

Annex II(D)
Management System Checklist
[for EMS certification (based on ISO/IEC 17021-2: 2016)]

The environmental management system certification body shall complete the following checklist, which will be used for the assessment of the environmental management system certification body's conformity with HKAS and HKCAS accreditation requirements.

This checklist consists of questions based on the requirements of ISO/IEC 17021-2: 2016. For further information, please refer to the corresponding document and clause as listed in the second column.

The environmental management system certification body shall indicate in the 'QM Clause' column, for every question, the clause(s) in its management system manual, operation procedures or other related documentation which can demonstrate the environmental management system certification body's conformity with the requirement.

The column headed 'OK' is for internal use of HKAS Executive.

A softcopy of this completed checklist shall be provided to HKAS Executive by email or other means.

Management System Checklist [for EMS certification (based on ISO/IEC 17021-2: 2016)]

ISO/IEC 17021-2: 2016 Requirements	Clause	OK	QM/ Procedure Clause	Remarks / Questions to be asked at certification body
<p>Generic competence requirements</p> <p>Has your certification body defined the competence requirements for each relevant EMS technical area and for each function in the certification activity?</p> <p>Has your certification body taken into account all the requirements specified in Clauses 5, 6 and 7 that are relevant for the EMS technical areas, as defined by your certification body?</p> <p>See Tables A.1 and A.2 for a summary of the competence requirements for personnel involved in specific certification functions.</p>	4	<input type="checkbox"/> <input type="checkbox"/>		
<p>Competence requirements for EMS auditors</p> <p>General</p> <p>Does each EMS auditor have a level of competence as defined by your certification body for the technical area concerned that includes the generic competencies described in ISO/IEC 17021-1, as well as the EMS knowledge described in 5.2 to 5.15?</p> <p>Environmental terminology</p> <p>Does each EMS auditor have knowledge of environmental terms, definitions and concepts as used within an EMS?</p> <p>Environmental metrics</p> <p>Does each EMS auditor have knowledge of the quantification of environmental outputs applicable to the EMS and applicable compliance obligations?</p> <p>Environmental monitoring and measuring techniques</p> <p>Does each EMS auditor have knowledge of environmental monitoring and measuring techniques and analytical methods (including equipment and its calibration or verification and maintenance)?</p>	<p>5</p> <p>5.1</p> <p>5.2</p> <p>5.3</p> <p>5.4</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

Management System Checklist [for EMS certification (based on ISO/IEC 17021-2: 2016)]

ISO/IEC 17021-2: 2016 Requirements	Clause	OK	QM/ Procedure Clause	Remarks / Questions to be asked at certification body
Environmental aspects and impacts	5.5	<input type="checkbox"/>		
Does each EMS auditor have knowledge of techniques for the identification of environmental aspects and impacts and the determination of their environmental significance?		<input type="checkbox"/>		
Life cycle perspective	5.6	<input type="checkbox"/>		
Does each EMS auditor have knowledge of life cycle concepts and how an organisation can apply a life cycle perspective to its products and services?		<input type="checkbox"/>		
Environmental performance evaluation	5.7	<input type="checkbox"/>		
Does each EMS auditor have knowledge of environmental performance evaluation methods, including indicators, sufficient to determine whether an organisation's environmental performance is achieving the intended outcomes of an EMS?		<input type="checkbox"/>		
Compliance obligations	5.8	<input type="checkbox"/>		
Does each EMS auditor have knowledge to determine whether an organisation has determined its EMS related compliance obligations, and evaluated fulfilment of its EMS related compliance obligations?		<input type="checkbox"/>		
Emergency preparedness and response	5.9			
Does each EMS auditor have knowledge sufficient to determine whether an organisation has identified potential emergency situations and planned relevant responses?	5.9.1	<input type="checkbox"/>		
Does each EMS auditor have knowledge sufficient to evaluate an organisation's effectiveness in testing its emergency responses and responses to actual emergencies if applicable?	5.9.2	<input type="checkbox"/>		
Operational control	5.10			
Does EMS auditor have knowledge of processes used for operational planning and control, including management of change related to an EMS?		<input type="checkbox"/>		

