

Life08 ENV/IT/ 000399

Data reporting EnvEurope



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Life08 ENV/IT/000399



Generic Data Model

Data reporting for EnvEurope

Guideline

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These are Dublin Core metadata elements. See for more details and examples <http://www.dublincore.org/>

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1 Introduction

This document provides list of the data elements proposed as necessary for describing commonly used datasets identified in the EnvEurope¹ project. For the EnvEurope project monthly or annual data should be reported for selected parameters identified by Action 3. This includes physical or chemical analysis (e.g. meteorology or air quality) as well as vegetation observation data.

The data will only be used internally for cross domain and cross site analysis. Any other use of the data is prohibited and has to be negotiated with the data holder.

Based mainly on the results of the questionnaire, a first, short term solution for the collection and further management of the datasets in EnvEurope has been proposed. It consists in collecting data in the form of Excel files to be uploaded in a central ftp repository maintained at EAA premises. In a further step, data will be entered in a relational database implemented by MySQL. An online user interface developed using DRUPAL will be implemented as front end to upload and query the data.

To the above purposes a simple Data Reporting Format was developed which could be used by all beneficiaries. The data reporting format tries to include all data elements proposed as necessary for describing commonly used datasets identified in the EnvEurope² project.

For the EnvEurope project in general, depending on the identified indicator, monthly or annual data should be reported for selected parameters identified by Action 3. This includes physical or chemical analysis (e.g. meteorology or air quality) as well as vegetation observation data.

To define the Data Reporting Format, relevant monitoring programmes were analysed on the way how data upload and collection is done. This included UNECE ICP Integrated Monitoring, UNECE ICP Forest, and UNECE ICP Waters, generally using a file based data collection and upload to a central database.

As many of the beneficiaries participate in these monitoring programmes, EnvEurope adopted the standard used in the UNECE ICP Integrated Monitoring Programme³. The format for the data collection seems to be promising as data are reported in a sequential format where every line contains one observed parameter and time. This allows for a flexible data reporting which can easily adapted to the needs of the data required without changing the data format and structure.

As far as possible existing reference lists (enumerations) were taken from these standards as they are normally maintained by a central organisation.

1.1 Generic data model

Based on the existing data reporting formats a generic data model for the upload of the data was developed and described. This data model was then translated into a reporting format using Microsoft Excel to collect the data from the beneficiaries.

The different data elements are described in the following section.

The main object classes are:

Metadata

contains information about the dataset uploaded.

¹ <http://www.enveurope.eu/>

² See <http://www.enveurope.eu/>

³ See <http://www.ymparisto.fi/default.asp?node=6329&lan=en>

Data

contains the observation or monitoring data and providing the relevant Meta information about the observation (e.g. time, method, unit, etc.).

Station

contains information about the observation plot or monitoring plot to identify sub structures for the observation and monitoring within the site.

Method

contains information about the methods applied in the field to collect the data and method in the office to aggregate the information to the requested aggregation level.

Enumerations

provide the reference lists linked to the relevant fields in the object class **Data**. In Figure 1 only exemplary entries are given for the different enumeration classes.

