

CERTIFICATION REPORT

Alliance for Water Stewardship (AWS)

Audit Number: AO-000756

SITE DETAILS

Site: **Samsung Electronics - Gwangju Multisite**

Address: 100, 107 Hanamsandan 6beon-ro, Gwangsan-gu, 62218, Gwangju-si, KOREA, REPUBLIC OF

Contact Person: Hyosun Choi

AWS Group Reference Number: AWS-G-000016

Site Structure: Multi Site

CERTIFICATION DETAILS

Certification status: Certified Platinum

Date of certification decision: 2024-Jan-18

Validity of certificate: 2027-Jan-18

AUDIT DETAILS

Audited Service(s): AWS Standard v2.0 (2019)

Audit Type(s): Initial Audit

Audit Start Date: 2023-Oct-02

Lead Auditor: Amit Singh

Audit team participants:

Sa-Meong Gim

Site Participants:

Sung-Woo Kim, Other

Hyo-Sun Choi, Other

Sung-Jim Leo, Other

Dong Woom Kim, Other

Young-Seok Yu, Other

Min-Gi Seo, Other

Jeong-Yeop Kim, Other

Min Su Jung, Other

Yong Gyu OH, Other

Kwang Cheol Han, Other

Hyok Joon Chong, Other

Yeun Hee Kim, Consultant

Jieon Lee, Consultant

You Jee Seo, Consultant

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ASSIGNED SITE(S):

Name	Address	Contact name	AWS reference
Samsung Electronics - Gwangju	100, 107 Hanamsandan 6beon-ro, Gwangsan-gu, Gwangju, 62218, Gwangju-si, KOREA, REPUBLIC OF	Hyosun Choi	AWS-000616
Samsung Electronics - Gwangju, 70 Amkor-ro	70 Amkor-ro, Buk-gu, Gwangju, 61010, Gwangju-si, KOREA, REPUBLIC OF	Hyosun Choi	AWS-000629

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ADDITIONAL INFO

Summary of Audit Findings: A total of 19 findings were raised during the certification audit, 2 major non-conformities, 8 minor non-conformities and 9 observations. The major non-conformities were of sufficient concern to warrant the categorisation of the non-conformity as major.

The Client is requested to perform a root cause analysis and define corrective actions for each of the non-conformities and to submit these to WSAS within 30 days of receipt of the audit report by 14/01/2024.

The major non-conformities must be sufficiently addressed and evidence submitted to WSAS within 90 days of receipt of the report by 14/03/2024.

Minor non-conformities must be closed out by the time of the next annual audit.

The audit team recommends certification of Gwangju Multisite at Platinum level pending approval of the corrective actions plan and closure of the major non-conformities.

CLOSURE OF FINDINGS AND CORRECTIVE ACTION PLAN:

The Client has successfully resolved the major non-conformity and submitted the corrective action plan addressing all findings.

Proof of implementation has been requested for the Minors and this will be evaluated during the Surveillance Audit. The client is requested to upload evidence of implementation prior to the Surveillance Audit.

Scope of Assessment: The scope of services covers the Initial certification audit for assessing conformity of Samsung Electronics - Gwangju Multisite (Hanam site and Chumdan site) against the AWS International Water Stewardship Standard Version 2.

Samsung Electronics Gwangju multisite refers to the manufacturing operations setup at two locations - Gwangju Campus 1 and 2 are located at 107 Hanamsandan 6beon-ro, Gwangsan-gu, Gwangju City, and Gwangju Campus 3 is located at 70 Amco-ro, Buk-gu, Gwangju City. The plants are situated in the downstream area of the Yeongsan River basin. Gwangju multisite operations are involved in the manufacturing of digital home appliances such as refrigerators, air conditioners, compressors, vacuum cleaners, air purifiers and washing machines. The tap water is sourced from the Juam Dam within the Seomjin River basin and is supplied to the site after treatment from the Deoknam Water Purification Plant. Wastewater generated from the site operations is treated at on-site wastewater treatment plants and then sent to the Gwangju 1 Wastewater Treatment Plant (Campus 3) and the Gwangju 2 Wastewater Treatment Plant (Campus 1 & 2) which are public sewage treatment facilities. The treated wastewater is then discharged into the Yeongsan River.

The audit was conducted onsite on 02/10/2023 to 06/10/2023.

The onsite site visit included the assessment of the onsite facilities such as water intake points, water treatment plant, wastewater treatment plant, storm water check points, utilities, etc. that were visited onsite as part of the audit.

SCORE

109.00

FINDINGS

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Audit Number: AO-000756

NUMBER OF FINDINGS PER LEVEL

Observation	9
Minor	8
Major	2

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FINDING DETAILS

Finding No:	TNR-007464
Checklist Item No:	1.1.1
Status:	In Progress - CA plan approved
Finding level:	Minor
Due date:	2024-Oct-01
Checklist item:	The physical scope of the site shall be mapped, considering the regulatory landscape and zone of stakeholder interests, including: <ul style="list-style-type: none">- Site boundaries;- Water-related infrastructure, including piping network, owned or managed by the site or its parent organization;- Any water sources providing water to the site that are owned or managed by the site or its parent organization;- Water service provider (if applicable) and its ultimate water source;- Discharge points and waste water service provider (if applicable) and ultimate receiving water body or bodies;- Catchment(s) that the site affect(s) and is reliant upon for water.
Findings:	The site has selected Gwangju city as the physical scope. The physical scope of the site needs to be defined considering the water supply, ultimate receiving water body, risks and stakeholder engagement.
Corrective action:	<ul style="list-style-type: none">- We will recalculate the physical scope by considering the water supply, ultimate receiving water body, risks, and stakeholders. <p>[Preventive Action]</p> <ul style="list-style-type: none">- We will continue to update the scope of the impact as we check for changes to water supplies and the ultimate receiving water body.

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Finding No:	TNR-008244
Checklist Item No:	1.2.1
Status:	Open
Finding level:	Observation
Checklist item:	Stakeholders and their water-related challenges shall be identified. The process used for stakeholder identification shall be identified. This process shall: <ul style="list-style-type: none">- Inclusively cover all relevant stakeholder groups including vulnerable, women, minority, and Indigenous people;- Consider the physical scope identified, including stakeholders, representative of the site's ultimate water source and ultimate receiving water body or bodies;- Provide evidence of stakeholder consultation on water-related interests and challenges;- Note that the ability and/or willingness of stakeholders to participate may vary across the relevant stakeholder groups;- Identify the degree of stakeholder engagement based on their level of interest and influence.
Findings:	<p>The stakeholders / stakeholder groups such as vulnerable, women, minority, and Indigenous people have not been identified. The site should engage with the NGO's and relevant authorities to identify the stakeholder groups within the catchment.</p> <p>The site has mentioned about providing drinking water and sanitation supplies to the vulnerable class, which implies that there would be a gap in availability of water and sanitation facilities for this certain population in the city and even more in the catchment. The site should focus on engaging with these groups (directly or indirectly) to assess the adequacy of WASH services in the catchment.</p>

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Audit Number: AO-000756

Finding No:	TNR-007468
Checklist Item No:	1.3.2
Status:	In Progress - CA plan approved
Finding level:	Minor
Due date:	2024-Oct-01
Checklist item:	Site water balance, including inflows, losses, storage, and outflows shall be identified and mapped
Findings:	<p>The site has estimated the evaporation for both the campus which is a combination of total amount of cooling water - amount of drained water on site (quantity of cleaning water + amount of regular discharge for freeze prevention), i.e. process blowdown, evaporation, discharge, losses, such as cooling tower blowdown, etc. The site must segregate the losses, blowdown, cleaning / drain water and map them properly. The site must map the water recycling or reuse on site (reuse of water at the compressor facility). The site should also identify and map rainfall input and stormwater outflow.</p>
Corrective action:	<ul style="list-style-type: none">- We will identify the evaporation values by campus for each factory building and map them granularly.- We will add a value for wastewater reuse (compressor tank inspection) that is re-injected into the process.- We'll map the stormwater values by determining the regional rainfall and calculating the annual inflow to the site. <p>[Preventive Action]</p> <ul style="list-style-type: none">- We will quantify and manage the value of water used in the process and monitor it periodically.- We will also calculate the reuse value by process and the amount of stormwater inflow due to rainfall separately and apply them to the water balance, and monitor them periodically.

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Finding No:	TNR-007471
Checklist Item No:	1.3.3
Status:	Closed
Finding level:	Minor
Due date:	2024-Oct-01
Checklist item:	Site water balance, inflows, losses, storage, and outflows, including indication of annual variance in water usage rates, shall be quantified. Where there is a water-related challenge that would be a threat to good water balance for people or environment, an indication of annual high and low variances shall be quantified.
Findings:	<p>The amount of evaporation, losses, shall be estimated / quantified. The site has mentioned change in water storage volumes for both the campus separately. The basis of estimation of these is not known. The site should tabulate the initial and final storage levels / volumes of the storage tanks to arrive at the change in storage volumes. The rainfall input and stormwater discharge are also not known.</p>
Corrective action:	<p>- 'Change in water storage volume' is the annual wastewater treatment plant inflow minus outflow. We will show the rationale for this figure in the file. → * Change in water storage volume formula: Wastewater treatment plant inflow - Wastewater treatment plant outflow</p> <p>* Refer to the 'Outflow_System' sheet *Calculation Equation of Water Change in Waste Water Treatment Process: Inflow of Waste Water Treatment Facility - Outflow of Waste Water Treatment Facility <input type="checkbox"/> See 'Outflow_System' sheet <input type="checkbox"/> The inflow and outflow of the wastewater treatment plant by year and campus can be found in the 'Outflow_System' sheet.</p> <p>- We will map the rainfall values by determining the amount of rainfall at the regional level and calculating the annual inflow to the site</p> <p>[Preventive Action] - We will add the rationale for all the figures. - We will also calculate the amount of stormwater runoff due to rainfall separately and apply it to the water balance, which will be monitored periodically.</p>
Evidence of implementation:	<p>- [EDIT] 1.3.2_Water Balance Map(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>) - [EDIT] 1.3.3_Water Balance Table(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)</p>

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Finding No: TNR-007506
Checklist Item No: 1.4.1
Status: Open
Finding level: Observation
Checklist item: The embedded water use of primary inputs, including quantity, quality and level of water risk within the site's catchment, shall be identified.
Findings: The site needs to recheck and analyse the data provided by suppliers. For example, annual water consumption of Partner 81 is 2 ton which seems to be practically incorrect.

Finding No: TNR-008245
Checklist Item No: 1.5.3
Status: Closed
Finding level: Minor
Due date: 2024-Oct-01
Checklist item: The catchment water-balance, and where applicable, scarcity, shall be quantified, including indication of annual, and where appropriate, seasonal, variance.

Findings: The actual status of the catchment water balance is not known, whether it is negative or positive. This is due to the fact that the site has tried to balance the inflow and outflow by adding the "Change (due to factors such as ground water, evapotranspiration, and soil moisture)" in the outflow side as the other data such as "Inflow", "Outflow" and "Change in storage volume" have been estimated on the basis of data available with Korea Water Resources Corporation.

Corrective action: - We added "I4:L15" to the 'site's catchment' sheet in the attachment so that it can be seen whether the actual water balance of the catchment is negative or positive when compared over time, as commented in the Findings.
- This table makes it easier to visibly monitor the actual water balance of the catchment.

[Preventive Action]
- By continuously collecting catchment water balance data, we will accumulate multi-year data to monitor the actual state of the catchment water balance.

Evidence of implementation: - [EDIT] 1.5.3_Water balance of the site's catchment

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Finding No: TNR-007513
Checklist Item No: 1.5.4
Status: Closed
Finding level: Minor
Due date: 2024-Oct-01
Checklist item: Water quality, including physical, chemical, and biological status, of the catchment shall be identified, and where possible, quantified. Where there is a water-related challenge that would be a threat to good water quality status for people or environment, an indication of annual, and where appropriate, seasonal, high and low variances shall be identified.
Findings: The site should obtain and summarise water quality data, along with seasonal / annual variance data from the baseline date and monitor data over the years, to understand water quality issues in the catchment.
Corrective action: - As noted in our Findings, we compiled two years of catchment water quality data (2021/2022) at first.
- We also graphed the data to make the water quality variability visible.
[Preventive Action]
- By continuously collecting catchment water quality data, we will accumulate years of data to monitor the actual state of catchment water quality.
Evidence of implementation: - [EDIT] 1.5.4 _Water quality of the site's catchment(□□□ □□ □□)

Finding No: TNR-007516
Checklist Item No: 1.5.7
Status: Closed
Finding level: Major
Due date: 2024-Mar-13
Checklist item: The adequacy of available WASH services within the catchment shall be identified.
Findings: The site needs to capture adequacy of WASH services for the whole catchment.
Corrective action: - The adequacy of the catchment-wide WASH service was identified and uploaded.
- We will reorganize the data on the whole catchment WASH service.
[Preventive Action]
- We will identify the adequacy of the catchment-wide WASH services each year.
Evidence of implementation: - [EDIT] 1.5.7 _Water supply and sewage penetration rate within the site's catchment(□□□ □□ □□□ □ □□□ □□□)

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Finding No: TNR-007519
Checklist Item No: 1.7.1
Status: Open
Finding level: Observation
Checklist item: Water risks faced by the site shall be identified, and prioritized, including likelihood and severity of impact within a given timeframe, potential costs and business impact.
Findings: The timeframe for each risks have been selected as either of the following:
"Current up to one year"
"1-3 years"
"4-6 years"
"More than 6 years"

The site needs to recheck and define the possible timeframe for each risk as the selection seems to be impractical in some cases. For example, for Risk 20 - "Negative media coverage", the site has selected the timeframe as "More than 6 years". How has this timeframe been defined?

Finding No: TNR-007687
Checklist Item No: 1.8.2
Status: Open
Finding level: Observation
Checklist item: Relevant sector and/or catchment best practice for water balance (either through water efficiency or less total water use) shall be identified.
Findings: The site has identified introduction of water-saving facilities, rainwater and wastewater reuse systems as best practice.
The site should focus on enlisting the best practice activities rather than just mentioning water-saving facilities, rainwater and wastewater reuse systems as best practice.

Finding No: TNR-007684
Checklist Item No: 1.8.4
Status: Open
Finding level: Observation
Checklist item: Relevant catchment best practice for site maintenance of Important Water-Related Areas shall be identified.
Findings: The site should focus on identifying more best practices most relevant to the IWRA's.

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Finding No:	TNR-007522
Checklist Item No:	2.1.1
Status:	Open
Finding level:	Observation
Checklist item:	A signed and publicly disclosed site statement OR organizational document shall be identified. The statement or document shall include the following commitments: <ul style="list-style-type: none">- That the site will implement and disclose progress on water stewardship program(s) to achieve improvements in AWS water stewardship outcomes- That the site implementation will be aligned to and in support of existing catchment sustainability plans- That the site's stakeholders will be engaged in an open and transparent way- That the site will allocate resources to implement the Standard.
Findings:	The document does not mentions about the name of sites. The site could focus on looking for more options for disclosing the commitment.

