

## Summary of Internal Verification for Environmental Management System

### Objectives

The objective of this document is to analyze the readiness and the results of the self-assessment questionnaire for verification of the existing environmental management at the four AIS standard data centers which have not yet established a formal Environmental Management System (EMS) and be certified toward ISO 14001 international standard.

### Scope

The verification covered the six data centers which provide server co-location and cloud services to the company's enterprise customers. The four data centers include 'Chang Watana Data Center' (**CWDC**) and 'TELLUS 2' (**TLS2**) in Bangkok and vicinity along with 'Kaen Nakorn' (**KNKON**) and 'Singkhon' (**SINKO**) in Khon Kaen and Songkla provinces respectively. The other two data centers include TELLUS 1 and SILA certified data center has been undergone the ISO 14001 verification, that is considered as complied with internal process.

### Coverage of Environmental Management System

Since we opt to concentrate on the environmental management of our data centers, we then define the coverage of our management system based on summed amount capacity of server/equipment racks of the managed data centers comparing with the total capacity of all six companywide standard data centers in AIS combined. The previous two data centers with EMS ISO14001 certification have combined rack capacity amounting around 46% of total rack capacity, representing environmental management system coverage of 46%. This paper analyzes and verify environmental management control of the remaining 4 data centers, whose combined rack capacity amount make up around 54%, in order to have full comprehension of 100% coverage for environmental management system in all data centers.

This verification form has been developed in accordance with AIS Environmental Policy and has adopted ISO 14001 requirements.

### The Questionnaire Responses

The question aspects are designed to improve facility managers' understanding of the requirements and components of the environmental management system defined in the ISO 14001:2015 standard. The responses from the 4 data centers are as follow:

	Question Aspect	TLS2	SINKO	CWDC	KNKON
<b>1.</b>	<b>Environmental Policy</b>				
1.1	Have you been informed of company's environmental policy?	Y	Y	Y	Y
1.2	Have you practiced the data center operation, under your supervision, in compliance with the company's environmental policy?	Y	Y	Y	Y
1.3	Have you informed the staff at the data center under your supervision and whoever concerned regarding the policy to ensure the policy compliance?	Y	Y	Y	Y
1.4	Do you think the environmental policy cover all aspects of data center operations which you oversee, for example, efficient use of energy resources e.g. electricity, water and fuel in order to reduce GHG emission, hazardous chemicals and waste management, etc.?	Y	Y	Y	Y
1.5	Do you think you have enough resources, both staff and tools to support the data center operation to align with the environmental policy?	Y	Y	Y	Y
<b>2.</b>	<b>Environmental Risk and Aspect Identification</b>				
2.1	Have you identified environmental issues and risks related to the data center operation, for example, inefficient use of electricity, handling of chemicals in the cooling system and disposal of hazardous waste e.g. batteries, etc.?	Y	Y	Y	Y
2.2	Have you performed an assessment of the environmental risks identified above, and set up a plan to reduce or eliminate such risks; for example, establishing electricity efficiency project like server room temperature control, installing renewable energy from solar cells, preparing a Work Instruction for hazardous chemical and hazardous waste disposal, and promoting a campaign for office waste segregation and recycling?	Y	Y	Y	Y
2.3	Have you monitored and reviewed progress of the above project, plan, or activity follow-up according to the risks assessed previously to ensure the accomplishment of such risk mitigation or elimination?	Y	Y	Y	Y