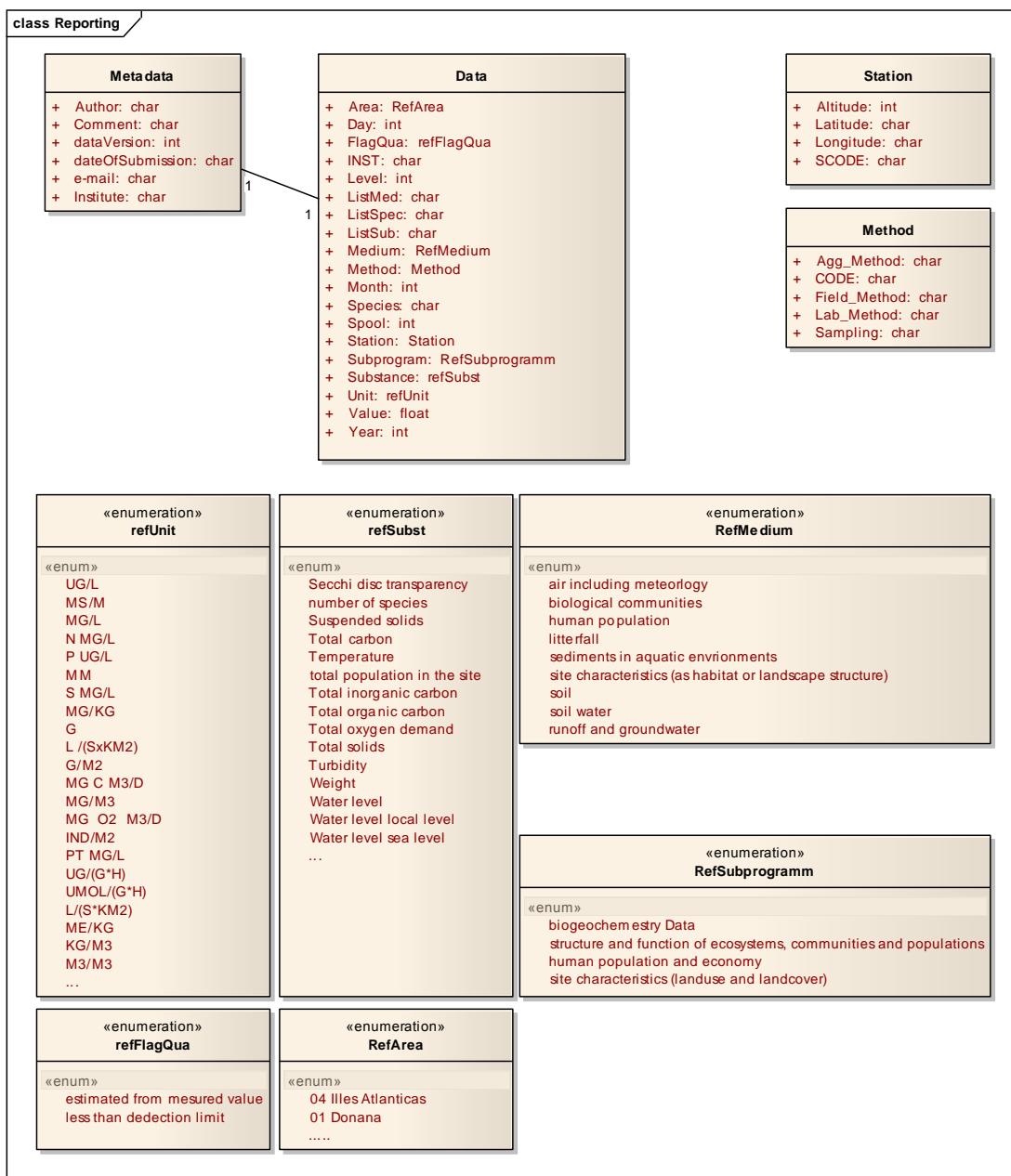


Figure 1 Generic data model for data reporting

2 References

The data reporting format adopts the standards used in the UNECE ICP Integrated Monitoring and UNECE ICP Forest programme. It is adapted to the needs of the EnvEurope project.

UNECE ICP Integrated Monitoring

UNECE ICP Forest

UNECE ICP Waters

3 Terms and definitions

For the purposes of this metadata specification the following definitions and terms apply.

3.1 Community or LTER-Europe Community

Community composed by all Long Term Ecological Research sites. It focuses on different types of ecosystems marine, lacustrine, river and terrestrial. The mission of Long Term community is: to track and understand the effects of global, regional and local changes on socio-ecological systems and their feedbacks to environment and society; to provide recommendations and support for solving current and future environmental problems (<http://www.lter-europe.net/>).

3.2 Dataset

Collection of data. In the LTER compound the dataset is a collection of single parameters stored in a specific site. The dataset is not time dependent; each dataset can cover different time period with different frequency.

3.3 Metadata

Data about the dataset or in other hands is the information for identify the data. This information are used to search, locate and discovery a datasets.