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Finding No: TNR-007528
Checklist Item No: 2.3.2
Status: Closed
Finding level: Major
Due date: 2024-Mar-13
Checklist item: A water stewardship plan shall be identified, including for each target:

- How it will be measured and monitored
- Actions to achieve and maintain (or exceed) it
- Planned timeframes to achieve it
- Financial budgets allocated for actions
- Positions of persons responsible for actions and achieving targets
- Where available, note the link between each target and the achievement of best practice to help address shared water challenges and the AWS outcomes.

Findings: The persons responsible for implementing actions for achieving targets have not been defined in the water stewardship plan.

The site needs to focus on identifying more specific targets while preparing the water stewardship plan as the plan should include more targets other than regular monitoring activities and activities which are already in place.

Corrective action:

- We have unhidden the columns so that you can see who is responsible for implementing the actions in the "Water Stewardship Plan." Please see the attachment.
- For newly added items in the plan, we will add a new "New Action" column to make it clear what is new.
- We have added two new improvement practices in the water quality.
 - 1) Extending the life of wastewater treatment separation membrane tank and improving wastewater quality by changing wastewater treatment chemicals
(Chemicals: changed from Slaked Lime to Sodium Aluminum Oxide)
 - 2) Reduced the amount of cleaning material (water pollutants) by 1/3 level through the renovation of the parts washing facility and change of cleaning material in the compressor process.
(Cleaning material: changed from White200L to ML1155)
 - 3) Replacement of chemical tanks and old facilities at wastewater treatment plants (investment)
(Investment items: chemical tank, chemical pump, brower, decelerator/agitator, pump/motor)

[Preventive Action]
- We will identify and manage responsible persons in our Water Stewardship Plan.
- In addition to the items already implemented in the Water Stewardship Plan, we will continue to identify new actions and assess their applicability to the site.

Evidence of implementation: - [EDIT] 2.3.2_'22, '23 Gwangju site Water Stewardship Plan(□□□□ □ □□□□ □□)

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Audit Number: AO-000756

Finding No:	TNR-008233
Checklist Item No:	2.4.1
Status:	Open
Finding level:	Observation
Checklist item:	A plan to mitigate or adapt to identified water risks developed in co-ordination with relevant public-sector and infrastructure agencies shall be identified.
Findings:	The site should engage with relevant public-sector and infrastructure agencies in a more effective manner to develop a plan in co-ordination with them to mitigate or adapt to identified water risks.
Finding No:	TNR-007644
Checklist Item No:	3.7.1
Status:	Open
Finding level:	Observation
Checklist item:	Evidence that indirect water use targets set in the water stewardship plan, as applicable, have been met shall be quantified.
Findings:	The site should also focus on gathering information from the suppliers & service providers on the plan for improvement of water usage, water quality and the progress on the same.
Finding No:	TNR-007685
Checklist Item No:	3.9.4
Status:	Open
Finding level:	Observation
Checklist item:	Actions towards achieving best practice, related to targets in terms of the site's maintenance of Important Water-Related Areas shall be implemented.
Findings:	The site should focus on identifying more best practices most relevant to improving the condition of IWRA's wherever required.
Finding No:	TNR-007704
Checklist Item No:	4.3.1
Status:	In Progress - CA plan approved
Finding level:	Minor
Due date:	2024-Oct-01
Checklist item:	Consultation efforts with stakeholders on the site's water stewardship performance shall be identified.
Findings:	The site did not evaluate stakeholders' consultation feedback on the site's water stewardship performance.
Corrective action:	- Feedback will be gathered and documented through emails and surveys, as well as site visits and interviews.
	[Preventive Action] - We will document and manage feedback through various methods of communication, including contact by phone, visits, etc.

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Finding No:	TNR-007705
Checklist Item No:	4.4.1
Status:	In Progress - CA plan approved
Finding level:	Minor
Due date:	2024-Oct-01
Checklist item:	The site's water stewardship plan shall be modified and adapted to incorporate any relevant information and lessons learned from the evaluations in this step and these changes shall be identified.
Findings:	No evidence was provided of the site's water stewardship plan being modified and adapted to incorporate any relevant information and lessons learned from the evaluations in this step. Changes were not clearly identified.
Corrective action:	<ul style="list-style-type: none">- In addition to surveys and emails, we will actively gather and incorporate feedback on our Water Stewardship Plan through public hearings, visits, and interviews. <p>[Preventive Action]</p> <ul style="list-style-type: none">- We will document and incorporate feedback from various methods of communication (phone, visits, etc.) into our plan.
Finding No:	TNR-007706
Checklist Item No:	5.3.1
Status:	In Progress - CA plan approved
Finding level:	Minor
Due date:	2024-Oct-01
Checklist item:	A summary of the site's water stewardship performance, including quantified performance against targets, shall be disclosed annually at a minimum.
Findings:	The quantified performance against the targets have not been disclosed.
Corrective action:	<ul style="list-style-type: none">- For quantifiable targets, we will include baselines and targets, and disclose performance by indicating metrics. <p>[Preventive Action]</p> <ul style="list-style-type: none">- For quantified targets, we'll manage by indicating them.

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Report Details

Report	Value
Report prepared by	Amit Singh
Report approved by	Ruth Wandera
Report approved on (Date)	14/12/2023

Surveillance

Proposed date for next audit
2024-Oct-01

Comment The proposed date for first Surveillance Audit is 01/10/2024.

Stakeholder Announcements

Date of publication	Location
08/08/2023	WSAS Website
08/08/2023	AWS Website
10/08/2023	Mail to Stakeholders
10/08/2023	Notice on Company Bulletin Board Samsung Website

Comment The link for publication of the Stakeholder Announcement at AWS website is:
<https://a4ws.org/wp-content/uploads/2023/08/AWS-000616629-Samsung-2023-Stakeholder-A-announcement.pdf>

The link for publication of the Stakeholder Announcement at WSAS website is:
<https://watersas.org/wp-content/uploads/2023/08/AWS-G-000016-Stakeholder-Announcemen-t-Multi-Site-Gwangju-R1.pdf>

The link for publication of the Stakeholder Announcement at Samsung website is:
https://www.samsung.com/sec/sustainability/policy-file/AYIzAYv6xTEALYNW/AWS_outcomes_2023_kr.pdf

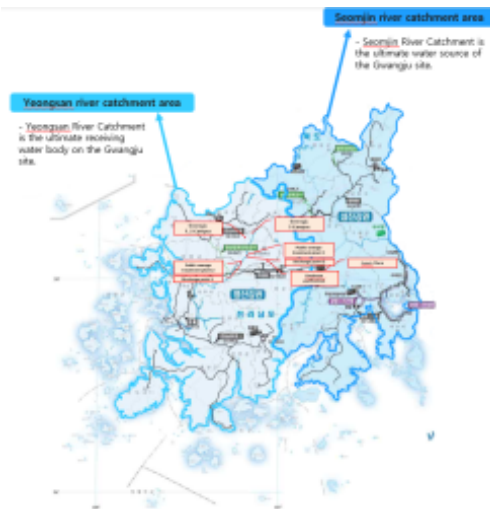
The mail of the Stakeholder Announcement to Stakeholders has been attached to the report.

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Catchment Information



Catchment.png

Catchment Information

The site receives water from Sochon distributing reservoir (for campus 1 & 2) and Bongsan distributing reservoir (for campus 3). The distributing reservoirs receive treated water from Deoknam Water Purification Plant which source the water from Juam Dam - the ultimate water source for the site.

The site has identified Seomjin River Catchment as the ultimate water source of the Gwangju site falls under Seomjin River Catchment and Yeongsan River Catchment as the ultimate receiving water body of the Gwangju site is Yeongsan River.

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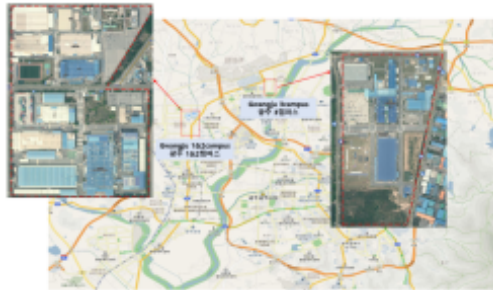
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Client Description and Site Details



Campus 1&2 - Gwangju multisite.png



Campus1,2 & 3 - Gwangju multisite.png

Client/Site Background

Samsung Electronics Gwangju multisite refers to the manufacturing operations setup at two locations - Gwangju Campus 1 and 2 are located at 107 Hanamsandan 6beon-ro, Gwangsan-gu, Gwangju City, and Gwangju Campus 3 is located at 70 Amco-ro, Buk-gu, Gwangju City. The plants are situated in the downstream area of the Yeongsan River basin. Gwangju multisite operations are involved in the manufacturing of digital home appliances such as refrigerators, air conditioners, compressors, vacuum cleaners, air purifiers and washing machines. The tap water is sourced from the Juam Dam within the Seomjin River basin and is supplied to the site after treatment from the Deoknam Water Purification Plant. Wastewater generated from the site operations is treated at on-site wastewater treatment plants and then sent to the Gwangju 1 Wastewater Treatment Plant (Campus 3) and the Gwangju 2 Wastewater Treatment Plant (Campus 1 & 2) which are public sewage treatment facilities. The treated wastewater is then discharged into the Yeongsan River.

Summary of Shared Water Challenges

Summary of Shared Water Challenges

The following shared water challenges were identified by site based on survey of stakeholders:

- Risks of drought and water deficit
- Sewage and wastewater pollution
- Water pollution of water supply source
- Excessive intake of water resources
- Lack of communication and cooperation between companies and civic groups
- Destruction of aquatic ecosystem and decrease in bio-diversity
- Risks of heavy rain and flood
- Alienated class from stable and constant water supply
- Unclean water-related facilities such as toilets and washbasin
- Lack of water facilities for toilets, washbasins and drinking fountains

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0.1 General Requirements for Single Sites, Multi-Sites and Groups	
0.1.1	<i>Eligibility Criteria</i>
0.1.1.1	<i>The site(s) occupy one catchment OR an exception has been granted.</i> ✔ Yes
0.1.1.2	<i>The scope of the proposed certification shall be under the control of a single management system.</i> ✔ Yes
0.1.1.3	<i>The scope of the proposed certification shall be homogeneous with respect to primary production system, water management, product or service range, and the main market structures.</i> ✔ Yes
0.2 Requirements for Multisite Operations	
0.2.1	<i>Multisite Management Requirements</i>
0.2.1.1	<i>The Multisite operation shall nominate an "AWS Group Representative".</i> ✔ Yes
Comment	The officials incharge of AWS are Ms. Choi Hyo-sun and Mr. Kim Sung-woo from Environment department.
0.2.1.2	<i>The name and location of each site within the proposed scope for certification of the Multisite operation shall be clearly defined.</i> ✔ Yes
Comment	Samsung Electronics Gwangju multisite comprise of Hanam campus (referred to as Campus 1,2) and Chumdan campus referred to as (Campus 3). The Hanam campus (Campus 1 and 2) is located at 107 Hanamsandan 6beon-ro, Gwangsan-gu, Gwangju City, and the Chumdan campus (Campus 3) is located at 70 Amco-ro, Buk-gu, Gwangju City. They are situated in the downstream area of the Yeongsan River basin.
0.2.1.3	<i>Where a new site has been added to the multisite certificate, an onsite audit of the site was conducted prior to it being added to the certificate register.</i> ⬇ N/A
0.2.1.4	<i>All AWS claims made by the client are managed through the "AWS Group Representative".</i> ✔ Yes


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1 STEP 1: GATHER AND UNDERSTAND

1.1 *Gather information to define the site's physical scope for water stewardship purposes, including: its operational boundaries; the water sources from which the site draws; the locations to which the site returns its discharges; and the catchment(s) that the site affect(s) and upon which it is reliant.*

1.1.1 *The physical scope of the site shall be mapped, considering the regulatory landscape and zone of stakeholder interests, including:*

- Site boundaries;
- Water-related infrastructure, including piping network, owned or managed by the site or its parent organization;
- Any water sources providing water to the site that are owned or managed by the site or its parent organization;
- Water service provider (if applicable) and its ultimate water source;
- Discharge points and waste water service provider (if applicable) and ultimate receiving water body or bodies;
- Catchment(s) that the site affect(s) and is reliant upon for water.

 in progress

Comment The site has identified Seomjin River Catchment as the ultimate water source of the Gwangju site falls under Seomjin River Catchment and Yeongsan River Catchment as the ultimate receiving water body of the Gwangju site is Yeongsan River. The site has defined Gwangju city as the physical scope.

The site boundaries for both the campus - Hanam campus (Campus 1 & 2) and Chumdan campus (Campus 3) have been defined. They are situated in the downstream area of the Yeongsan River basin.

The site receives water from Sochon distributing reservoir (for campus 1 & 2) and Bongsan distributing reservoir (for campus 3). The distributing reservoirs receive treated water from Deoknam Water Purification Plant which source the water from Juam Dam (within the Seomjin River basin) - the ultimate water source for the site. The site uses tap water for various purposes, including cooling towers and equipment, laboratory use, injection molding equipment, chemical coating processes, water tank inspections, electroplating processes, cafeteria, restroom facilities, firefighting, gardening and landscape.

The wastewater generated on the site is treated at the on-site wastewater treatment plants and then sent to the Gwangju 1 Wastewater Treatment Plant (Campus 3) and the Gwangju 2 Wastewater Treatment Plant (Campus 1 & 2) which are public sewage treatment facilities.

The treated wastewater is then discharged into the Yeongsan River.

The site has mapped water intake points & water supply, storm water collection & discharge, wastewater generation & discharge and sewage discharge from the campus.




Finding No: TNR-007464

1.2 *Understand relevant stakeholders, their water related challenges, and the site's ability to influence beyond its boundaries.*

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Alliance for Water Stewardship (AWS)

Audit Number: AO-000756

1.2.1	<p><i>Stakeholders and their water-related challenges shall be identified. The process used for stakeholder identification shall be identified. This process shall:</i></p> <ul style="list-style-type: none"> - <i>Inclusively cover all relevant stakeholder groups including vulnerable, women, minority, and Indigenous people;</i> - <i>Consider the physical scope identified, including stakeholders, representative of the site's ultimate water source and ultimate receiving water body or bodies;</i> - <i>Provide evidence of stakeholder consultation on water-related interests and challenges;</i> - <i>Note that the ability and/or willingness of stakeholders to participate may vary across the relevant stakeholder groups;</i> - <i>Identify the degree of stakeholder engagement based on their level of interest and influence.</i> 	 Obs.
Comment	<p>The site conducted 1st stakeholders survey to identify stakeholders and define shared water challenges among government agencies, regulatory authorities, nearby businesses within the catchment, internal and external supplier companies, civic organizations, NGOs, local residents, and employees.</p> <ul style="list-style-type: none"> - Based on stakeholder water-related interest and influence, as well as engagement survey results and the site's perspective, a stakeholder power, interest, and engagement matrix was mapped to characterize the identified stakeholders. - The major stakeholders identified are employees, Yeongsan River Basin Authority, Gwangju City, Gwangju Environment Corporation, Gwangju Water Authority, internal and external supplier companies, nearby businesses (Chemical Safety Community), local residents, and NGOs. - Gwangju site excluded the following stakeholders from the main stakeholders during the stakeholder identification process. - Korea Environment Corporation: The Korea Environment Corporation is a regulatory agency, and since the sewage and wastewater discharge from the Gwangju site is low, the site did not select the agency as a major stakeholder this year. However, the Gwangju site is making efforts to communicate with the Korea Environment Corporation by conducting the surveys and plans to select key stakeholders in the future and seek ways to work together. - Local residents: Since the Gwangju Metropolitan City Sustainable Development Council (civic group) represents the environmental and related opinions of local residents, the local residents were replaced by the Sustainable Development Council. 	
1.2.2	<p><i>Current and potential degree of influence between site and stakeholder shall be identified, within the catchment and considering the site's ultimate water source and ultimate receiving water body for wastewater.</i></p>	 Yes
Comment	<p>The current and potential degree of influence between site and stakeholder have been identified and a stakeholder influence and engagement matrix was prepared. Stakeholders were categorized into Partner, Involve, Inform, or Reciprocate, to determine respective engagement methods.</p>	
1.3	<p><i>Gather water-related data for the site, including: water balance; water quality, Important Water-Related Areas, water governance, WASH; water-related costs, revenues, and shared value creation.</i></p>	
1.3.1	<p><i>Existing water-related incident response plans shall be identified.</i></p>	 Yes

Audit Number: AO-000756

Comment To protect employee lives and company assets from various risks that may occur in the site, the site has initially created the 'Gwangju Campus Emergency Response Scenario' in 2014 and continues to update it. Water-related emergency response scenarios include chemical spills, wastewater spills, floods, city water supply disruptions, and steam shutdown, specifying the actions in order, procedures, equipment to be mobilized, time required, organization-specific tasks, and responsible individuals for each scenario.

