



LIFE TECHNICAL GUIDE – 01

Measuring the Biodiversity Pressure Index (BPI) and Definition of Biodiversity Minimum Performance (BMP)

LIFE-BB-IN-TG01-2.0-EN

Version: 2.0

Language: English

Applicability: International – Latin America, Africa, United Kingdom

Title: LIFE Technical Guide 01 – Measuring the Biodiversity Pressure Index (BPI) and Definition of Biodiversity Minimum Performance (BMP)

Code: LIFE-BB-IN-TG01-2.0-EN

Applicability: International – Latin America, Africa, United Kingdom

Type: Technical Guide (TG)

Version: 2.0

Status: Final

Language: English

Approval: LIFE Institute Board of Directors

Date: 08/05/2026

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OBJECTIVE

To present the concept and method of obtaining the Biodiversity Pressure Index (BPI), as well as the Biodiversity Minimum Performance (BMP) that each organization/producer must achieve in biodiversity conservation actions and ecosystem services, considering the size and impact of the activity.

APPLICATION

This document applies to organizations/producers in preparation for LIFE Certification, LIFE Certified organizations/producers, as well as others interested in incorporating biodiversity management into their business models.

For a complete assessment of the LIFE Methodology for Business and Biodiversity, the LIFE Standard for Business and Biodiversity, Technical Guide 02 and complementary documents should also be considered.

For LIFE Certified organizations in previous versions, this document becomes effective after the end of the certification cycle, that is, on recertification. For other organizations/producers, this document applies automatically as of the date of publication.

This document is applicable to the geographic regions of Latin America, Africa, and the United Kingdom, excluding countries that have their own specific adaptation of the LIFE Methodology.

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1. INTRODUCTION

The Biodiversity Pressure Index (BPI) is an index developed by the LIFE Institute to define, compare and monitor, on the same scale, the pressure of any organization/producer to biodiversity and ecosystem services, serving as an important management tool.

From the calculation of the BPI, organizations and producers who wish to contribute to biodiversity may know and carry out the minimum performance in conservation actions that would be more appropriate to their size and impact.

This document introduces the concept and the manner of obtaining the Biodiversity Pressure Index (BPI) and the Biodiversity Minimum Performance (BMP) relating to every size and impact.

The information presented in this document is only a description of the calculations used. Obtaining the BPI/BMP is facilitated by using an automated calculation tool (LIFE Key software).

Organizations and producers who achieve or exceed the minimum performance set may request a third-party assessment to obtain an external recognition on their performance in favor of biodiversity. In this case, LIFE Certification can be granted, through the Certifying Body, whenever an organization/producer:

- ✓ Achieves a Biodiversity Positive Performance (BPP) equal to or higher than Biodiversity Minimum Performance (BMP). This positive performance must be demonstrated through a Biodiversity and Ecosystem Services Action Plan (BAP), assessed and rated according to the document Technical Guide 02.
- ✓ Meets the minimum indicators for biodiversity management described in LIFE Standard for Business and Biodiversity.

2. BIODIVERSITY PRESSURE INDEX (BPI)

Aiming to establish a metric for scaling and comparing pressures to biodiversity, making it possible to define relative performance for conservation, the Biodiversity Pressure Index (BPI) was developed.

To calculate the BPI, five environmental aspects are measured and evaluated. These aspects were selected from the performance of public meetings for the definition and selection of relevant variables for the index, both for their relation to the main causes of global biodiversity loss¹ and for their data collection in organizations of any size and sector.

As a result of this analysis, we selected those aspects that had higher viability and ease of data collection and direct relationship with official data available: waste generation; water consumption; energy consumption; land use; greenhouse gas emission.

The BPI is obtained through information related to the quantity and severity relating to these five selected environmental aspects.

Information on the quantity of environmental aspects assessed, or “Quantity Value”, refers to a direct relationship between the data of the organization/producer compared to an official data for this aspect. This comparison generates a quantity value of impact for each environmental aspect referring to its contribution to the regional total.

Information on severity, or “Severity Value”, considers specific information for each environmental aspect, which allows to define their criticality: water availability in the region, potential for global warming from the gases emitted, impact of the energy sources used, hazard and disposal of waste generated by, and fragility of the ecoregion² occupied by the enterprise. This information, although qualitative, is quantitatively represented by the severity values.

By multiplying the quantity values of impact by their severity factors, “Pressure Values” (PV) are

¹ Destruction of habitats; climate changes; introduction of invasive exotic species; over-exploitation of species; pollution (*Millennium Ecosystem Assessment*, 2005).

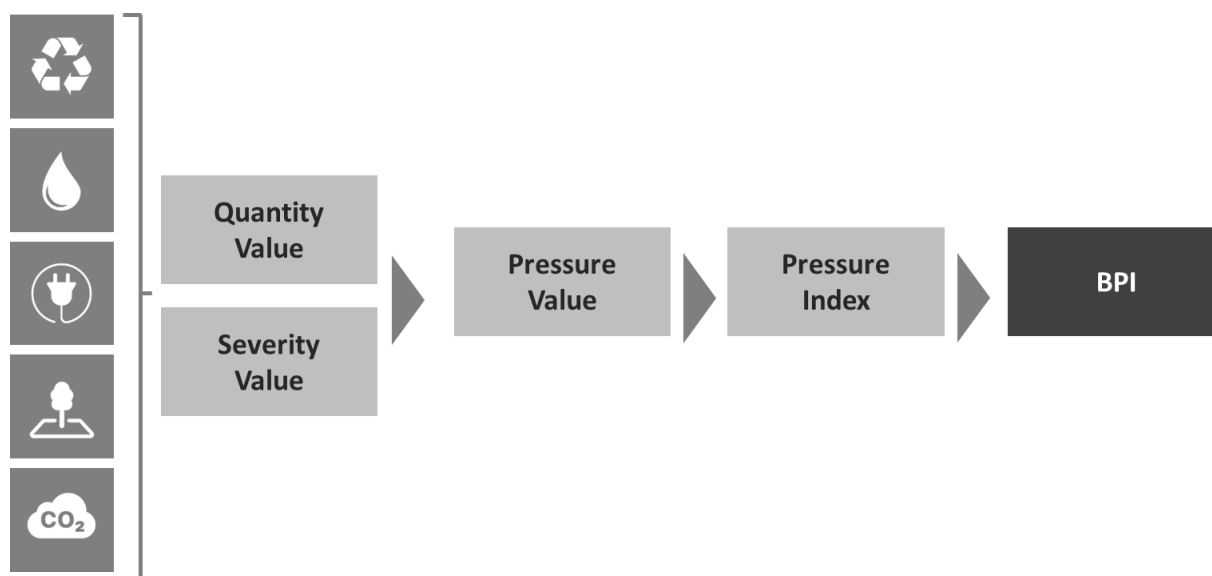
² Ecoregions are defined as relatively large areas of land or water containing a characteristic set of natural communities that share a large majority of their species, ecological dynamics, and environmental conditions (*Dinerstein et al.*, 1995)

generated for each environmental aspect. For comparison purposes, these pressure values are transformed into “Pressure Indexes” (PI), with the purpose of being mathematically distributed on the same scale, from zero to one thousand. This distribution has as reference the value of greatest impact known in the region for each environmental aspect.

The simple average of the Pressure Indexes (PI) for each one of the environmental aspects, results in the Biodiversity Pressure Index (BPI). The BPI is presented in a dimensionless value, on a scale from zero to one thousand.

Figure 1 represents the steps for calculating the BPI. Detailed information on applied equations and necessary data from organizations/producers for the calculation can be found in the next sections of the document.

Figure 1. Steps for calculating the Biodiversity Pressure Index (BPI)



Note: Quantity Value, Severity Value, Pressure Value and Pressure Index: calculated individually by environmental aspect.

2.1 BIODIVERSITY PRESSURE INDEX (BPI) CALCULUS

This section of the document introduces the steps and equations used to calculate the BPI.

2.1.1 Quantity Values (QV) and Severity Values (SV) of Environmental Aspects

Table 1 presents the equations used to calculate the quantity and severity values for each environmental aspect.

Table 1 - Equations of Quantity Values (QV) and Severity Values (SV) to calculate the BPI for each environmental aspect

ENVIRONMENTAL ASPECT	QUANTITY	SEVERITY
Waste Generation	$QV_{\text{WASTE}} = \frac{WG}{RV_{\text{WASTE}}}$	$SV_{\text{WASTE}} = \frac{\sum_{i=1}^n (\%WG_i \times ID_i)}{ID_{\text{max}}}$
Water Consumption	$QV_{\text{WATER}} = \frac{WU}{RV_{\text{WATER}}}$	$SV_{\text{WATER}} = \frac{DAB_{\text{OHR}}}{DAB_{\text{CHR}}}$
Energy Consumption	$QV_{\text{ENERGY}} = \frac{EC}{RV_{\text{ENERGY}}}$	$SV_{\text{ENERGY}} = \frac{\sum_{i=1}^n (\%EC_i \times IE_i)}{IE_{\text{max}}}$
Land Use	$QV_{\text{LAND USE}} = \frac{\sum_{i=1}^n LU_O \times (1 - MSA)}{LU_E}$	$SV_{\text{LAND USE}} = \frac{E_{if}}{100}$
Greenhouse Gas Emissions	$QSV_{\text{GHG}} = \left(\frac{\sum_{i=1}^n (GE_i \times GWP_i)}{RV_{\text{GHG}}} \right)$	

Table 2 describes the terms that make up the equations presented in Table 1.

Table 2 – Terms used in the equations for the quantity and severity values

EQUATION	TERMS USED
QV_{WASTE}	QV_{WASTE} = Quantity Value for Waste WG = Total quantity of hazardous and non-hazardous waste generated by the organization/producer (t/year) RV_{WASTE} = Reference Value for waste (t/year) according to <i>Item 3</i> in Appendix.
QV_{WATER}	QV_{WATER} = Quantity Value for Water WU = Consumption of water used by the organization/producer (m ³ /year) RV_{WATER} = Reference Value for water (m ³ /year), according to <i>Item 3</i> in Appendix.
QV_{ENERGY}	QV_{ENERGY} = Quantity Value for Energy EC = Total quantity of energy consumed by the organization/producer (toe/year) RV_{ENERGY} = Reference Value for Energy (toe/year), according to <i>Item 3</i> in Appendix.
$QV_{LAND\ USE}$	$QV_{LAND\ USE}$ = Quantity Value for land use LU_O = Land use of the organization/producer (hectares) LU_E = Original land use of the ecoregion in which the organization/producer is located (hectares), according to <i>Item 4</i> in Appendix. MSA = Value of the land use class in accordance with Mean Species Abundance, according to <i>Item 4</i> in Appendix.
QSV_{GHG}	QSV_{GHG} = Quantity and Severity Value for Greenhouse Gases GE_i = Quantity of greenhouse gas emissions i emitted by the organization/producer GWP_i = Global warming potential of greenhouse gas i according to <i>Item 4</i> in Appendix. RV_{GHG} = Reference value for greenhouse gases (tCO ₂ e/year) according to <i>Item 3</i> in Appendix.
SV_{WASTE}	SV_{WASTE} = Severity Value for Waste. WG_i = Percentage of waste generation with type “ i ” destination. ID_i = Impact of destination “ i ” (ID) listed to <i>Item 4</i> in Appendix. ID_{max} = Maximum impact observed between “ i ” types of destination.
SV_{WATER}	SV_{WATER} = Severity Value for the water aspect. DAB_{CHR} = Demand-Availability Balance DAB_{OHR} =Demand-Availability Balance of the country where the organization/producer is located, listed to <i>Item 4</i> in Appendix.
SV_{ENERGY}	SV_{ENERGY} = Severity value for the energy aspect. EC_i = Percentage of the energy source type i consumed by the organization/producer. IE_i = Impact of the energy source i consumed by the organization/producer, according to <i>Item 4</i> in Appendix. IE_{max} = Maximum impact observed between energy sources according to <i>Item 4</i> in Appendix.
$SV_{LAND\ USE}$	$SV_{LAND\ USE}$ = Severity value for the land use aspect. E_{IF} = Ecoregion importance factor, according to <i>Item 4</i> in Appendix.

2.1.2 Pressure Values of Environmental Aspects (PV)

In Table 3, the equations used to obtain the Pressure Value (PV_i) of each aspect *i* are listed.

Table 3 - Calculation of the pressure value for each environmental aspect

ENVIRONMENTAL ASPECT	PRESSURE VALUE OF THE ASPECT
Waste Generation	$PV_i = QV_i \times SV_i$
Water Consumption	
Energy Consumption	
Land Use	
Greenhouse Gas Emissions	$PV_{GHG} = QSV_{GHG}$

2.1.3 Pressure Indexes of Environmental Aspects (PI)

The Pressure Values (PV) are transformed into Pressure Indexes (PI), which allow the representation of the pressure of each environmental aspect on the same scale, dimensionless, ranging from zero to 1,000. The Pressure Index (PI) is calculated individually for each environmental aspect by the following equation:

$$PI_i = \left(1 - \frac{1}{1 + a_i PV_i}\right) \times 1000$$

Where in:

PI_i = Pressure Index of aspect *i*

a_i = Correction factor³ of aspect *i*, which allows *PI* to range between 0 and 1,000

PV_i = Pressure Value of aspect *i*

³ See details in *Item 1* in the Appendix.

2.1.4 Biodiversity Pressure Index (BPI)

The BPI is presented in a dimensionless value, on a scale from zero to one thousand. It is obtained by the simple arithmetic average of the Pressure Indexes (PI) of the five environmental aspects assessed:

$$BPI = \frac{PI_{WASTE} + PI_{WATER} + PI_{ENERGY} + PI_{LAND\ USE} + PI_{GHG}}{5}$$

Information on the reference values can be found in the *Item 3*, in Appendix **(Reference Information to calculate the BPI)**.

2.2 DATA REQUIRED TO CALCULATE THE BIODIVERSITY PRESSURE INDEX (BPI)

This document section presents the data from the organization/producer that need to be informed to calculate the BPI.

The calculation of the BPI is carried out by business unit. Therefore, it is necessary to clearly and objectively define which business unit is being evaluated and which division it belongs to⁴. In addition, data from the five environmental aspects of the previous year (from January to December) must be considered.

⁴ According to the LIFE Methodology, the following definitions apply:

Business Division: A segment of an organization that operates with significant operational differences from others, which may be more or less specific depending on the size of the organization. Examples: forestry division, agricultural division, industrial division, construction division, wind energy division, thermal division, operations division, manufacturing division, etc.

Business Unit: Refers to a physical unit with a continuous area, under the same management, and within the same business division of the organization, from which data is provided for the calculation of the Biodiversity Pressure Index (BPI) and Biodiversity Minimum Performance (BMP). It is typically linked to a specific location, for example: Wind Energy Unit A, Wind Energy Unit B, etc.

2.2.1 Waste Generation

a) Inform the total amount of waste generated by the organization/producer in tons/year, adding all the following situations:

- i) Any waste, whether treated or not, forwarded to third parties, whether through donation or sale, for treatment, storage or final elimination
- ii) Waste sent to landfills, own or third party
- iii) Waste stored, internally or by third parties
- iv) Household and production waste generated within the property
- v) Other wastes not receiving internal treatment in the organization/property

The data reported must refer to the total waste generated in all processes - direct and indirect, productive, administrative and from maintenance - as long as performed on the physical site which is being assessed.

b) There is no need to inform about waste destined internally for:

- i) Production of biogas
- ii) Incineration
- iii) Co-processing
- iv) Reuse
- v) Recycling

All consumption of water, energy and land use relating to these processes must be informed on the other environmental aspects to calculate the pressure of the organization/property.

c) Inform of the dangers of waste generated in:

- i) Hazardous Waste
- ii) Non-hazardous waste

d) Inform the destination of the waste informed in item (a) in:

- i) Reuse

- ii) Recycling
- iii) Composting
- iv) Landfarming
- v) Co-processing
- vi) Biogas
- vii) Storage
- viii) Incineration
- ix) Landfill with biogas utilization
- x) Landfill

When the destination is different from these categories, the organization/producer may select that with the characteristics closest to the informed destination.