4 Data specification

All proposed elements are defined in form of table with following information:

- The **name of data element**
- The **column name** used in the reporting file
- A short description and **definition** of the data element
- **Obligation/condition** for the data element
- **Multiplicity** of data entries, meaning if more than one information could be given for the entry (e.g. 1 or 1-n)
- A description of the **format** and **reference lists** used for the data reporting
- An **example** from EnvEurope domain dataset

In EnvEurope two different formats for the datasets are proposed:

- Data about the chemical and physical conditions of the observed part of the ecosystem, e.g. meteorology, soil temperature, soil water analysis, litter analysis, etc.
- Data about the biological composition of the observed part of the ecosystem, e.g. vegetation plots

In the following the two reporting formats are described. Commonly used fields are only described for the chemical and physical conditions and there is only a reference to that.

4.1 Reference lists

The reference lists (except for the species) are provided directly in the reporting file. They provide the general codes. If codes are missing the user can add additional ones at the end of the list. There a grey shaded area can be found where additional codes can be added. These additional codes can then also be used in the drop down list for the reporting.

4.2 Metadata

The section on metadata contains the main information about the source of the data. A separate metadata description of the dataset has to be given with the EnvEurope Metadata Editor.

4.2.1 Individual name

Metadata element name	Individual name
Column name	IND_NAME
Definition	Name of person who submits the data to EnvEurope. This is also the point of contact for the dataset in case of any questions, e.g. usage rights or questions about the methodology
Obligation/condition	Mandatory
Multiplicity	1
Example	Dirnböck, Thomas
Format	Text → <Last name>, <First name>
Reference list	None

4.2.2 Organisation name

Metadata element name	Organisation name
-----------------------	-------------------

Column name	ORG_NAME
Definition	Name of the institute who submits the data to EnvEurope. This is also the point of contact for the dataset in case of any questions, e.g. usage rights or questions about the methodology
Obligation/condition	Mandatory
Multiplicity	1
Example	Environment Agency Austria (EAA), Austria
Format	Text → <Institute>, <Country>
Reference list	None

4.2.3 Electronic mail address

Metadata element name	Electronic Mail address
Column name	EMAIL
Definition	Email address of the contact person who submitted the data for EnvEurope
Obligation/condition	Mandatory
Multiplicity	1
Example	Thomas.Dirnboeck@Umweltbundesamt.at
Format	Text → <name>@<domain>
Reference list	None

4.2.4 Dataset publication date

Metadata element name	Dataset publication date
Column name	DATE OF PUBLICATION
Definition	Date of the data submission
Obligation/condition	Mandatory
Multiplicity	1
Example	12.10.2011
Format	Date → DD.MM.YYYY
Reference list	None

4.2.5 Data version

Metadata element name	Data version
Column name	DATA VERSION
Definition	Version of the data in case the data are updated
Obligation/condition	Mandatory
Multiplicity	1

Example	V1.0
Format	Text → V<main version>.<sub version>
Reference list	None

4.2.6 Comments

Metadata element name	Comments
Column name	COMMENTS
Definition	Any comments regarding the data, e.g. usage restrictions, methods, etc.
Obligation/condition	Optional
Multiplicity	1
Example	Only internal use allowed
Format	Text
Reference list	None

4.3 Stations

The **station** is an observation plot or measurement plot within the site. Basic metadata about the station, if different from the site as such is given.

4.3.1 Station code

Metadata element name	Station code
Column name	SCODE
Definition	Code for the station within the site. A station is any measuring unit such as a sampling plot or a meteorological station. If the station equals to the site, meaning that only one station is used within the site, only the site identifier is provided in the data recording sheet.
Obligation/condition	Mandatory
Multiplicity	1
Example	IP1
Format	Text
Reference list	None

4.3.2 Longitude – westBoundingCoordinate and eastBoundingCoordinate

Metadata element name	Longitude
Column name	westBoundingCoordinate / eastBoundingCoordinate
Definition	West and east bounding coordinates of the longitude of the sampling plot. The data is provided if necessary for the data reporting and the plot is a sub-unit of the site; e.g. in the case of very big sites