- In particular, in the case of city water supply disruptions, each campus has an underground water tank as follows, increasing its ability to respond to emergencies:


1 Campus: When city water supply is disrupted, 2,000 tons can be supplied and can be used for 3.6 days.

2 Campus: When city water supply is disrupted, 1,150 tons can be supplied and can be used for 3.0 days.

3 Campus: When city water supply is disrupted, 270 tons can be supplied and can be used for 0.7 days.

In addition to the above, relevant departments periodically conduct training to respond to water-related emergencies. After the training, the manager in charge conducts an evaluation of the training, covering overall scenario, proficiency, and other relevant factors. The findings from the evaluation are reflected in future trainings.

1.3.2 *Site water balance, including inflows, losses, storage, and outflows shall be identified and mapped*

 in progress

Comment The flow of water supply and discharge at Campus 1 and 2 is as follows: Juam Dam → Deoknam Water Purification Plant → Campus 1 and 2 → Gwangju 2 Wastewater Treatment Plant → Yeongsan River. Industrial and domestic water supplied from Deoknam Water Purification Plant are distributed to various facilities such as refrigerator building, motor and injection molding buildings, cafeteria 1, PBA building, cafeteria 2, kimchi refrigerator building, washing machine building, air conditioner building, logistics warehouse, dormitory, childcare center, GTC building, and internal power building. Industrial water is discharged as wastewater, cooling water, or evaporation depending on its usage. Wastewater is treated in the on-site wastewater treatment facility and then ultimately discharged to the Yeongsan River through the Gwangju 2 Wastewater Treatment Plant. Cooling water is discharged to the Pungyeongjeong Stream through rainwater pipes. Evaporation occurs during the manufacturing process, and domestic water is discharged as wastewater. Sewage is discharged without additional treatment to the Gwangju 2 Wastewater Treatment Plant, and after treatment, it is finally discharged into the Yeongsan River.

The flow of water supply and discharge at Campus 3 is as follows: Juam Dam → Deoknam Water Purification Plant → Campus 3 → Gwangju 1 Wastewater Treatment Plant → Yeongsan River. Industrial and domestic water supplied from Deoknam Water Purification Plant are distributed to facilities including compressor building, molding building, pressor building, silk screen building, cafeteria, internal power building, and logistics warehouse. Industrial water is discharged as wastewater, cooling water, or evaporation depending on its usage. Wastewater is treated in the on-site wastewater treatment facility and then discharged to the Gwangju 1 Wastewater Treatment Plant, and after treatment, it is finally discharged into the Yeongsan River. Cooling water is discharged to the Yeongsan River through rainwater pipes, and evaporation occurs during the manufacturing process. Domestic water is discharged as wastewater. Sewage is discharged to the Gwangju 1 Wastewater Treatment Plant without additional treatment, and after treatment, it is finally discharged into the Yeongsan River.

The site has mapped the water inflows to the campus and water supply / distribution to various process and domestic streams along with the effluent generation and discharge outside the plant boundary.

Finding No: TNR-007468

CERTIFICATION REPORT

Alliance for Water Stewardship (AWS)

Audit Number: AO-000756

1.3.3 *Site water balance, inflows, losses, storage, and outflows, including indication of annual variance in water usage rates, shall be quantified. Where there is a water-related challenge that would be a threat to good water balance for people or environment, an indication of annual high and low variances shall be quantified.* ✔ closed

Comment The site has prepared water balance of both the campuses separately for year 2021, 2022 and 2023 (upto September) as per following:

[2021 Water Balance]

- Campus 1 and 2: 419,467 tons (Inflow) = 382,254 tons (Outflow) + 34,867 tons (Evaporation) + 2,346 tons (Change in storage volume)

- Campus 3: 174,159 tons (Inflow) = 167,930 tons (Outflow) + 8,047 tons (Evaporation) + (-)1,818 tons (Change in storage volume)

[2022 Water Balance]

- Campus 1 and 2: 339,772 tons (Inflow) = 308,695 tons (Outflow) + 29,987 tons (Evaporation) + 1,090 tons (Change in storage volume)

- Campus 3: 142,881 tons (Inflow) = 132,960 tons (Outflow) + 7,546 tons (Evaporation) + 2,375 tons (Change in storage volume)

[2023(~September) Water Balance]

- Campus 1 and 2: 235,015 tons (Inflow) = 215,544 tons (Outflow) + 20,821 tons (Evaporation) + (-)1,350 tons (Change in storage volume)

- Campus 3: 113,153 tons (Inflow) = 108,967 tons (Outflow) + 5,905 tons (Evaporation) + (-)1,719 tons (Change in storage volume)

☐ Campus 3 began reusing wastewater in August 2023, and 1,498 tons of wastewater was reused by September.

The site monitors monthly data through the G-EHS system to manage energy and resources used in the production process. In comparison to 2021, water inflow decreased by 79,695 tons (-19%) for Campus 1 and 2 and by 31,278 tons (-18%) for Campus 3 in 2022. The main reasons were water saving activities and reduced production.

The site has tabulated annual variance of water inflow and outflow for both the campus.

Finding No: TNR-007471

1.3.4 *Water quality of the site's water source(s), provided waters, effluent and receiving water bodies shall be quantified. Where there is a water-related challenge that would be a threat to good water quality status for people or environment, an indication of annual, and where appropriate, seasonal, high and low variances shall be quantified.* ✔ Yes

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Comment The site monitors water quality of the upstream and downstream water streams. The details of same are listed below:

1. The water quality of Juam Dam, the primary water intake source in the Seomjin River catchment, is being checked through the public website, <https://water.nier.go.kr/web/onecPopUp>. The parameters such as COD, BOD, BO, TN, TP, chlorophyll a, and TOC are being measured weekly and updated at the website.
2. The water quality of Deoknam Water Purification Plant is being checked through the public website of Gwangju Water Authority https://water.gwangju.go.kr/water_quality/sudo.do?S=S01&M=010107000000. The Raw water is measured weekly, while treated water is measured in real-time, weekly, and monthly intervals.
3. Analysis of municipal water used in the Gwangju sites is not legally required. However, water is analyzed (for 10 parameters) every two months for internal water management.
4. The quality of drinking water is analyzed once every two months for the cafeteria at Hanam campus (1, 2 campus) and once a month for the Chumdan campus (3 campus) cafeteria. Drinking water is not subject to legal measurement and is being analyzed for hygiene management.
5. Downstream Water Quality -The quality of wastewater generated from the site and the treated water is analyzed externally every month for BOD, COD, SS, T-N, T-P, and two other parameters. A total of 59 parameters are measured and recorded in a registry every two months. Moreover, the measurement results are uploaded to the internal G-EHS system to manage wastewater quality on a monthly basis. Although wastewater quality analysis is legally required once/semi-annually, we measure wastewater quality every month for internal water management.
6. The water quality of discharges from Gwangju 1 and Gwangju 2 Wastewater Treatment Plants is available at the public website (<https://www.data.go.kr/data/3056852/fileData.do?recommendDataYn=Y>). Daily measurements include COD, SS, TN, TP, while monthly measurements include BOD, TOC, SS, TN, TP, and total coliform bacteria count.
7. The water quality of Yeongsan River discharge points is available at the public website, (<https://water.nier.go.kr/web/onecPopUp>). The parameters are being measured weekly.

1.3.5 *Potential sources of pollution shall be identified and if applicable, mapped, including chemicals used or stored on site.*


Yes

Comment The site has identified potential sources of pollution which include chemical storage and usage facilities, hazardous materials warehouses, wastewater treatment plants, and waste storage facilities. They are mapped on the company's site map and are managed with special care.

To manage potential pollution sources, the site has adopted rules and regulations of managing hazardous chemical substances and materials. The purpose of these documents is to ensure the safety and compliance with relevant regulations during the purchase, use, handling, storage, and disposal of hazardous chemicals and materials. The documents include definitions of harmful chemicals and hazardous materials, organizational responsibilities and authorities, work procedures, chemical work procedures, inspection items, and more.

For wastewater treatment plants, the site has established regulations for the management of chemicals used in the plants as well as the operation of plants. The purpose of these documents is to prevent environmental harm caused by chemicals used in wastewater treatment plants and to appropriately manage and use general chemicals and hazardous chemicals. The documents include definitions of chemicals and hazardous chemicals, relevant work procedures, inspection items, and emergency response scenarios.

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Audit Number: AO-000756

- 1.3.6** *On-site Important Water-Related Areas shall be identified and mapped, including a description of their status including Indigenous cultural values.* ✔
Yes

Comment: The site has identified 'ponds' as on-site IWRA at Hanam site. The site takes photos of the pond and evaluate their conditions (good, somewhat degraded, degraded) on a quarterly basis.

Every half year, the site analyses the water quality of the pond through external agency to assess contamination. They analyze water quality for SS, pH, TN, TP, and TOC items and provide water quality data to the site, which is documented in Excel sheets and managed twice in a year.

- 1.3.7** *Annual water-related costs, revenues, and a description or quantification of the social, cultural, environmental, or economic water-related value generated by the site shall be identified and used to inform the evaluation of the plan in 4.1.2.* ✔
Yes

Comment: The water related costs incurred at site include municipal water sourcing cost, wastewater treatment cost, water-related facility operation and maintenance costs. The details of following water-related costs for 2021 and 2022 are provided as evidence:
- Water Consumptions and Costs
- Internal Wastewater Treatment Costs
- Water-related Facility Investments and Maintenance Costs
- IWRA Management Cost

The Gwangju site has implemented water conservation measures to improve water efficiency. For each improvement activity, the site has calculated annual savings in electricity, gas, and water consumption, which are converted into monetary values / revenues generated.

The site has also identified Social, Cultural, Environmental, and Economic Water-related Values generated by site.

- 1.3.8** *Levels of access and adequacy of WASH at the site shall be identified.* ✔
Yes

Audit Number: AO-000756

Comment The Gwangju site conducts a sanitation analysis in the dining facilities where employees and visitors consume food and beverages. Dining facilities in campuses 1 and 2 are analyzed once every 2 months, and the dining facility in campus 3 is analyzed once a month. Site restrooms are regularly inspected by an outsourcing company using a checklist.

The Gwangju site has installed water purifiers for employees within Campuses 1, 2, and 3. In addition to this, portable drinking water is provided to manufacturing plant workers and visitors working at the site during the summer.

The employee/water purifier ratio is 15.1 people/unit for Campuses 1 and 2, and 16.5 people/unit for Campus 3.

- [Toilets] The Gwangju site has installed restrooms in Campus 1, 2, and 3 so that employees can access sanitary restrooms at any time. By referring to the US NPC standard, it was confirmed that WASH facilities are provided at a higher level than international standard.

→ 1 Campus: (Male) Number of workers: 1,206 / Number of flush toilets: 96, Ratio 13 workers/equipment / Number of Urinals: 106, Ratio 11 workers/equipment

(Female) Number of workers: 157 / Number of flush toilets: 85, Ratio 2 workers/equipment

→ 2 Campus: (Male) Number of workers: 904 / Number of flush toilets: 106, Ratio 9 workers/equipment / Number of Urinals: 123, Ratio 7 workers/equipment

(Female) Number of workers: 178 / Number of flush toilets: 80, Ratio 2 workers/equipment

→ 3 Campus: (Male) Number of workers: 758 / Number of flush toilets: 88, Ratio 9 workers/equipment / Number of Urinals: 86, Ratio 9 workers/equipment

(Female) Number of workers: 85 / Number of flush toilets: 44, Ratio 2 workers/equipment

In addition to the above, site has also conducted an RBA audit for campuses 1, 2, and 3 in August 2021. The RBA Code of Conduct sets standards for creating a safe working environment, respecting and ensuring the dignity of workers, and environmentally-friendly and ethical business practices. The Code of Conduct consists of five sections (A, B, C, D, and E). Section B, which deals with (7) Sanitation, Food, and Housing, states that clean restrooms, drinking water, hygienic food preparation and storage facilities, and dining facilities should be provided to employees.

1.4 *Gather data on the site's indirect water use, including: its primary inputs; the water use embedded in the production of those primary inputs the status of the waters at the origin of the inputs (where they can be identified); and water used in out-sourced water-related services.*

1.4.1 *The embedded water use of primary inputs, including quantity, quality and level of water risk within the site's catchment, shall be identified.*


Obs.

Audit Number: AO-000756

Comment The Shared-growth EHS Group of Samsung Electronics conducts assessments of the water usage status of major suppliers for each Samsung Electronics site. Last year, the site has conducted a survey on water consumption of 176 suppliers for the Gwangju site - there were 27 suppliers located within the site's catchment, while 149 suppliers were located outside of the site's catchment. Among these, there were 11 partners (3 within the catchment and 8 outside the catchment) that accounted for more than 1% of the total purchase amount. As per survey results, 27 suppliers within the site's catchment consumed 97,534 tons of water.

The site has also gathered water quality of the upstream water sources and downstream rivers of suppliers within the catchment through public water quality data. On average, the water quality status of water sources was '□', and the water quality status of rivers varied from '□' to '□'.

- Samsung Electronics conducts annual RBA (Responsible Business Alliance) assessments on major suppliers at each business site. RBA assessments cover pollutants, energy saving, water quality issues (water pollutants and discharge management), as well as issues related to environment, safety, health, labor, corporate ethics, and management systems.

- Based on the internal RBA Samsung criteria, which has been established in alignment with RBA standards, issues are categorized into Priority, Major, Minor, Not Applicable, and Conformance. Additionally, issues found to be inadequately managed by suppliers are recorded with comments and improvement results to track progress.

- Through the water resource usage assessment conducted by the Shared-growth EHS Group, the company verifies whether suppliers have experienced environmental incidents or accidents related to pollution, water consumption, and hazardous substances.

