long-term business objectives.

Aspect of strategic business plan	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Financial planning	Yes, water-related issues are integrated	21-30	As part of its Long-Term Plan exercise, Total does anticipate significant risks and opportunities factors, including those water-related, usually over a time horizon of 10 years. This time horizon is relevant to Total due to the rapidly changing context it evolved in. The water risks considered include local water stress conditions, water-pollution related risks such as regulatory risks, physical risks associated with resilience… On a longer-term perspective (typically 25 to 30 years), installation designs are defined to integrate any stress related to water issues, whether these stresses pertain to CAPEX or OPEX. These issues are integrated into CAPEX decision making (such as the Djeno significant CAPEX use), assets investment or divesture etc. and therefore into long-term business objectives.

Capex/Opex

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Water-related CAPEX (+/- % change)	Anticipated forward trend for CAPEX (+/- % change)	Water-related OPEX (+/- % change)	Anticipated forward trend for OPEX (+/- % change)	Please explain
0	0	0	0	Total's water withdrawal from third party sources has slightly decreased in 2017 and therefore the water-related OPEX are considered stable (no group-wide water-related opex data for 2017). No significant increase is forecasted for 2018. Based on Total's site-specific tracking of CAPEX, it can be estimated that the water related yearly CAPEX has been stable % in the RC segment (10.49 USD million in 2017 vs 10.5 in 2016). This is mainly due to CAPEX investments related to the Water Framework Directive . There is no particular Water-related CAPEX increase anticipated for 2018 : the group's Long Term Plan does not foresee any major additional investment in this field.

W7.3 Scenario analysis

(W7.3) Does your organization use climate-related scenario analysis to inform its business strategy?

Please complete the following table:

Use of climate-related scenario analysis	Comment
Yes	The Group's strategy incorporates the challenges of climate change and adopts the International Energy Agency's (IEA) Sustainable Development Scenario (2°), which is compatible with limiting global warming to 2°C, as its reference framework. This climate scenario analysis is particularly relevant for activities in the oil value chain, where decreasing production volumes are anticipated.

(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?

[x] Yes

(W7.3b) What water-related outcomes were identified from the use of climate-related scenario analysis, and what was your organization's response?

Please complete the following table:

Climate-related scenario(s)	Description of possible water-related outcomes	Company response to possible water-related outcomes
2DS	The transition towards a low-carbon economy will have impacts on the demand for the different sources of energy, including fossil-fuel products. The evolution of Total's activities to take this fact into account may affect its impact and dependency on water resources.	As part of its adaptation to a low carbon future, the company has engaged into new activities with new water-related implications, such as the production of biofuels (with potentially high upstream water impacts). This is also applicable to solar power activities.

Water pricing

(W7.4) Does your company use an internal price on water?

Does your company use an internal price on water?	Please explain
No, but we are currently exploring water valuation practices	As part of its ongoing work on natural risks identification, Total is undergoing natural capital valuation studies, which involves pricing water resources based on local scarcity parameters.

W8 Targets

Targets and goals

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

Please complete the following table:

Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
• Company-wide targets and goals • Activity level specific targets and/or goals • Site/facility specific targets and/or goals	• Targets are monitored at the corporate level • Goals are monitored at the corporate level	Total's water-related ambitions are organized around 3 pillars, as defined in the group's HSE chart: protect water resources, protect humid zones and setting water-related performance targets. Targets, especially on water discharge hydrocarbon contents, are reported at group level but are applicable and implemented at site level. Those objectives are declined for specific activities based on local conditions, such as hydrocarbon contents for refineries located in coastal areas. Moreover, the Group has committed to systematically developing biodiversity action plans for production sites located in protected areas (IUCN I to IV or Ramsar convention protected areas). Hence a significant focus on protected wetlands. Those objectives are defined based on the nature of Total's activities and the materiality of those different parameters. Targets are validated by the COMEX, in order to ensure the company's alignment with the industry's best practices.

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Please complete the following table.

