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## **Activities relating to drinking water and wastewater services — Examples of the use of performance indicators using ISO 24510, ISO 24511 and ISO 24512 and related methodologies**

*Activités relatives aux services de l'eau potable et de l'assainissement — Exemples d'utilisation d'indicateurs de performance à l'aide l'ISO 24510, l'ISO 24511 et l'ISO 24512 et des méthodologies associées*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 224, *Service activities relating to drinking water supply, wastewater and stormwater systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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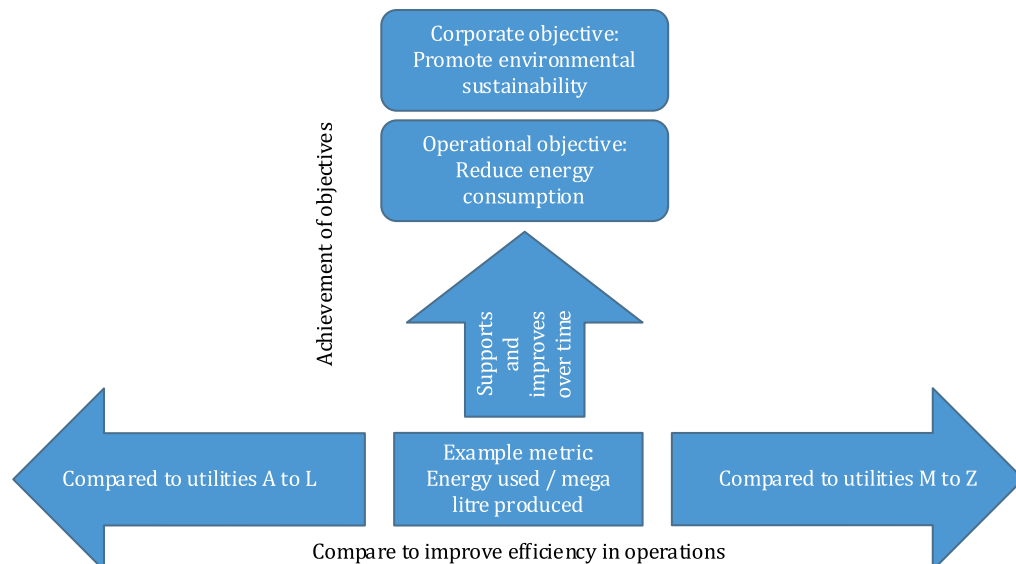
## Introduction

### 0.1 General

This document is a companion document to ISO 24510, ISO 24511 and ISO 24512 and was originally to be developed with the thought that many organizations (water utilities, regulators, users' associations) would benefit from examples illustrating how the performance indicator methodology and the performance indicators, such as those described and illustrated in the series of standards on the topic of activities relating to drinking water and wastewater services produced by ISO/TC 224, have been applied by a variety of organizations. Please refer to ISO 24510, ISO 24511 and ISO 24512 for guidance on the process and concepts<sup>[1],[2],[3]</sup>. However, there are many similar and parallel methodologies measuring the performance of organizations, not least of which are several "benchmarking" methodologies, some of which are described in this document. Therefore, this document provides examples of quantification practices and processes for measuring organizational performance.

Performance indicators as developed by ISO TC 224 are intended to be used primarily within water utilities, often over time, to demonstrate progress towards achieving high-level corporate objectives. In practice, these indicators are also being used to indicate projected benefits that could be achieved with changes in investment strategies or operations. Benchmarking, on the other hand, is used primarily to demonstrate the efficiency of operations, particularly by sharing information between comparable organizations often with the identification of best practices related to the particular operation being benchmarked. Used in a time series, all can also be applied to demonstrating progress towards meeting objectives and demonstrating continuous improvement. What is confusing is that both can use exactly the same metric, i.e. a numerator using one data set, and a denominator using another data set. For example, energy used/megalitre of water produced.

[Figure 1](#) illustrates the basic similarities in the use of a typical metric for the internal uses linked to achieving corporate objectives (performance indicators) and how benchmarking (as described in ISO 24523<sup>[11]</sup>) enables information sharing on metrics and ultimately sharing of best practices. Both methodologies are intended to assist in continuous improvement and to measure achievement of objectives.