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ISO/IEC 17021-2: 2016 Requirements	Clause	OK	QM/ Procedure Clause	Remarks / Questions to be asked at certification body
<p>Factors related to site</p> <p>Does each EMS auditor have knowledge of site-related factors that might influence the potential impacts of an organisation's aspects on the surrounding areas, ecosystems and communities?</p>	5.11	<input type="checkbox"/>		
<p>Site factors include geography, climate, hydrogeology, topography, soil and other site-related physical conditions, as well as prior use of the site.</p>				
<p>Scope</p> <p>Does each EMS auditor have knowledge to determine that the scope of an EMS is appropriate within the context of an organisation and its activities, products and services?</p>	5.12	<input type="checkbox"/>		
<p>Communicated information</p> <p>Does each EMS auditor have knowledge related to auditing of communicated information to enable the audit of the reliability of relevant environmental information related to the EMS?</p>	5.13	<input type="checkbox"/>		
<p>Context of the organisation</p> <p>Does each EMS auditor have knowledge to determine that an organisation has identified the external and internal issues, including environmental conditions relevant to the context in which it operates that have the potential to affect the organization's ability to achieve the intended outcomes of its EMS?</p>	5.14			
<p>Does each EMS auditor have knowledge to determine that an organisation has identified the needs and expectations of interested parties relevant to an organization's EMS?</p>	5.14.1	<input type="checkbox"/>		
<p>Risk and opportunities</p>	5.14.2	<input type="checkbox"/>		
<p>Does each EMS auditor have knowledge to determine that an organisation has identified the needs and expectations of interested parties relevant to an organization's EMS?</p>	5.15			
<p>Does each EMS auditor have knowledge of methods for determining risks and opportunities and how these methods can be applied in an organisational context?</p>	5.15.1	<input type="checkbox"/>		
<p>Does each EMS auditor have knowledge to determine if an organisation has appropriately identified and addressed the risks and opportunities related to its context, environmental aspects and compliance obligations?</p>	5.15.2	<input type="checkbox"/>		

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ISO/IEC 17021-2: 2016 Requirements	Clause	OK	QM/ Procedure Clause	Remarks / Questions to be asked at certification body
<p>Aspect-specific competence requirements for EMS auditing</p> <p>General</p> <p>Has an audit team been appointed that is composed of auditors (and technical experts, as necessary) having the collective competence to undertake the audit?</p> <p>Has your certification body defined the specific competence criteria related to each aspect appropriate to the EMS technical area(s) in which it operates and consistent with the requirements specified in 6.2 to 6.8?</p> <p>Emissions to air</p> <p>General</p> <p>Emissions to air occur from activities such as performing mechanical, chemical or biological processes, generating or using energy or through the provision of services requiring the use of fossil fuelled vehicles. These emissions may include gases and particulate matter and be subject to control through mechanical, chemical or natural means to reduce them to an acceptable level in order to avoid air pollution.</p> <p>Gases, aerosols and particulate matter</p> <p>Do personnel on a team involved in EMS auditing have knowledge of types of emissions to air (fugitive, point or diffuse) of gases, aerosols or particulate matter [e.g. Volatile Organic Compounds (VOCs), odours, acids, bases, greenhouse gases, microorganisms, heavy metals]?</p> <p>Operational control</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the techniques used to control emissions to air such as filtering techniques, scrubbers, water mist control and thermal oxidizers?</p> <p>Monitoring and measurement</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the techniques used to monitor emissions to air, e.g. observation of stack emissions, continuous or sample-based stack monitoring, air sampling and analysis and calculation-based mass balance, microorganism counts, and odour testing?</p>	<p>6</p> <p>6.1</p> <p>6.2</p> <p>6.2.1</p> <p>6.2.2</p> <p>6.2.3</p> <p>6.2.4</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>		