Target reference number	Category of target	Level	Primary motivation	Description of target	Quantitative metric
Target 1	Water pollution reduction	Company-wide	Risk mitigation	Total aims at maintaining the average hydrocarbon content of its water discharges below 30 mg/l for 100% of its offshore sites. This target is thus company-wide, and ensure a significant reduction of water-related risks exposure (water pollution risks).	% reduction in concentration of pollutants

Baseline year	Start year	Target year	% achieved	Please explain
2010	2010	2020	100%	The hydrocarbon content in water discharged has remained below the target threshold at 100% of onshore sites in 2017 (average 2.4 mg/l in 2017).

Target reference number	Category of target	Level	Primary motivation	Description of target	Quantitative metric
Target 2	Water pollution reduction	Company-wide	Risk mitigation	Total aims at maintaining the average hydrocarbon content of its water discharges below 15 mg/l for 100% of its onshore and coastal sites. This target is thus company-wide,and ensure a significant reduction of water-related risks exposure (water pollution risks).	% reduction in concentration of pollutants

Baseline year	Start year	Target year	% achieved	Please explain
2010	2010	2020	100%	The hydrocarbon content in water discharged has remained below the target threshold at 100% of offshore sites in 2017 (average 17.7 mg/l in 2017).

Target reference number	Category of target	Level	Primary motivation	Description of target	Quantitative metric
Target 3	Watershed remediation and habitat restoration, ecosystem preservation	Company-wide	Risk mitigation	The Group has committed to systematically developing biodiversity action plans for production sites located in protected areas (IUCN I to IV or Ramsar convention protected areas). This includes aquatic ecosystems. This target is thus company-wide and ensure a significant reduction of water-related risks exposure (water pollution risks).	Other: Watershed remediation and habitat restoration, ecosystem preservation

Baseline year	Start year	Target year	% achieved	Please explain
2010	2010	2020	100%	Total conducts sensitivity and impact analyses for the development of all its projects. A biodiversity action plan is developed for operated production sites located in the most sensitive protected areas, corresponding to the UICN I to IV or Ramsar categories. This target has been completed for 100% of relevant sites.

(W8.1b) Provide details of your corporate water goal(s) that are monitored at the corporate level and the progress made.

Goal	Level	Motivation	Description of goal	Baseline year	Start year	End year	Progress
Engagement with public policy makers to advance sustainable water policies and management	Company-wide	Water stewardship	Total adopted this goal part of its commitment to be proactive on its management of natural resources, in line with its aim to become the responsible energy major. It is a group-level commitment as all of Total's activities are relevant for this goal. Success is measured through the participation and completion of collaborative initiative on this topic. Total engages with public policy makers in order to ensure the alignment of its activities with current and future expectations from them. These objectives were set in 2012 at corporate as part of the HSE chart and are part of a continuous effort (no end year), and therefore apply to the entire group. The Group participations in initiatives are defined at group level, hence the level of implementation.	2012	2012	2020	The progress towards this goal is measured through the initiatives Total participates in. Seven pilot research projects were conducted at Total's petrochemicals plant at the Normandy platform. A 1.2 million € budget was allocated to test three water treatment processes (wastewater from the site's water treatment plant, cooling water and cooling blowdown). Pertinent technologies were identified to reduce pollutants and water consumption. These technologies could be installed, where necessary, to reduce the water footprint of facilities. Moreover, this goal has been achieved through the participation in the European Commission Initiative E4Water between 2013 and 2016. The analysis conducted by E4Water has allowed the identification of significant water reuse opportunities, which could allow a maximum of 40% consumption reduction for the pilot site.
Other: Constant monitoring of sites' exposure	Company-wide	Risk mitigation	Total has the internal goal to constantly monitor its exposure to water risk and to assess its water performance, through the assessment of its global activities, and a specific focus on sites identified as priorities. This is to ensure the resilience of its business model. These assessments are made on an annual basis, through the collaboration of several members of the environmental department. This goal is therefore implemented at corporate level, which is the most appropriate level to analyse and hierarchise sites exposed to water stress. These objectives were set in 2012 at corporate as part of the HSE chart and are part of a continuous effort (no end year) and therefore apply to the entire group. The Group reporting and indicators are managed at group level, hence the level of implementation.	2012	2012	2020	The progress towards this goal is measured through the number of site assessed. In 2017, Total achieved its internal goal by constantly monitoring water performance. Consequently, the results were disclosed publicly in 2018, and were included in the Local Water Tool program, to adapt to Total's portfolio evolution. Total has planned the extension of its sites assessments through the Local Water Tool, which has occured in 2017. Seventeen more sites have been identified as relevant for the assessment and will be gradually assessed in 2018-2019.