**Figure 1 — Illustration of uses of performance metrics.**

Within the field of organizational assessment or measurement, there are several terms that are regarded at least informally as being interchangeable. These include "performance indicators", "performance measures" and "benchmarks". The first is the preferred terminology of the series of standards on the topic of activities relating to drinking water and wastewater services produced by ISO/TC 224. The terminology describing the process for utilizing "performance indicators" and "performance measures"

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tends to be “assessment”. The terminology describing the development and utilization of “benchmarks” is “benchmarking”. The end result can be the same: both result in the calculation of a metric that indicates the status achieved in respect of performance of a particular function or activity. However, these terms are used to achieve subtly different purposes. Performance indicators are normally used to measure activities within a single organization where the basis of calculation does not change from year to year and, at least in the ISO standards referenced, are directly related to organizational objectives at the corporate level.

Benchmarking is intended to encourage and allow comparison between organizations providing similar services in a defined context. Such methodologies often serve to measure achievement of operational objectives (which are necessarily a subset of corporate objectives and which support the achievement of the corporate objectives). That is, the elements comprising the numerator and the elements comprising the denominator should be identical between the organizations being compared. The benchmarks will enable comparison of organizations in common and defined fields, but are not necessarily directly or closely linked to the high-level corporate objectives. ISO 24523 provides information on the benchmarking process<sup>[1]</sup>.

A distinction between the performance indicator methodology and the benchmarking methodology is that while performance indicator comparison can be an essential part of benchmarking, performance assessment is a crucial part of benchmarking. Therefore, benchmarking is a way to apply the ISO 2451X standards. However, “benchmarking” differentiates from pure performance indicator comparisons through additional and continuing work steps, in particular “analysis” and “implementation” (see ISO 24523, Table 1<sup>[12]</sup>), leading to performance improvement.

The purpose of this document is to provide practical examples based on real life applications for the consideration of utilities using the guidelines in ISO 24510, ISO 24511 and ISO 24512, and also to indicate examples of where other metrics are employed for regulatory and other purposes.

This document should encourage and assist utilities, particularly small and medium-sized organizations, when using ISO 24510, ISO 24511 and ISO 24512, to think and communicate clearly about the meaning and use of performance indicators.

**0.2 Summary of the methodology of the series of standards on the topic of activities relating to drinking water and wastewater services produced by ISO/TC 224**

The series of standards on the topic of activities relating to drinking water and wastewater services produced by ISO/TC 224 provide guidance for water utilities that wish to demonstrate that they are meeting their broad social and other objectives as established by top management. These often reflect objectives established implicitly or explicitly in legislation which may govern the delivery of water services. The series of standards on the topic of activities relating to drinking water and wastewater services produced by ISO/TC 224 contemplate a three-step process. Step 1 is to determine water utilities’ strategic objectives. Such objectives in the case of water and sanitation services explicitly include promoting public health, protecting the environment and providing for a sustainable service. Step 2 asks what service criteria are to be used to determine if the objective is being met. The final step asks what metrics should be used to demonstrate that the criteria are being achieved.

For example, [Table 1](#) may represent these three stages in respect to the objective of promoting public health.

**Table 1 — Example of the performance indicator steps employed within the series of standards on the topic of activities relating to drinking water and wastewater services produced by ISO/TC 224**

Objective (Step 1 - define)	Service criteria (Step 2 - how to measure)	Indicator (Step 3 - establish a metric)
Promoting public health	Delivering safe drinking water	Percentage of delivered water quality tests that meet regulated requirements

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### 0.3 Purpose of the applications

In many countries, governments require that utilities (both public and private) report on their performance, in a unified and consistent manner. For example, all countries within the OECD are committed to such a policy and have established requirements for public sector utilities to publish annual reports indicating measures of their performance. The purpose of this policy and program is to provide assurances to the population that these utilities are effective in their activities (typically showing the economic efficiency of the activity in terms of cost/unit of output. For associations representing member utilities (sometimes in the public sector but often in the private sector) the association establishes methodologies for reporting on a uniform basis the performances achieved by the members. The purpose of this may often be to demonstrate good corporate citizenship and may include indicators of environmental protection, or consumer relations. For individual utilities (again for both public and private utilities), the purpose of calculating performance measures may be principally for internal purposes (e.g. reporting to management, demonstrating continuous improvement, or demonstrating the need for investment in new technology or for repair of infrastructure).

Regardless of the purpose for which the practice of measuring and reporting performance was established, benefits are obtained and shared with all stakeholders. In addition, all the metrics developed can be associated with organizational objectives and purposes.