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ISO/IEC 17021-2: 2016 Requirements	Clause	OK	QM/ Procedure Clause	Remarks / Questions to be asked at certification body
<p>Releases to land</p> <p>General</p> <p>Releases to land of solids or liquids may occur as waste from mechanical, chemical or biological processes, on the production or disposal of a product or the delivery of a service or as a result of a natural event or accidental situation.</p> <p>Liquid or solid releases</p> <p>Do personnel on a team involved in EMS auditing have knowledge of releases to land including but not limited to heavy metals, polycyclic aromatic hydrocarbons (PAH), petroleum-based products, halogenated hydrocarbons, pesticides, herbicides and animal waste?</p> <p>Operational control</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the techniques used to control releases to land such as primary or secondary containment (bunding) and dispersion (land application rates)?</p> <p>Monitoring and measurement</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the techniques used to monitor, measure and analyse soil associated with releases to land?</p> <p>Releases to water</p> <p>General</p> <p>Releases to water are discharges which include effluents, sewage and diffuse runoffs (e.g. fertilizers or pesticides transported by natural precipitation). This water may be discharged for treatment; or directly to surface or ground water before or after treatment.</p> <p>Surface and ground water</p> <p>Do personnel on a team involved in EMS auditing have knowledge of surface and ground water flows and characteristics, including water columns, suspended and dissolved solids, sedimentation, effluent viscosity and density, evaporation, acidification and eutrophication?</p>	<p>6.3</p> <p>6.3.1</p> <p>6.3.2</p> <p>6.3.3</p> <p>6.3.4</p> <p>6.4</p> <p>6.4.1</p> <p>6.4.2</p>	<p></p> <p></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p></p> <p><input type="checkbox"/></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

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<p>Operational control</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the typical liquid waste streams (e.g. organic, inorganic) and the techniques used to treat liquid waste (e.g. aerobic and anaerobic treatment)?</p>	6.4.3	<input type="checkbox"/>		
<p>Do personnel on a team involved in EMS auditing have knowledge of the techniques used to control surface water discharges (e.g. from weather) and to remediate surface and ground water?</p>		<input type="checkbox"/>		
<p>Monitoring and measurement</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the parameters measured and the techniques used to monitor liquid waste treatment processes and/or other discharges, [e.g. indicators including Biological Oxygen Demand (BOD) or Chemical Oxygen Demand (COD), sampling and analysis, in-process monitoring devices and inspections]?</p>	6.4.4	<input type="checkbox"/>		
<p>Uses of raw materials, energy and natural resources</p>	6.5			
<p>Upstream management</p>	6.5.1			
<p>Do personnel on a team involved in EMS auditing have knowledge of resource depletion issues including sourcing renewable and non-renewable materials, water scarcity, forest loss and soil degradation?</p>	6.5.1.1	<input type="checkbox"/>		
<p>Do personnel on a team involved in EMS auditing have knowledge of renewable and non-renewable sources of energy, the techniques for converting them to useful energy and their environmental impacts, including climate change, impact on biodiversity and on ecosystems, and limitations in their application?</p>	6.5.1.2	<input type="checkbox"/>		
<p>Downstream management</p>	6.5.2			
<p>Do personnel on a team involved in EMS auditing have knowledge of technology and techniques related to source reduction, consumption, minimization, resource recovery and treatment practices and processes?</p>	6.5.2.1	<input type="checkbox"/>		
<p>Do personnel on a team involved in EMS auditing have knowledge of the impact that the activities of an organisation have on the environment including biodiversity and ecosystems?</p>	6.5.2.2	<input type="checkbox"/>		

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<p>Operational control</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the techniques to control efficient use of resources?</p>	6.5.3	<input type="checkbox"/>		
<p>Monitoring and measurement</p> <p>Do personnel on a team involved in EMS auditing have knowledge of monitoring and measuring techniques related to the use of resources?</p>	6.5.4	<input type="checkbox"/>		
<p>Energy emitted</p> <p>Sources of energy emissions</p> <p>Do personnel on a team involved in EMS auditing have knowledge of sources of emissions of heat, light, electromagnetic and ionising radiation, noise and vibration, and their potential environmental impacts?</p>	6.6 6.6.1	<input type="checkbox"/>		
<p>Operational control</p> <p>Do personnel on a team involved in EMS auditing have knowledge of emissions management and control methods, including process management, and emissions reduction and abatement?</p>	6.6.2	<input type="checkbox"/>		
<p>Monitoring and measurement</p> <p>Do personnel on a team involved in EMS auditing have knowledge of monitoring and measuring techniques related to the energy emissions, such as thermal imaging (heat), light metering (light), gauss meter (electromagnetic force), radiation counters and film badges (ionising radiation), metering (noise and vibration)?</p>	6.6.3	<input type="checkbox"/>		
<p>Waste</p> <p>Sources of waste</p> <p>Do personnel on a team involved in EMS auditing have knowledge of the wastes generated by an organisation's activities, including the characteristics of wastes and their potential environmental impacts?</p>	6.7 6.7.1	<input type="checkbox"/>		
<p>Operational control</p> <p>Do personnel on a team involved in EMS auditing have knowledge of methodologies for the elimination, source reduction and waste minimization, including reuse, segregation and recycling?</p>	6.7.2 6.7.2.1	<input type="checkbox"/>		