W9 Linkages and tradeoffs

Managing linkages and tradeoffs

(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?

[x] Yes

(W9.1a) Describe the linkages or trade-offs and the related management policy or action.

Please complete the following table.

Linkage/trade-off	Type of linkage/trade-off	Description of linkage/trade-off	Policy or action
Linkage	Decreased GHG emissions	The integration of hydropower as a source of low carbon electricity represents a clear linkage between water and climate change management.	Total's policy (group's environmental charter) aims at managing its natural resources uses (including specifically water) and its impacts on these. Hydropower generates very limited GHG emissions to produce electricity and constitute the only form of electricity storage on a large scale. Its integration in Total's electricity supply, where available, allows a reduction of the GHG emissions associated with its electricity consumption (scope 2). For instance, in the EP segment, the new Martin Linge field in Norway is 100% powered by electricity coming from hydropower and thus have no associated scope 1 and 2 greenhouse gases emissions. The exposure to this linkage (measured through hydropower use in operations) has remained stable in the reporting year.
Tradeoff	Increased wastewater treatment	Certain activities related to water management generate volatile organic compounds (VOCs) emissions, especially water treatment. Within the EP activities, the water reinjection process requires the consumption of gas and energy, thus directly or indirectly generating greenhouse gases emissions.	The analysis of water treatment processes (conducted at the Gonfreville site using Total's water reuse tool) has highlighted a potential impact transfers between a reduced water footprint opportunity and higher GHG footprint. Total manages this potential trade-off by conducting multi-criteria analysis of these technologies (including both water, GHG and VOCs emissions) in order to have a holistic approach to these problematics. The exposure to this trade-off has remained stable in the reporting year.

Linkage/trade-off	Type of linkage/trade-off	Description of linkage/trade-off	Policy or action
Linkage	Increased biodiversity	Total's water management has a direct impact on local aquatic ecosystems. The responsible management of surrounding water sources and the constant monitoring of Total's effluents is key to the preservation of local biodiversity on both offshore and onshore projects.	Total manages this linkage by constantly monitoring the quality of its water discharge, in order to minimize its impact on local biodiversity. For instance, the water treatment project implemented at the Djeno plant in 2016 allows an optimized impact on local ecosystems (notably local fish stocks, and other marine biodiversity). With regard to marine biodiversity, the Total Foundation funds research programs undertaken to improve knowledge about marine species and ecosystems and challenges related to their protection and enhancement. For the 54 projects supported in 2016, the Foundation ensures the sharing of knowledge through awareness and education campaigns. Moreover, Total runs a unique set of riverine aquatic mesocosms dedicated to testing products' potential impacts on aquatic ecosystems. This installation is quite unique in the world. The exposure to this linkage has remained stable in the reporting year.

W10 Verification

Verification of water information

(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?

[x] Yes

(W10.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Please complete the following table.

Disclosure module	Data verified	Verification standard	Please explain
W8 Targets	ISO 14001 certification of operated sites	ISAE3000	Total's environmental and CSR data are externally verified by EY, as part of the regulatory CSR data audit process in France. This encompasses water accounting data. As of 2017, In accordance with Article L. 225-102-4 of the French Commercial Code, Total's vigilance plan aims to set out the reasonable measures of vigilance put in place within the Group in order to identify the risks and prevent severe impacts on human rights and fundamental freedoms, human health and safety and the environment resulting from the activities of the Company. It is also externally verified. The ISO 14001 certifications obtained by Total sites are checked by third parties as part of standard audit processes.

W11 Signoff

Signoff

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

Response options

Please complete the following table:

Job title	Corresponding job category
Patrick POUYANNÉ - Chief Executive Officer	Board chair

Water Action Hub

(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

[x] Yes