Obligation/condition	Conditional if different from the site
Multiplicity	1
Example	
Format	Text → decimal degree, Datum WGS84
Reference list	None

4.3.3 Latitude - northBoundingCoordinate and southBoundingCoordinate

Metadata element name	Latitude
Column name	northBoundingCoordinate / southBoundingCoordinate
Definition	North and south bounding coordinates of the latitude of the sampling plot. The data is provided if necessary for the data reporting and the plot is a sub-unit of the site; e.g. in the case of very big sites
Obligation/condition	Conditional if different from the site
Multiplicity	1
Example	
Format	Text → decimal degree, Datum WGS84
Reference list	None

4.3.4 Altitude - altitudeMinimum and altitudeMaximum

Metadata element name	Altitude
Column name	altitudeMinimum / altitudeMaximum
Definition	Minimum and maximum altitude of the sampling plot. The data is provided if necessary for the data reporting and the plot is a sub-unit of the site; e.g. in the case of steep altitudinal gradients within a site
Obligation/condition	Conditional if different from the site
Multiplicity	1
Example	935
Format	Text → [m a.s.l.]
Reference list	None

4.4 Methods

The section contains information on the methods used in the observation. The method is referenced in both – the chemical and physical observations as well as for the species observations. The method section should give an overview on the sampling, the field method and the method used in the lab to create the data value. This part will be specified in future work and undergo a standardisation.

4.4.1 Method code

Metadata element name	Method code
-----------------------	-------------

Column name	METHOD_CODE
Definition	Code for the method. This code is used in the data reporting sheet for the data to reference to the method.
Obligation/condition	Mandatory
Multiplicity	1
Example	METH_BB
Format	Text, max 10 characters
Reference list	None

4.4.2 Dataset sampling description

Metadata element name	Dataset sampling description
Column name	SAMPLING
Definition	Short description on how the plots were selected from the total population (selection of plots, observation points, etc.)
Obligation/condition	Conditional <ul style="list-style-type: none"> If a sampling procedure was applied this should be stated here
Multiplicity	1
Example	Random sampling of spruce stands in the entire area of the site; 5 regularly spaced (10 m) positions on a transect; etc.
Format	Text
Reference list	None

4.4.3 Dataset methods description - Field method

Metadata element name	Dataset methods description - Field method
Column name	FIELD_METHOD
Definition	Short description of the method used in the field either to collect the samples or to do the observation
Obligation/condition	Mandatory
Multiplicity	1
Example	Volume weighted mixing from 5 bulk sampler, 2 weeks interval of sampling, cooled transportation of the samples
Format	Text
Reference list	None

4.4.4 Dataset methods description - Lab method

Metadata element name	Dataset methods description - Lab method
Column name	LAB_METHOD
Definition	Short description on the procedures and methods applied in the

	lab, e.g. filtering, analysis, etc.
Obligation/condition	Mandatory
Multiplicity	1
Example	45µm filtered; ICP-OES
Format	Text
Reference list	None

4.4.5 Dataset methods description - Aggregation procedure

Metadata element name	Dataset methods description - Aggregation procedure
Column name	AGG_METHOD
Definition	Description of the procedure how the values has been aggregated from primary values; for primary data the aggregation procedure is "NONE".
Obligation/condition	Mandatory
Multiplicity	1
Example	X
Format	Text
Reference list	None

4.5 Observations

This section contains data on any observation or measurement in the different compartments of the ecosystem. It includes bio-geochemical measurements as well as biotic observations