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Do personnel on a team involved in EMS auditing have knowledge of handling, storage, transportation, treatment and disposal of waste?	6.7.2.2	<input type="checkbox"/>		
Monitoring and measurement	6.7.3			
Do personnel on a team involved in EMS auditing have knowledge of waste monitoring and measurements techniques, such as mass balance calculations, weighing, volumetric measurement, and waste storage criteria (e.g. temperature for flammable materials, storage time)?		<input type="checkbox"/>		
Use of Space	6.8			
Physical attributes	6.8.1			
Do personnel on a team involved in EMS auditing have knowledge of the interactions of the physical attributes (size, shape and colour) of buildings, structures and equipment with the local environment?		<input type="checkbox"/>		
Operational control	6.8.2			
Do personnel on a team involved in EMS auditing have knowledge of techniques to manage physical attributes, such as planning and design, landscaping, use of colour to reduce intrusive impact on the environment?		<input type="checkbox"/>		
Monitoring and measurement	6.8.3			
Do personnel on a team involved in EMS auditing have knowledge of the monitoring of spatial planning, building and equipment requirements as well as maintenance systems and landscaping?		<input type="checkbox"/>		
Competence requirements for other personnel	7			
General	7.1			
Has your certification body defined competence requirements for other personnel involved in the certification functions as given in 7.2 and 7.3 of ISO/IEC 17021-1: 2016? These functions can be fulfilled by one or more persons.		<input type="checkbox"/>		
Competence of personnel conducting the application review to determine the audit team competence required, to select the audit team members and to determine the audit time.	7.2			

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ISO/IEC 17021-2: 2016 Requirements	Clause	OK	QM/ Procedure Clause	Remarks / Questions to be asked at certification body
Environmental terminology	7.2.1	<input type="checkbox"/>		
As appropriate for their function, do personnel have knowledge of environmental terms and definitions?		<input type="checkbox"/>		
Environmental aspects and impacts	7.2.2	<input type="checkbox"/>		
As appropriate for their function, do personnel have knowledge of environmental aspects and associated impacts?		<input type="checkbox"/>		
Factors related to site	7.2.3	<input type="checkbox"/>		
As appropriate for their function, do personnel have knowledge of site-related factors, including proximity to sensitive environments (e.g. wetland, flora, fauna and human communities) that may be impacted by the organisation's activities, sufficient to select a competent audit team?		<input type="checkbox"/>		
Scope	7.2.4	<input type="checkbox"/>		
As appropriate for their function, do personnel have knowledge to determine that the proposed scope of certification is appropriate to achieve the intended results of the application review?		<input type="checkbox"/>		
Competence of personnel reviewing audit reports and making certification decisions	7.3			
Environmental terminology	7.3.1	<input type="checkbox"/>		
Do personnel reviewing audit reports and making certification decisions have knowledge of environmental terms and definitions?		<input type="checkbox"/>		
Environmental aspects and impacts	7.3.2	<input type="checkbox"/>		
Do personnel reviewing audit reports and making certification decisions have knowledge of environmental aspects and impacts?		<input type="checkbox"/>		
Environmental performance evaluation	7.3.3	<input type="checkbox"/>		
Do personnel reviewing audit reports and making certification decisions have knowledge of environmental performance evaluation?		<input type="checkbox"/>		
Compliance obligations	7.3.4			

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Do personnel reviewing audit reports and making certification decisions have knowledge of applicable compliance obligations sufficient to make a decision on the basis of a certification audit report? Scope Do personnel reviewing audit reports and making certification decisions have knowledge to determine that the scope of certification is appropriate?	7.3.5	<input type="checkbox"/> <input type="checkbox"/>		