Using the WRI Aqueduct tool, the site has assessed physical risk quantity, physical risk quality, regulatory and reputational risk for 27 suppliers within the site's catchment. The risk level has been identified for a total of 13 risk factors including: water stress, water depletion, interannual variability, seasonal variability, groundwater table decline, riverine flood risk, coastal flood risk, drought risk, untreated connected wastewater, coastal eutrophication potential, unimproved/no drinking water, unimproved/no sanitation, and Peak Rep. Risk country ESG risk index.

Among the 27 suppliers within the catchment, 2 suppliers are at risk of water stress, while all 27 suppliers are at risk due to coastal eutrophication potential.

1.4.2 *The embedded water use of outsourced services shall be identified, and where those services originate within the site's catchment, quantified.* ✔
Yes

Comment The Gwangju site outsources various services within the campus which includes cafeteria, IT, security, health center, landscaping, dormitory, logistics and cleaning services. The in-house outsourced service providers utilize water resources. Water usage is monitored separately when a significant amount is used, while for simple WASH services, water usage is monitored and managed at the building level.

- The site vehicle cleaning service provider also uses water resources. The water usage for cleaning services is calculated by multiplying vehicle water cleaning capacity, daily refill frequency, weekly cleaning frequency, and weeks per year.

- The site transport service provider uses water to wash cars off-site. Water usage for car washing is calculated by multiplying the number of vehicles, number of car washes per year, and water usage per car wash.

The embedded water use of outsourced services for the year 2021 and 2022 is calculated and the same is provided in the attached document.

The water consumption for outsourced services excluding car washing for transportation services, is included in the site's total water consumption.

1.4.3 *Advanced Indicator*
The embedded water use of primary inputs in catchment(s) of origin shall be quantified. ✔
Yes

CERTIFICATION REPORT

Alliance for Water Stewardship (AWS)

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Comment The Shared-growth EHS Group is conducting assessments of the water usage status of major suppliers for each Samsung Electronics site.
 - Last year, a survey was conducted by site on water consumption by all 176 suppliers at the Gwangju site. Among these, there were 11 partners (3 within the catchment and 8 outside the catchment) that accounted for more than 1% of the total purchase amount, and there were 27 suppliers located within the site's catchment, while 149 suppliers were located outside of the site's catchment.
 Based on the survey results, the water consumption of 149 suppliers outside of the catchment are provided in the attached document.

Score 7

1.5 *Gather water-related data for the catchment, including water governance, water balance, water quality, Important Water-Related Areas, infrastructure, and WASH*

1.5.1 *Water governance initiatives shall be identified, including catchment plan(s), water-related public policies, major publicly-led initiatives under way, and relevant goals to help inform site of possible opportunities for water stewardship collective action.*

 **Yes**

Comment The site has identified various water-related public policies, and major publicly-led initiatives. The monitoring subjects include the catchment areas and water-related infrastructure facilities such as Seomjin River, Yeongsan River, Juam Dam, Deoknam Water Purification Plant, and Dongbok Dam. The site establish and implement response plans accordingly.

1. Catchment Plan and Water-related Public Policies

- In particular, Gwangju, located in the southern region, is facing a significant decrease in annual precipitation in 2022 compared to normal levels, leading to the development of alternative water supply plans in progress. The government recommends the use of alternative water sources and advises on reducing domestic and industrial water usage. The site has collaborated with public institutions and neighboring businesses in the catchment to plan and implement water stewardship collective actions in response to these challenges.

2. Major Publicly-led initiatives in the catchment include the Seomjin River Environment Administration Council, Gwangju Environmental Movement Alliance, Yeongsan River and Seomjin River Basin Water Management Committee, Juam Dam Conservation Council, and Gwangju Sustainable Development Council. The site actively participates in catchment initiatives of Gwangju Sustainable Development Council and collaborating with the Water Authority to plan and implement water-saving measures in partnership with various stakeholders.

3. The site identifies opportunities for water stewardship collective action, including:

- Support for drinking water for vulnerable groups: The site has made agreements with Gwangju city government, Kia and Gwangju bank to provide clean drinking water and induction devices to vulnerable groups within the catchment area.
- Water saving practices: To address droughts in Gwangju, we collaborate with public institutions, businesses, hospitals, military bases and universities to establish and execute countermeasures and plans.

1.5.2 *Applicable water-related legal and regulatory requirements shall be identified, including legally-defined and/or stakeholder-verified customary water rights.*

 **Yes**

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Audit Number: AO-000756

Comment The site has setup Environmental law registration and management ledger to monitor water-related laws and regulations that the site should comply with. These documents are kept up-to-date regarding environmental regulations, agreements, and other requirements applicable to manufacturing and other business activities. In addition, the Gwangju site is ISO14001 certified and conducts compliance assessments once a year.

There are no legal restrictions on water supply volume besides the initial installation. The site operates wastewater treatment facilities in accordance with discharge facility installation permits and reporting requirements stipulated in the Water Environment Conservation Act.

The facility is obligated to comply with the discharge limits for water quality pollutants and priority water pollutants under the Water Environment Conservation Act.

The Drinking Water Management Act applies to only one childcare facility on the site. In accordance with this law, the facility has installed water purifiers in appropriate locations and maintains them hygienically by regular cleaning and disinfection.

1.5.3 *The catchment water-balance, and where applicable, scarcity, shall be quantified, including indication of annual, and where appropriate, seasonal, variance.* ✔ closed

Comment The site has gathered water inflow, outflow, and storage data for all water storage and supply infrastructure in the catchment area to monitor the catchment water balance which is available on the website of the Korea Water Resources Corporation(https://www.water.or.kr/kor/menu/sub.do?menuId=13_91_93). The water storage and supply infrastructure are categorized into four types as follows:

- Multipurpose Dams: Seomjin River Dam, Juam Dam, Juam Regulation Dam
- Water Supply Dams: Sueo Dam, Pyeongrim Dam
- Multifunctional Weirs: Seungchon Weirs, Juksan Weirs
- Flood Control Reservoirs: Damyang Flood Control Reservoir, Hwasoon Flood Control Reservoir

The water balance of the catchment for the above water storage and supply facilities have been evaluated with the following equation:

$$\text{Inflow} = \text{Outflow} + \text{Change in storage volume} + \text{Change (due to factors such as ground water, evapotranspiration, and soil moisture)}$$

Out of the above - inflow, outflow and change in storage volume data are available for each day and the cumulative water balance is evaluated for the year, which captures the annual variance of the water balance.

Finding No: TNR-008245

1.5.4 *Water quality, including physical, chemical, and biological status, of the catchment shall be identified, and where possible, quantified. Where there is a water-related challenge that would be a threat to good water quality status for people or environment, an indication of annual, and where appropriate, seasonal, high and low variances shall be identified.* ✔ closed

Comment The water quality information for rivers, streams, and other water bodies in the catchment can be accessed at the website - <https://water.nier.go.kr/web/onecPopUp>. The measured parameters include COD, BOD, DO, TN, TP, Chloride a, and TOC. These measurements are conducted on a monthly basis, ranging from 1 to 4 times per month.

The site has informed that there have been no water quality-related damages reported to the catchment population or its aquatic ecosystems. In the past, excessive TP discharges led to eutrophication, causing inconvenience for local residents. However, the installation of a TP removal facility, which is an advanced treatment facility, in the Gwangju wastewater treatment plant has prevented water quality degradation from eutrophication. The site had set internal water quality standards for permissible limits 50% lower than the legal standards to mitigate potential negative impacts.

CERTIFICATION REPORT

Alliance for Water Stewardship (AWS)

Audit Number: AO-000756

Finding No: TNR-007513

1.5.5 *Important Water-Related Areas shall be identified, and where appropriate, mapped, and their status assessed including any threats to people or the natural environment, using scientific information and through stakeholder engagement.* ✔
Yes

Comment The site has identified the following IWRAs based on stakeholder survey:

- Water supply source: Juam Dam
- Nearby rivers: Yeongsan River, Pungyeongjeong Stream, Hwangryong River
- Discharge point: Yeongsan River (Discharge point 1 & Discharge point 2)

The site visits the IWRAs periodically and takes photos of IWRAs on a quarterly basis to assess and record their condition.

The water quality data of the respective water bodies are available on govt. website - <https://water.nier.go.kr/web/onecPopUp> which monitors the following parameters - COD, BOD, DO, TN, TP, chloride a, and TOC.

The site also analyses the water quality of the IWRAs (twice in a year) through external agency to assess any contamination. The agency analyses water quality for SS, pH, TN, TP, and TOC items and provide water quality data to the site.

Additionally, the site regularly conducts riverbank cleanup activities near the Yeongsan River and Pungyeongjeong Stream to address underwater and shoreline contamination. In June 2023, in an effort to conserve and restore local biodiversity, the site worked on creating a habitat for wildlife by preventing human access and installing rock piles and reed beds in approximately 400 meters along the area from the confluence point of the Yeongsan River to Chipyeong Bridge.

1.5.6 *Existing and planned water-related infrastructure shall be identified, including condition and potential exposure to extreme events.* ✔
Yes

Comment The major infrastructure for the site includes Juam Dam, Deoknam purification plant, Sochon reservoir, Bongsan reservoir, Gwangju 1 wastewater treatment plant, and Gwangju 2 wastewater treatment plant. The site has identified and listed respective upgrade projects for each infrastructure based on their general scale and condition to prepare for climate events.

The Gwangju site has assessed baseline and future water risks for each of these facilities using the WRI Aqueduct tool. The assessment criteria for baseline water risks include 13 factors such as water stress, water scarcity, seasonal variability, coastal eutrophication potential, and unimproved/no drinking water. For the future risks, the criteria encompass four parameters including water stress, water supply, water demand, and seasonal variability. According to the baseline risk assessment, all facilities are evaluated to have a risk of eutrophication, and according to the future risk assessment, all facilities except for the Juam Dam are found to have water stress risks, and all facilities are assessed to have seasonal variability risks.

The Gwangju city government has developed the "Gwangju Waterworks Improvement Basic Plan" to ensure efficient operation and stable water supply in the region. The plan has a target year of 2035 and includes plans for expanding water supply pipelines, upgrading water treatment plants and distribution facilities, improving aging pipelines, establishing smart network management infrastructure, and setting up an integrated water management center.

1.5.7 *The adequacy of available WASH services within the catchment shall be identified.* ✔
closed

CERTIFICATION REPORT

Alliance for Water Stewardship (AWS)


Audit Number: AO-000756

Comment The site has gathered information related to water supply, wastewater collection and WASH facilities for Gwangju city.

According to water supply information publicly released (in December 2022) by the Ministry of Environment for year 2021, the water supply rate and public & private wastewater collection rate for Gwangju City was 100%.

The WASH facilities publicly available to the local community include water fountain and restrooms. The list of these facilities, along with their locations, can be found on the Gwangju City Government's website (<https://www.gwangju.go.kr/envi/contentsView.do?pagelId=envi26>). These facilities are well maintained by local government organizations and accessible to the public.

Finding No: TNR-007516

1.5.8 *Advanced Indicator*  Yes
Efforts by the site to support and undertake catchment level water-related data collection shall be identified.


Comment The Gwangju site internally treats its effluents to stringent standards before discharging them to the public wastewater treatment plant, in an effort to minimize its negative impacts on nearby aquatic ecosystems. Additionally, beyond legal requirements, the facility voluntarily conducts semi-annual water quality (SS, pH, TN, TP, and TOC) test of the Pungyeongjeong Stream and Yeongsan River, which are a nearby river and the final effluent discharge point in the catchment, respectively, and the results are analyzed by the third-party contractors. This helps minimize the environmental impact of the site's downstream water bodies.

One of the shared water-related challenges in Gwangju is water shortage leading to the risk of drought. To monitor the status of the matter, the site monitors water levels in the Yeongsan River and Hwangryong River on a quarterly basis. Water levels are measured using gauges installed on bridges.

The Gwangju site voluntarily conducts water quality tests in nearby rivers and discharge areas and shares the results with the nearby sites in the industrial complex within the catchment. By sharing water-related data in this manner, it is possible to inform stakeholders about the current state of the local aquatic ecosystems and facilitate collaborative efforts in case of rising issues.

If there have been no issues in these water streams, the site could focus on identifying other IWRA's and monitoring those streams.


Score 7

1.5.9 *Advanced Indicator*  No
The adequacy of WASH provision within the catchments of origin of primary inputs shall be identified.

Comment The Gwangju site identified people's accessibility to clean drinking water, accessibility to health and hygiene services and status of WASH-related facilities in the areas where primary input partners are located - 2 outside the catchment within same country and 6 for overseas suppliers.

For overseas suppliers, the data gathered is for the country and not for the catchment which does not give a clear picture of the adequacy of WASH services in that catchment.

1.6 *Understand current and future shared water challenges in the catchment, by linking the water challenges identified by stakeholders with the site's water challenges.*

1.6.1 *Shared water challenges shall be identified and prioritized from the information gathered.*  Yes

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Comment The Gwangju site conducted an AWS stakeholder survey targeting government agencies, regulatory bodies, local residents, internal and external suppliers, neighboring companies, customers, NGOs, and environmental protection organizations. Through the survey, the following shared water challenges were identified:

- Risks of drought and water deficit
- Sewage and wastewater pollution
- Water pollution of water supply source
- Excessive intake of water resources
- Lack of communication and cooperation between companies and civic groups
- Destruction of aquatic ecosystem and decrease in bio-diversity
- Risks of heavy rain and flood
- Alienated class from stable and constant water supply
- Unclean water-related facilities such as toilets and washbasin
- Lack of water facilities for toilets, washbasins and drinking fountains

Based on the significance, and urgency, the priority of each challenge was defined. Significance and Urgency are evaluated from '*' to '*****' according to the standards set by the Gwangju site. Drought and water shortage risks, chosen unanimously by all stakeholders, were assigned the highest priority among others. Wastewater and sewage pollution, chosen by the Yeongsan River Basin Environment Agency, suppliers, neighboring companies, and employees, were designated as the second highest priority.

1.6.2 *Initiatives to address shared water challenges shall be identified.* ✔
Yes

Comment The site has identified initiatives for addressing shared water challenges. The same are documented in the attached evidence.

1.6.3 *Advanced Indicator*
Future water issues shall be identified, including anticipated impacts and trends ✔
Yes

Comment The 1st Yeongsan River Seomjin River Jeju Catchment Water Management Comprehensive Plan for (2021~2030), prepared by Yeongsan River and Seomjin River Catchment Water Management Committee in which the plan has been made referring to population changes, industrial changes, land use, climate change, water demand, water supply and demand, and water environment prospects in the catchment.

Based on the plan, the site has identified anticipated impacts and trends related to future water challenges due to changes in population, industrial shifts, climate trends, and water-related infrastructure facilities in Gwangju City and are summarised below.

- Population Change: Gwangju City's population is expected to decrease by approximately 15% from June 2023, with a predicted population of 1,213,098.
- Industrial Shift: Five new industrial complexes are under development for lease, and the hosted industries have low water intensity.
- Climate Trends: Increased average temperatures, precipitation, and rainfall intensity are forecasted under both SSP1-2.6 and SSP5-8.5 scenarios.
- Water-related Infrastructure: According to the assessment based on the WRI Aqueduct tool, the water-related infrastructure facilities are exposed to potential eutrophication risks, and in the future, they are expected to be exposed to water stress and seasonal variability risks.

