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SERIES L: CONSTRUCTION, INSTALLATION AND
PROTECTION OF CABLES AND OTHER ELEMENTS OF
OUTSIDE PLANT

**Overview and general principles of
methodologies for assessing the environmental
impact of information and communication
technologies**

Recommendation ITU-T L.1400



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Recommendation ITU-T L.1400

Overview and general principles of methodologies for assessing the environmental impact of information and communication technologies

Summary

Recommendation ITU-T L.1400 presents the general principles on assessing the environmental impact of information and communication technologies (ICT) and outlines the different methodologies that are being developed:

- Assessment of the environmental impact of ICT goods, networks, and services
- Assessment of the environmental impact of ICT projects
- Assessment of the environmental impact of ICT in organizations
- Assessment of the environmental impact of ICT in cities
- Assessment of the environmental impact of ICT in countries or group of countries.

This Recommendation also provides some examples of opportunities to reduce the environmental load due to ICT.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T L.1400	2011-02-22	5

Keywords

Assessment, energy consumption, environmental impact, greenhouse gases, ICT.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Introduction

Information and communication technologies (ICT) delivers innovative products and services which are transforming the way we live. At the same time, ICT enables other sectors such as manufacturing, logistics, buildings and electric grids to develop and work more efficiently. When using ICT, it becomes increasingly important to consider and evaluate not only environmental impacts of the ICT sector itself, but also the environmental reduction benefits (enabling effect) that the usage of ICT and ICT services can have in many other sectors.

There exist some estimates (see Bibliography) indicating that the enabling effect of ICT could be important. In this context, cooperation and optimization across sectors of the economy is an opportunity.

Figure 1 shows that ICTs have both positive and negative effects on the environment. The negative factor is traditionally calculated by the environmental load caused by ICT devices and equipment, such as the consumption of energy and natural resources and generation of waste. On the positive impact side, ICT services can make lifestyle and business operations more energy efficient. They can do so by, for example, enabling dematerialization, which means transporting information instead of physical objects thus reducing movement and transportation. This efficiency of lifestyle and its underlying business activities can indirectly reduce the environmental load of human activities.

Towards constructing a sustainable society from an environmental viewpoint, we should act to minimize the negative factors of ICT and maximize the positive ones. To this end, both the positive and negative environmental aspects of ICT shall be quantified.

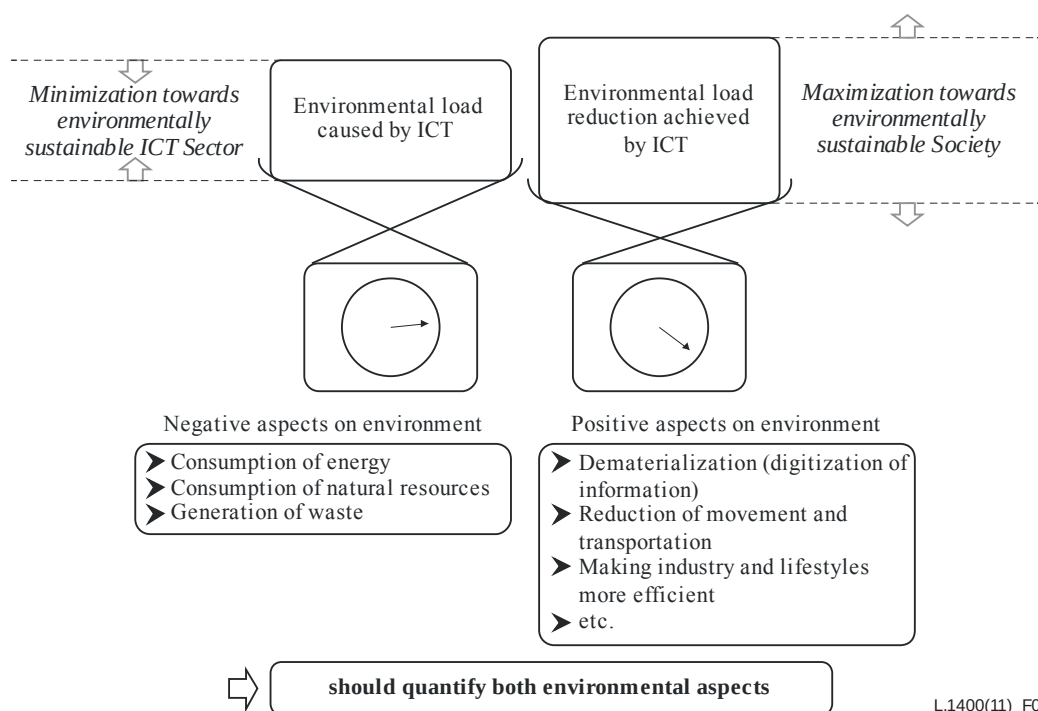


Figure 1 – Environmental aspects of ICT

The quantification of these two aspects is proposed by ITU-T with a series of Recommendations dealing with the methodology for the assessment of environmental impacts of:

- ICT goods, networks, and services
- ICT project

- ICT in organization
- ICT in cities.

NOTE 1 – Potentially some other administrative areas could be covered with the assessment of environmental impacts of cities.

- ICT in countries

NOTE 2 – A group of countries, for instance the European Union countries or OECD countries, regions inside a country and potentially some other administrative areas could be covered with the assessment of environmental impacts of countries.

It should be noted that the assessment of impacts of ICT requires the definition of boundaries and that results of assessments may vary significantly depending upon the selection of boundaries. In all cases, boundaries should be documented.

Additionally the Recommendations will include an overview of relevant standards created in other SDOs (e.g., [ISO 14040] and [ISO 14044]) noting that it is necessary to collaborate effectively internationally to avoid duplication and potentially conflicting points of view.

Recommendation ITU-T L.1400

Overview and general principles of methodologies for assessing the environmental impact of information and communication technologies

1 Scope

This Recommendation specifies:

- the structure of the ITU-T L.1400-series of Recommendations, methodology of environmental impact assessment of ICT;
- general principles of methodology among Recommendations regarding the environmental impact assessment of ICT;
- mention of relevant methodologies in other SDOs;
- presentation of each Recommendation from the future ITU-T L.1400-series Recommendations on methodology.

This Recommendation refers to documents that are being considered for preparation in the area of general principles of methodologies for assessing the environmental impact of ICTs. The specific designation of these documents (marked by *) will be indicated once approved for publication.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ISO 14040] ISO 14040:2006, *Environmental management – Life cycle assessment – Principles and framework*.
- [ISO 14044] ISO 14044:2006, *Environmental management – Life cycle assessment – Requirements and guidelines*.
- [ISO 14064-1] ISO 14064-1:2006, *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*.
- [ISO 14064-2] ISO 14064-2:2006, *Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements*.
- [ISO 14064-3] ISO 14064-3:2006, *Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions*.