Singapore Standards Council

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TECHNICAL REFERENCE

# Environmental management – Life cycle assessment – Illustrative examples on how to apply ISO 14044 to impact assessment situations

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# Environmental management – Life cycle assessment – Illustrative examples on how to apply ISO 14044 to impact assessment situations



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*National Climate Change Secretariat*
*National Environment Agency*
*Ramboll Environ*
*Singapore Institute of Manufacturing Technology*
*TUV SUD PSB Pte Ltd*

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# Contents

# National Foreword

This Technical Reference (TR) was prepared by the Working Group on Greenhouse Gas Management and Product Lifecycle Assessment appointed by the Technical Committee on Environmental Management under the direction of the Environment and Resources Standards Committee.

This TR is identical with ISO TR 14047:2012 published by the International Organization for Standardization.

Where appropriate, the words "Technical Report" shall be read as "Technical Reference". The reference to "ISO 14040" shall be read as "SS ISO 14040".

The comma has been used throughout as a decimal marker whereas in Singapore Standards it is a practice to use a full point on the baseline as the decimal maker.

This TR is a provisional standard made available for application over a period of three years. The aim is to use the experience gained to update the TR so that it can be adopted as a Singapore Standard. Users of the TR are invited to provide feedback on its technical content, clarity and ease of use. Feedback can be submitted using the form provided in the TR. At the end of the three years, the TR will be reviewed, taking into account any feedback or other considerations, to further its development into a Singapore Standard if found suitable.

Attention is drawn to the possibility that some of the elements of this Technical Reference may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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ISO/TR 14047 was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 5, *Life cycle assessment*.

This second edition cancels and replaces the first edition (ISO/TR 14047:2003), which has been technically revised.

# Introduction

The heightened awareness of the importance of environmental protection and the possible environmental significance of a product system[1)], have increased the interest in development of methods to better understand this significance. One of the techniques being developed for this purpose is Life Cycle Assessment (LCA).

The life cycle impact assessment (LCIA) is the third phase of life cycle assessment and its purpose is to assess a product system's life cycle inventory analysis (LCI) results to better understand their environmental significance. LCIA models selected environmental issues called impact categories. Through the use of category indicators which help condense and explain the LCI results, LCIA provides a picture of the aggregate emissions or of resource use to reflect their potential environment impacts.

This Technical Report provides examples to support ISO 14044:2006. It uses several examples on key areas of ISO 14044 in order to enhance the understanding of the requirements of the standard.

1) In this Technical Report, the term "product system" also includes service systems.

# Environmental management — Life cycle assessment — Illustrative examples on how to apply ISO 14044 to impact assessment situations

## 1 Scope

The purpose of this Technical Report is to provide examples to illustrate current practice of life cycle impact assessment according to ISO 14044:2006. These examples are only a sample of all possible examples that could satisfy the provisions of ISO 14044. They offer "a way" or "ways" rather than the "unique way" of applying ISO 14044. They reflect the key elements of the life cycle impact assessment (LCIA) phase of the LCA. The examples presented in this Technical Report are not exclusive and other examples exist to illustrate the methodological issues described.