Wastes from agricultural production, even if destined to industry, must be recorded as primary waste production and classified according to the type of destination (e.g.: recycling, co-processing, etc.). If the industry receiving this waste is undergoing assessments by LIFE Methodology, this material, in this unit assessed, must be considered as an input and not as waste.

Industrial waste used in agriculture must be informed as “landfarming”, to calculate the impact of the waste from the plant assessed.

2.2.2 Water Consumption

a) Inform the volume of consumptive water use⁵ of all processes, direct and indirect, carried out in the physical unit assessed.

⁵ Non-consumptive uses do not need to be reported, e.g.: aquaculture, hydroelectricity, water for dilution and/or purification of effluents.

i) **Primary sector:** inform the sum of the values for “green footprint” (water from precipitation stored in plants, evaporated or transpired) and for “blue footprint” (surface or underground water incorporated into the process).

- **Agricultural crops:** water consumption estimates for each crop can be obtained through an online tool from the Water Footprint Network initiative.
- **Animal production:** water consumption estimates can be obtained by extrapolation of the individual consumption per animal/head, including watering, washing, etc.
- **Forestry:** water consumption estimates for forestry must be calculated by the organization/producer and reported in the LIFE Key software, considering the “water type” field as “green”.

ii) **Secondary sector:** the organization must inform only the consumptive use of blue water (water collected less the water discarded, either as effluent or process losses).

iii) **Tertiary sector:** the organization must inform only the consumption of blue water. The consumption of blue water can be informed through consumption records, being possible to discount the return volume to the basin only when this information is available.

b) Inform the country where the assessed enterprise is located.

2.2.3 Energy Consumption

a) Inform the total amount of energy consumed (own or acquired by the business unit). Inform the distribution of consumption by sources used:

- i) Energy from the electricity produced by country (grid)
- ii) Biofuels (ethanol)
- iii) Biofuels (Oils and Biodiesel)
- iv) Biogas
- v) Biomass (wood)
- vi) Biomass (residual)

- vii) Mineral Coal
- viii) Sea Energy
- ix) Wind
- x) Natural Gas
- xi) Geothermal
- xii) Hydroelectricity
- xiii) Non-renewable residual
- xiv) Nuclear
- xv) Oil and derived
- xvi) Solar
- xvii) Coal and derivatives
- xviii) Other Renewables

2.2.4 Land use

a) Inform the area and the land use, according to occupation classes in accordance with MSA (Mean Species Abundance⁶) adaptation.

b) Inform the ecoregion in which the organization/producer is located:

The organization can define its ecoregion by entering the location data on the map provided by the LIFE Key software.

For the calculation of the PI_{AREA} , the business unit must present only one ecoregion. Therefore, all occurrences related to the land use of the business unit must have the same ecoregion option selected in LIFE Key. If the business unit is between two or more ecoregions, the one with the highest percentage should be considered.

⁶ Mean Species Abundance (MSA) is an indicator that describes the changes in the environment in relation to the original ecosystem. The MSA is an indicator of naturalness or intactability of biodiversity, defined as mean abundance of original species in the land use in question in relation to their abundance in undisturbed ecosystems. An land use with an MSA of 100% (1.0) means having a biodiversity similar to the natural situation. An MSA of 0% (0.0) means a completely destroyed ecosystem without remaining original species. The relationship of the MSA classes for land use are in the *Item 4*, in Appendix.

c) In the case of agricultural properties bound by leasing contracts or others, inform only the land users relating to the contract⁷ .

d) External land users to the assessed properties, bound only to conservation actions, must not be accounted for to calculate the BPI.

2.2.5 Greenhouse Gas Emissions

a) The total amount of all greenhouse gases emissions;

The organization/producer must inform the Total Emissions of each one of the Greenhouse Gases (tCO₂e/year), considering the Scopes 1+2+3 of the GHG Protocol tool. More detailed information on the scopes of the GHG Protocol is listed in *Item 4* in Appendix, and in the Reference Document related to the subject.

The GHG Protocol also has a calculation tool specific for the primary sector. Other tools for the inventory of emissions will be accepted, as long as also using the IPCC (Intergovernmental Panel on Climate Change) guidelines⁸.

The BPI assesses the negative pressures to biodiversity for all environmental aspects considered. Thus, for this step, only greenhouse gas emissions will be accounted for, and not carbon sequestration. Carbon fixation projects, validated by a third party⁹, may score as indirect effect action for biodiversity conservation (strategic line “Group 4” – Technical Guide 02).

⁷ In these cases, legal environmental compliance is mandatory for the entire land use of the property, even if the contract is bound to a partial area. This mandatory legal compliance must be provided for in contract.

⁸ Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories.

⁹ Validation by recognized initiatives relative to the topic or by consulting works based in detailed, justified and recognized methodologies.

3. BIODIVERSITY MINIMUM PERFORMANCE (BMP)

The Biodiversity Minimum Performance (BMP) refers to the minimum score to be achieved in conservation actions by an organization/producer depending on its pressure on biodiversity and its size (turnover).

It is determined from the Biodiversity Pressure Index (BPI) and the turnover (TO) of the organization/producer, through the following equation:

$$BMP = 50 \times BPI^x \times TO^y$$

Where in:

BMP: Biodiversity Minimum Performance

BPI: Biodiversity Pressure Index

TO: Turnover (dollar)

x, y: calibration factors of BMP

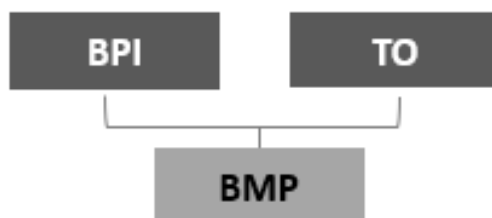
The Turnover of the organization/producer must be converted into dollars, considering the currency conversion rate on the date of December 31 of the base year referring to the calculation of the BPI.

Additional information used to calculate the BMP is available in the Appendix of this document.

Once the BMP is calculated, the organization must evaluate and compare it with its Biodiversity Positive Performance (BPP). Biodiversity Positive Performance (BPP) is related to the score of the organization's Biodiversity and Ecosystem Services Action Plan (BAP). The methodology for scoring BPP can be found on LIFE Technical Guide 02.

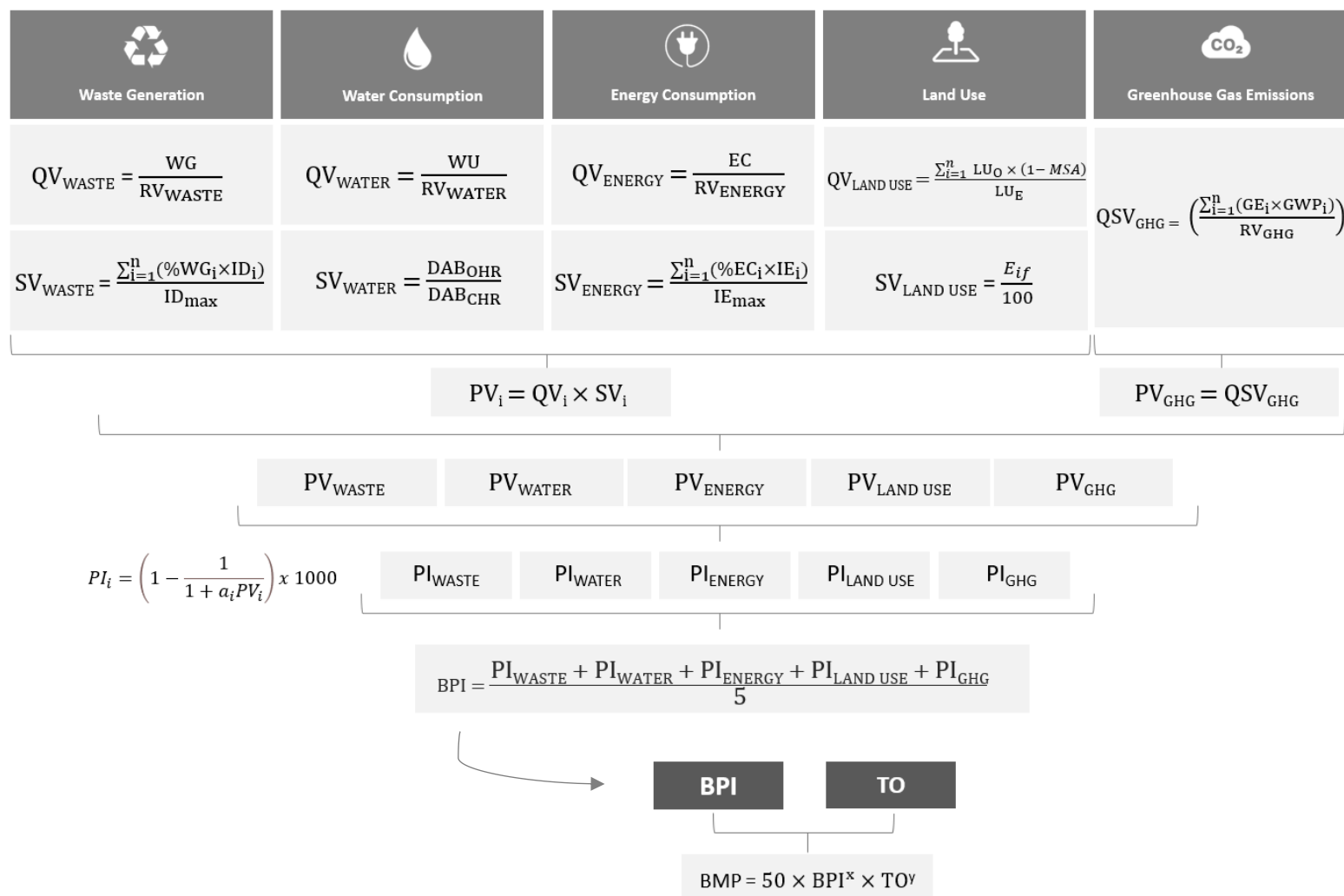
Figure 2 presents a simplified BMP calculation scheme.

Figure 2. BMP calculation scheme



4. FLOWCHARTS TO CALCULATE THE BPI AND THE BMP

Figure 3. Flow charts to calculate the BPI and the BMP



5. GLOSSARY

The terms used in this document are available in the LIFE Glossary.

6. REFERENCES

DINERSTEIN, E., OLSON, D. M., GRAHAM, D. J., WEBSTER, A. L., PRIMM, S. A., BOOKBINDER, M. P., LEDEC, G. 1995. **A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean**. ISBN 0-8213-3295-3. Available at: <<https://documents1.worldbank.org/curated/en/957541468270313045/pdf/multi-page.pdf>>. Access on: 07 February 2025.

FAO. **AQUASTAT Dissemination System**. Available at: <<https://data.apps.fao.org/aquastat/?lang=em>>. Access on: 19 March 2025.

GLOBIO. **GLOBIO3: A Framework to Investigate Options for Reducing Global Terrestrial Biodiversity Loss**. 2009. Available at <<https://www.globio.info/globio3-framework-to-investigate-options-for-reducing-global-terrestrial-biodiversity-loss>>. Access on: 07 February 2025.

GREEN HOUSE GAS PROTOCOL. **Calculation tool**. Available at: <<https://ghgprotocol.org/calculation-tools-and-guidance>> <http://www.fgv.br/ces/ghg>>. Access on: 07 February 2025.

IEA. **Unit converter and glossary**. 2016. IEA, Paris. Available at: <<https://www.iea.org/reports/unit-converter-and-glossary>>. Access on: 07 February 2025.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC). **Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories**. Available at: <<http://twixar.me/xVP>>. Access on: 07 February 2025.

LIFE INSTITUTE. Available at: <<https://lifeinstitute.global.org/>>. Access on: 07 February 2025.

LIFE INSTITUTE. **GUIA TÉCNICO LIFE – 01: Cálculo do Índice de Pressão à Biodiversidade (IPB) e definição do Desempenho Mínimo em Biodiversidade (DMB)**. Applicability: **Brazil**. LIFE-BB-BR-TG01-4.0-R1-PT. Version: 4.0-R1. Language: Portuguese. Available at: <<https://lifeinstitute.global.org/brazil-applicability/>>. Access on: 19 March 2025.

LIFE INSTITUTE. **LIFE TECHNICAL GUIDE – 01: Calculation of the Biodiversity Pressure Index (BPI) and definition of Biodiversity Minimum Performance (BMP)**. Applicability: **Europe**. LIFE-BB-EU-TG01-1.0-R3-EN. Version 1.0-R3. Language: English. Available at: <<https://lifeinstitute.global.org/europe-applicability/>>. Access on: 19 March 2025.

LIFE INSTITUTE. **GUÍA TÉCNICA LIFE - 01: Cálculo del Índice de Presión a la Biodiversidad (IPB) y Definición del Desempeño Mínimo en Biodiversidad (DMB)**. Applicability: **Mexico**. LIFE-BB-MX-TG01-1.0-R1-ES. Version 1.0-R1. Language: Spanish. Available at: <<https://lifeinstitute.global.org/mexico-applicability/>>. Access on: 19 March 2025.

LIFE INSTITUTE. **GUÍA TÉCNICA LIFE - 01: Cálculo del Índice de Presión a la Biodiversidad (IPB) y Definición del Desempeño Mínimo en Biodiversidad (DMB)**. Applicability: **Paraguay**. LIFE-PY-TG01-3.2-Español. Version 3.2. Language: Spanish. Available at: <<https://lifeinstitute.global.org/paraguay-applicability/>>. Access on: 19 March 2025.

MYHRE, G., D. SHINDELL, F.-M. BRÉON, W. COLLINS, J. FUGLESTVEDT, J. HUANG, D. KOCH, J.-F. LAMARQUE, D. LEE, B. MENDOZA, T. NAKAJIMA, A. ROBOCK, G. STEPHENS, T. TAKEMURA AND H. ZHANG, 2013: **Anthropogenic and Natural Radiative Forcing**. In: **Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change** [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: <https://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf>. Access on: 07 February 2025.

UNEP-WCMC (2019). **User Manual for the World Database on Protected Areas and world database on other effective area-based conservation measures: 1.6**. Cambridge, UK. Available at: <http://wcmc.io/WDPA_Manual>. Access on: 07 February 2025.

WATER FOOTPRINT NETWORK. **The Water Footprint Assessment Manual**. Available at: <http://waterfootprint.org/media/downloads/TheWaterFootprintAssessmentManual_2.pdf>. Access on: 07 February 2025.

WORLD WILDLIFE FUND FOR NATURE (WWF). **Terrestrial Ecoregions of the World (TEOW): A New Map of Life on Earth. 2001**. Available at: <<https://www.worldwildlife.org/publications/terrestrial-ecoregions-of-the-world>>. Access on: 07 February 2025.

7. APPENDIX

1. a_i Factor

a_i Factor is the Correction Factor of distribution scale of the Pressure Indexes. These factors establish a distribution scale for the impacts, assigning higher values to each individual impact (productive unit). The factor is set so that the maximum value observed for the environmental aspect corresponds to a value of 950 on a scale from 0 to 1,000.

The Correction Factors are determined at an international level for the Aspects Waste, Energy and Greenhouse Gases (GHG). For the Aspects Water and Land Use, the correction factors are determined at a continental or national level.

The Correction Factors for the Aspects Waste, Energy and GHG were obtained through the simple average of the references adapted by country (Technical Guides 01 (TG01) for Brazil, Paraguay, Mexico and the European Union). These documents are available on the LIFE Institute website.

The Correction Factors presently used at an international level are **Waste: 59,398 - Energy: 1,341 - Greenhouse Gases: 2,997.**

The Correction Factor for the Water Aspect was calculated by continent, based on the water availability and demand of each country in the continent.

The Water Aspect Correction Factors applied to each continent are:

CONTINENT	CORRECTION FACTORS (a_i)
Africa	3,043
America	10,947
Asia	39,673
Europe	2,870
Oceania	3,128

The Correction Factor for the Land Use Aspect was calculated for **Latin America, Africa, and the United Kingdom**, based on the total area of the ecoregions within each geographic region and the maximum land occupation value obtained from the national adaptation values for Brazil, Mexico, Paraguay, The European Union (EU), and the United Kingdom.