4.5.1 Sub programme

Metadata element name	Sub programme								
Column name	SUBPROG								
Definition	Code for the sub programme for which the data are reported, e.g. BIOCHEM for "biogeochemical data" within the site. This refers to the parameter groups used in the EnvEurope context.								
Obligation/condition	Mandatory								
Multiplicity	1								
Example	BIOCHEM								
Format	Text → LOV Ref_SUBPROG								
Reference list	<table border="0"> <tr> <td>BIOCHEM</td> <td>biogeochemistry data</td> </tr> <tr> <td>STRUCTU</td> <td>Structure and function of ecosystems, communities and populations</td> </tr> <tr> <td>HUMANEC</td> <td>human population and economy</td> </tr> <tr> <td>SITECHA</td> <td>site characteristics (land use and land cover)</td> </tr> </table>	BIOCHEM	biogeochemistry data	STRUCTU	Structure and function of ecosystems, communities and populations	HUMANEC	human population and economy	SITECHA	site characteristics (land use and land cover)
BIOCHEM	biogeochemistry data								
STRUCTU	Structure and function of ecosystems, communities and populations								
HUMANEC	human population and economy								
SITECHA	site characteristics (land use and land cover)								

4.5.2 LTER Europe Site Code

Metadata element name	LTER Europe Site Code
Column name	SITE_CODE
Definition	code of the site according to LTER InfoBase
Obligation/condition	Mandatory
Multiplicity	1
Example	SI001496
Format	Text → LOV Ref_AREA
Reference list	Identifier according to the LTER InfoBase for the EnvEurope site which is provided on the ftp-repository
Exception	if the LTER InfoBase Code is not known please use the site name instead of the site identifier

4.5.3 Organisation name

Metadata element name	Organisation name
Column name	ORG_NAME
Definition	Name of the institute providing the data. This could be different from the institute doing the data submission
Obligation/condition	Mandatory
Multiplicity	1
Example	EAA
Format	Text
Reference list	None

4.5.4 Station code

Metadata element name	Station code
Column name	SCODE
Definition	Code for the station within the site. A station is any measuring unit such as a sampling plot or a meteorological station. If the station equals to the site, meaning that only one station is used within the site, only the site identifier is provided in the data recording sheet.
Obligation/condition	Mandatory
Multiplicity	1
Example	IP1
Format	Text
Reference list	None

4.5.5 Medium

Metadata element name	Medium																		
Column name	MEDIUM																		
Definition	code for the sampled medium in the observation																		
Obligation/condition	Mandatory																		
Multiplicity	1																		
Example	AIR																		
Format	Text → LOV Ref_MEDIUM																		
Reference list	<table> <tbody> <tr> <td>AIR</td> <td>air including meteorology</td> </tr> <tr> <td>SOIL</td> <td>soil</td> </tr> <tr> <td>SOILWAT</td> <td>soil water</td> </tr> <tr> <td>WATER</td> <td>runoff and groundwater</td> </tr> <tr> <td>SEDIMENT</td> <td>sediments in aquatic environments</td> </tr> <tr> <td>LITTER</td> <td>litter fall</td> </tr> <tr> <td>BIOCOM</td> <td>biological communities</td> </tr> <tr> <td>HUMPOP</td> <td>human population</td> </tr> <tr> <td>SITECHAR</td> <td>site characteristics (as habitat or landscape structure)</td> </tr> </tbody> </table>	AIR	air including meteorology	SOIL	soil	SOILWAT	soil water	WATER	runoff and groundwater	SEDIMENT	sediments in aquatic environments	LITTER	litter fall	BIOCOM	biological communities	HUMPOP	human population	SITECHAR	site characteristics (as habitat or landscape structure)
AIR	air including meteorology																		
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LITTER	litter fall																		
BIOCOM	biological communities																		
HUMPOP	human population																		
SITECHAR	site characteristics (as habitat or landscape structure)																		

4.5.6 Reference list for medium

Metadata element name	Reference list for medium						
Column name	LISTMED						
Definition	Medium code list						
Obligation/condition	Mandatory						
Multiplicity	1						
Example	EnvEurope						
Format	Text → LOV						
Reference list	<table> <tbody> <tr> <td>EnvEurope</td> <td></td> </tr> <tr> <td>IM</td> <td>ICP Integrated Monitoring</td> </tr> <tr> <td>DB</td> <td></td> </tr> </tbody> </table>	EnvEurope		IM	ICP Integrated Monitoring	DB	
EnvEurope							
IM	ICP Integrated Monitoring						
DB							

