CDP Water Security Questionnaire 2020(NEC) Excerpt version

W1. Current state

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	Less than 1%	Lower	WRI Aqueduct	The tool used for water risk assessment is WRI's Aqueduct. According to the evaluation by Aqueduct, it was found that the related facility of our company, which has a high flood risk, is the Thai factory. In 2011, the Thai factory suffered a large-scale flood in the area surrounding the factory. Since the water risk of this factory is flood, it is not directly related to the amount of water withdrawal, discharge, and consumption. The NEC Group is making efforts to reduce water consumption, and the efforts of this factory have reduced the total water withdrawals compared to last year.

W2. Business impacts

W2.2

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

No

W4. Risks and opportunities

W4.2

(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.

Country/Area & River basin

Japan

Other, please specify

river basins in Japan

Type of risk & Primary risk driver

Reputation & markets

Changes in consumer behavior

Primary potential impact

Disruption to sales

Company-specific description

NEC operates datacenters in Kobe, Nagoya, and other 16 locations throughout Japan. The datacenters provide “the cloud services” and “the housing services” to government organizations and companies, and are important facilities that operate numerous information systems. The operational continuity of datacenters is critically important for us to provide service to customers without disruption.

The sales of the Enterprise Business Unit including datacenter business is about 15% of the sales of entire NEC group.

Recently the frequency and severity of water-related natural disasters in Japan has been increased. In 2019, a typhoon with record-breaking rainfall caused landfall in a wide area of Japan. The rain caused blackouts, broken water mains, and other major damage to lifelines, and also caused rivers to flood resulting in widespread devastation. The number of disasters may rise due to abnormal weather caused by climate change, which presents potential risk to continuous operation of datacenters.

Timeframe

1-3 years

Magnitude of potential impact

Medium

Likelihood

Likely

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

15,000,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

If climate change produces a water-related disaster of unprecedented scale that disrupts power supply to datacenters, this could damage the reputation of NEC data centers recognized for its capability to provide safe and secure services. As a consequence, this could negatively affect assessments, reception of new orders, and customer retention, and ultimately cause sales to decline. If the current sales of the Enterprise Business Unit (455.5 billion yen/year) falls approximately 0.7 percent, that would result in a decrease in annual sales of 3 billion yen. If that continued for five years, we would lose 15 billion yen in sales.

The sales of the Enterprise Business Unit 455.5 billion yen/year　X　assumed impact 0.7% = 3 billion yen

The assumed annual impact 3 billion yen　X 5 years = 15 billion yen in total

Primary response to risk

Amend the Business Continuity Plan

Description of response

NEC datacenters are constructed in areas that are not susceptible to flooding and tsunamis to avoid water-related damage to facilities. We continue to further improve stable operation of our datacenters even under changing climate.

[Case Study]

Situations:

In recent years, Japan has suffered damage from the frequent occurrence of severe storms and floods. Local hazard maps are revised ever frequently.

Task:

Periodical reassessments of natural disaster impacts and appropriate countermeasures are needed.

Action:

We have obtained newest local hazard maps at all datacenters right after the maps are revised. The preparedness has been reassessed.

Result:

Since 2012, emergency power supply capacities have been improved at all datacenters. Datacenters in Nagoya and Kobe are equipped with the emergency power supplies to ensure at least 72 hours of power reserve so that the information systems can continue to operate even in the event of a power failure. Additionally, we have signed priority fuel supply contracts with fuel providers to receive priority access to fuel in times of emergency. Also, the emergency power generators at these datacenters can run by regular household kerosene, not by heavy oil.

We continue to reassess water-disaster tolerance of all datacenters to proactively react future climate change.

Cost of response

2,300,000,000

Explanation of cost of response

If we assume that a disaster of unprecedented scale will occur, and decide to increase our emergency power generator fuel reserve from 72 hours (3 days) to 120 hours (5 days), we would have to take measures including increasing fuel storage tanks, laying new piping, and purchasing more fuel. Implementing these changes at large data centers, such as those in Kanagawa and Kobe, would cost 900 million yen. At small data centers, the cost would be 100 million yen. Assuming that we implemented these changes at two major data centers and five small data centers, then the total cost would be 2.3 billion yen.

Cost at large datacenters (fuel storage, piping, and additional fuel) 900 million/yen　X　2 locations = 1.8 billion yen

Cost at small datacenters (fuel storage, piping, and additional fuel) 100 million/yen　X　5 locations = 0.5 billion yen

1.8 billion yen + 0.5 billion yen = 2.3 billion yen in total

W4.2a

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

Country/Area & River basin

Thailand

Chao Phraya

Stage of value chain

Supply chain

Type of risk & Primary risk driver

Physical

Flooding

Primary potential impact

Reduction or disruption in production capacity

Company-specific description

Our factory in Thailand was damaged by the 2011 floods in Thailand, as well as the plants of our major suppliers. As a result, it became impossible to procure electronic components such as hard disks required for manufacturing our products, which affected the production plan. We couldn't operate our own factory and couldn't procure parts from other companies, which reduced our production capacity and had a major impact on sales. In fiscal 2011, sales decreased by 20 billion yen and operating income decreased by 8 billion yen.