Score 3

1.6.4 *Advanced Indicator*
Potential water-related social impacts from the site shall be identified, resulting in a social impact assessment with a particular focus on water. ✖
No

Comment The Gwangju site has not identified potential water-related social impacts.

1.7 *Understand the site's water risks and opportunities: Assess and prioritize the water risks and opportunities affecting the site based upon the status of the site, existing risk management plans and/or the issues and future risk trends identified in 1.6.*

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1.7.1	<i>Water risks faced by the site shall be identified, and prioritized, including likelihood and severity of impact within a given timeframe, potential costs and business impact.</i>	🔍 Obs.
Comment	<p>The site has identified and categorised the risk under the following types:</p> <ul style="list-style-type: none"> - Physical risks (General) - Physical risks (Site) - Regulatory risks - Reputational risks <p>The risks have been prioritized as - "High", "Medium-high", "Medium", "Medium-low" and "Low". Among the 19 water risks, eight were rated as 'High,' two as 'Medium-high,' and nine as 'Low.'</p> <p>The priority of each water risk was determined in consideration of severity of impact and likelihood assessed, along with their business impact and financial impact.</p>	
1.7.2	<i>Water-related opportunities shall be identified, including how the site may participate, assessment and prioritization of potential savings, and business opportunities.</i>	✅ Yes
Comment	<p>Support to vulnerable class</p> <p>The site has identified Eight major business opportunities considering how the site may participate, cost assessment of potential saving, magnitude of potential financial impact, cost assessment of potential saving.</p> <p>The opportunities have been categorised into the following types:</p> <ul style="list-style-type: none"> "A. Efficiency " "B. Resilience " "C. Products and services " "D. Markets " <p>The site has tabulated Business opportunities along with the following:</p> <ul style="list-style-type: none"> - "How the site may participate" - "Magnitude of potential financial impact" - "Cost assessment of potential saving" - "Prioritization of potential saving" 	
1.8	<i>Understand best practice towards achieving AWS outcomes: Determining sectoral best practices having a local/catchment, regional, or national relevance.</i>	
1.8.1	<i>Relevant catchment best practice for water governance shall be identified.</i>	✅ Yes
Comment	<p>The site has gathered information through the websites, annual reports and news articles of the peer companies from the same business sector (electronics) located in the same catchment area and have identified the following Water Governance Best Practices:</p> <ul style="list-style-type: none"> - Internal resource efficiency programs and assessment systems - Joint declarations on promoting global actions against water-related issues along with international water-related organizations and multinational companies - Support for suppliers' environmental programs - Training on initiatives for biodiversity conservation and environmental protection targeting local students - Participation in environment-related committee for conservation of local environment - Establishment of the AWS Task Force 	
1.8.2	<i>Relevant sector and/or catchment best practice for water balance (either through water efficiency or less total water use) shall be identified.</i>	🔍 Obs.




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Comment	The site has gathered information through the websites, annual reports and news articles of the peer companies from the same business sector (electronics) located in the same catchment area and have identified the following Water Balance Best Practices : - Building a systematic water inventory to understand the water balance from sources to water usage and wastewater treatment throughout the plant facilities. - Reduction of indirect water consumption in collaboration with supplier sustainability programs. - Establishment of internal metrics (water intensity) for water management, targets setting, and monitoring and evaluation. - Introduction of water-saving facilities, rainwater and wastewater reuse systems.	
1.8.3	<i>Relevant sector and/or catchment best practice for water quality shall be identified, including rationale for data source.</i>	 Yes
Comment	The site has gathered information through the websites, annual reports and news articles of the peer companies from the same business sector (electronics) located in the same catchment area and have identified the following Water Quality Best Practices in the same catchment and business sector: - Continuous monitoring of water pollutants 24/7 by installing and operating TMS. - Improvement of wastewater treatment water quality at supplier sites through supplier sustainability programs. - Adherence to internal wastewater quality standards stricter than legal regulations. - Setting targets and monitoring of priority toxic pollutant reduction goal	
1.8.4	<i>Relevant catchment best practice for site maintenance of Important Water-Related Areas shall be identified.</i>	 Obs.
Comment	The site has gathered information through the websites, annual reports and news articles of the peer companies from the same business sector (electronics) located in the same catchment area and have identified the following IWRA-related Best Practices in the catchment and business sector. - Research and investigation for IWRAs conservation. - Improvement of water quality and odour removal by throwing EM mud balls. - Participation in the '1 Company 1 Stream' campaign for riverbank cleanup. - Environmental visit programs and cleanup activities with catchment stakeholders and experts. - Agreement with the Yeongsan River Basin Environment Agency for 'Ecosystem-disruption Invasive Species Management.'	
1.8.5	<i>Relevant sector and/or catchment best practice for site provision of equitable and adequate WASH services shall be identified.</i>	 Yes
Comment	The site has gathered information through the websites, annual reports and news articles of the peer companies from the same business sector (electronics) located in the same catchment area and have identified the following WASH-related Best Practices: - Compliance with the UN Global Compact - Compliance with RBA regulations - these regulations go beyond legislation - Provision of disaster relief drinking water to areas with water shortages due to drought and vulnerable populations nationwide - Provision of clean water to residents through water kiosks - Collaborative construction of sewage treatment facilities in partnership with other companies - Maintenance and renovation of dykes and water storage facilities near power plants	

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2	STEP 2: COMMIT & PLAN - Commit to be a responsible water steward and develop a Water Stewardship Plan	
2.1	<i>Commit to water stewardship by having the senior-most manager in charge of water at the site, or if necessary, a suitable individual within the organization head office, sign and publicly disclose a commitment to water stewardship, the implementation of the AWS Standard and achieving its five outcomes, and the allocation of required resources.</i>	
2.1.1	<p><i>A signed and publicly disclosed site statement OR organizational document shall be identified. The statement or document shall include the following commitments:</i></p> <ul style="list-style-type: none"> - That the site will implement and disclose progress on water stewardship program(s) to achieve improvements in AWS water stewardship outcomes - That the site implementation will be aligned to and in support of existing catchment sustainability plans - That the site's stakeholders will be engaged in an open and transparent way - That the site will allocate resources to implement the Standard. 	 Obs.
Comment	<p>At the corporate level for Samsung Electronics DX division (which includes Gwangju site), the AWS declaration was prepared which covers the following commitments:</p> <ul style="list-style-type: none"> - site will implement and disclose progress on water stewardship program(s) to achieve improvements in water stewardship outcomes - site implementation will be aligned to and in support of existing catchment sustainability plans - site's stakeholders will be engaged in an open and transparent way - site will allocate resources to implement the Standard 	
2.1.2	<p><i>Advanced Indicator</i></p> <p><i>A statement that explicitly covers all requirements set out in Indicator 2.1.1 and is signed by the organization's senior-most executive or governance body and publicly disclosed shall be identified.</i></p>	 Yes
Comment	<p>The AWS declaration was signed by the senior executive of Samsung Electronics' DX division - CSO, Chief Safety Officer & Vice President - Mr. Kyung-jin Kim, and was publicly disclosed via the Samsung Electronics website in June 2023. The same can be accessed through the below link: https://www.samsung.com/sec/sustainability/digital-library/policy-document</p>	
Score	1	
2.2	<i>Develop and document a process to achieve and maintain legal and regulatory compliance.</i>	
2.2.1	<p><i>The system to maintain compliance obligations for water and wastewater management shall be identified, including:</i></p> <ul style="list-style-type: none"> - Identification of responsible persons/positions within facility organizational structure - Process for submissions to regulatory agencies. 	 Yes

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Comment The site has setup Environmental law registration and management ledger to monitor water-related laws and regulations that the site should comply with. These documents are kept up-to-date regarding environmental regulations, agreements, and other requirements applicable to manufacturing and other business activities. In addition, the Gwangju site is ISO14001 certified and conducts compliance assessments once a year.

There are no legal restrictions on water supply volume besides the initial installation. The site operates wastewater treatment facilities in accordance with discharge facility installation permits and reporting requirements stipulated in the Water Environment Conservation Act.

Within the Gwangju EHS Group, the Environment Division is responsible for tasks such as environmental administration, certification, chemicals, air and water-related permits, waste management, and construction management. In the Gwangju Infrastructure Technology Group, the UT Operation Division is in charge of tasks related to utility and wastewater facility operations.

Water compliance-related data and information (such as overall status, wastewater treatment and discharge status, water usage and wastewater treatment status, wastewater pollution, discharge facility and installation status, and pollution preventive facility status) is provided to regulatory authorities through nationwide pollution source survey website (<https://wems.nier.go.kr>).

The specific substance harmful to water quality emissions survey system are submitted to the website - <https://wems.nier.go.kr/swems>. The assessment includes general status, wastewater volume, priority toxic water quality pollutants and other pollutants.

The site follows the submission process of the user manual of the environmental information disclosure system, the site compiles and submits the environmental information and data such as water consumptions, water pollutant discharges, chemical substance discharges, and compliance with environmental regulations through the Environmental Information Disclosure System website (<https://www.env-info.kr/member/main/main.do>).

2.3 *Create a water stewardship strategy and plan including addressing risks (to and from the site), shared catchment water challenges, and opportunities.*

2.3.1 *A water stewardship strategy shall be identified that defines the overarching mission, vision, and goals of the organization towards good water stewardship in line with this AWS Standard.*

 Yes

Comment The site has defined the organization's mission, vision, and goals for three plants (Suwon, Gumi and Gwangju) and established a water stewardship strategy accordingly.

2.3.2 *A water stewardship plan shall be identified, including for each target:*

- How it will be measured and monitored
- Actions to achieve and maintain (or exceed) it
- Planned timeframes to achieve it
- Financial budgets allocated for actions
- Positions of persons responsible for actions and achieving targets
- Where available, note the link between each target and the achievement of best practice to help address shared water challenges and the AWS outcomes.

 closed

Comment The site has developed a water stewardship plan for each target, considering the following factors:

- how the targets will be measured and monitored
- actions to achieve the target
- planned timeframes to achieve the targets
- financial budgets allocated for actions;

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2.3.3 *Advanced Indicator* ✔
Yes
The site's partnership/water stewardship activities with other sites within the same catchment (which may or may not be under the same organisational ownership) shall be identified and described.

Comment The site has identified the following Water Stewardship Activities with other stakeholders:
 (1) Chemical Safety Community: Sharing best practices by business site every quarter (sharing AWS information and our achievements in the Gwangju plant in 2022 and 2023), providing guidance on regulatory amendments / Conducting joint emergency response training in case of water-related incidents every half-year / Holding workshops and regular meetings hosted by the Environment Agency (sharing best practices, expert training, benchmarking, etc.)
 (2) Water saving collective action with the Water Authority and nearby companies: Agree to implement collective action for water saving with the Water Authority and nearby companies, establish a monthly water saving plan and share the results with the Water Authority
 (3) Support for Supplier Water Conservation and Management: Making a visit to supplier companies to form AWS Task Force, share water resource trends and KPIs, analyze their water resource and sanitation status, support wastewater treatment analyses, discuss improvements in water and wastewater operations, and to provide water-related trainings such as wastewater and water.
 (4) Providing Drinking Water to Vulnerable Groups: Participating in the Climate Crisis Response Committee and signing a business agreement with Gwangju City Hall, Kia and Gwangju Bank to provide drinking water and inductions to climate-vulnerable groups.
 (5) River Cleanup Activities: Participating in ecological wetland and park cleanup activities along with the Gwangju City Hall, the Korea Environment Corporation, OB Beer, Coca-Cola, and local citizens.
 (6) Water Saving Campaigns: Hosting the campaigns to encourage local citizens' day-to-day water saving practices in collaboration with Gwangju City Hall, Yeongsan River Basin Environment Agency, Water Resources Corporation, Korea Environment Corporation, and the citizens.
 (7) Sharing AWS Information with the Deoknam Water Purification Plant: Sharing AWS requirements and the site's AWS plans and introducing its major activities related to water resource management

Score 4

2.3.4 *Advanced Indicator* ✔
Yes
The site's partnership/water stewardship activities with other sites in another catchment(s) (either under same corporate structure or with another corporate site) shall be identified.

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Comment The site has identified the following water stewardship activities outside the catchment:

1. Development of Reinvented Toilet in Collaboration with the Bill and Melinda Gates Foundation
 Since 2019, Samsung Electronics has been collaborating with the Bill and Melinda Gates Foundation on the development of reinvented toilet (RT). RT is a product designed for underdeveloped countries facing a lack of proper water and sanitation facilities. In these countries, the absence of adequate toilets leads to open defecation, resulting in water contamination, causing numerous children to die from waterborne diseases each year. To address this issue, Samsung Electronics established a task force for technology development and participated in the RT project of the foundation, developing technology suitable for underdeveloped countries. RT is operated off grid, requiring no external water or energy input, making it easy to install and enhancing safety by limiting the growth of harmful pathogens, thereby reducing diseases. RT features a compact household size, 100% water recycling, ISO 30500 compliance, no need for filters, and low energy consumption. This technology will contribute to improving WASH (Water, Sanitation, and Hygiene) accessibility in underdeveloped countries.

2. Development of Microplastic-reducing Washing Machines in Collaboration with Patagonia and Ocean Wise
 In 2022, Samsung Electronics collaborated with the global eco-friendly outdoor brand Patagonia and the non-profit research organization Ocean Wise to develop microplastic-reducing washing machines. Microplastics are a major contributor to water pollution, posing challenges to proper disposal and causing negative impacts on aquatic ecosystems and humans. Samsung Electronics, using its "Eco Bubble" technology, co-developed a washing cycle with Patagonia. The washing cycle can reduce microplastic release from clothing by up to 54%, which was tested and proved by Ocean Wise. Furthermore, the washing cycle not only reduces microplastics but also enables fast and efficient washing with cold water, resulting in up to 70% energy savings. In the first half of 2023, the Gwangju plant produced a total of 32,554 units of microplastic-reducing washing machines. If every consumer uses the "Eco Bubble" cycle during laundry, they can collectively reduce up to 7.618 tons of microplastics annually.

3. Development of Recycled Materials from Discarded Fishing Nets in Collaboration with Royal DSM and Hanwha Compound
 In 2022, Samsung Electronics collaborated with the global science-based company, Royal DSM, and polymer compounding company, Hanwha Compound, to develop recycled materials from discarded fishing nets. Discarded fishing nets are a major cause of harm to aquatic life and ecosystems. Royal DSM, in partnership with local fishermen, collects abandoned polyamide fishing nets, which are then separated, cut, cleaned, and extruded. Samsung Electronics, in collaboration with Hanwha Compound, uses its proprietary blending technology to produce pelletized recycled materials from these discarded fishing nets. The high-performance polyamide resin produced through this collaboration is applied in various products by Samsung. Recycling materials contribute not only to the conservation of aquatic ecosystems by picking up discarded fishing nets but also to the carbon emissions reduction approximately by 25% compared to using conventional materials. In 2023, we are planning to collect more than 15 tons of discarded fishing nets for recycling through extended usage of the recycled materials.