The Land Use Aspect Correction Factor applied to each geographic region is:

GEOGRAPHIC REGION	CORRECTION FACTORS (a_i)
Latin America	1,509
Africa	7,984
United Kingdom	2,985

2. Calibration factors of BMP

The factors of equation BMP are the ones that adjust the region's conservation performance according to the current practices of organizations, so that all enterprises seek to achieve the best practices. Current practices of organizations in conservation are researched and assessed by local experts.

Calibration factors of BMP in International: x) 0.42; y) 0.29.

3. Reference Values (RV) for environmental aspects

The Reference Value (RV) represents the whole, in terms of quantity, regional impact in one year.

ASPECT	REFERENCE VALUE (RV)	DOCUMENT	YEAR	BASE YEAR	INFORMATION USED
WASTE	742,120,880.43 t/year	TG01 Brazil 4.0, TG01 Europe 1.0, TG01 Paraguay 3.2 and TG01 México 1.0	2024	Several*	Estimated medium
GASES	1,717,898,916.71 tCO ₂ e/year	TG01 Brazil 4.0, TG01 Europe 1.0, TG01 Paraguay 3.2 and TG01 México 1.0	2024	Several*	Estimated medium
ENERGY	287,957,672.67 toe/year	TG01 Brazil 4.0, TG01 Europe 1.0, TG01 Paraguay 3.2 and TG01 México 1.0	2024	Several*	Estimated medium
WATER	Europe 221,700,000,000.00 m ³ /year	Source: AQUASTAT Disclosure System - FAO	2024	2020	Water Demand by country/continent
	Africa 23,110,000,000.00 m ³ /year				
	America 845,730,000,000.00 m ³ /year				
	Asia 3,065,070,000,000.00 m ³ /year				
	Oceania 241,630,000,000.00 m ³ /year				

*See referred TG documents for the base years.

4. References for the calculation of the Severity Value

a) Impact of Destination (ID) of non-hazardous waste generated by the organization

ASPECT	Reduction of the volume of waste to be disposed in a landfill	Reduction of the potential for contamination of the waste	Generation of new products	Energy reuse	Reduction of the consumption of natural resources	Generation of other waste	Area degradation	Generation of liquid effluents / Possibly contaminated water	Generation of pollutant gases	Sum of the impact	Process score	Severity Index
Destination	Positive Impact					Negative Impact						
Reuse	0	0	0	0	0	0	0	0	0	0	1	0
Recycling	0	0	0	0	0	1	0	1	0	2	2	4
Composting	0	0	0	1	0	0	0	1	0	2	2	4
Landfarming	0	0	0	0	0	0	0	1	1	2	4	8
Co-processing	0	0	0	0	0	1	0	1	1	3	3	9
Biogas	0	0	0	1	0	0	1	1	1	4	3	12
Storage	0	0	1	1	-	0	0	1	0	3	4	12
Incineration	0	0	1	0	1	1	-	-	1	4	4	16
Landfill with biogas utilization	1	1	0	0	1	1	1	1	1	7	5	35
Landfill	1	1	1	1	1	1	1	1	1	9	5	45

*The impact score of the disposal of the waste considers positive (+) and negative (-) environmental aspects					
Positive Impact Score (+)	0	Presence of positive impact	Negative Impact Score (-)	0	Absence of positive impact
	1	Absence of positive impact		1	Presence of positive impact
	-	Not Applicable		-	Not Applicable
** The destination process is scored according to the waste management hierarchy adapted and adopted by the LIFE Institute					
Step in Waste Management	Reuse	Recycling	Energy Recovery (using raw materials)	Energy Recovery (no use of raw materials)	Final waste disposal
Score	1	2	3	4	5

Source: LIFE Institute - 2021

b) Impact of Destination (ID) of hazardous waste generated by the organization

ASPECT	Reduction of the volume of waste to be disposed in a landfill	Reduction of the potential for contamination of the waste	Generation of new products	Energy reuse	Reduction of the consumption of natural resources	Generation of other waste	Area degradation	Generation of liquid effluents / Possibly contaminated water bodies	Generation of pollutant gases	Flammability	Corrosivity	Reactivity	Toxicity	Pathogenicity	Sum of the impact	Process score	Severity Index
Destination	Positive Impact					Negative Impact											
Reuse	0	0	0	0	0	0	0	0	0	10	10	10	10	10	50	1	50
Recycling	0	0	0	0	0	10	0	10	0	10	10	10	10	10	70	2	140
Landfarming	0	0	0	0	0	0	0	10	10	10	10	10	10	10	70	3	210
Co-processing	0	0	0	0	0	10	0	10	10	10	10	10	10	10	80	3	240
Biogas	0	0	0	0	0	0	0	10	10	10	10	10	10	10	70	4	280
Storage	0	0	10	10	-	0	0	10	0	10	10	10	10	10	80	4	320
Incineration	0	0	10	0	10	10	-	-	10	10	10	10	10	10	90	4	360
Landfill with biogas utilization	10	10	0	0	10	10	10	10	10	10	10	10	10	10	120	5	600
Landfill	10	10	10	10	10	10	10	10	10	10	10	10	10	10	140	5	700

***The impact score of the disposal of the waste considers positive (+) and negative (-) environmental aspects**

Positive Impact Score (+)	0	Presence of positive impact	Negative Impact Score (-)	0	Absence of positive impact
	10	Absence of positive impact		10	Presence of positive impact
	-	Not Applicable		-	Not Applicable

**** The destination process is scored according to the waste management hierarchy adapted and adopted by the LIFE Institute**

Step in Waste Management	Reuse	Recycling	Energy Recovery (using raw materials)	Energy Recovery (no use of raw materials)	Final waste disposal
Score	1	2	3	4	5

Source: LIFE Institute - 2021

c) Demand-Availability Balance (DAB) by continent

AFRICA

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Congo	832.00	0.09	0.00011
Democratic Republic of the Congo	1283.00	0.68	0.00053
Liberia	232.00	0.15	0.00063
Equatorial Guinea	26.00	0.02	0.00076
Gabon	166.00	0.14	0.00084
Sierra Leone	160.00	0.21	0.00133
Cameroon	283.15	1.09	0.00384
Guinea	226.00	0.89	0.00394
Angola	148.40	0.71	0.00476
Guinea-Bissau	31.40	0.19	0.00605
Mozambique	217.10	1.47	0.00678
Namibia	39.91	0.29	0.00722
Comoros	1.20	0.01	0.00833
Benin	26.39	0.23	0.00887
Uganda	60.10	0.64	0.01060
Gambia	8.00	0.10	0.01270
South Sudan	49.50	0.66	0.01329
Côte d'Ivoire	84.14	1.16	0.01381
Lesotho	3.02	0.04	0.01449
Zambia	104.80	1.57	0.01500
Togo	14.70	0.22	0.01517
Botswana	12.24	0.22	0.01801
Sao Tome and Principe	2.18	0.04	0.01876
Chad	45.70	0.88	0.01925
Burundi	12.54	0.28	0.02234
Ghana	56.20	1.46	0.02606
Madagascar	337.00	13.56	0.04023
Mali	120.00	5.19	0.04322
Nigeria	286.20	12.48	0.04359
Rwanda	13.30	0.60	0.04515
United Republic of Tanzania	96.27	5.18	0.05385
Burkina Faso	13.50	0.82	0.06059
Djibouti	0.30	0.02	0.06333
Niger	34.05	2.58	0.07587
Senegal	38.97	3.02	0.07752
Malawi	17.28	1.36	0.07852
Eritrea	7.32	0.58	0.07956
Ethiopia	122.00	10.55	0.08646

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Kenya	30.70	4.03	0.13134
Timor-Leste	8.22	1.17	0.14267
Mauritius	2.75	0.61	0.22101
Somalia	14.70	3.30	0.22435
Eswatini	4.51	1.07	0.23681
Zimbabwe	20.00	4.91	0.24548
Morocco	29.00	10.43	0.35969
South Africa	51.35	19.19	0.37369
Sudan	37.80	26.94	0.71257
Algeria	11.67	10.46	0.89672
Cabo Verde	0.30	0.29	0.97659
Egypt	57.50	77.50	1.34783
Libya	0.70	5.83	8.32857

Source: LIFE Institute - 2024

AMERICA

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Bolivia	574.00	2.21	0.00385
Belize	21.73	0.10	0.00465
Guyana	271.00	1.44	0.00533
Suriname	99.00	0.62	0.00622
Nicaragua	164.52	1.27	0.00775
Panama	139.30	1.21	0.00870
Colombia	2360.00	25.87	0.01096
Canada	2902.00	33.75	0.01163
Venezuela	1325.00	22.63	0.01708
Honduras	92.16	1.61	0.01744
Peru	1879.80	38.55	0.02051
Uruguay	172.20	3.66	0.02125
Ecuador	442.40	9.92	0.02242
Guatemala	127.91	3.32	0.02599
Costa Rica	113.00	3.14	0.02777
Chile	923.06	32.37	0.03507
El Salvador	26.27	0.96	0.03662
Argentina	876.24	37.78	0.04312
Jamaica	10.82	0.53	0.04871
Grenada	0.20	0.01	0.07050
Saint Vincent and the Grenadines	0.10	0.01	0.08502
Trinidad and Tobago	3.84	0.38	0.09979

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Dominica	0.20	0.02	0.10000
Haiti	14.02	1.45	0.10341
Saint Lucia	0.30	0.04	0.14300
United States of America	3069.00	444.29	0.14477
Cuba	38.12	6.96	0.18256
Antigua and Barbuda	0.05	0.01	0.22115
Dominican Republic	23.50	9.08	0.38629
Puerto Rico	7.10	3.27	0.46120
Saint Kitts and Nevis	0.02	0.02	0.65000
Barbados	0.08	0.08	1.01250

Source: LIFE Institute - 2024

The values of Demand-Availability Balance (DAB) for **Brazil, Mexico and Paraguay** can be found in their specific Technical Guides.

ASIA

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Bhutan	78.00	0.34	0.00433
Cambodia	476.10	2.18	0.00459
Malaysia	580.00	5.49	0.00946
Brunei Darussalam	8.50	0.09	0.01082
Mongolia	34.80	0.46	0.01329
Russian Federation	4525.45	64.82	0.01432
Lao People's Democratic Republic	333.50	7.35	0.02204
Belarus	57.90	1.33	0.02295
Myanmar	1167.80	33.39	0.02859
Bangladesh	1227.03	35.87	0.02923
Nepal	210.20	9.50	0.04518
Viet Nam	884.12	82.03	0.09278
Democratic People's Republic of Korea	77.15	8.66	0.11222
Mauritania	11.40	1.35	0.11844
Thailand	438.61	57.31	0.13065
Japan	430.00	78.30	0.18209
Philippines	479.00	87.48	0.18262
Maldives	0.03	0.01	0.19667
China	2840.22	581.29	0.20466
China	2840.22	602.12	0.21200
Kazakhstan	108.41	24.56	0.22658
Sri Lanka	52.80	12.95	0.24519

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Türkiye	211.60	62.08	0.29336
Afghanistan	65.33	20.37	0.31185
Kyrgyzstan	23.62	7.66	0.32433
Azerbaijan	34.68	12.20	0.35195
Armenia	7.77	2.83	0.36414
Republic of Korea	69.70	27.08	0.38855
India	1910.90	761.00	0.39824
Lebanon	4.50	1.84	0.40862
Tajikistan	21.91	9.90	0.45185
Iraq	89.86	45.04	0.50125
Palestine	0.84	0.45	0.53572
Iran (Islamic Republic of)	137.05	93.30	0.68080
Pakistan	246.80	183.45	0.74331
Tunisia	4.62	3.59	0.77733
Syrian Arab Republic	16.80	16.76	0.99752
Uzbekistan	48.87	51.22	1.04800
Turkmenistan	24.77	26.24	1.05975
Singapore	0.60	0.66	1.10000
Jordan	0.94	1.10	1.17915
Israel	1.78	2.40	1.34831
Oman	1.40	1.92	1.36786
Yemen	2.10	3.57	1.69762
Bahrain	0.12	0.43	3.74483
Saudi Arabia	2.40	25.99	10.83000
Qatar	0.06	0.88	15.23318
United Arab Emirates	0.15	4.98	33.20875
Kuwait	0.02	1.25	62.50000

Source: LIFE Institute - 2024

EUROPE

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Iceland	170.00	0.28	0.00164
Norway	393.00	2.68	0.00683
Albania	30.20	0.79	0.02603
Georgia	63.33	1.65	0.02611
Switzerland	53.50	1.74	0.03256
Serbia	162.20	5.32	0.03283
Ukraine	175.28	9.87	0.05631
United Kingdom of Great Britain and Northern Ireland	147.00	8.42	0.05728

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Republic of Moldova	12.27	0.80	0.06520
North Macedonia	6.40	0.70	0.10970

Source: LIFE Institute - 2024

The values of Demand-Availability Balance (DAB) for European Union (EU) countries can be found in their specific Technical Guide.

OCEANIA

COUNTRY	Water availability in the region (10 ⁹ m ³ /year)	Water demand in the region (10 ⁹ m ³ /year)	Demand-Availability Balance (DAB)
Papua New Guinea	801.00	0.39	0.00049
Fiji	28.55	0.08	0.00297
New Zealand	327.00	4.89	0.01495
Australia	492.00	13.63	0.02770
Indonesia	2018.70	222.64	0.11029

Source: LIFE Institute - 2024

d) Severity Value for Water by continent

AFRICA

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Congo	0.000013
Democratic Republic of the Congo	0.000064
Liberia	0.000076
Equatorial Guinea	0.000091
Gabon	0.000101
Sierra Leone	0.000159
Cameroon	0.000462
Guinea	0.000473
Angola	0.000571
Guinea-Bissau	0.000727
Mozambique	0.000815
Namibia	0.000866
Comoros	0.001001
Benin	0.001065
Uganda	0.001273
Gambia	0.001525

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
South Sudan	0.001596
Côte d'Ivoire	0.001658
Lesotho	0.001740
Zambia	0.001801
Togo	0.001821
Botswana	0.002162
Sao Tome and Principe	0.002253
Chad	0.002311
Burundi	0.002683
Ghana	0.003129
Madagascar	0.004830
Mali	0.005189
Nigeria	0.005234
Rwanda	0.005421
United Republic of Tanzania	0.006466
Burkina Faso	0.007275
Djibouti	0.007604
Niger	0.009109
Senegal	0.009308
Malawi	0.009428
Eritrea	0.009553
Ethiopia	0.010381
Kenya	0.015769
Timor-Leste	0.017130
Mauritius	0.026536
Somalia	0.026938
Eswatini	0.028433
Zimbabwe	0.029475
Morocco	0.043187
South Africa	0.044868
Sudan	0.085557
Algeria	0.107668
Cabo Verde	0.117258
Egypt	0.161832
Libya	1.000000

Source: LIFE Institute - 2024

AMERICA

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Bolivia	0.003801
Belize	0.004590
Guyana	0.005265

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Suriname	0.006144
Nicaragua	0.007652
Panama	0.008589
Colombia	0.010828
Canada	0.011487
Venezuela	0.016866
Honduras	0.017221
Peru	0.020254
Uruguay	0.020992
Ecuador	0.022142
Guatemala	0.025667
Costa Rica	0.027428
Chile	0.034635
El Salvador	0.036163
Argentina	0.042584
Jamaica	0.048111
Grenada	0.069630
Saint Vincent and the Grenadines	0.083970
Trinidad and Tobago	0.098560
Dominica	0.098765
Haiti	0.102132
Saint Lucia	0.141235
United States of America	0.142980
Cuba	0.180301
Antigua and Barbuda	0.218424
Dominican Republic	0.381525
Puerto Rico	0.455503
Saint Kitts and Nevis	0.641975
Barbados	1.000000

Source: LIFE Institute - 2024

The Severity Value of Water for **Brazil, Mexico, Paraguay and the European Union** can be found in their specific Technical Guides.