Timeframe

4-6 years

Magnitude of potential impact

Medium

Likelihood

About as likely as not

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

8,600,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

If we can't procure the parts used for electronic devices from our suppliers, we can't operate the factory during that time.

The 2011 floods in Thailand took about half a year for the surrounding factory areas to recover and operate.

Taking into account the impact at that time, assuming that NEC platform sales of ¥350.2 billion (for the year ending March 31, 2020) will decrease by 2.4%, it will result in a loss of approximately ¥8.6 billion.

Primary response to risk

Upstream

Map supplier water risk

Description of response

By using the flood simulation system developed by NEC based on the lessons learned from past floods, it is possible to grasp the risk areas of floods by

simulation using past rainfall data, which is effective for creating hazard maps. In addition, since simulations can be performed every hour for up to 7 days ahead, it is possible to contribute to mitigating damage by issuing warnings to dangerous areas before a flood occurs.

In fact, we conducted a demonstration experiment to predict the inundation area by utilizing the flood simulation system in Uttaradit Province in northern Thailand from 2015 to 2016.

Cost of response

10,000,000

Explanation of cost of response

This flood simulation system has already been introduced. As a local personnel cost for updating the data of this system, 10 million yen (5 personnel x 2 million yen/person) is estimated.

In addition, since the floors have been raised and the equipment has been moved to the second floor in the past floods, physical measures have already been implemented, so they are not included in this cost.

W8. Targets

W8.1

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

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at	NEC group set a company-wide target to reduce water use and water pollution in order to reduce environmental impact to the most minimal level possible.We have data centers that uses a lot of water, so a sufficient amount and quality of water are essential for business continuity. The sales of the Enterprise Business Unit including

	Site/facility specific targets and/or goals	the corporate level	datacenter business is about 15% of the sales of entire NEC group. That is why we have water goals. For water usage reduction, we have set a goal of reducing the water usage reduction rate by 0.5% from the previous year. Regarding water pollution prevention, we have set a goal of reducing COD(Chemical Oxygen Demand) and BOD (Biochemical oxygen demand) by 1% or more compared to FY2012. In areas with high water risks, physical measures such as raising the floor for floods and creating BCP have already been implemented.

W8.1a

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

Target reference number

Target 1

Category of target

Water withdrawals

Level

Company-wide

Primary motivation

Reduced environmental impact

Description of target

Reduction of water usage (city water, industrial water, and ground water) by 1% or more from the level in fiscal 2012.

This target is applied to company-level.

Quantitative metric

% reduction in total water withdrawals

Baseline year

2012

Start year

2013

Target year

2020

% of target achieved

100

Please explain

We set a target to reduce water use (withdrawals) in order to reduce environmental impact to the most minimal level possible.

The corporate level target of the NEC Group is set at "Reducing gross water withdrawals by 1 percent or more compared with the fiscal 2012 level," and activities are being implemented at each facility.

NEC Group has achieved the target significantly.

Target reference number

Target 2

Category of target

Water pollution reduction

Level

Company-wide

Primary motivation

Reduced environmental impact

Description of target

Reduction of BOD and COD emissions by 1% or more from the level in fiscal 2012.

This target is applied to company-level.

Quantitative metric

Other, please specify

Reduction of BOD and COD emissions

Baseline year

2012

Start year

2013

Target year

2020

% of target achieved

100

Please explain

We set a target to reduce BOD and COD emissions in order to reduce environmental impact to the most minimal level possible.

The company-wide target of the NEC Group is set at "Reducing BOD and COD emissions by 1 percent or more compared with the fiscal 2012 level," and activities are being implemented at each facility.

NEC Group has achieved the target significantly.

W8.1b

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

Goal

Improve wastewater quality beyond compliance requirements

Level

Company-wide

Motivation

Risk mitigation

Description of goal

Most NEC facilities in Japan set voluntary standard values for water discharges that are stricter than the standard value set by the national or local governments.

This goal is important to NEC because if discharge that exceeds discharge standards continues for a length of time, it will be necessary to stop discharge, report to authorities, find the cause, and take countermeasures, which would lead to stoppage of production lines and operation.

This goal is applied to the company-level. In order to achieve this goal, each facility is assigned an engineer with factory control qualifications, there is a budget for maintaining the quality of discharges, and human resources are also being added.

Baseline year

2002

Start year

2003

End year

2019

Progress

The indicators used for progress are the BOD and COD density in discharge water. The threshold of success is reducing BOD or COD in discharge by 1 percent or more compared with the fiscal 2002 level, and in fiscal 2019 we achieved the goal.

Since fiscal 2003, we have been able to continuously achieve every year our goal of reducing BOD and COD emissions by 1 percent or more compared with the fiscal 2002 level.