Score 4

2.3.5 *Advanced Indicator*
Stakeholder consensus shall be sought on the site's water stewardship plan. Consensus should be achieved on at least one target. A list of targets that have consensus and in which stakeholders are involved shall be identified.



Yes

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Comment Samsung Electronics released the 2023 Water Stewardship Plan to stakeholders, including employees, government agencies, public institutions, suppliers, NGOs, and local businesses. Additionally, a 2nd survey was conducted to assess if the activities outlined in the Gwangju site's WS Plan align effectively with five key areas of the AWS – Governance, Water Balance, Water Quality, IWRAs, and WASH. All stakeholders who participated in the survey responded positively, reaching the mutual stakeholder consensus about the site activities and linkage with the AWS outcomes.

The local NGO - Bitgoeul River Network, provided the following suggestions:
 (1) Exploring rainwater harvesting options (e.g., on the factory roof) to maximize the use of limited water resources and
 (2) Conducting training for internal employees (on wetland and river functions as water absorption sources).

Score 7

2.4 *Demonstrate the site's responsiveness and resilience to respond to water risks*

2.4.1 *A plan to mitigate or adapt to identified water risks developed in co-ordination with relevant public-sector and infrastructure agencies shall be identified.* 🔍 Obs.

Comment The site has assessed the severity of impact and the likelihood for identified 19 water risks, taking into account the water risk survey results for public water institutions and the feedback from the Gwangju site. The site has also listed the action points under the heading " Plan to address identified water risks ". The site should develop a plan in co-ordination with relevant public-sector and infrastructure agencies to mitigate or adapt to identified water risks.

2.4.2 *Advanced Indicator* ✅ Yes
A plan to mitigate or adapt to water risks associated with climate change projections developed in co-ordination with relevant public-sector and infrastructure agencies shall be identified.

Comment Climate change risks include extreme natural events (e.g., earthquakes, typhoons, freezing pipes, and extreme cold), drought, flood, and heavy precipitation. Among these, the risk of drought was assessed as 'Medium-high' in the site's catchment. In response, sit has developed various plans, such as Water saving collective action with public institutions and nearby companies; water-saving campaigns with local governments, public institutions, and nearby businesses; industrial water reuse; and the installation of water-saving facilities in the plant to address the identified risks.

Score 6

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3 STEP 3: IMPLEMENT - Implement the site's stewardship plan and improve impacts

3.1 *Implement plan to participate positively in catchment governance.*

3.1.1 *Evidence that the site has supported good catchment governance shall be identified.*



Yes

Comment A Chemical Safety Community (comprising of Samsung Gwangju site and four other nearby companies) was formed to prevent the discharge of chemical substances from plant to the neighboring lives and aquatic ecology. This has enhanced the capacity of chemical substances management through common activities and implementation of preventive activities.

- Joint emergency response training (twice in a year): Sites in the industrial complex's joint training for emergency
- Information exchange meeting (quarterly): Sharing best practice by site and revisions about chemical substance
- Workshop (twice in a year) and regular meeting: Sharing best practice for chemical safety, expert education, benchmarking, etc.
- In July 2021, Gwangju Site participated in 'a meeting for safety preventive measures of participants in chemical safety community for (rainy season, typhoon, etc.)'. In the meeting, shared promotion plans for community participants in 2021 and the operational statuses of BAND in the first half of the year and presented the chemical incidents with preventive safety measures. Gwangju Site shared its own safety system, responses and activities for water-related disasters such as rainy season and typhoons.
- In 2022, Gwangju Site introduced AWS certification system and shared the target for enhancing capacity of water resources management by acquiring AWS certification at an information exchange meeting. In addition, it stressed on water stewardship of catchment, it reportedly said it will consistently implement activities such as survey on stakeholders targeting for the neighboring communities, understanding the current situation and sharing best practice.
- In 2023, Gwangju Site shared the results of quarterly assessment of the IWRA status of catchment and half-year measurement of water quality with Chemical Safety Community.
- In June 2023, the Gwangju site held a workshop with the Ministry of Environment and nearby sites. At the workshop, an introduction to AWS certification, Samsung Electronics' water related goals, the site's AWS Task Force organizational chart, and the site's AWS plan performance in the first half of '23 were shared.

In March 2023, Gwangju City officially launched a committee on climate crisis response. This committee aims to lessen the region's climate change and to support the vulnerable class to climate change with the local government, experts, companies, etc. Gwangju Site concluded a business agreement with Gwangju City, Kia, Kwangju Bank for successful promotion of 2045 carbon neutrality, construction of financial ecosystem, and improvement of the vulnerable (disadvantaged) class's environment. According to the agreement, Gwangju Site provided 23,980L of drinking water and 60 induction cooktops for the disadvantaged class in the first half of 2023.





In November 2022, A meeting for response to drought crisis was held by the Water Authority and other large-scale waterworks users such as companies, hospitals, military camps and universities. They shared water-related information such as water reserve rates of water supply sources and production and usage trend by industry. The participant organizations decided to make an implementation plan for water saving and to submit it with performance. Gwangju Site began to share its performance in November and has monthly shared its plans and performance.

In June 2023, the site official visited Deoknam Water Purification Plant to share AWS requirements and its plan and to introduce major activities regarding the status of water resources management.

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3.1.2	<i>Measures identified to respect the water rights of others including Indigenous peoples, that are not part of 3.2 shall be implemented.</i>	 Yes
Comment	<p>To respect the water rights of the people in the catchment, Gwangju Site implemented the following activities:</p> <p>(1) Support of 200,000 units of drinking water to the Jamboree: 200,000 units of drinking water were provided to improve poor access to drinking water at the World Scout Jamboree held in Jeolla-do in August 2023.</p> <p>(2) Gwangju Site supported the disadvantaged class local residents who are vulnerable to climate change with drinking water and induction cooktops in the first half of 2023.</p> <p>(3) Gwangju Site supported children from the vulnerable class with drinking water and hand sanitizers in the first half of 2023.</p> <p>(4) Gwangju site provides portable drinking water to manufacturing plant workers and visitors on site during the summer.</p> <p>(5) Gwangju site opened the employee's toilets to the public for free use. The site maintains the cleanliness of the toilets and provides the required sanitary goods.</p>	
3.1.3	<i>Advanced Indicator Evidence of improvements in water governance capacity from a site-selected baseline date shall be identified.</i>	 Yes
Comment	<p>In April 23, 9 employees from Gwangju Infra Technology, Gwangju Support Center, and Precision Mold Development Group attended the Energy sources committee meeting and also discussed on 'Establishing a Water Resources operation Committee (AWS Certification)'. In September 23, a Energy & Water Resources meeting was held which also included discussion on 'Activities related to water resource management and AWS certification'. The site has mentioned about forming a water resources operation committee in 2023 compared to the baseline year 2022. The Energy council organisation chart have been shared.</p> <p>The committee has formed a comprehensive plan for annual operation and management of water resources (discovery of task for water reduction and performance management), sharing consistent water-related issues with each department through operation committee member, quarterly meeting and sharing the status of monthly water usage and reduction practice by manufacturing department.</p> <p>In the case of water and wastewater, the plan includes a water operation plan, major reduction task and major investment and maintenance plan. In the case of IWRA, it includes internal and external IWRA water quality analysis plans and condition inspection plans.</p>	
Score	2	
3.1.4	<i>Advanced Indicator Evidence from a representative range of stakeholders showing consensus that the site is seen as positively contributing to the good water governance of the catchment shall be identified.</i>	 Yes
Comment	<p>Gwangju Site engages with stakeholders to discuss about the outcomes of Water Stewardship through visits to stakeholders, meetings, sharing of survey forms and requesting feedback on survey forms through mail. Samsung Site disclosed AWS Outcomes evaluation to stakeholders like employees, government agencies, public organizations, partner companies, civic groups, NGO, neighboring companies. Through a survey, it asked them whether the outcome of Stewardship in the site is efficient or not and to share opinions on necessary supplement points. All respondents answered that Gwangju Site positively contributed to water governance.</p>	
Score	2	
3.2	<i>Implement system to comply with water-related legal and regulatory requirements and respect water rights.</i>	
3.2.1	<i>A process to verify full legal and regulatory compliance shall be implemented.</i>	 Yes

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Comment	<p>The Gwangju site operates a 'Legal calendar' to ensure that relevant personnel comply with the laws and regulations that the site must comply with. Through this system, legal and regulatory personnel check the status of laws and regulations, receive notifications when compliance/implementation time approaches, and submit relevant evidence after compliance/implementation. This ensures that the site is fully compliant with laws and regulations.</p> <p>Gwangju Site annually discloses its own environmental information through the Environmental Information Disclosure System(https://www.env-info.kr/member/open/companyTotalInfoSearch.do).</p> <p>Korea Environmental Industry and Technology Institute conducts a thorough examination of environmental information four times in the document evaluation step, and then reconfirms the reliability of the information through actual inspection on the spot in the on-site inspection step. The disclosed environmental information includes the violation status of environmental regulations to check whether the site complies with legal regulations or not.</p>	
3.2.2	<i>Where water rights are part of legal and regulatory requirements, measures identified to respect the water rights of others including Indigenous peoples, shall be implemented.</i>	 Yes
Comment	There are no water related rights legal or regulatory requirements which Gwangju Site should comply with.	
3.3	<i>Implement plan to achieve site water balance targets.</i>	
3.3.1	<i>Status of progress towards meeting water balance targets set in the water stewardship plan shall be identified.</i>	 Yes
Comment	<p>The site has identified the progress against the water balance targets set in Water Stewardship Plan for reduction in water usage, increase in water reuse and engaging with partner companies to reduce water use.</p> <p>Some of the actions are reuse condensate plan and water saving action plan.</p>	
3.3.2	<i>Where water scarcity is a shared water challenge, annual targets to improve the site's water use efficiency, or if practical and applicable, reduce volumetric total use shall be implemented.</i>	 Yes
Comment	<p>The stakeholders shared a total of ten water challenges through the survey on the first stakeholder which included risks of drought and water deficit as the water issue in the catchment.</p> <p>Gwangju Site has set the annual targets for water usage reduction by 6.5% and increase in water reuse and defined actions to achieve the targets.</p> <p>As of June 2023:</p> <ul style="list-style-type: none"> - Site has reduced water use by 36,167 tons in the first half of 2023 compared to the first half of 2022 through water conservation activities. The average progress rate of the actions is 50.0%. - Site has reduced water use by 32,551 tons in the first half of 2023 through water reuse activities. 	
3.3.3	<i>Legally-binding documentation, if applicable, for the re-allocation of water to social, cultural or environmental needs shall be identified.</i>	 Yes
Comment	There are no legally binding regulations on site for reallocation of water to social, cultural or environmental needs.	
3.3.4	<i>Advanced Indicator The total volume of water voluntarily re-allocated (from site water savings) for social, cultural and environmental needs shall be quantified.</i>	 No

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Comment The site has identified the following activities as voluntary re-allocation of water.

1. Water replenishment project with Korea Rural Community Corporation
Samsung Electronics concluded an agreement on a water replenishment project with Korea Rural Community Corporation. The project aims to relieve water deficit by installing tubular wells or facilities for pumped storage refilled with stream water or reclaimed wastewater using water supply pumps where water inflow is difficult after selecting local area with chronic water deficit in the Wando-Gogeuem Area of Jeollanam-do Province.
2. Gwangju Site participated in committee on climate crisis response of Gwangju City and concluded a business agreement with Gwangju City, Kia, Kwangju Bank for joint response to climate change. Gwangju Site provided 60 households of the disadvantaged class with 23,980L of drinking water and 60 induction cooktops in the relevant cooperative activities.
3. Gwangju Site visited local children's center in Gwangju to support drinking water and sanitary goods and to conduct sanitary inspection. To improve children's accessibility to WASH in a center, it provided 20L of drinking water and 12 hand sanitizers and inspected toilets and cooking utensils.

The above are not considered as water re-allocation from site as part of water savings at site.

3.4 Implement plan to achieve site water quality targets

3.4.1 *Status of progress towards meeting water quality targets set in the water stewardship plan shall be identified.* ✔
Yes

Comment To manage Water Quality, Gwangju Site has set Target of 100% compliance with water-related legal standard. As of June 2023, 100% compliance with water-related legal standard is achieved.
Checking facilities to maintain or to enhance wastewater treatment performance and investment activities is under progress.

3.4.2 *Where water quality is a shared water challenge, continual improvement to achieve best practice for the site's effluent shall be identified and where applicable, quantified.* ✔
Yes

Comment Stakeholders in the catchment have identified sewage and wastewater pollution as shared water challenge in the catchment. In order to reduce negative water impacts of its operations, the Gwangju site sets and complies with in-house water quality standards that are more stringent than legal standards. In addition, to monitor compliance with in-house water quality standards in real time, The site has voluntarily installed a TMS, which is not legally required.

In order to comply with the in-house standard concentration, which is 50% of the legal standard concentration, the site systematically manages the KPI PM schedule for the on-site wastewater treatment plant and wastewater relay station.

The legal standard of the major effluent management items in wastewater treatment plants and the in-house water quality standard are as follows.

- 1) TOC: (legal standard) 75mg/L, (in-house standard) 37.5mg/L
- 2) BOD: (legal standard) 120mg/L, (in-house standard) 60mg/L
- 3) SS: (legal standard) 120mg/L, (in-house standard) 60mg/L
- 4) T-N: (legal standard) 60mg/L, (in-house standard) 30mg/L
- 5) T-P: (legal standard) 8mg/L, (in-house standard) 4mg/L


In year 2022, the average emission concentration were observed to be much below than the legal standards.

3.5 Implement plan to maintain or improve the site's and/or catchment's Important Water-Related Areas.

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3.5.1	<i>Practices set in the water stewardship plan to maintain and/or enhance the site's Important Water-Related Areas shall be implemented.</i>	 Yes
Comment	<p>The site analyses water quality twice a year of the following internal and external IWRA:</p> <ul style="list-style-type: none"> - On-site Pond at 1,2campus - Yeongsan river - Pungyeongjeong stream - Hwangnyong river - Sewage treatment plant (1) - Sewage treatment plant (2) <p>The Gwangju site takes pictures of the pond once a quarter and evaluates the condition. The site also analyzes the water quality of ponds through an external consignment company twice in a year to determine whether there is contamination. An external consignment company provides water quality data to the site by analyzing water quality for SS, pH, TN, TP, and TOC.</p>	
3.5.2	<i>Advanced Indicator Evidence of completed restoration of non-functioning or severely degraded Important Water-Related Areas including where appropriate cultural values from a site-selected baseline date shall be identified. Restored areas may be outside of the site, but within the catchment.</i>	 N/A
Comment	There are no non-functioning or severely degraded Important Water-Related Areas.	
3.5.3	<i>Advanced Indicator Evidence from a representative range of stakeholders showing consensus that the site is seen as positively contributing to the healthy status of Important Water-Related Areas in the catchment shall be identified.</i>	 Yes
Comment	<p>Gwangju Site collects opinions from stakeholders about the outcomes of Water Stewardship through visits to stakeholders, meetings, email and survey.</p> <p>For 3rd Survey on stakeholders, site created an AWS Outcomes evaluation for five AWS outcome areas.</p> <ul style="list-style-type: none"> - The IWRA area includes communication and cooperative activities which Gwangju Site implemented with stakeholders in the catchment for catchment IWRA conservation. - Samsung Site disclosed AWS Outcomes evaluation to stakeholders like employees, government agencies, public organizations, partner companies, civic groups, NGO, neighboring companies. Through a survey, it asked them whether the outcome of Stewardship in the site is efficient or not and to share opinions on necessary supplement points. - All respondents in the questionnaire survey responded that Gwangju Site positively contributed to catchment IWRA. 	
Score	2	
3.6	<i>Implement plan to provide access to safe drinking water, effective sanitation, and protective hygiene (WASH) for all workers at all premises under the site's control.</i>	
3.6.1	<i>Evidence of the site's provision of adequate access to safe drinking water, effective sanitation, and protective hygiene (WASH) for all workers onsite shall be identified and where applicable, quantified.</i>	 Yes

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Comment Gwangju Site conducted RBA audit on Campus 1, 2, 3 in August 2021. RBA's Code of Conduct is a standard for construction of safe working conditions, respect for and guarantee of worker's dignity, and ethical corporate operations. The Code consists of a total of 5 sections, A, B, C, D and E. Sanitation, Food, and Housing of Section B prescribes that workers are to be provided with ready access to clean toilet facilities, potable water and sanitary food preparation, storage, and eating facilities.