	<b>Question Aspect</b>	<b>TLS2</b>	<b>SINKO</b>	<b>CWDC</b>	<b>KNKON</b>
<b>3.</b>	<b>Environmental Law, Regulation, and other Compliances</b>				
3.1	Do you perceive and aware of the environmental law, regulation or any other environmental compliances both national and local national levels e.g. municipality where your data center is operating?	Y	Y	Y	Y
3.2	Do you soundly practice operation of your data center to ensure that it conforms to the above law, regulation and compliances?	Y	Y	Y	Y
3.3	Do you perform a regular update to ensure that any addition or amendment of environmental law, regulation and other compliances with a significant effect to the data center operation will be considered to ensure the compliance or else come up with procedure/plan modification and improvement as necessary?	Y	Y	Y	Y
<b>4.</b>	<b>Internal Assessment of Environmental Management</b>				
4.1	Do you perform a self-assessment within your data center at least once a year in order that your environmental project, plan and activity conform to all mentioned above?	Y	Y	Y	Y
4.2	Is the person doing the internal assessment appointed by the Internal Audit department from headquarter?	Y	N	Y	N
4.3	Do you have a checklist form to use when performing internal assessment, whether by your own staff or the internal audit, as well as record of results for further correction/improvement?	Y	N	Y	N
<b>5.</b>	<b>Corrective Action for non-Compliance</b>				
5.1	In the assessment, do you record any issues that may lead to non-conformance to good environmental management in order to be later review for improvement, for example, electricity use not efficient as planned, waste reduction and sorting still not according to guidelines, etc.?	Y	Y	Y	Y
5.2	If there are such issues, do you arrange to have improvement or correction in order to eliminate such environmental non-compliance and then come up with the 'corrective action' to make sure that issue will not occur again?	Y	Y	Y	Y
<b>6.</b>	<b>Communication of Good Environmental Management</b>				
6.1	Do you have training or knowledge sharing for your staff or concerned persons in data center to ensure that they know of process and procedure to avoid negative impact to the environment, for example, guideline to correct waste sorting and disposal, measure to prevent excess noise and exhaust fume from emergency generator which may disturb nearby community, instruction for fuel transportation and storage.	Y	Y	Y	Y
6.2	Do you communicate or even train on basic environmental requirement and instruction to your contractors, who work in your data center in order not to have any negative impact to environment both internal and external, for example, the handling of waste disposal during or after their work?	Y	Y	Y	Y
<b>7.</b>	<b>Documentation Control in Environmental Management</b>				
7.1	Do you keep all documents, be it paper forms or electronics files, which related to the above environmental management, either internal or external document within your data center, for example, 'Manual' like hazardous chemical handling manual, 'Work Instruction' like WI for storage and transportation of back up diesel generator fuel, or even 'Form' that records periodic energy consumption, as well as any other documents or reports about environmental management of your data center?	Y	Y	Y	Y
7.2	Are all above mentioned documents achieved in your own data center and is someone assigned to control and keep update all those documentations?	Y	Y	Y	Y
<b>8.</b>	<b>Meeting to Review Environmental Management Issues</b>				
8.1	During the annual meeting of your data center operation, do you include issues on environmental management like progress or performance of energy saving project or any non-conformance issues, whether corrected or ongoing, into an agenda of the meeting review or report?	Y	Y	Y	Y
8.2	Do you record the environmental issues (if any) in order for concerned people to know in case there needs to be periodic follow-up of improvement or correction and be concluded and reported in the next meeting?	Y	Y	Y	Y

### Summary of Findings

1. The Data Center's facility managers acknowledged and are well aware of the company's environmental policy. They have been communicating the policy to their staffs as well as monitoring the operation to comply with the Company's Environmental policy.
2. All data centers identified and assessed environmental risk, deployed mitigation plan and conducted regular monitoring, follow-up and review of the environmental management system.
3. In 2022, the activities of the data center were continually compiled with compliance obligations.
4. Regarding the updates to the relevant laws, it is required to notify every Data Center whenever there is any change.

### Conclusion of Gaps and Improvement

- In 2022, there was an enhancement of the curriculum through an online learning platform for related employees to refresh or revisit their knowledge on ISO 14001:2015 and make it more concise. Additionally, a monitoring procedure was established to ensure that personnel in the relevant department undergo knowledge reviews once a year in accordance with the standard.

<b>Performed and verified by</b>	
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Date	26-June-2023