ASIA

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Bhutan	0.000069
Cambodia	0.000073
Malaysia	0.000151
Brunei Darussalam	0.000173
Mongolia	0.000213
Russian Federation	0.000229
Lao People's Democratic Republic	0.000353

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Belarus	0.000367
Myanmar	0.000457
Bangladesh	0.000468
Nepal	0.000723
Viet Nam	0.001485
Democratic People's Republic of Korea	0.001796
Mauritania	0.001895
Thailand	0.002090
Japan	0.002913
Philippines	0.002922
Maldives	0.003147
China	0.003275
China	0.003392
Kazakhstan	0.003625
Sri Lanka	0.003923
Türkiye	0.004694
Afghanistan	0.004990
Kyrgyzstan	0.005189
Azerbaijan	0.005631
Armenia	0.005826
Republic of Korea	0.006217
India	0.006372
Lebanon	0.006538
Tajikistan	0.007230
Iraq	0.008020
Palestine	0.008572
Iran (Islamic Republic of)	0.010893
Pakistan	0.011893
Tunisia	0.012437
Syrian Arab Republic	0.015960
Uzbekistan	0.016768
Turkmenistan	0.016956
Singapore	0.017600
Jordan	0.018866
Israel	0.021573
Oman	0.021886
Yemen	0.027162
Bahrain	0.059917
Saudi Arabia	0.173280
Qatar	0.243731
United Arab Emirates	0.531340
Kuwait	1.000000

Source: LIFE Institute - 2024

EUROPE

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Iceland	0.001309213
Norway	0.005463340
Albania	0.020814296
Georgia	0.020883275
Switzerland	0.026036981
Serbia	0.026252707
Ukraine	0.045033003
United Kingdom of Great Britain and Northern Ireland	0.045807952
Republic of Moldova	0.052142463
North Macedonia	0.087731510

Source: LIFE Institute – 2024

The Severity Value of Water for **European Union countries** can be found in their specific Technical Guide.

OCEANIA

COUNTRY	$SV_{\text{WATER}} = DAB_{\text{OHR}} / DAB_{\text{CHR}}$
Papua New Guinea	0.004439
Fiji	0.026964
New Zealand	0.135584
Australia	0.251194
Indonesia	1.000000

Source: LIFE Institute - 2024

e) Impact of Electric Grid

For this item, the average composition of the energy GRIDS from the 27 European countries, Brazil, and Mexico was calculated, resulting in an average **International Electric Grid Impact of 70.86**.

f) Impact of energy sources used by the organization (IE)

IMPACT													
COMPONENT	WATER		AIR			SOIL				BIOTA			IMPACT OF ENERGY SOURCE (IE)
ENVIRONMENTAL FACTOR	Water use and / or consumption	Generation of effluents	Emissions of greenhouse gases	Atmospheric emissions	Noise emissions	Movement of soil			Land use	Generation of solid waste	Occupation of areas	Generation of effluents and solid residues; atmospheric emissions	
POTENTIAL IMPACT	Change in water availability	Change in water quality	Contribution to increased climate warming	Change in air quality	Change in noise levels	Intensification of silting processes	Intensification of erosive processes	Generation of induced earthquakes	Changes in landscape and land use	Change in soil quality	Habitat change and / or reduction	Structural and / or functional change of ecosystems	
ENERGY SOURCE													
Biofuels (Ethanol)	9	5	2	5	1	2	5	n.s	9	1	5	3	47
Biofuel (Oils and Biodiesel)	9	5	2	5	1	2	5	n.s	5	5	5	3	47
Biogas	2	1	3	3	1	n.s	n.s	n.s	2	1	n.s	n.s	13
Biomass (wood)	3	1	9	7	3	2	2	n.s	7	3	9	3	49
Biomass (residual)	1	1	3	5	1	1	1	n.s	5	3	1	3	25
Mineral Coal	9	8	10	10	7	9	9	9	10	10	10	9	110
Sea Energy	n.s	n.s	n.s	n.s	2	n.s	n.s	n.s	1	n.s	5	1	9
Wind	n.s	n.s	n.s	n.s	6	n.s	1	n.s	9	n.s	2	n.s	18
Natural Gas	9	7	9	7	7	4	4	9	9	5	8	6	84
Geothermal	1	6	1	2	4	1	1	9	9	5	5	1	45
Hydroelectricity	9	1	1	3	3	10	9	2	10	1	9	1	59
Non-renewable residual	1	5	10	7	5	1	1	n.s	5	n.s	2	1	38
Nuclear	10	6	1	3	7	9	9	9	10	10	9	5	88
Petroleum and byproducts	9	8	10	10	7	4	4	9	9	8	4	6	88
Solar	5	1	1	n.s	1	1	1	n.s	6	6	5	5	32

n.s = not significant

g) Land use (Mean Species Abundance - MSA adaptation)

MSA	Classes of Soil Use
1.0	• Areas permanently covered with snow or ice considered as undisturbed areas. • Areas permanently without vegetation (for example, deserts, high alpine areas). • Minimal disturbance, where flora and fauna species abundance are near pristine. • Grassland or scrubland-dominated vegetation (for example, steppe, tundra, or savannah).
0.7	• Forests with extractive use and associated disturbance like hunting and selective logging, where timber extraction is followed by a long period of re-growth with naturally occurring tree species. • Grasslands where wildlife is replaced by grazing livestock.
0.5	• Areas originally covered with forest or woodlands, where vegetation has been removed, forest is re-growing or has a different cover and is no longer in use. • Agricultural production intercropped with (native) trees. Trees are kept for shade or as wind shelter.
0.3	• Subsistence and traditional farming, extensive farming, and low external input agriculture.
0.2	• Planted forest often with exotic species.
0.1	• Forests and woodlands that have been converted to grasslands for livestock grazing. • High external input agriculture, conventional agriculture, mostly with a degree of regional specialization, irrigation-based agriculture, drainage-based agriculture.
0.05	• Areas more than 80% built up.

Source: Globio 3 – 2009 (Adapted)

Note: Native and conventional squares and gardens, as well as artificial dams, must be considered in the class “Areas more than 80% built up”.

h) Country Ecoregions by Region

LATIN AMERICA

(It comprehends all countries in Central and South America, except those that are colonies of other countries, including islands)

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
Antigua and Barbuda	Leeward Islands moist forests	2,684.07	1,646.85	61.36
	Caribbean shrublands	29,241.17	4,657.16	15.93
	Lesser Antillean dry forests	7,112.74	977.96	13.75
Argentina	Rock and Ice	32,400.01	32,400.01	100.00
	Valdivian temperate forests	4,578,935.81	2,359,946.18	51.54
	Central Andean dry puna	3,076,711.51	1,180,526.67	38.37
	Paraná flooded savanna	3,696,032.55	1,338,862.39	36.22
	Central Andean puna	8,699,728.63	3,122,190.50	35.89
	Magellanic subpolar forests	2,873,533.94	953,123.13	33.17
	Southern Andean steppe	9,690,628.73	2,679,672.08	27.65
	Southern Andean Yungas	4,756,992.95	1,265,191.65	26.60
	Alto Paraná Atlantic forests	2,217,622.74	371,779.45	16.76
	Araucaria moist forests	447,515.02	72,698.73	16.24
	High Monte	11,656,689.20	1,579,367.58	13.55
	Humid Chaco	16,220,126.22	1,606,284.34	9.90
	Low Monte	35,342,547.07	2,284,115.95	6.46
	Patagonian steppe	53,541,817.06	3,396,445.75	6.34
	Dry Chaco	48,937,939.50	2,441,211.72	4.99
	Uruguayan savanna	8,788.03	352.35	4.01
	Humid Pampas	39,800,483.28	1,215,537.40	3.05
	Espinal	29,826,767.31	483,030.44	1.62
	Southern Cone Mesopotamian savanna	2,677,150.47	42,951.24	1.60
Barbados	Caribbean shrublands	40,308.14	670.44	1.66
Belize	Central American Atlantic moist forests	980.10	979.45	99.93
	Petén-Veracruz moist forests	1,670,962.09	679,639.91	40.67
	Belizian pine forests	282,149.23	89,692.37	31.79
	Mesoamerican Gulf-Caribbean mangroves	251,032.51	53,828.47	21.44
	Yucatán moist forests	8,812.81	0.00	0.00
Bolivia	Cerrado	592,251.01	440,733.29	74.42
	Bolivian Yungas	8,586,960.91	4,810,535.29	56.02
	Pantanal	3,174,969.05	1,730,406.59	54.50
	Madeira-Tapajós moist forests	5,903,462.43	2,382,174.17	40.35
	Dry Chaco	12,199,811.79	4,315,770.64	35.38
	Chiquitano dry forests	16,379,274.63	3,872,082.37	23.64
	Southern Andean Yungas	2,758,736.12	532,130.44	19.29
	Central Andean wet puna	1,811,882.29	318,641.59	17.59

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Beni savanna	12,558,690.83	1,993,091.13	15.87
	Southwest Amazon moist forests	17,065,396.12	2,704,570.73	15.85
	Bolivian montane dry forests	7,277,957.27	1,042,555.15	14.32
	Central Andean puna	5,655,225.05	592,188.66	10.47
	Lake	309,404.55	27,284.23	8.82
	Central Andean dry puna	14,398,574.01	1,049,441.53	7.29
	Monte Alegre varzeá	592.32	0.00	0.00
	Purus-Madeira moist forests	272.30	0.00	0.00
	Iquitos varzeá	7,600.51	0.00	0.00
Chile	Juan Fernández Islands temperate forests	10,309.10	10,309.10	100.00
	Rock and Ice	1,588,515.60	1,534,195.80	96.58
	Magellanic subpolar forests	11,963,066.90	5,735,023.49	47.94
	Rapa Nui subtropical broadleaf forests	16,687.47	6,266.59	37.55
	Valdivian temperate forests	19,595,957.81	6,956,669.36	35.50
	Patagonian steppe	2,818,545.86	475,990.29	16.89
	Central Andean dry puna	8,012,734.75	937,723.18	11.70
	Southern Andean steppe	2,787,201.00	132,107.62	4.74
	Sechura desert	145,716.01	4,682.39	3.21
	Chilean matorral	14,810,003.07	454,321.43	3.07
	Atacama desert	10,485,419.59	169,358.31	1.62
	San Félix-San Ambrosio Islands temperate forests	128.45	0.00	0.00
	Central Andean puna	106,425.82	0.00	0.00
Colombia	Santa Marta páramo	123,865.92	123,865.92	100.00
	Malpelo Island xeric scrub	749.68	749.68	100.00
	Santa Marta montane forests	476,552.43	339,980.05	71.34
	Eastern Panamanian montane forests	101,836.56	63,294.70	62.15
	Central American dry forests	356.81	180.92	50.70
	Amazon-Orinoco-Southern Caribbean mangroves	268,128.37	126,677.80	47.25
	Northern Andean páramo	1,413,874.92	665,922.72	47.10
	Caqueta moist forests	17,033,615.92	6,272,812.36	36.83
	Cayos Miskitos-San Andrés and Providencia moist forests	3,490.11	1,217.80	34.89
	Guianan piedmont and lowland moist forests	2,185.25	690.80	31.61
	Purus varzeá	2,973,564.58	860,108.34	28.93
	Japurá-Solimoes-Negro moist forests	3,462,425.82	916,472.24	26.47
	South American Pacific mangroves	494,307.79	127,169.38	25.73
	Eastern Cordillera real montane forests	1,069,189.27	254,827.74	23.83
	Rio Negro campinarana	309,627.29	70,095.49	22.64

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Cordillera Oriental montane forests	5,830,565.61	1,214,178.37	20.82
	Solimões-Japurá moist forests	7,176,180.07	1,479,393.33	20.62
	Sinú Valley dry forests	2,487,915.61	461,797.38	18.56
	Northwestern Andean montane forests	4,882,295.26	749,855.32	15.36
	Magdalena Valley montane forests	10,459,832.52	1,478,306.55	14.13
	Cauca Valley montane forests	3,191,527.19	418,755.49	13.12
	Catatumbo moist forests	650,493.64	69,506.98	10.69
	Napo moist forests	3,972,508.79	420,209.87	10.58
	Chocó-Darién moist forests	5,956,909.25	438,939.48	7.37
	Magdalena-Urabá moist forests	7,643,318.09	541,651.84	7.09
	Iquitos varzeá	37,048.27	2,267.25	6.12
	Negro-Branco moist forests	9,692,758.27	457,467.86	4.72
	Guajira-Barranquilla xeric scrub	2,745,316.59	127,858.03	4.66
	Llanos	15,264,273.90	688,891.69	4.51
	Apure-Villavicencio dry forests	2,435,669.09	98,716.63	4.05
	Magdalena Valley dry forests	1,954,873.41	46,406.24	2.37
	Cauca Valley dry forests	731,279.65	14,270.60	1.95
	Western Ecuador moist forests	239,328.77	2,009.72	0.84
	Patía Valley dry forests	226,058.04	158.48	0.07
	Southwest Amazon moist forests	0.63	0.00	0.00
	Venezuelan Andes montane forests	3,980.94	0.00	0.00
Costa Rica	Cocos Island moist forests	592.33	592.33	100.00
	Mesoamerican Gulf-Caribbean mangroves	27,463.49	24,519.45	89.28
	Talamancan montane forests	905,897.86	805,828.18	88.95
	Isthmian-Atlantic moist forests	1,659,828.59	1,215,029.68	73.20
	Costa Rican seasonal moist forests	846,752.66	351,985.38	41.57
	Isthmian-Pacific moist forests	903,863.97	319,960.84	35.40
	Southern Mesoamerican Pacific mangroves	83,046.33	22,950.65	27.64
	Central American dry forests	609,555.17	98,981.52	16.24
Cuba	Cuban wetlands	564,550.26	364,550.38	64.57
	Bahamian-Antillean mangroves	667,681.95	382,818.63	57.34
	Cuban cactus scrub	306,572.45	84,409.11	27.53
	Cuban moist forests	2,113,046.49	484,728.57	22.94

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Cuban pine forests	638,626.14	57,547.17	9.01
	Cuban dry forests	6,535,673.77	444,826.46	6.81
Dominica	Windward Islands moist forests	55,347.44	15,922.53	28.77
	Caribbean shrublands	15,270.26	552.06	3.62
Dominican Republic	Enriquillo wetlands	47,606.98	38,893.43	81.70
	Hispaniolan pine forests	839,270.38	415,286.23	49.48
	Bahamian-Antillean mangroves	114,624.69	48,317.71	42.15
	Hispaniolan dry forests	948,755.33	322,353.36	33.98
	Hispaniolan moist forests	2,856,274.58	381,798.66	13.37
Ecuador	Galápagos Islands scrubland mosaic	737,295.35	737,295.35	100.00
	Cordillera Central páramo	51,091.31	39,320.00	76.96
	Northern Andean páramo	1,535,636.77	505,052.32	32.89
	Napo moist forests	6,955,096.81	1,641,223.18	23.60
	Eastern Cordillera real montane forests	6,533,104.83	1,402,139.69	21.46
	South American Pacific mangroves	478,993.05	68,899.77	14.38
	Tumbes-Piura dry forests	328,923.75	23,769.73	7.23
	Western Ecuador moist forests	3,135,073.61	190,557.37	6.08
	Northwestern Andean montane forests	3,198,312.60	130,461.64	4.08
	Guayaquil flooded grasslands	291,255.98	9,330.59	3.20
	Ecuadorian dry forests	2,103,845.93	44,389.05	2.11
El Salvador	Southern Mesoamerican Pacific mangroves	59,226.12	49,029.41	82.78
	Central American montane forests	94,788.17	37,835.43	39.92
	Central American dry forests	823,878.52	101,470.02	12.32
	Central American pine-oak forests	1,065,678.56	98,626.38	9.25
	Sierra Madre de Chiapas moist forests	6,210.15	438.26	7.06
Grenada	Caribbean shrublands	1,839.56	581.36	31.60
	Bahamian-Antillean mangroves	1,543.66	387.23	25.09
	Windward Islands moist forests	22,170.79	4,929.42	22.23
	Lesser Antillean dry forests	7,281.16	1,155.25	15.87
Guatemala	Yucatán moist forests	11,460.45	11,460.45	100.00
	Mesoamerican Gulf-Caribbean mangroves	36,063.76	30,098.04	83.46
	Petén-Veracruz moist forests	4,761,785.25	2,619,772.18	55.02
	Central American montane forests	593,807.77	243,358.46	40.98