The Gwangju site has installed water purifiers so that employees within Campuses 1, 2, and 3 can access clean drinking water at any time. Water purifiers are installed on all floors of the building and are inspected regularly by an external company.

The employee/water purifier ratio is 15.1 people/unit for Campuses 1 and 2, and 16.5 people/unit for Campus 3.

The site has installed restrooms in Campus 1, 2, and 3 so that employees can access sanitary restrooms at any time. By referring to the US NPC standard, it was confirmed that WASH facilities are provided at a higher level than international standard.

1 Campus: (Male) Number of workers: 1,206 / Number of flush toilets: 96, Ratio 13 workers/equipment / Number of Urinals: 106, Ratio 11 workers/equipment

(Female) Number of workers: 157 / Number of flush toilets: 85, Ratio 2 workers/equipment

2 Campus: (Male) Number of workers: 904 / Number of flush toilets: 106, Ratio 9 workers/equipment / Number of Urinals: 123, Ratio 7 workers/equipment

(Female) Number of workers: 178 / Number of flush toilets: 80, Ratio 2 workers/equipment

3 Campus: (Male) Number of workers: 758 / Number of flush toilets: 88, Ratio 9 workers/equipment / Number of Urinals: 86, Ratio 9 workers/equipment

(Female) Number of workers: 85 / Number of flush toilets: 44, Ratio 2 workers/equipment

3.6.2 *Evidence that the site is not impinging on the human right to safe water and sanitation of communities through their operations, and that traditional access rights for indigenous and local communities are being respected, and that remedial actions are in place where this is not the case, and that these are effective.*


Yes

Comment In 2022, Gwangju suffered from a crisis of water supply as water reserve rates of Juam Dam, the main water resource, were worse. To solve a crisis of restricted water supply in the region, Gwangju Site participated in an emergency meeting hosted by Water Authority with the neighboring companies in November 2022. The emergency meeting was a place to identify the current status of water use in the region and to find improvement plans. As a result of the meeting, the companies agreed to take collective action to share monthly water use reduction plans and reduction results with the Water Authority. To reduce water use, Gwangju Site implemented activities as follows: advertising and implementation of a water saving campaign/making and distributing banners and stickers/notification of advertising video on the in-house noticeboard.

In March 2023, Gwangju Site participated in a campaign for inducing Gwangju citizens to realize water saving in life with Gwangju City, Youngsan river Environmental Management Office, Korea Water Resources Corporation, Korea Environment Corporation, citizens and etc.

- As the water reserve rates of Juam Dam decreased under 20% from the early March 2023 to the early April 2023, it faced a crisis of restricted water supply. However, it evaded a crisis of water deficit owing to spring rain and cooperation with local governments, public organizations, companies and citizens. After the rainy season in summer, Juam Dam stably supplies water.

3.6.3 *Advanced Indicator*
A list of actions taken to support the provision to stakeholders in the catchment of access to safe drinking water, adequate sanitation and hygiene awareness shall be identified.


Yes

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Comment Gwangju Site conducted the following activities to provide and to improve WASH facilities within the local community.
 (1) 200,000 units of drinking water were provided to improve poor access to drinking water at the World Scout Jamboree held in Jeolla-do in August 2023.
 (2) Site supported local residents who are vulnerable to climate change with drinking water and induction cooktops in the first half of 2023.
 (3) Site supported children from the vulnerable class with drinking water and hand sanitizers in the first half of 2023.
 (4) The employee's toilets which are located outside Gwangju Site were opened to the public for free use.
 (6) The site visits partner companies' sites to inspect cafeteria's sanitation, WASH facilities, and to analyze drinking water.

Score 5

3.6.4 *Advanced Indicator:*
In catchments where WASH has been identified as a shared water challenge, evidence of efforts taken with relevant public-sector agencies to share information and to advocate for change to address access to safe drinking water and sanitation shall be identified. 🚩 No

Comment In Step 1, the site has shared information that 100% of the catchment have access to adequate water supply and sanitation services.

 Based on the survey, the stakeholders have selected lack of water-related facilities such as toilets and washbasins, uncleanness of water-related facilities such as toilets and washbasins, the alienated class from safe and consistent water supply as water problems in the catchment.

 The site should have identified the locations where these issues are so as to take action to address the access to safe drinking water and sanitation.

 The site has performed some actions mentioned in 3.6.3. But, these actions does not address the access to safe drinking water and sanitation.

3.7 *Implement plan to maintain or improve indirect water use within the catchment:*

3.7.1 *Evidence that indirect water use targets set in the water stewardship plan, as applicable, have been met shall be quantified.* 🔍 Obs.

Comment To manage indirect water use, the site has set target (implementation of engagement more than twice a year with partner companies to reduce indirect water use) and four actions. The progress is provided below:
 1. Email notification of water saving education for in-house partner companies (September 2023): 0%
 2. Consulting for water saving and for improving water management for outside partner companies (23.4 ~ 23.8): 75%
 3. Support outside partner companies for analyzing wastewater treatment (April 2023~October 2023): 50%
 4. Water resources conservation education of ESG sub-committee of Hyupsung Association (May 2023~September 2023): 67%

3.7.2 *Evidence of engagement with suppliers and service providers, as well as, when applicable, actions they have taken in the catchment as a result of the site's engagement related to indirect water use, shall be identified.* ✅ Yes


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Comment Gwangju Site supports 'Green Tech', a supplier and a stakeholder in the same catchment for better water management. The action plan of 2023 includes construction and operation of a consulting body, support for water resources management improvement and water resources education.

- In May 2023, Gwangju Site visited Green Tech and formed water resources consultive body with director of Green Tech, identified places to use water, wastewater source, sanitary facilities in the Green Tech site, checked sanitation in a cafeteria in the site and analyzed drinking water. And it educated on AWS system.
- In June 2023, the Gwangju site visited Green Tech and performed the first wastewater analysis request, wastewater field diagnosis, and water field diagnosis. The site proposed improvement measures to increase efficiency through on-site diagnosis of the wastewater sector. Through on-site diagnosis of the water sector, site proposed improvement measures to reduce domestic water use.
- In September 2023, the Gwangju site visited Green Tech to request a secondary wastewater analysis, provide guidance on ways to improve wastewater treatment efficiency, and discuss preparations for AWS on-site screening. Through secondary wastewater analysis, site confirmed whether new pollutants were detected and the efficiency of wastewater treatment. The site also reviewed the previous consulting contents through guidance on ways to improve wastewater treatment efficiency.

3.7.3 *Advanced Indicator* 
Yes
Actions taken to address water related risks and challenges related to indirect water use outside the catchment shall be documented and evaluated.

Comment The site has mentioned that it has set its own RBA assessment standard and regularly checks management partners according to items. Water-related items are C2) pollution prevention and C7) water quality pollution.


- Samsung Electronics conducts actual inspection on the spot to check partner companies' sites and to find necessary improvement. It gives partner companies the findings and demands them to correct. Partners companies took measures for the relevant matters and then required Samsung Electronics to review. Samsung Electronics continues monitoring until partner companies solve the relevant problems.
- Samsung Electronics responds to indirect water-related risk by discovering partner companies' water-related potential risk and challenges through their assessment and response process.

The G-EHS Center of Samsung Electronics implemented education of water resources conservation for Mutual Cooperation Center, cooperative companies of ESG Subcommittee within Hyupsung Association three times. The target cooperative companies are 28 in total including all partner companies in and out the catchment of Gwangju Site. The education purpose is to respond to water risk due to climate change and to enhance capacity of water resources management.

- In May 2023, it implemented the first education about "Sharing trend of global water resources conservation".
- In July 2023, it implemented the second education on 'Introduction of AWS Certification.' The education included leading water resources management as internally/externally differentiated strategies of global leading companies, necessarily improving management system and advancing water resources management.
- In September 2023, the 3rd training session was conducted under the theme of 'Water Resource Reduction and Conservation Activities'.

Score 7

3.8 *Implement plan to engage with and notify the owners of any shared water-related infrastructure of any concerns the site may have.*

3.8.1 *Evidence of engagement, and the key messages relayed with confirmation of receipt, shall be identified.* 
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Comment Through the first survey, Gwangju Site received the results of water-related facility risk assessment from water-related infrastructure facilities such as Yeongsan River Basin Environmental Office, Waterworks Business Headquarters, and Gwangju Environmental Corporation. It aggregated the relevant result to discover water-related risks and opportunities. Based on it, AWS plan of Gwangju Site was established. The plan includes the site's response to the specified risk, cooperative activities, etc.

In June 2023, Gwangju Site officials visited the Deoknam Water Purification Plant (which receives water from Juam dam) and supplies water to the Gwangju site. In February 2022, an accident occurred at the Deoknam Water Purification Plant due to aging facilities and lack of maintenance, causing bearings and gear shafts to come off and valves to close, resulting in an interruption of water supply. The Gwangju site inquired about the status of the facility where the accident occurred and whether there were any facilities in addition to the facility that were at high risk due to issues such as aging. Deoknam Water Purification plant responded that this incident led to a diagnosis of the entire facility, and that all facilities are currently operating normally, and that they will conduct continuous risk inspections to prevent accidents from recurring.

3.9 *Implement actions to achieve best practice towards AWS outcomes: continually improve towards achieving sectoral best practice having a local/catchment, regional, or national relevance.*

3.9.1 *Actions towards achieving best practice, related to water governance, as applicable, shall be implemented.*



Yes

Comment The following Water Governance best practices were implemented:

- 1) A dedicated AWS Task Force was formed to establish an effective and stable water resource management system with cooperation activities with stakeholders in the catchment
- 2) Operation of the water resource committee to improve internal water resource efficiency
- 3) Chemical Safety community Activities with Neighboring Companies
- 4) Visit to the Deoknam Water Purification Plant operated under the Water Authority to share key activities related to AWS certification and water resource management status.
- 5) Establishment of a water resource TF in collaboration with an external supplier, GreenTech.
- 6) Participation in the Gwangju Climate Crisis Response Committee
- 7) Collaborative water-saving efforts with the Water Authority and neighboring companies to address the drought crisis
- 8) Conducting training on water conservation focusing on global trends in water resource conservation for 28 companies under the Hyupsung Association's ESG subcommittee.

3.9.2 *Actions towards achieving best practice, related to targets in terms of water balance shall be implemented.*






Yes

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Comment	<p>The following water balance best practices were implemented:</p> <ul style="list-style-type: none"> - Enhanced accuracy of Water Balance in the whole Site by installing additionally flowmeters - Joint action for water saving to respond to drought crisis with Water Authority and the neighboring companies - Sharing water reduction performance/advertising and progressing an in-house water saving campaign in Gwangju Site/making and distributing banners and stickers/notification of advertising video on the in-house board - Water saving education for in-house partner companies - Formation of a consulting body (TF) for water resources with Green Tech Co., Ltd., an external partner company - Higher water efficiency through facility diagnosis and investment - Collecting compressor steam condensate water to reuse as boiler water - Facility investment plan to reuse treated wastewater in UV sterilization equipment as process water for compressor tank inspection 	
3.9.3	<i>Actions towards achieving best practice, related to targets in terms of water quality shall be implemented.</i>	 Yes
Comment	<p>The following water quality best practices were implemented:</p> <ul style="list-style-type: none"> - Voluntarily installing TMS and monitoring (no legal obligation of TMS installation and operation) - Compliance with the stricter in-house standard by 50% than legal one for water pollutant discharge - Replacement of chemical tanks of wastewater treatment plants and old facilities - Voluntary inspection of water quality in the neighboring streams and discharge water points - Development and production of washing machines for microplastic reduction 	
3.9.4	<i>Actions towards achieving best practice, related to targets in terms of the site's maintenance of Important Water-Related Areas shall be implemented.</i>	 Obs.
Comment	<p>The following IWRA best practices were implemented:</p> <ul style="list-style-type: none"> - Quarterly state assessment by designating the internal and the external IWRA of Site - Quarterly sampling water and analysis after designating the internal and the external IWRA in Gwangju Site - Quarterly purification activity in Pungyeongjeongcheon and Yeongsangang River, streams near to Gwangju Site - Purification activities to celebrate 'World Water Day' with Environmental Office, Korea Environment Corporation and the neighboring companies - Creating a place of activity for animals and plants in Gwangju River, posting bulletins of environment protection and education about ecological disturbing species with NGO and civic groups - Implement activities to eradicate ecosystem-disrupting species with civic groups and NGOs 	
3.9.5	<i>Actions towards achieving best practice related to targets in terms of WASH shall be implemented.</i>	 Yes
Comment	<p>The following WASH best practices were implemented:</p> <ul style="list-style-type: none"> - Regular inspection and maintenance of WASH related facilities - Agreement with Gwangju City to support for the disadvantaged class with drinking water and induction cooktops - Change of toilets in bus stations belonging to Site open to public - Delivery of drinking water and sanitary goods and facility inspection for local children's center in Gwangju - Supply of drinking water to workers at Site and guests in the summer season - Acquisition of the RBA AMA certification August 24, 2021 to August 27, 2021 <ul style="list-style-type: none"> <input type="checkbox"/> RBA VAP certification scheduled for November 	