4.5.7 Altitude or depth - maximum

Metadata element name	Altitude or depth - maximum
Column name	MAX_LEVEL
Definition	measurement level in [cm]; the soil/rock surface is the zero level; in case of aquatic systems it also could be given as from to level (e.g. 0 - -20)
Obligation/condition	Mandatory

Multiplicity	1
Example	-20
Format	Number in [cm]
Reference list	None

4.5.8 Altitude or depth minimum

Metadata element name	Altitude or depth minimum
Column name	MIN_LEVEL
Definition	measurement level in [cm]; the soil/rock surface is the zero level; in case of aquatic systems minimum depth to sampling
Obligation/condition	Mandatory
Multiplicity	1
Example	0
Format	Number in [cm]
Reference list	None

4.5.9 Size

Metadata element name	Size
Column name	SIZE
Definition	Size of the sampling plot where the observation takes place or the size of the area for which the aggregated values are representative (e.g. the site or part of the site such as the forested area)
Obligation/condition	Mandatory
Multiplicity	1
Example	100
Format	Number in [m ²]
Reference list	None

4.5.10 Year of observation

Metadata element name	Year of observation
Column name	YEAR
Definition	Year of the measurement or the year for which the measurements were aggregated the year of an observation (e.g. plants)
Obligation/condition	Mandatory
Multiplicity	1
Example	2004
Format	Number → YYYY
Reference list	None

4.5.11 Month of observation

Metadata element name	Month of observation
Column name	MONTH
Definition	Month of the measurement or the month for which the measurements were aggregated; the month of the observation (e.g. plants)
Obligation/condition	Conditional if monthly observations are provided, in case of yearly reporting the MONTH is left blank
Multiplicity	1
Example	12
Format	Number → MM
Reference list	None

4.5.12 Day of the observation

Metadata element name	Day of the observation
Column name	DAY
Definition	Day of the measurement or observation; usually not provided as monthly sums or means are reported
Obligation/condition	Conditional if the daily observations are provided, in case of monthly reporting the DAY is left blank
Multiplicity	1
Example	12
Format	Number → DD
Reference list	None

4.5.13 Hour of the observation

Metadata element name	Hour of the observation
Column name	HOUR
Definition	Hour of the measurement or observation
Obligation/condition	Optional Mandatory in the case of sensor (e.g. meteorological station, probe in water, etc.)
Multiplicity	1
Example	14
Format	Number → HH
Reference list	None

4.5.14 Minute of the observation

Metadata element name	Minute of the observation
Column name	MINUTE
Definition	MINUTE of the measurement or observation
Obligation/condition	Optional Mandatory in the case of sensor (e.g. meteorological station, probe in water, etc.)
Multiplicity	1
Example	53
Format	Number → MM
Reference list	None

4.5.15 Second of the observation

Metadata element name	Second of the observation
Column name	Second
Definition	Second of the measurement or observation
Obligation/condition	Optional Mandatory in the case of sensor (e.g. meteorological station, probe in water, etc.)
Multiplicity	1
Example	43
Format	Number → SS
Reference list	None

4.5.16 Spatial pool of the observation

Metadata element name	Spatial pool of the observation
Column name	SPOOL
Definition	spatial pool as the number of devices (e.g. sensors, sampling units, etc.) or sampling plots (e.g. subplots of a bigger plot area) used to measure a parameter
Obligation/condition	Mandatory
Multiplicity	1
Example	5
Format	Number
Reference list	None

4.5.17 Temporal pool of the observation

Metadata element name	Temporal pool of the observation
-----------------------	----------------------------------

Column name	TPOOL
Definition	Temporal pool as the number of values or observations in a time sequence or more time sequences which were used to provide the aggregated value, e.g. mean value
Obligation/condition	Conditional – if relevant
Multiplicity	1
Example	10
Format	Number
Reference list	None