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Central American Atlantic moist forests	837,689.91	204,213.77	24.38
	Motagua Valley thornscrub	232,841.31	45,865.14	19.70
	Southern Mesoamerican Pacific mangroves	108,470.05	15,880.12	14.64
	Central American pine-oak forests	2,934,856.75	208,250.62	7.10
	Central American dry forests	662,130.59	8,089.77	1.22
	Sierra Madre de Chiapas moist forests	581,845.75	6,192.40	1.06
	Chiapas Depression dry forests	93,270.26	236.35	0.25
	Chiapas montane forests	17,943.37	0.00	0.00
Guyana	Amazon-Orinoco-Southern Caribbean mangroves	67,661.38	43,725.37	64.62
	Uatuma-Trombetas moist forests	42,885.08	8,366.56	19.51
	Guianan Highlands moist forests	2,651,605.05	422,915.16	15.95
	Guianan moist forests	16,430,673.63	1,325,799.08	8.07
	Orinoco Delta swamp forests	387,635.04	22,597.22	5.83
	Pantepui	125,171.11	2,361.24	1.89
	Guianan savanna	1,385,463.77	21,558.38	1.56
	Guianan piedmont and lowland moist forests	11,456.35	39.79	0.35
Haiti	Hispaniolan pine forests	316,733.96	12,049.58	3.80
	Hispaniolan moist forests	1,687,624.18	45,706.23	2.71
	Hispaniolan dry forests	572,430.46	972.87	0.17
	Bahamian-Antillean mangroves	56,727.50	0.00	0.00
	Enriquillo wetlands	15,092.77	0.00	0.00
Honduras	Cuban dry forests	65.43	65.43	100.00
	Mesoamerican Gulf-Caribbean mangroves	197,616.95	122,210.12	61.84
	Southern Mesoamerican Pacific mangroves	73,885.92	40,407.29	54.69
	Central American Atlantic moist forests	3,351,345.34	1,701,754.43	50.78
	Central American montane forests	549,312.32	258,604.34	47.08
	Miskito pine forests	607,345.83	174,034.88	28.65
	Central American pine-oak forests	4,466,256.35	682,448.23	15.28
	Central American dry forests	1,901,344.27	72,045.79	3.79
Jamaica	Bahamian-Antillean mangroves	38,923.95	15,605.99	40.09
	Jamaican dry forests	225,095.70	43,698.56	19.41
	Jamaican moist forests	823,326.80	105,950.93	12.87

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
Nicaragua	Cayos Miskitos-San Andrés and Providencia moist forests	2,806.42	2,383.22	84.92
	Isthmian-Atlantic moist forests	1,861,863.08	1,346,750.40	72.33
	Southern Mesoamerican Pacific mangroves	88,823.48	59,888.60	67.42
	Mesoamerican Gulf-Caribbean mangroves	322,175.76	211,838.46	65.75
	Central American montane forests	87,202.15	53,429.19	61.27
	Central American Atlantic moist forests	4,739,249.75	2,200,663.21	46.43
	Lake	798,289.75	225,813.30	28.29
	Costa Rican seasonal moist forests	212,202.57	46,610.61	21.97
	Miskito pine forests	1,201,374.55	243,411.97	20.26
	Central American pine-oak forests	1,037,508.21	141,544.42	13.64
	Central American dry forests	2,431,687.62	276,499.63	11.37
Panama	Eastern Panamanian montane forests	201,284.49	153,805.35	76.41
	Talamancan montane forests	721,546.49	395,739.80	54.85
	Chocó-Darién moist forests	1,339,800.25	505,005.70	37.69
	Mesoamerican Gulf-Caribbean mangroves	41,435.88	14,935.68	36.05
	South American Pacific mangroves	181,385.45	51,869.21	28.60
	Isthmian-Atlantic moist forests	2,272,109.00	583,453.29	25.68
	Southern Mesoamerican Pacific mangroves	99,164.21	22,247.25	22.43
	Isthmian-Pacific moist forests	1,980,461.25	120,713.29	6.10
	Panamanian dry forests	505,923.65	11,023.06	2.18
Peru	Lake	489,354.26	471,773.32	96.41
	Southwest Amazon moist forests	25,770,096.29	7,630,281.55	29.61
	Solimões-Japurá moist forests	5,871,898.56	1,668,739.54	28.42
	Iquitos varzea	8,302,471.83	2,095,236.46	25.24
	Bolivian Yungas	435,959.84	109,570.93	25.13
	Ucayali moist forests	11,444,296.95	2,381,446.74	20.81
	Napo moist forests	14,131,488.60	2,638,044.37	18.67
	Peruvian Yungas	18,596,187.89	2,648,492.41	14.24
	South American Pacific mangroves	30,817.77	3,534.42	11.47
	Central Andean puna	6,686,585.50	719,825.52	10.77
	Cordillera Central páramo	1,160,879.06	116,111.93	10.00
	Eastern Cordillera real montane forests	2,603,940.48	255,300.25	9.80

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Tumbes-Piura dry forests	3,781,092.94	277,533.03	7.34
	Central Andean wet puna	9,875,497.15	666,186.99	6.75
	Purus varzeá	312,124.27	20,664.08	6.62
	Sechura desert	18,198,049.39	747,923.19	4.11
	Marañón dry forests	1,132,229.98	39,831.16	3.52
	Central Andean dry puna	5,184.45	0.00	0.00
Puerto Rico	Bahamian-Antillean mangroves	21,250.94	3,833.03	18.04
	Puerto Rican dry forests	121,925.08	14,323.54	11.75
	Puerto Rican moist forests	744,704.64	34,398.55	4.62
Saint Kitts and Nevis	Leeward Islands moist forests	6,339.36	4,780.58	75.41
	Bahamian-Antillean mangroves	16,415.72	1,961.03	11.95
	Caribbean shrublands	1,516.05	0.00	0.00
Saint Lucia	Windward Islands moist forests	32,208.91	13,758.02	42.71
	Lesser Antillean dry forests	22,957.05	7,585.98	33.04
	Caribbean shrublands	1,874.46	461.75	24.63
Saint Vincent and the Grenadines	Bahamian-Antillean mangroves	10,828.01	6,324.73	58.41
	Windward Islands moist forests	17,970.61	7,453.20	41.47
	Caribbean shrublands	2,442.83	41.39	1.69
	Lesser Antillean dry forests	2,990.13	7.49	0.25
Suriname	Pantepui	31,722.24	31,722.24	100.00
	Guianan savanna	52,108.67	51,973.95	99.74
	Uatuma-Trombetas moist forests	15,080.65	11,969.90	79.37
	Amazon-Orinoco-Southern Caribbean mangroves	414,042.86	272,731.14	65.87
	Guianan Highlands moist forests	216,734.84	59,779.57	27.58
	Guianan moist forests	12,986,639.93	1,785,978.23	13.75
	Guianan freshwater swamp forests	763,458.95	90,383.94	11.84
Trinidad and Tobago	Trinidad and Tobago moist forests	458,319.24	142,221.86	31.03
	Amazon-Orinoco-Southern Caribbean mangroves	16,296.62	2,682.57	16.46
	Lesser Antillean dry forests	24,099.73	1,362.28	5.65
Uruguay	Atlantic Coast restingas	156.47	81.18	51.88
	Humid Pampas	2,874.90	672.21	23.38
	Uruguayan savanna	17,712,488.72	1,406,449.45	7.94
	Espinal	4,784.15	0.00	0.00
Venezuela	Northern Andean páramo	31,538.22	29,770.87	94.40
	Guianan savanna	1,287,608.84	1,189,137.95	92.35
	Cordillera de Merida páramo	279,760.00	257,501.97	92.04
	Pantepui	4,371,246.39	3,904,423.98	89.32

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Guianan Highlands moist forests	9,020,667.46	7,634,235.58	84.63
	Cordillera La Costa montane forests	1,426,635.01	1,200,886.82	84.18
	Catatumbo moist forests	1,624,784.30	1,219,179.38	75.04
	Guianan piedmont and lowland moist forests	14,475,738.17	10,425,243.57	72.02
	Guianan moist forests	3,220,852.34	2,236,356.97	69.43
	Cordillera Oriental montane forests	927,149.46	638,448.16	68.86
	Amazon-Orinoco-Southern Caribbean mangroves	1,072,351.88	685,769.85	63.95
	Orinoco Delta swamp forests	2,305,404.62	1,456,319.42	63.17
	Negro-Branco moist forests	5,560,623.70	3,479,553.46	62.57
	Venezuelan Andes montane forests	2,922,909.01	1,529,553.64	52.33
	Orinoco wetlands	596,389.74	289,145.49	48.48
	Maracaibo dry forests	2,998,250.44	1,090,976.31	36.39
	La Costa xeric shrublands	6,813,576.58	2,438,540.27	35.79
	Rio Negro campinarana	1,246,376.41	418,252.82	33.56
	Lara-Falcón dry forests	1,686,164.94	536,943.05	31.84
	Apure-Villavicencio dry forests	4,388,871.33	1,270,440.80	28.95
	Llanos	22,314,386.68	4,976,087.86	22.30
	Paraguana xeric scrub	1,582,331.37	226,509.07	14.31
	Araya and Paria xeric scrub	512,759.42	58,310.26	11.37
	Guajira-Barranquilla xeric scrub	388,570.73	31,892.71	8.21
	Japurá-Solimoes-Negro moist forests	2,620.04	0.00	0.00

Source: LIFE Institute - 2025. Ecoregion Importance Factor calculated through the overlapping of the Terrestrial Ecoregions of the World by WWF (World Wildlife Fund for Nature) and of 3 conservation priority areas by UNEP-WCMC (UN Environment Programme World Conservation Monitoring Centre).

AFRICA

(All countries in Africa, except those that are colonies of other countries, including islands)

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
Algeria	West Saharan montane xeric woodlands	19,514,355.68	19,383,621.870	99.33
	South Saharan steppe and woodlands	2,819,976.96	2,604,940.070	92.37
	Sahara desert	116,893,060.20	45,658,778.440	39.06
	Saharan halophytics	1,422,119.25	122,327.180	8.60
	Mediterranean conifer and mixed forests	946,738.19	26,321.380	2.78
	Mediterranean woodlands and forests	13,449,766.26	121,851.310	0.91
	North Saharan steppe and woodlands	60,049,838.26	0.000	0.00
	Mediterranean dry woodlands and steppe	15,759,245.16	0.000	0.00
Angola	Zambezian flooded grasslands	255,439.44	224,378.310	87.84
	Kaokoveld desert	2,070,601.92	842,473.250	40.69
	Namibian savanna woodlands	3,324,893.72	1,115,343.140	33.55
	Zambezian Baikiaea woodlands	12,960,801.42	2,745,071.540	21.18
	Angolan scarp savanna and woodlands	7,397,095.44	921,607.240	12.46
	Angolan Miombo woodlands	62,887,993.41	6,888,380.300	10.95
	Angolan Mopane woodlands	5,098,659.48	331,612.190	6.50
	Central Zambezian Miombo woodlands	3,997,637.87	20,763.860	0.52
	Western Zambezian grasslands	452,271.37	268.080	0.06
	Western Congolian forest-savanna mosaic	16,900,643.79	9,166.910	0.05
	Central African mangroves	116,384.79	0.000	0.00
	Angolan montane forest-grassland mosaic	2,541,847.64	0.000	0.00
	Southern Congolian forest-savanna mosaic	5,804,463.84	0.000	0.00
	Atlantic Equatorial coastal forests	226,373.83	0.000	0.00
	Zambezian Cryptosepalum dry forests	295,156.32	0.000	0.00
Benin	West Sudanian savanna	9,802,360.25	2,642,076.280	26.95

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Guinean forest-savanna mosaic	1,661,537.09	71,511.650	4.30
	Eastern Guinean forests	65,052.07	0.000	0.00
	Nigerian lowland forests	75,183.99	0.000	0.00
Bir Tawil	Sahara desert	201,946.56	0.000	0.00
Botswana	Zambezian Baikiaea woodlands	1,953,193.56	678,444.650	34.74
	Kalahari xeric savanna	22,244,721.36	5,256,411.190	23.63
	Zambezian halophytics	2,208,216.27	520,885.960	23.59
	Zambezian and Mopane woodlands	2,878,066.79	631,073.150	21.93
	Zambezian flooded grasslands	2,465,148.07	433,672.120	17.59
	Kalahari Acacia-Baikiaea woodlands	21,574,678.78	3,294,262.800	15.27
	Southern Africa bushveld	4,578,893.67	0.000	0.00
Burkina Faso	Sahelian Acacia savanna	2,320,497.55	1,808,721.040	77.95
	West Sudanian savanna	24,956,442.08	1,274,345.540	5.11
Burundi	Albertine Rift montane forests	685,188.36	53,265.740	7.77
	Central Zambezian Miombo woodlands	1,484,176.12	54,920.880	3.70
	Lake	208,152.34	1,385.320	0.67
	Victoria Basin forest-savanna mosaic	326,609.79	0.000	0.00
Cameroon	Central African mangroves	231,997.21	57,184.100	24.65
	West Sudanian savanna	8,838.90	1,062.510	12.02
	Atlantic Equatorial coastal forests	3,332,708.20	344,865.130	10.35
	Northwestern Congolian lowland forests	14,556,055.90	1,223,430.060	8.40
	Sahelian Acacia savanna	2,164,953.75	143,676.300	6.64
	Northern Congolian forest-savanna mosaic	14,218,173.53	931,722.270	6.55
	Cross-Sanaga-Bioko coastal forests	3,400,617.64	205,519.740	6.04
	East Sudanian savanna	3,659,958.28	215,087.830	5.88
	Cameroonian Highlands forests	2,883,846.92	100,637.570	3.49
	Lake	390,815.92	6,437.070	1.65
	Guinean forest-savanna mosaic	812,838.36	8,000.830	0.98
	Mandara Plateau mosaic	591,920.84	1,618.960	0.27
	Mount Cameroon and Bioko montane forests	101,629.03	0.000	0.00

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Lake Chad flooded savanna	55,887.85	0.000	0.00
Cape Verde	Cape Verde Islands dry forests	351,877.45	0.000	0.00
Central African Republic	East Sudanian savanna	26,433,895.66	6,044,137.440	22.87
	Northwestern Congolian lowland forests	3,395,180.39	522,590.570	15.39
	Northern Congolian forest-savanna mosaic	27,602,618.93	895,838.160	3.25
	Western Congolian swamp forests	12,079.76	0.000	0.00
	Northeastern Congolian lowland forests	3,048,706.80	0.000	0.00
	Sahelian Acacia savanna	1,305,937.43	0.000	0.00
Chad	South Saharan steppe and woodlands	8,990,776.38	1,620,876.500	18.03
	Sahelian Acacia savanna	56,755,653.62	7,658,283.020	13.49
	East Sudanian savanna	17,273,645.51	2,012,004.200	11.65
	Sahara desert	32,285,195.50	283,592.230	0.88
	Lake	476,020.24	0.000	0.00
	Lake Chad flooded savanna	1,006,214.53	0.000	0.00
	East Saharan montane xeric woodlands	2,567,384.11	0.000	0.00
	Tibesti-Jebel Uweinat montane xeric woodlands	7,273,370.90	0.000	0.00
Comoros	Comoros forests	158,889.44	0.000	0.00
Democratic Republic of the Congo	Victoria Basin forest-savanna mosaic	408,821.34	344,187.520	84.19
	Rwenzori-Virunga montane moorlands	59,532.40	45,292.720	76.08
	Central African mangroves	52,702.54	35,641.420	67.63
	Northern Congolian forest-savanna mosaic	13,076,943.28	4,102,532.300	31.37
	Northeastern Congolian lowland forests	50,058,073.25	4,238,238.800	8.47
	Central Congolian lowland forests	41,288,175.41	3,404,355.010	8.25
	Albertine Rift montane forests	6,368,922.77	390,245.330	6.13
	Central Zambezian Miombo woodlands	41,043,744.80	2,094,546.930	5.10
	Western Congolian forest-savanna mosaic	8,555,660.77	359,257.670	4.20
	Zambezian flooded grasslands	230,490.41	4,200.210	1.82