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3.9.6	<i>Advanced Indicator</i> <i>Achievement of identified best practice related to targets in terms of good water governance shall be quantified.</i>	 Yes
Comment	<p>The Gwangju Site team has quantified the performance of the targets set in the Water stewardship plan which includes Best Practice such as formation of AWS Task Force Team. The following activities were performed by AWS TF Team in 2022 and 2023 :</p> <ul style="list-style-type: none"> - Implementation of questionnaire survey on stakeholders in the catchment three times - Benchmarking of water-related best practices of other companies in the same sector or in the catchment - Sharing water-related best practices with Suwon Site and Gumi Site once a year - Sharing of the plan achievement status and the future schedule with the headquarters, Suwon Site and Gumi Site once a week - Implementation of an AWS meeting with the headquarters, Suwon Site and Gumi Site once a quarter <p>Gwangju Site has also formed AWS TF team with partner companies in the catchment and implements water saving & supporting activities for water management improvement for 'Green Tech', a supplier and a catchment stakeholder in the same catchment.</p>	
Score	8	
3.9.7	<i>Advanced Indicator</i> <i>Achievement of identified best practice related to targets in terms of sustainable water balance shall be quantified.</i>	 Yes
Comment	<p>The Gwangju Site team has quantified the performance of the targets set in the Water stewardship plan which includes Best Practice. The details are provided below:</p> <p>Through water conservation activities, the Gwangju site has reduced water use by 36,167 tons in the first half of 2023 compared to the first half of 2022. When converted to catchment value, this is equivalent to the daily water use of approximately 120,557 people.</p> <p>Gwangju Site implemented a campaign for inducing Gwangju citizens to realize water saving in life with Gwangju City, Youngsan river Environmental Management Office, Korea Water Resources Corporation, Korea Environment Corporation, citizens and etc.</p> <p>Gwangju Site collects compressor steam condensate water to reuse as boiler water. Reuse quantity of process water in the first half of 2023 is 32,551 tons. When converted into catchment value, it is equivalent to water usage a day for about 108,503 people.</p> <p>Gwangju Site invested in facilities to utilise treated wastewater through UV sterilization equipment and to reuse it as process water in compressor. The relevant equipment is expected to result in water usage reduction by 6,480 tons in the first half of 2023. When converted into catchment value, it is equivalent to water usage a day for about 21,600.</p>	
Score	8	
3.9.8	<i>Advanced Indicator</i> <i>Achievement of identified best practices related to targets in terms of water quality shall be quantified</i>	 Yes
Comment	<p>The Gwangju Site team has quantified the performance of the targets set in the Water stewardship plan which includes Best Practice such as:</p> <ol style="list-style-type: none"> 1. Compliance with the stricter in-house standard for wastewater quality which is 50% (higher) than the legal requirements. 2. Voluntarily install and operate a TMS, although it is not legally required. 	
Score	8	
3.9.9	<i>Advanced Indicator</i> <i>Achievement of identified best practices related to targets in terms of the site's maintenance of Important Water-Related Areas have been implemented.</i>	 Yes

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Comment	The Gwangju Site team has quantified the achievement of the targets set in the Water stewardship plan which includes Best Practice such as:	
	<ul style="list-style-type: none"> - Participating in clean-up activity in the catchment (once a year/half year) - Clean-up activity in Yeongsan river & Punyeongjeong stream with Yeongsan River Basin Environmental Office (World Water Day) to preserve ecological diversity in Gwanju stream with NGO and civic group (Environment Day) - Eradicating invasive plants in IWRA with NGO and civic group - Implementation of campaigns to eradicate disturbing species in cooperation with the Gwangju Sustainable Development Committee (Civic group) 	
Score	8	
3.9.10	<i>Advanced Indicator</i> <i>Achievement of identified best practice related to targets in terms of WASH shall be quantified.</i>	 No
Comment	The identified best practice was supplying drinking water to vulnerable class during the risk of drought have been quantified as 100 % achieved as this was a one time activity.	
3.9.11	<i>Advanced Indicator</i> <i>A list of efforts to spread best practices shall be identified.</i>	 Yes
Comment	Gwangju site was able to spread best practices by sharing AWS Outcomes evaluation (through email) in the 3rd survey conducted on stakeholders such as employees, government agencies, public institutions, partner companies, civic groups, NGOs, and nearby companies. Samsung Electronics has disclosed the performance and contribution of Gwangju site (against the 5 AWS outcomes - Water governance, Water balance, Water quality, IWRA, WASH) at the company's website - https://www.samsung.com/sec/sustainability/digital-library/policy-document . In June 2023, the Gwangju site held a workshop with the Ministry of Environment and nearby sites. At the workshop, an introduction to AWS certification, Samsung Electronics' goals, the site's AWS Task Force organizational chart, and the site's AWS plan performance in the first half of '23 were shared.	
Score	3	
3.9.12	<i>Advanced Indicator</i> <i>A list of collective action efforts, including the organizations involved, positions of responsible persons of other entities involved, and a description of the role played by the site shall be identified.</i>	 Yes
Comment	The site has prepared a list of collective action efforts, including the organizations involved, name & positions of responsible persons and the role of Gwangju Site for the following relevant activities.	
	<ul style="list-style-type: none"> - Drinking water support project for vulnerable groups - Water saving agreement - Water saving campaign - Eradication of invasive species 	
Score	8	
3.9.13	<i>Advanced Indicator</i> <i>Evidence of the quantified improvement that has resulted from the collective action relative to a site-selected baseline date shall be identified and evidence from an appropriate range of stakeholders linked to the collective action (including both those implementing the action and those affected by the action) that the site is materially and positively contributing to the achievement of the collective action shall be identified.</i>	 Yes

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Comment The Gwangju site conducted an evaluation of the site’s water stewardship performance and have shared the AWS outcomes through a third survey with catchment stakeholders such as employees, government agencies, public institutions, partner companies, civic groups, NGOs, and nearby companies. The Gwangju site requested opinions to be shared on whether the Gwangju site’s water resource management (stewardship) is effective and in what areas it needs improvement. All stakeholders positively responded that Gwangju Site contributes to five AWS areas.

There is no quantified improvement which could be seen from the baseline date except for the water consumption by site.

Score None of the stakeholders provided any additional feedback or comment on the performance.
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4 STEP 4: EVALUATE - Evaluate the site's performance.	
4.1	<i>Evaluate the site's performance in light of its actions and targets from its water stewardship plan and demonstrate its contribution to achieving water stewardship outcomes.</i>
4.1.1	<i>Performance against targets in the site's water stewardship plan and the contribution to achieving water stewardship outcomes shall be evaluated.</i> ✔ Yes
Comment	The site has defined the progress against each targets set in the water stewardship plan and has presented a table listing the contribution of actions towards the AWS outcomes. The site has also setup a frequency of updating the water stewardship plan every quarter.
4.1.2	<i>Value creation resulting from the water stewardship plan shall be evaluated.</i> ✔ Yes
Comment	The site has tabulated site and shared value benefits against the evaluated performance on targets and has classified as social, environmental, financial and cultural values which were created through implementation of WS Plan. The value creation through water savings (resulting into monetary savings) have been estimated by site.
4.1.3	<i>The shared value benefits in the catchment shall be identified and where applicable, quantified.</i> ✔ Yes
Comment	The site has tabulated shared value benefits against the evaluated performance on targets and has classified as social, environmental, monetary and cultural values which were created through implementation of WS Plan.
4.1.4	<i>Advanced Indicator A governance or executive-level review, including discussion of shared water challenges, water risks, and opportunities, and any water-related cost savings or benefits realized, and any relevant incidents shall be identified.</i> ✔ Yes
Comment	The progress of site is reviewed by the Centre Director. Thereafter, the progress of the sites is being reviewed by CSO (Chief Safety Officer) of the Global EHS Center. The site Catchment's shared water resource issues, site's activities to resolve water resource issues, water-related risks and opportunities, water-related cost reductions or benefits, and water-related incidents (if any) are reported to the Center Director.
Score	3
4.2	<i>Evaluate the impacts of water-related emergency incidents (including extreme events), if any occurred, and determine the effectiveness of corrective and preventative measures.</i>
4.2.1	<i>A written annual review and (where appropriate) root-cause analysis of the year's emergency incident(s) shall be prepared and the site's response to the incident(s) shall be evaluated and proposed preventative and corrective actions and mitigations against future incidents shall be identified.</i> ✔ Yes
Comment	Gwangju site has no history of emergency incident in 2022 and the first half of 2023. However, the site has a defined Environmental Safety Accident Reporting System and water-related emergency response scenario checklist that specifies the person in charge.

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- 4.3** *Evaluate stakeholders' consultation feedback regarding the site's water stewardship performance, including the effectiveness of the site's engagement process.*
- 4.3.1** *Consultation efforts with stakeholders on the site's water stewardship performance shall be identified.* ➤
in progress

Comment: The site has shared the water stewardship performance of the site with the stakeholders through mail in the form of survey. The stakeholders has acknowledged the work carried out by the site but have not provided any comment or feedback for improvement.
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- 4.3.2** *Advanced Indicator* ➤
No
The site's efforts to address shared water challenges shall be evaluated by stakeholders. This shall include stakeholder reviewing of the site's efforts across all five outcome areas, and their suggestions for continual improvement.

Comment: The site has shared the water stewardship performance with stakeholders through survey and have asked for feedback through a questionnaire in which it was asked. However, did not receive any suggestions.

 The site should explore methods of engagement with stakeholders for attaining their feedback and suggestions for continual improvement and addressing the shared water challenges.
- 4.4** *Evaluate and update the site's water stewardship plan, incorporating the information obtained from the evaluation process in the context of continual improvement.*
- 4.4.1** *The site's water stewardship plan shall be modified and adapted to incorporate any relevant information and lessons learned from the evaluations in this step and these changes shall be identified.* ➤
in progress

Comment: The Gwangju site has set a frequency of updating the AWS plan quarterly.

 The site has shared the water stewardship performance with stakeholders through third survey and have asked for feedback through a questionnaire in which it was asked : "Do you think that the performance of Samsung Electronics' Gwangju site's activities in the first half of 2023 was effective and contributed to stakeholders and the local community? Yes / No ".

 If No - "Please feel free to write down why you think the performance is not effective or does not contribute to stakeholders and the community, and what needs to be improved".

 However, all the stakeholders have selected option 1, i.e. Yes.

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5 STEP 5: COMMUNICATE & DISCLOSE - Communicate about water stewardship and disclose the site's stewardship efforts	
5.1	<i>Disclose water-related internal governance of the site's management, including the positions of those accountable for legal compliance with water-related local laws and regulations.</i>
5.1.1	<i>The site's water-related internal governance, including positions of those accountable for compliance with water-related laws and regulations shall be disclosed.</i> ✔ Yes
Comment	The site disclosed the names of officials responsible for different areas including for Environment related at the Samsung Electronics website under the AWS outcomes announcement for each site with the following link: https://www.samsung.com/sec/sustainability/digital-library/policy-document . Also, site has uploaded the organizational structure at the Global EHS system bulletin board, an in-house system, so that internal executives and employees can check the water management organizational structure and who is in charge of complying with water quality regulations. Any Samsung or in-house partner company employee can access the system and check the water management organization system.
5.2	<i>Communicate the water stewardship plan with relevant stakeholders.</i>
5.2.1	<i>The water stewardship plan, including how the water stewardship plan contributes to AWS Standard outcomes, shall be communicated to relevant stakeholders.</i> ✔ Yes
Comment	The site has defined the progress against each targets set in the water stewardship plan and has tabulated the contribution of actions towards the AWS outcomes and have been communicated with the stakeholders through email.
5.3	<i>Disclose annual site water stewardship summary, including: the relevant information about the site's annual water stewardship performance and results against the site's targets.</i>
5.3.1	<i>A summary of the site's water stewardship performance, including quantified performance against targets, shall be disclosed annually at a minimum.</i> ✖ in progress
Comment	The site's outcomes of Water Stewardship is disclosed at the group's website in the name of AWS outcomes announcement. However, quantified performance against targets, have not been disclosed. Finding No: TNR-007706
5.3.2	<i>Advanced Indicator The site's efforts to implement the AWS Standard shall be disclosed in the organization's annual report.</i> ✔ Yes
Comment	The site's efforts to implement AWS standards are disclosed in its sustainability report and AWS outcomes announcement documents. These documents are available at group's website with the following link: https://www.samsung.com/global/sustainability/digital-library/sustainability-report/
Score	1
5.3.3	<i>Advanced Indicator Benefits to the site and stakeholders from implementation of the AWS Standard shall be quantified in the organization's annual report.</i> ✔ Yes

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Comment The benefits obtained by the site and stakeholders through implementation of AWS standards are disclosed at the Samsung Electronics website (AWS Outcomes document) with the following link :
<https://www.samsung.com/sec/sustainability/digital-library/policy-document>

Score 1

5.4 *Disclose efforts to collectively address shared water challenges, including: associated efforts to address the challenges; engagement with stakeholders; and co-ordination with public-sector agencies.*

5.4.1 *The site's shared water-related challenges and efforts made to address these challenges shall be disclosed.* ✔
Yes

Comment Through the 3rd stakeholder survey, water challenges and priorities for each challenge were shared to stakeholders such as employees, government agencies, public agencies, partner companies, civic groups, NGOs, and nearby companies.

In addition to the above, the shared water challenges and site's contribution to address them is publicly available at group's website with the following link:
<https://www.samsung.com/sec/sustainability/digital-library/policy-document>

5.4.2 *Efforts made by the site to engage stakeholders and coordinate and support public-sector agencies shall be identified.* ✔
Yes

Comment The site has engaged with the stakeholders and supported govt. authorities and the efforts are summarised as below:

- 1) Agreement of water saving with Water Authority
- 2) Sharing AWS related activities and information with Deoknam Water Purification Plant of Water Authority
- 3) Cooperative activities of Youngsanriver Environmental Management Office, Korea Environment Corporation]
- In March 2023, Gwangju Site participated in the commemoration event of 'World Water Day'
- Purification activities of nearby eco wetlands and park with Gwangju City, Korea Environment Corporation, OB Beer, Coca Cola and citizens
- Water saving campaign for inducing Gwangju citizens to realize water saving in life with Gwangju City, Youngsanriver Environmental Management Office, Korea Water Resources Corporation, Korea Environment Corporation, citizens and etc.
- 4) Sharing the status of IWRA and information on water quality with Chemistry Safety Community]
- 5) Support the disadvantaged class with drinking water with Gwangju City]
- 6) Activities for education of ecological disturbing species and for making a place of activity for animals and plants with NGO and civic groups

5.5 *Communicate transparency in water-related compliance: make any site water-related compliance violations available upon request as well as any corrective actions the site has taken to prevent future occurrences.*

5.5.1 *Any site water-related compliance violations and associated corrections shall be disclosed.* ✔
Yes


Comment There was no violation observed for water related regulations by the site.

Gwangju site has prepared emergency response scenarios for each incident to respond to water-related accidents. It specifies the order, procedure, equipment to be mobilized, time required, organization-specific tasks, and responsible individuals for each scenario. It also classifies environmental safety incidents in the site as A, B, C, D grades through 'Report on environmental safety incidents in DX Division and defines subject, method, target of report, etc.


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5.5.2 *Necessary corrective actions taken by the site to prevent future occurrences shall be disclosed if applicable.* 
Yes

Comment No necessary corrective actions as there were no water related violations observed.

5.5.3 *Any site water-related violation that may pose significant risk and threat to human or ecosystem health shall be immediately communicated to relevant public agencies and disclosed.* 
Yes

Comment There was no disposition of violations of water-related regulations harmful to humans and ecosystem during the years from 2017 to 2022. In addition, the Gwangju site reports the status of violations of environmental laws and regulations as well as water usage and water pollutant emissions to stakeholders every year through the Environmental Information Disclosure System website (<https://www.env-info.kr/member/main/main.do>).

Photographic Evidence from Audit


Yes

Comment The photographs of site tour to Hanam campus, Chumdan campus and catchment visit are provided as evidence.