4.5.18 Temporal level of the aggregation

Metadata element name	Temporal level of the aggregation																								
Column name	TLEVEL																								
Definition	Temporal level on which the aggregation of values is provided, e.g. month																								
Obligation/condition	Mandatory																								
Multiplicity	1																								
Example	HOUR																								
Format	Text → LOV																								
Reference list	Ref_TLEVEL <table border="0"> <tr> <td>TLEVEL</td> <td>Explanation</td> <td>Duration</td> </tr> <tr> <td>HOUR</td> <td>aggregated on the level of a hour</td> <td>60 minutes</td> </tr> <tr> <td>DAY</td> <td>aggregated on the level of a day</td> <td>24 hours</td> </tr> <tr> <td>WEEK</td> <td>aggregated on the level of a week</td> <td>7 days</td> </tr> <tr> <td>MONTH</td> <td>aggregated on the level of a month</td> <td></td> </tr> <tr> <td>SEASON</td> <td>aggregated on the level of a season</td> <td>3 Month</td> </tr> <tr> <td>HYEAR</td> <td>aggregated on the level of a half year</td> <td>6 month</td> </tr> <tr> <td>YEAR</td> <td>aggregated on the level of a year</td> <td>12 month</td> </tr> </table>	TLEVEL	Explanation	Duration	HOUR	aggregated on the level of a hour	60 minutes	DAY	aggregated on the level of a day	24 hours	WEEK	aggregated on the level of a week	7 days	MONTH	aggregated on the level of a month		SEASON	aggregated on the level of a season	3 Month	HYEAR	aggregated on the level of a half year	6 month	YEAR	aggregated on the level of a year	12 month
TLEVEL	Explanation	Duration																							
HOUR	aggregated on the level of a hour	60 minutes																							
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WEEK	aggregated on the level of a week	7 days																							
MONTH	aggregated on the level of a month																								
SEASON	aggregated on the level of a season	3 Month																							
HYEAR	aggregated on the level of a half year	6 month																							
YEAR	aggregated on the level of a year	12 month																							

4.5.19 Dataset taxonomic rank value

Species names are defined according to the species lists provided by ICP Integrated Monitoring, which are based on international standards (e.g. the Flora Europea). Not all species of all sites will be found in these lists. If so, add your own list, which includes the species name and nomenclature. The specific species lists have to be reported with the species data. Please be careful with synonyms and check if your species really doesn't exist in the provided list.

The species code lists are not directly worked into the reporting file. Please refer to the directory `_ref_list_species` to select the appropriate species for the reporting. The species lists are provided as textfiles (*.EXP) – please rename them to *.txt to open them or import them directly to Excel.

Metadata element name	Dataset taxonomic rank value
Column name	TAXA
Definition	Name of the taxa. For the specie use a 3 (genus) + 4 (species) letter code, and for another taxa level use the first two letters of taxa rank name.

Obligation/condition	Mandatory for species observation data (e.g. vegetation plot, biotic samples) – in case of bio-geochemical data this field remains empty
Multiplicity	1
Example	FAG SYLV
Format	Text → LOV
Reference list	see on the ftp-repository the directory __ref_list_species

4.5.20 Reference list for the taxa

Metadata element name	Reference list of the taxa
Column name	LISTTAXA
Definition	Code for the reference list of the species used
Obligation/condition	Mandatory for species observation data (e.g. vegetation releeves) – in case of bio-geochemical data this field remains empty
Multiplicity	1
Example	DB
Format	Text → LOV
Reference list	EnvEurope