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Eastern Congolian swamp forests	9,231,417.37	104,264.280	1.13
	Atlantic Equatorial coastal forests	926,943.80	8,000.320	0.86
	Southern Congolian forest-savanna mosaic	50,914,317.55	433,044.360	0.85
	Western Congolian swamp forests	5,506,359.33	5,454.930	0.10
	Northwestern Congolian lowland forests	141,359.32	0.000	0.00
	Angolan Miombo woodlands	2,861,312.72	0.000	0.00
	Itigi-Sumbu thicket	30,035.14	0.000	0.00
	East Sudanian savanna	191,231.47	0.000	0.00
	Lake	1,575,647.31	0.000	0.00
Djibouti	Ethiopian xeric grasslands and shrublands	2,004,252.16	0.000	0.00
	Eritrean coastal desert	168,283.01	0.000	0.00
Egypt	Red Sea Nubo-Sindian tropical desert and semi-desert	788,788.12	210,223.710	26.65
	South Saharan steppe and woodlands	947,345.12	197,787.110	20.88
	Saharan halophytics	2,075,805.30	215,032.300	10.36
	Arabian Desert and East Sahero-Arabian xeric shrublands	4,865,606.90	272,133.650	5.59
	Sahara desert	74,950,583.01	2,933,232.130	3.91
	Mediterranean dry woodlands and steppe	357,728.61	9,135.990	2.55
	North Saharan steppe and woodlands	6,399,597.56	53,152.720	0.83
	Nile Delta flooded savanna	5,062,514.96	3,570.600	0.07
	Red Sea coastal desert	4,506,222.86	0.000	0.00
	Tibesti-Jebel Uweinat montane xeric woodlands	19,947.60	0.000	0.00
	Ethiopian montane forests	1,613.25	0.000	0.00
Equatorial Guinea	Sao Tome, Principe and Annobon moist lowland forests	577.96	577.960	100.00
	Central African mangroves	82,187.87	54,481.580	66.29
	Mount Cameroon and Bioko montane forests	12,482.23	6,550.940	52.48
	Cross-Sanaga-Bioko coastal forests	172,961.46	25,705.200	14.86

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Atlantic Equatorial coastal forests	2,378,710.18	261,495.100	10.99
Eritrea	Sahelian Acacia savanna	4,649,640.30	0.000	0.00
	Ethiopian xeric grasslands and shrublands	3,985,788.82	0.000	0.00
	Somali Acacia-Commiphora bushlands and thickets	498,156.26	0.000	0.00
	Eritrean coastal desert	278,387.33	0.000	0.00
	East Sudanian savanna	462,138.46	0.000	0.00
	Ethiopian montane grasslands and woodlands	720,528.97	0.000	0.00
	Ethiopian montane forests	1,567,019.99	0.000	0.00
Eswatini	Maputaland coastal forest mosaic	270,012.20	22,179.100	8.21
	Drakensberg montane grasslands, woodlands and forests	745,753.43	23,565.250	3.16
	Zambezian and Mopane woodlands	695,418.63	14,608.170	2.10
Ethiopia	Northern Acacia-Commiphora bushlands and thickets	489,880.59	263,970.960	53.88
	Masai xeric grasslands and shrublands	517,060.15	256,179.470	49.55
	Victoria Basin forest-savanna mosaic	506,477.81	220,068.200	43.45
	Ethiopian montane moorlands	2,504,912.66	552,743.280	22.07
	Saharan flooded grasslands	75,036.36	13,507.880	18.00
	Somali Acacia-Commiphora bushlands and thickets	45,541,140.71	7,190,452.340	15.79
	East Sudanian savanna	9,653,276.18	1,381,118.870	14.31
	Ethiopian montane forests	22,708,024.95	2,819,585.220	12.42
	Lake	52,246.98	6,316.710	12.09
	Ethiopian xeric grasslands and shrublands	5,852,431.16	609,523.450	10.41
	Ethiopian montane grasslands and woodlands	23,654,511.24	2,358,943.150	9.97
	Sahelian Acacia savanna	1,182,599.92	0.000	0.00
Gabon	Atlantic Equatorial coastal forests	11,105,652.34	1,006,859.830	9.07
	Central African mangroves	466,466.46	1,478.360	0.32
	Northwestern Congolian lowland forests	9,928,897.87	5,618.750	0.06

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Western Congolian forest-savanna mosaic	4,434,450.97	124.700	0.00
Ghana	Guinean forest-savanna mosaic	6,896,310.90	753,142.130	10.92
	West Sudanian savanna	8,819,174.80	825,851.590	9.36
	Eastern Guinean forests	7,943,963.28	97,385.680	1.23
	Guinean mangroves	3,277.12	0.000	0.00
	Central African mangroves	174,193.88	0.000	0.00
Guinea	Western Guinean lowland forests	2,175,424.11	158,490.990	7.29
	Guinean montane forests	2,596,037.20	187,027.340	7.20
	Guinean forest-savanna mosaic	13,482,350.56	556,696.360	4.13
	West Sudanian savanna	5,879,694.69	99,368.530	1.69
	Guinean mangroves	287,195.11	0.000	0.00
Guinea-Bissau	Guinean mangroves	835,172.06	89,514.590	10.72
	Guinean forest-savanna mosaic	2,409,202.93	247,751.310	10.28
Ivory Coast	Western Guinean lowland forests	4,398,918.24	1,201,948.480	27.32
	West Sudanian savanna	8,349,955.79	1,182,391.240	14.16
	Eastern Guinean forests	10,127,660.53	1,064,121.100	10.51
	Guinean forest-savanna mosaic	8,841,890.26	696,590.410	7.88
	Guinean montane forests	292,925.28	15,152.920	5.17
	Guinean mangroves	45,064.44	87.970	0.20
Kenya	East African montane moorlands	173,296.17	103,090.200	59.49
	East African montane forests	4,443,589.80	1,046,450.430	23.55
	Northern Acacia-Commiphora bushlands and thickets	26,828,979.04	3,947,761.820	14.71
	Southern Acacia-Commiphora bushlands and thickets	1,635,668.53	195,471.560	11.95
	Northern Zanzibar-Inhambane coastal forest mosaic	3,115,401.26	284,921.210	9.15
	Victoria Basin forest-savanna mosaic	1,257,483.50	78,792.610	6.27
	East African mangroves	245,524.99	12,764.320	5.20
	Masai xeric grasslands and shrublands	9,530,592.11	212,805.110	2.23
	Eastern Arc forests	63,374.60	1,285.970	2.03

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Somali Acacia-Commiphora bushlands and thickets	10,108,709.63	164,732.910	1.63
	Lake	1,122,098.02	11,896.000	1.06
	East Sudanian savanna	13,204.25	0.000	0.00
	East African halophytics	19,854.73	0.000	0.00
Lesotho	Drakensberg alti-montane grasslands and woodlands	774,665.82	408,460.640	52.73
	Drakensberg montane grasslands, woodlands and forests	1,603,404.80	191,712.890	11.96
	Highveld grasslands	632,581.69	0.000	0.00
Liberia	Guinean montane forests	41,855.61	18,477.170	44.15
	Western Guinean lowland forests	9,326,444.58	453,999.970	4.87
	Guinean mangroves	131,683.71	0.000	0.00
	Guinean forest-savanna mosaic	14,569.92	0.000	0.00
Libya	West Saharan montane xeric woodlands	256,666.42	12,226.530	4.76
	Sahara desert	119,995,001.70	101,914.950	0.08
	Saharan halophytics	228,097.13	0.000	0.00
	Mediterranean dry woodlands and steppe	5,122,899.53	0.000	0.00
	North Saharan steppe and woodlands	34,558,724.95	0.000	0.00
	Tibesti-Jebel Uweinat montane xeric woodlands	852,264.49	0.000	0.00
	Mediterranean woodlands and forests	1,254,975.94	0.000	0.00
Madagascar	Madagascar ericoid thickets	127,346.83	35,575.810	27.94
	Madagascar spiny thickets	4,291,090.04	364,947.400	8.50
	Madagascar dry deciduous forests	15,055,079.51	562,720.530	3.74
	Madagascar lowland forests	11,149,687.13	311,009.260	2.79
	Madagascar subhumid forests	19,879,280.83	550,203.360	2.77
	Madagascar succulent woodlands	7,940,853.47	156,546.530	1.97
	Madagascar mangroves	499,370.18	0.000	0.00
Malawi	Southern Rift montane forest-grassland mosaic	1,073,592.48	432,311.030	40.27
	Zambezian and Mopane woodlands	1,301,263.70	277,096.680	21.29
	Eastern Miombo woodlands	550,774.55	114,241.110	20.74

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Southern Miombo woodlands	1,533,880.98	269,810.150	17.59
	Central Zambezian Miombo woodlands	3,849,598.86	634,181.760	16.47
	South Malawi montane forest-grassland mosaic	1,019,135.08	138,334.700	13.57
	Zambezian flooded grasslands	429,176.83	13,342.190	3.11
	Lake	2,177,814.82	2,118.830	0.10
	Southern Zanzibar-Inhambane coastal forest mosaic	4,539.96	0.000	0.00
Mali	Sahelian Acacia savanna	33,934,031.22	2,773,876.100	8.17
	West Sudanian savanna	34,469,006.44	1,022,852.050	2.97
	Inner Niger Delta flooded savanna	4,586,811.57	40,094.150	0.87
	South Saharan steppe and woodlands	23,150,467.05	34,544.750	0.15
	West Saharan montane xeric woodlands	1,764,998.25	1,906.680	0.11
	Sahara desert	27,367,042.79	2,248.050	0.01
Mauritania	Atlantic coastal desert	1,679,360.25	551,088.570	32.82
	North Saharan steppe and woodlands	26,711,442.20	16,496.630	0.06
	Sahelian Acacia savanna	37,284,581.20	16,194.530	0.04
	West Sudanian savanna	71,329.02	0.000	0.00
	South Saharan steppe and woodlands	15,344,842.83	0.000	0.00
	Saharan halophytics	557,987.43	0.000	0.00
	West Saharan montane xeric woodlands	1,542,463.87	0.000	0.00
	Sahara desert	20,373,208.90	0.000	0.00
Mauritius	Mascarene forests	161,672.51	8,241.240	5.10
Morocco	Mediterranean conifer and mixed forests	1,094,492.36	176,456.820	16.12
	Mediterranean High Atlas juniper steppe	632,764.95	50,562.570	7.99
	Mediterranean acacia-argania dry woodlands and succulent thickets	9,734,497.59	93,296.620	0.96
	Mediterranean woodlands and forests	14,589,106.58	102,489.990	0.70
	North Saharan steppe and woodlands	24,392,212.87	0.000	0.00

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Mediterranean dry woodlands and steppe	6,423,038.80	0.000	0.00
	Atlantic coastal desert	2,167,919.94	0.000	0.00
Mozambique	Eastern Zimbabwe montane forest-grassland mosaic	119,752.17	24,101.700	20.13
	Zambeian and Mopane woodlands	18,971,610.39	2,889,434.740	15.23
	Zambeian coastal flooded savanna	1,944,856.40	185,825.310	9.55
	East African mangroves	693,420.50	47,763.520	6.89
	Maputaland coastal forest mosaic	1,797,551.20	118,335.080	6.58
	Southern Zanzibar-Inhambane coastal forest mosaic	12,524,060.05	664,378.480	5.30
	Southern Africa bushveld	29,747.00	1,059.170	3.56
	Eastern Miombo woodlands	28,078,649.13	998,426.100	3.56
	Southern Miombo woodlands	12,671,015.69	300,094.890	2.37
	Zambeian halophytics	820,693.85	15,838.310	1.93
	Southern Africa mangroves	6,762.22	0.000	0.00
	Lake	712,526.12	0.000	0.00
	Southern Rift montane forest-grassland mosaic	114,573.14	0.000	0.00
	Zambeian flooded grasslands	190,061.33	0.000	0.00
Namibia	Etosha Pan halophytics	720,825.18	680,892.990	94.46
	Namib desert	8,051,474.77	4,664,006.240	57.93
	Kaokoveld desert	2,464,621.61	1,221,084.750	49.54
	Angolan Mopane woodlands	8,204,225.36	1,311,380.260	15.98
	Zambeian flooded grasslands	331,047.15	43,149.450	13.03
	Nama Karoo	5,477,423.11	454,453.640	8.30
	Zambeian Baikiaea woodlands	4,991,856.00	363,232.320	7.28
	Namibian savanna woodlands	19,165,431.94	1,146,518.790	5.98
	Succulent Karoo	2,037,377.22	50,943.860	2.50
	Kalahari Acacia-Baikiaea woodlands	10,498,657.92	210,521.720	2.01
	Zambeian and Mopane woodlands	424,797.17	6,272.540	1.48
	Kalahari xeric savanna	19,863,618.69	47,914.170	0.24
Niger	South Saharan steppe and woodlands	20,955,082.27	9,722,649.760	46.40

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Sahelian Acacia savanna	43,812,770.92	6,069,096.490	13.85
	West Sudanian savanna	11,312,143.60	931,744.210	8.24
	Sahara desert	39,002,730.08	2,284,776.920	5.86
	West Saharan montane xeric woodlands	2,666,522.96	121,513.260	4.56
	Lake Chad flooded savanna	296,521.54	0.000	0.00
	Lake	84,320.75	0.000	0.00
Nigeria	Cross-Sanaga-Bioko coastal forests	1,591,341.70	558,858.910	35.12
	Cameroonian Highlands forests	904,100.15	173,198.360	19.16
	Nigerian lowland forests	6,605,908.79	1,053,757.800	15.95
	West Sudanian savanna	43,831,643.48	5,709,526.350	13.03
	Guinean forest-savanna mosaic	26,608,932.92	2,489,944.740	9.36
	Niger Delta swamp forests	1,429,621.30	114,819.340	8.03
	Lake Chad flooded savanna	517,496.60	39,602.250	7.65
	Jos Plateau forest-grassland mosaic	1,328,134.84	99,623.030	7.50
	Central African mangroves	1,605,834.47	97,808.170	6.09
	Cross-Niger transition forests	2,062,247.17	53,150.250	2.58
	Sahelian Acacia savanna	3,649,689.70	75,471.660	2.07
	Northern Congolian forest-savanna mosaic	12,304.58	26.080	0.21
	Lake	371,311.79	74.910	0.02
	Mandara Plateau mosaic	155,931.88	0.000	0.00
	East Sudanian savanna	58,659.98	0.000	0.00
Republic of the Congo	Atlantic Equatorial coastal forests	749,461.19	74,125.790	9.89
	Northwestern Congolian lowland forests	15,197,502.88	1,406,757.350	9.26
	Western Congolian forest-savanna mosaic	11,249,748.10	437,780.350	3.89
	Eastern Congolian swamp forests	101.70	0.000	0.00
	Western Congolian swamp forests	7,287,581.86	0.000	0.00
Rwanda	Rwenzori-Virunga montane moorlands	64,070.96	17,790.950	27.77
	Albertine Rift montane forests	1,115,352.45	105,537.180	9.46
	Victoria Basin forest-savanna mosaic	1,350,819.26	101,968.740	7.55

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Central Zambebian Miombo woodlands	262.82	0.000	0.00
São Tomé And Príncipe	Sao Tome, Principe and Annobon moist lowland forests	97,088.41	0.000	0.00
Senegal	Guinean mangroves	137,470.23	84,387.030	61.39
	Sahelian Acacia savanna	5,444,859.21	860,293.230	15.80
	West Sudanian savanna	11,406,690.31	1,137,913.480	9.98
	Guinean forest-savanna mosaic	2,611,720.95	255,511.000	9.78
Seychelles	Aldabra Island xeric scrub	10,703.25	10,703.130	100.00
	Granitic Seychelles forests	18,349.29	2,520.250	13.73
Sierra Leone	Guinean montane forests	161,536.24	67,518.720	41.80
	Guinean forest-savanna mosaic	1,860,117.78	141,317.530	7.60
	Guinean mangroves	656,044.93	49,200.360	7.50
	Western Guinean lowland forests	4,462,737.71	192,768.770	4.32
Somalia	Northern Zanzibar-Inhambane coastal forest mosaic	2,839,517.19	5,271.410	0.19
	Somali Acacia-Commiphora bushlands and thickets	37,636,585.79	4,117.300	0.01
	Hobyos grasslands and shrublands	2,512,894.17	0.000	0.00
	Somali montane xeric woodlands	4,088,287.61	0.000	0.00
	East African mangroves	35,118.06	0.000	0.00
Somaliland	Somali montane xeric woodlands	2,122,428.72	0.000	0.00
	Somali Acacia-Commiphora bushlands and thickets	11,084,804.16	0.000	0.00
	Ethiopian xeric grasslands and shrublands	3,229,419.72	0.000	0.00
	Ethiopian montane forests	226,831.12	0.000	0.00
South Africa	Zambeian and Mopane woodlands	4,342,155.98	1,797,670.990	41.40
	Knysna-Amatole montane forests	303,091.14	43,662.680	14.41
	Albany thickets	1,704,908.84	107,260.460	6.29
	Kalahari xeric savanna	16,576,148.21	982,570.980	5.93
	Drakensberg alti-montane grasslands and woodlands	414,690.80	20,167.320	4.86
	Maputaland coastal forest mosaic	926,203.17	31,708.300	3.42

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Kalahari Acacia-Baikiaea woodlands	1,070,379.21	35,390.120	3.31
	Montane fynbos and renosterveld	4,574,488.56	125,252.950	2.74
	Succulent Karoo	8,182,113.08	209,312.550	2.56
	Lowland fynbos and renosterveld	3,229,019.44	64,879.370	2.01
	Southern Africa bushveld	11,417,911.27	171,743.530	1.50
	Kwazulu-Cape coastal forest mosaic	1,729,818.47	25,470.990	1.47
	Drakensberg montane grasslands, woodlands and forests	17,846,841.86	225,648.220	1.26
	Nama Karoo	29,595,116.87	369,974.910	1.25
	Maputaland-Pondoland bushland and thickets	1,950,407.96	13,304.650	0.68
	Highveld grasslands	17,953,740.66	77,765.740	0.43
	Southern Africa mangroves	86,127.39	37.960	0.04
	Southern Indian Ocean Islands tundra	31,368.99	0.000	0.00
South Sudan	Victoria Basin forest-savanna mosaic	522,262.40	175,189.980	33.54
	East African montane forests	470,036.79	155,960.270	33.18
	Northern Congolian forest-savanna mosaic	15,317,024.79	2,197,387.070	14.35
	Saharan flooded grasslands	17,771,931.66	2,433,942.560	13.70
	East Sudanian savanna	19,463,133.37	2,562,728.720	13.17
	Northern Acacia-Commiphora bushlands and thickets	2,911,993.48	256,540.840	8.81
	Sahelian Acacia savanna	6,226,950.80	83,501.560	1.34
	Masai xeric grasslands and shrublands	2,849.80	0.000	0.00
Sudan	East Sudanian savanna	8,402,549.85	811,921.010	9.66
	Sahelian Acacia savanna	105,504,122.40	16,143.030	0.02
	Tibesti-Jebel Uweinat montane xeric woodlands	55,349.03	0.000	0.00
	Sahara desert	31,871,580.00	0.000	0.00
	Ethiopian montane grasslands and woodlands	59,885.70	0.000	0.00
	South Saharan steppe and woodlands	37,617,303.21	0.000	0.00
	Ethiopian montane forests	269,944.41	0.000	0.00

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Ethiopian xeric grasslands and shrublands	88,664.36	0.000	0.00
	Somali Acacia-Commiphora bushlands and thickets	31,684.48	0.000	0.00
	Red Sea coastal desert	1,358,194.07	0.000	0.00
	Saharan flooded grasslands	48,216.60	0.000	0.00
	East Saharan montane xeric woodlands	210,076.25	0.000	0.00
Tanzania	East African montane moorlands	128,088.32	113,898.980	88.92
	Serengeti volcanic grasslands	1,794,759.68	863,244.790	48.10
	Northern Acacia-Commiphora bushlands and thickets	414,619.43	180,486.470	43.53
	East African montane forests	1,162,658.06	428,123.900	36.82
	Albertine Rift montane forests	192,681.43	65,125.170	33.80
	Eastern Miombo woodlands	19,571,907.20	4,460,919.180	22.79
	Zambezi flooded grasslands	3,178,105.34	663,366.890	20.87
	Northern Zanzibar-Inhambane coastal forest mosaic	5,214,900.26	986,602.770	18.92
	Southern Acacia-Commiphora bushlands and thickets	21,041,293.46	3,313,462.920	15.75
	Central Zambezi Miombo woodlands	27,519,059.32	3,513,659.700	12.77
	East African mangroves	475,834.24	18,992.150	3.99
	Eastern Arc forests	2,292,235.85	76,953.140	3.36
	Lake	4,948,070.59	34,258.370	0.69
	Southern Rift montane forest-grassland mosaic	2,028,507.68	9,696.540	0.48
	Victoria Basin forest-savanna mosaic	1,547,065.02	46.260	0.00
	East African halophytics	242,721.77	0.000	0.00
	Southern Zanzibar-Inhambane coastal forest mosaic	1,988,993.49	0.000	0.00
	Itigi-Sumbu thicket	352,783.51	0.000	0.00
The Gambia	Guinean forest-savanna mosaic	283,236.04	21,992.050	7.76
	West Sudanian savanna	663,967.48	24,612.660	3.71

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Guinean mangroves	93,456.84	1,824.870	1.95
Togo	Eastern Guinean forests	644,690.25	74,037.500	11.48
	West Sudanian savanna	3,605,198.79	375,193.860	10.41
	Guinean forest-savanna mosaic	1,435,164.59	64,781.550	4.51
Tunisia	Saharan halophytics	1,067,107.01	37,487.130	3.51
	Mediterranean woodlands and forests	6,445,956.63	64,250.360	1.00
	Mediterranean conifer and mixed forests	263,891.58	2,482.230	0.94
	Mediterranean dry woodlands and steppe	1,515,579.35	9,538.270	0.63
	North Saharan steppe and woodlands	6,332,075.06	6,344.890	0.10
Uganda	East African montane moorlands	25,944.82	25,137.420	96.89
	Rwenzori-Virunga montane moorlands	142,528.16	109,116.770	76.56
	East African montane forests	443,598.98	128,621.990	29.00
	Northern Acacia-Commiphora bushlands and thickets	1,802,725.30	437,293.850	24.26
	Albertine Rift montane forests	1,978,212.80	385,893.510	19.51
	Victoria Basin forest-savanna mosaic	10,584,651.15	878,792.520	8.30
	East Sudanian savanna	5,759,477.60	422,496.720	7.34
	Northern Congolian forest-savanna mosaic	274,503.60	1,047.820	0.38
	Lake	3,173,719.35	8,079.090	0.25
Western Sahara	Atlantic coastal desert	99,713.99	0.000	0.00
	North Saharan steppe and woodlands	8,912,164.55	0.000	0.00
	Saharan halophytics	33,640.70	0.000	0.00
Zambia	Zambeian Baikiaea woodlands	3,046,109.88	2,520,232.970	82.74
	Itigi-Sumbu thicket	398,100.38	274,329.600	68.91
	Western Zambeian grasslands	2,936,710.41	1,706,479.490	58.11
	Zambeian and Mopane woodlands	7,803,658.44	3,860,860.910	49.48
	Zambeian flooded grasslands	8,208,355.72	3,988,843.340	48.59

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
	Southern Miombo woodlands	8,925,723.18	3,062,627.440	34.31
	Central Zambezian Miombo woodlands	40,037,645.17	10,875,310.910	27.16
	Zambezian Cryptosepalum dry forests	3,513,311.64	731,617.990	20.82
	Southern Rift montane forest-grassland mosaic	119,369.79	24,367.660	20.41
	Lake	200,612.36	3,784.790	1.89
	Angolan Miombo woodlands	1,906.45	0.000	0.00
Zimbabwe	Zambezian Baikiaea woodlands	3,403,391.64	1,728,299.810	50.78
	Drakensberg montane grasslands, woodlands and forests	183.28	88.380	48.22
	Kalahari Acacia-Baikiaea woodlands	310,977.32	145,038.680	46.64
	Zambezian and Mopane woodlands	10,769,559.25	2,443,373.980	22.69
	Eastern Zimbabwe montane forest-grassland mosaic	660,654.96	76,048.570	11.51
	Southern Miombo woodlands	17,561,662.05	1,123,066.640	6.39
	Southern Africa bushveld	6,227,318.20	299,099.000	4.80

Source: LIFE Institute - 2026. Ecoregion Importance Factor calculated through the overlapping of the Terrestrial Ecoregions of the World by WWF (World Wildlife Fund for Nature) and of 3 conservation priority areas by UNEP-WCMC (UN Environment Programme World Conservation Monitoring Centre).

UNITED KINGDOM

COUNTRY	ECOREGION	Original Land Use (ha)	Overlapping of land use conservation priority database (ha)	Ecoregion Importance Factor (E_{if})
England	English Lowlands beech forests	4,397,867.05	168,902.37	3.84
	Celtic broadleaf forests	8,572,879.04	501,200.94	5.85
Northern Ireland	Celtic broadleaf forests	1,094,376.62	99,945.96	9.13
	North Atlantic moist mixed forests	302,407.18	10,856.15	3.59
Scotland	Caledon conifer forests	2,169,498.55	542,101.47	24.99
	North Atlantic moist mixed forests	1,701,024.55	474,548.53	27.90
	Celtic broadleaf forests	3,666,362.59	187,566.02	5.12
Wales	English Lowlands beech forests	83,170.47	12,679.44	15.25
	Celtic broadleaf forests	1,970,412.33	142,352.37	7.22

Source: LIFE Institute - 2026. Ecoregion Importance Factor calculated through the overlapping of the Terrestrial Ecoregions of the World by WWF (World Wildlife Fund for Nature) and of 3 conservation priority areas by UNEP-WCMC (UN Environment Programme World Conservation Monitoring Centre).

The Ecoregion Importance Factor for **Brazil, Mexico, Paraguay and the European Union (EU)** can be found in their specific Technical Guides.

i) Greenhouse Gases and their global warming potential (GWP) for a period of 100 years

Gas	Chemical formula	GWP
Carbon Dioxide	CO ₂	1
Methane	CH ₄	28
Nitrous Oxide	N ₂ O	265
Hydrofluorocarbon (HFC)		
HFC-125	C ₂ HF ₅	3,170
HFC-134a	C ₂ H ₂ F ₄ (CH ₂ FCF ₃)	1,300
HFC-143a	C ₂ H ₃ F ₃ (CF ₃ CH ₃)	4,800
HFC-152a	C ₂ H ₄ F ₂ (CH ₃ CHF ₂)	138
Perfluorocarbons (PFC)		
Perfluoromethane (tetrafluoroethane)	CF ₄	6,630
Perfluorethane (Hexafluoroethane)	C ₂ F ₆	11,100
Sulfur hexafluoride	SF ₆	23,500

Source: IPCC Fifth Assessment Report - 2014 (AR5). (Adapted)

5. Factors for Unit Conversation

a) Relations between Units

Exponential	Equivalence	Practical relations
(k) kilogram = 10 ³	1 m ³ = 6.28981 barrels	
(M) mega = 10 ⁶	1 barrel = 0.158987 m ³	1 toe year = 7.2 boe year
(G) giga = 10 ⁹	1 joule = 0.239 cal	1 boe year = 0.14 toe year
(T) tera = 10 ¹²	1 Btu = 252 cal	1 toe year = 0.02 boe day
(P) peta = 10 ¹⁵	1 m ³ of oil = 0.872 t (in 1994)	1 boe day = 50 toe year
(E) exa = 10 ¹⁸	1 toe = 10,000 Mcal	

Source: 2016 Unit converter and glossary – Internacional Energy Agency (IEA)

b) Coefficients of Caloric Equivalence

Multiplied by from	to	(m ³)	(1,000 m ³)	(t)	(m ³)	(t)	(t)
		Fuel oil	Dry natural gas	Mineral Coal 5,200	LPG	Firewood	Charcoal
Mineral Coal 5,200	(t)	0.52	0.56	1.00	0.80	1.58	0.76
Charcoal	(t)	0.67	0.73	1.31	1.05	2.06	1.00
Dry natural gas	(1,000 m ³)	0.92	1.00	1.78	1.43	2.80	1.36
LPG	(m ³)	0.64	0.70	1.25	1.00	1.97	0.95
Firewood	(t)	0.33	0.36	0.63	0.51	1.00	0.49
Fuel oil	(m ³)	1.00	1.09	1.94	1.56	3.06	1.48

Source: Ministry of Mines and Energy- 2013 (Adapted)

c) Conversion Factors for Mass

Multiplied by from	to	kg	t	tl	tc	lb
Kilogram	(kg)	1	0.001	0.000984	0.001102	2.2046
Metric Ton	(t)	1,000	1	0.984	1.1023	2,204.6
Long ton	(tl)	1,016	1.016	1	1.12	2,240
Short ton	(tc)	907.2	0.9072	0.893	1	2,000
Pound	(lb)	0.454	0.000454	0.000446	0.0005	1

Source: 2016 Unit converter and glossary – International Energy Agency (IEA)

d) Conversion Factors for Volume

Multiplied by from	to	m ³	l	gal (US)	gal (UK)	bbl	ft ³
Cubic meters	(m ³)	1	1,000	264.2	220	6.289	35.3147
Liters	(l)	0.001	1	0.2642	0.22	0.0063	0.0353
Gallons	(US)	0.0038	3.785	1	0.8327	0.02381	0.1337
Gallons	(UK)	0.0045	4.546	1.201	1	0.02859	0.1605
Barrels	(bbl)	0.159	159	42	34.97	1	5.615
Cub feet	(feet ³)	0.0283	28.3	7.48	6.229	0.1781	1

Source: 2016 Unit converter and glossary – International Energy Agency (IEA)

e) Conversion Factors for Energy

Multiplied by from	to	J	BTU	cal	kWh
Joule	(J)	1	947.8×10^{-6}	0.23884	277.7×10^{-9}
British Thermal Unit	(BTU)	1.055×10^3	1	252	293.07×10^{-6}
Calorie	(cal)	4.1868	3.968×10^{-3}	1	1.163×10^{-6}
Kilowatt-hour	(kWh)	3.6×10^6	3412	860×10^3	1
Ton of oil equivalent	(toe)	41.87×10^9	39.68×10^6	10×10^9	11.63×10^3
Barrel of oil equivalent	(boe)	5.95×10^9	5.63×10^6	1.42×10^9	1.65×10^3

Source: 2016 Unit converter and glossary – International Energy Agency (IEA)

f) Mean Coefficients of Equivalence for Gaseous Fuels

Multiplied by from 1,000 m ³	to	giga-calorie	toe (10,000 kcal/kg)	boe	tec (7,000 kcal/kg)	giga-joule	millions BTU	megawatt-hour (860 kcal/kWh)
Coke oven gas		4.3	0.43	3.03	0.614	18.00	17.06	5.00
Dry natural gas		8.8	0.88	6.20	1.257	36.84	34.92	10.23
Humid natural gas		9.93	0.993	6.99	1.419	41.58	39.40	11.55

Source: Ministry of Mines and Energy – 2013 (Adapted)

g) Mean Coefficients of Equivalence for Liquid Fuels

Multiplied by from m ³	to	giga-calorie	toe (10,000 kcal/kg)	Boe	tec (7,000 kcal/kg)	giga-joule	millions BTU	megawatt-hour (860 kcal/kWh)
Anhydrous ethyl alcohol		5.34	0.534	3.76	0.763	22.35	21.19	6.21
Hydrated ethyl alcohol		5.01	0.510	3.59	0.728	21.34	20.22	5.93
Asphalts		10.18	1.018	7.17	1.455	42.63	40.40	11.84
Petroleum coke		8.73	0.873	6.15	1.247	36.53	34.62	10.15
Refinery gas		6.55	0.655	4.61	0.936	27.43	26.00	7.62
Automotive gasoline		7.70	0.770	5.42	1.099	32.22	30.54	8.95
Aviation gasoline		7.63	0.763	5.37	1.090	31.95	30.28	8.88
LPG		6.11	0.611	4.30	0.872	25.56	24.22	7.10
Agents, Lubrication		8.91	0.891	6.27	1.272	37.29	35.34	10.36
Naphtha		7.65	0.765	5.39	1.093	32.05	30.37	8.90
Fuel oil		9.59	0.959	6.75	1.370	40.15	38.05	11.15
Diesel Oil		8.48	0.848	5.97	1.212	35.52	33.66	9.87
Other petroleum based energy sources		8.90	0.890	6.27	1.271	37.25	35.30	10.35
Other non-petroleum based energy sources		8.90	0.890	6.27	1.271	37.25	35.30	10.35
Petroleum		8.90	0.890	6.27	1.271	37.25	35.30	10.35
Aviation kerosene		8.22	0.822	5.79	1.174	34.40	32.60	9.56
Illuminating kerosene		8.22	0.822	5.79	1.174	34.40	32.60	9.56
Solvents		7.81	0.781	5.50	1.115	32.69	30.98	9.08

Source: Ministry of Mines and Energy – 2013 (Adapted)

h) Mean Coefficients of Equivalence for Solid Fuels

Multiplied by from ton  to	giga- calorie	toe (10,000 kcal/kg)	boe	tec (7,000 kcal/kg)	giga- joule	millions BTU	megawatt- hour (860 kcal/kWh)
Tar	8.55	0.855	6.02	1.221	35.80	33.93	9.94
Imported metallurgical coal	7.40	0.740	5.21	1.057	30.98	29.36	8.61
Steam coal 3,100 kcal/kg	2.95	0.295	2.08	0.421	12.35	11.70	3.43
Steam coal 3,300 kcal/kg	3.10	0.310	2.18	0.443	12.98	12.30	3.61
Steam coal 3,700 kcal/kg	3.50	0.350	2.46	0.500	14.65	13.89	4.07
Steam coal 4,200 kcal/kg	4.00	0.400	2.82	0.571	16.75	15.87	4.65
Steam coal 4,500 kcal/kg	4.25	0.425	2.99	0.607	17.79	16.86	4.94
Steam coal 4,700 kcal/kg	4.45	0.445	3.13	0.636	18.63	17.66	5.18
Steam coal 5,900 kcal/kg	5.60	0.560	3.94	0.800	23.45	22.22	6.51
Steam coal 6,000 kcal/kg	5.70	0.570	4.01	0.814	23.86	22.62	6.63
Unspecified steam coal	2.85	0.285	2.01	0.407	11.93	11.31	3.31
Steam coal 5,200 kcal/kg	4.90	0.490	3.45	0.700	20.52	19.44	5.70
Charcoal	6.46	0.646	4.55	0.923	27.05	25.63	7.51
Mineral coal coke	6.90	0.690	4.86	0.986	28.89	27.38	8.02
Firewood	3.10	0.310	2.18	0.443	12.98	12.30	3.61
Lye	2.86	0.286	2.01	0.409	11.97	11.35	3.33
Molasses	1.85	0.185	1.30	0.264	7.75	7.34	2.15

Source: Ministry of Mines and Energy – 2013 (Adapted)

i) Densities and Calorific Values – 2012

Energetic	Density kg/m ³ ⁽¹⁾	Higher calorific value kcal/kg	Inferior calorific value kcal/kg
Tar	1,000	9,000	8,550
Anhydrous ethyl alcohol	791	7,090	6,750
Hydrated ethyl alcohol	809	6,650	6,300
Asphalts	1,025	10,500	9,790
Biodiesel (B100)	880	9,345	9,000
Imported metallurgical coal	-	7,700	7,400
Steam coal 3,100 kcal/kg	-	3,100	2,950
Steam coal 3,300 kcal/kg	-	3,300	3,100
Steam coal 3,700 kcal/kg	-	3,700	3,500
Steam coal 4,200 kcal/kg	-	4,200	4,000
Steam coal 4,500 kcal/kg	-	4,500	4,250
Steam coal 4,700 kcal/kg	-	4,700	4,450

Energetic	Density kg/m ³ ⁽¹⁾	Higher calorific value kcal/kg	Inferior calorific value kcal/kg
Steam coal 5,200 kcal/kg	-	5,200	4,900
Steam coal 5,900 kcal/kg	-	5,900	5,600
Steam coal 6,000 kcal/kg	-	6,000	5,700
Unspecified steam coal	-	3,000	2,850
Charcoal	250	6,800	6,460
Mineral coal coke	600	7,300	6,900
Petroleum coke	1,040	8,500	8,390
Electricity ¹	-	860	860
Hydraulic Power ¹	1,000	860	860
Coke oven gas ²	-	4,500	4,300
Refinery gas	0.780	8,800	8,400
Liquefied Petroleum Gas	552	11,750	11,100
Dry natural gas ^{2,3}	0.740	9,256	8,800
Humid natural gas ^{2,3}	0.740	10,454	9,930
Automotive gasoline	742	11,220	10,400
Aviation gasoline	726	11,290	10,600
Gathered firewood	300	3,300	3,100
Commercial firewood	390	3,300	3,100
Lye	1090	3,030	2,860
Agents, Lubrication	875	10,770	10,120
Molasses	1,420	1,930	1,850
Naphtha	702	11,320	10,630
Fuel oil	1,000	10,085	9,590
Diesel Oil	840	10,750	10,100
Other petroleum based energy sources	864	10,800	10,200
Other non-petroleum based energy sources	864	10,800	10,200
Petroleum	884	10,800	10,190
Aviation kerosene	799	11,090	10,400
Illuminating kerosene	799	11,090	10,400
Solvents	741	11,240	10,550

Source: Ministry of Mines and Energy – 2013 (Adapted)

¹ kcal/kWh

² kcal/m³

³ At a temperature of 20 °C, for derivatives of petroleum and natural gas

j) Conversion Factors for mean toe

Energy Source	Unit	toe
Tar	m ³	0.855
Anhydrous ethyl alcohol	m ³	0.534
Hydrated ethyl alcohol	m ³	0.510
Asphalts	m ³	1.018
Biodiesel (B100)	m ³	-
Imported metallurgical coal	T	0.740
Steam coal 3,100 kcal/kg	T	0.295
Steam coal 3,300 kcal/kg	T	0.310
Steam coal 3,700 kcal/kg	T	0.350
Steam coal 4,200 kcal/kg	T	0.400
Steam coal 4,500 kcal/kg	T	0.425
Steam coal 4,700 kcal/kg	T	0.445
Steam coal 5,200 kcal/kg	T	0.490
Steam coal 5,900 kcal/kg	T	0.560
Steam coal 6,000 kcal/kg	T	0.570
Unspecified steam coal	T	0.285
Charcoal	T	0.646
Mineral coal coke	T	0.690
Petroleum coke	m ³	0.873
Electricity	MWh	0.086
Coke oven gas	10 ³ m ³	0.430
Refinery gas	10 ³ m ³	0.655
Liquefied petroleum gas	m ³	0.611
Dry natural gas	10 ³ m ³	0.880
Humid natural gas	10 ³ m ³	0.993
Automotive gasoline	m ³	0.770
Aviation gasoline	m ³	0.763
Hydraulic	MWh	0.086
Commercial firewood	T	0.310
Lye	T	0.286
Agents, Lubrication	m ³	0.891
Molasses	T	0.185
Naphtha	m ³	0.765
Fuel oil (medium)	m ³	0.959
Diesel Oil	m ³	0.848
Other non-renewable	Toe	1.000
Other renewable	Toe	1.000
Other petroleum based energy sources	m ³	0.890
Other non-petroleum based energy sources	m ³	0.890

Energy Source	Unit	toe
Petroleum	m ³	0.891
Aviation kerosene	m ³	0.822
Illuminating kerosene	m ³	0.822
Solvents	m ³	0.781
Uranium contained in UO ₂	Kg	73.908
Uranium U ₃ O ₈	Kg	10.139

Source: Ministry of Mines and Energy -2015 (Adapted)

6. Scopes of GHG Protocol Program

Sector	Emission Source Scope 1	Emission Source Scope 2	Emission Source Scope 3
Energy			
Generation of Energy	- Stationary combustion (boilers and turbines used in the production of energy, heat, or steam; fuel pumps; fuel cells; burning of discarded gases or flaring) - Mobile combustion (trucks, vessels, and trains for transporting fuels) - Fugitive emissions (CH₄ leak from transmission and from storage installations; HFC emissions from storage installations; SF₆ emissions from transmission and distribution equipment)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (mining and extraction of fuels, energy for refining and processing of fuels) - Process emissions (productions of fuels, SF₆ emissions) - Mobile combustion (transport of fuels / waste, business trips, employee commuting to-from work) - Fugitive emissions (CH₄ and CO₂ from landfills, pipelines, SF₆ emissions)
Oil & Gas	- Stationary combustion (process heaters, motors, turbines, burning of discarded gases or flaring, incinerators, oxidants, production of electricity, heat, and steam) - Process emissions (process vents, equipment vents, routine and maintenance activities, non-routine activities) - Mobile combustion (transport of raw materials, products, waste; vehicles belonging to the company) - Fugitive emissions (leaks from pressurized equipment, sewage treatment, dams)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (use of products as fuel or combustion for the production of acquired materials) - Mobile combustion (transport of raw materials, products, and waste; employees' business trips; employee commuting to-from work; use of products as fuel) - Process emissions (use of product as raw material or emissions resulting from the production of acquired materials) - Fugitive emissions (CH₄ and CO₂ from landfills or from the production of acquired materials)

Sector	Emission Source Scope 1	Emission Source Scope 2	Emission Source Scope 3
Coal Mining	- Stationary combustion (flaring and use of methane, use of explosives, fires in mines) - Mobile combustion (mining equipment, transport of coal) - Fugitive emissions (CH₄ emissions from coal mines and coal deposits)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (use of product as fuel) - Mobile combustion (transport of coal or waste, employees' business trips, employee commuting to/from work) - Process emissions (gasification)
Metals			
Aluminum	- Stationary combustion (processing of bauxite into aluminum; coke baking; use of lime; sodium carbonate and fuel; CHP) - Process emissions (anodic oxidation, electrolysis, PFC) - Mobile combustion (transport pre-and post-casting smelting, ore trucks) - Fugitive emissions (CH₄, HFC and PFC from fuel pipes, SF₆ as blanket gas)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (processing of raw materials and production of coke by third parties, manufacture of machinery for the production line) - Mobile combustion (transport services, business trips, employee's trips) - Process emissions (during the production of acquired materials) - Fugitive emissions (CH₄ and CO₂ from mining and landfills, emissions from outsourced processes)
Iron and steel	- Stationary combustion (flows of coke, coal, and carbonate; boilers; burners) - Process emissions (oxidation of pig-iron, consumption of reducing agent, carbon content of pig-iron and ferroalloys) - Mobile combustion (on-site transport) - Fugitive emissions (CH₄, N₂O)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (mining equipment, production of acquired materials) - Process emissions (production of ferroalloys) - Mobile combustion (transport of raw materials, products, waste and intermediary products) - Fugitive emissions (CH₄ and CO₂ from sanitary landfills)
Chemicals			
Nitric acid, ammonia, adipic acid, urea, petrochemicals	Stationary combustion (boilers, burners, reducing furnaces, flame reactors, steam reformers)	Stationary combustion (energy consumption, heat or steam acquired)	Stationary combustion (production of acquired materials, waste combustion)

Sector	Emission Source Scope 1	Emission Source Scope 2	Emission Source Scope 3
	- Process emissions (oxidation or reduction of substrates, removal of impurities, N₂O by-products, catalytic cracking, and several other individual emissions from each process) - Mobile combustion (transport of raw materials, products and waste) - Fugitive emissions (use of HFC, leakage from storage tanks)		- Process emissions (production of acquired materials) - Mobile combustion (transport of raw materials, products and waste; business trips, employee commuting to-from work) - Fugitive emissions (CH₄ and CO₂ from sanitary landfills and ducts)
Minerals			
Cement and lime	- Process emissions (calcination of limestone) - Stationary combustion (clinker over, drying of raw materials, energy production) - Mobile combustion (quarry operations, on-site transport)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (production of acquired materials, waste combustion) - Process emissions (production of acquired clinker and lime) - Mobile combustion (transport of raw materials, products and waste; business trips, employee commuting to-from work)
Waste			
Landfills, waste combustion, water services	- Stationary combustion (incinerators, boilers, burners) - Process emissions (sewage treatment, nitrogen loading) - Fugitive emissions (emissions of CH₄ and CO₂ from the decomposition of waste and animal product) - Mobile combustion (transport of waste or products)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (recycled waste used as fuel) - Process emissions (recycled waste used as raw materials) - Mobile combustion (transport of waste or products, business trips, employee commuting to-from work)

Sector	Emission Source Scope 1	Emission Source Scope 2	Emission Source Scope 3
Pulp & Paper			
Pulp & Paper	- Stationary combustion (production of steam and energy, emissions derived from fossil fuels from the calcination of calcium carbonate in lime ovens, drying of products using infrared dryers powered by fossil fuels) - Mobile combustion (transport of raw materials, products, and waste; operation of harvesting equipment) - Fugitive emissions (CH₄ and CO₂ from waste)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (production of acquired materials, waste combustion) - Process emissions (production of acquired materials) - Mobile combustion (transport of raw materials, products, and waste; business trips, employee commuting to-from work) - Fugitive emissions (landfill emissions of CH₄ and CO₂)
Production of HFC, PFC, SF₆ and HCFC-22			
Production of HCFC-22	- Stationary combustion (energy consumption, heat or steam) - Process emissions (ventilation of HFC) - Mobile combustion (transport of raw materials, products and waste) - Fugitive emissions (use of HFC)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (production of acquired materials) - Process emissions (production of acquired materials) - Mobile combustion (transport of raw materials, products and waste; business trips, employee commuting to-from work) - Fugitive emissions (leakages in the use of the product, CH₄ and CO₂ from landfills)
Production of Semiconductors			
Production of Semiconductors	Process emissions ((C₂F₆, CH₄, CHF₃, SF₆, NF₃, C₃F₈, C₄F₈, N₂O used in the fabrication of wafers, CH₄ created from the processing of C₂F₆ and C₃F₈)	Stationary combustion (consumption of energy, heat or steam acquired)	Stationary combustion (production of imported materials, combustion of waste, losses in T&D of energy acquired higher in the value chain)

Sector	Emission Source Scope 1	Emission Source Scope 2	Emission Source Scope 3
	- Stationary combustion (oxidation of volatile organic waste; production of energy, heat, or steam) - Fugitive emissions (leakages in the storage of process gases, leakages of remnants from storage tanks) - Mobile combustion (transport of raw materials, products and waste)		- Process emissions (production of acquired materials, outsourced elimination of gases from processes and remnants from storage tanks) - Mobile combustion (transport of raw materials, products and waste; business trips, employee commuting to-from work) - Fugitive emissions (emissions of CH₄ and CO₂ from landfills, leakages of remnants in storage tanks of process gases lower in the value chain).
Other Sectors			
Sector of services / organizations with activities performed in offices	- Stationary combustion (production of energy, heat or steam) - Mobile combustion (transport of raw materials or waste) - Fugitive emissions (mainly emissions of HFC during the use of refrigeration and air-conditioning equipment)	Stationary combustion (energy consumption, heat or steam acquired)	- Stationary combustion (production of acquired materials) - Process emissions (production of acquired materials) - Mobile combustion (transport of raw materials, products and waste; business trips, employee commuting to-from work)

Source: Specifications of the GHG Protocol Program – 2nd Edition.

NOTES ON THE DEVELOPMENT OF THIS DOCUMENT

Version 1.0: Approved on 01/12/2026, by the LIFE Institute Board of Directors. Initial issue of the document.

Version 2.0: Approved on 08/20/2026, by the LIFE Institute Board of Directors. Inclusion of tables containing land-use aspect data (correction factor, ecoregion, ecoregion importance factor) for the regions of Africa and the United Kingdom; updating of the tables for the Latin American region; and adjustment of the document's formatting.