4.5.21 Parameter observed

Metadata element name	Parameter observed																																													
Column name	SUBST																																													
Definition	substance code (chemical elements) or parameter (physical measurement) observed in the measurement																																													
Obligation/condition	Mandatory																																													
Multiplicity	1																																													
Example	PH																																													
Format	Text → LOV Ref_SUBST																																													
Reference list	<table border="1"> <thead> <tr> <th>LISTSUB</th> <th>SUBST</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>DB</td> <td>ALK</td> <td>Alkalinity</td> </tr> <tr> <td>DB</td> <td>BOD</td> <td>Biochemical oxygen demand</td> </tr> <tr> <td>DB</td> <td>TC</td> <td>Total carbon</td> </tr> <tr> <td>DB</td> <td>CODCR</td> <td>Chemical oxygen demand COD-Cr</td> </tr> <tr> <td>DB</td> <td>CODMN</td> <td>Chemical oxygen demand COD-Mn</td> </tr> <tr> <td>DB</td> <td>DC</td> <td>Dissolved carbon</td> </tr> <tr> <td>DB</td> <td>DIC</td> <td>Dissolved inorganic carbon</td> </tr> <tr> <td>DB</td> <td>DOC</td> <td>Dissolved organic carbon</td> </tr> <tr> <td>DB</td> <td>DOD</td> <td>Direct oxygen demand</td> </tr> <tr> <td>DB</td> <td>NH3</td> <td>Ammonia</td> </tr> <tr> <td>DB</td> <td>NH4</td> <td>Ammonium</td> </tr> <tr> <td>DB</td> <td>NH4N</td> <td>Ammonium as nitrogen</td> </tr> <tr> <td>DB</td> <td>NKJ</td> <td>Kjeldahl nitrogen</td> </tr> <tr> <td>DB</td> <td>NO2</td> <td>Nitrite</td> </tr> </tbody> </table>	LISTSUB	SUBST	Name	DB	ALK	Alkalinity	DB	BOD	Biochemical oxygen demand	DB	TC	Total carbon	DB	CODCR	Chemical oxygen demand COD-Cr	DB	CODMN	Chemical oxygen demand COD-Mn	DB	DC	Dissolved carbon	DB	DIC	Dissolved inorganic carbon	DB	DOC	Dissolved organic carbon	DB	DOD	Direct oxygen demand	DB	NH3	Ammonia	DB	NH4	Ammonium	DB	NH4N	Ammonium as nitrogen	DB	NKJ	Kjeldahl nitrogen	DB	NO2	Nitrite
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	DB	NO23	Nitrite nitrate
	DB	NO23N	Nitrite nitrate as nitrogen
	DB	NO2N	Nitrite as nitrogen
	DB	NO3	Nitrate
	DB	NO3N	Nitrate as nitrogen
	DB	NOXNDO	Nitrogen oxides as NO2
	DB	NTOT	Total nitrogen
	DB	O2	Oxygen
	DB	O2D	Dissolved oxygen
	DB	O2S	Oxygen saturation
	DB	PO4	Phosphate
	DB	PO4P	Phosphate as phosphorous
	DB	PTOT	Total phosphorous
	DB	TIC	Total inorganic carbon
	DB	TOC	Total organic carbon
	DB	TOD	Total oxygen demand
	DB	COND	Conductivity
	DB	DEPTHB	Depth of sampling from bottom
	DB	DEPTH S	Depth of sampling from surface
	DB	DEPTHT	Depth to bottom
	DB	EH	Redox potential
	DB	FLOW	Flow
	DB	HH	Humidity
	DB	LENGTH	Length
	DB	PH	pH
	DB	SDT	Secchi disc transparency
	DB	TEMP	Temperature
	DB	TS	Total solids
	DB	SS	Suspended solids
	DB	TURB	Turbidity
	DB	WL	Water level
	DB	WLL	Water level local level
	DB	WLS	Water level sea level
	DB	BPP	Biological primary production net
	DB	BPY	Biological primary productivity net
	DB	CP	Chlorophyll a
	DB	PREC	Precipitation
	DB	DISCH	Discharge
	DB	P	Phosphorus
	DB	LDEP	litter deposition (weight)
	DB	WEIGHT	Weight
	*	BIOMASS	biomass of
	*	SPNB	number of species
	*	AB	abundance of species
	*	THP	total human population in the site
	*	HDENSITY	density
	*	HAGESTR	age structure
	*	HECONACT	main economic activity
	*	HINCOME	average income
	*	LANDUSE	land use
	*	LANDCOV	land cover
	IM	COVE_T	species cover tree layer
	IM	COVE_S	species cover shrub layer

	IM	COVE_F	species cover field layer
	IM	COVE_B	species cover bottom layer

4.5.22 Reference for parameters

Metadata element name	Reference for parameters
Column name	LISTSUB
Definition	code list for the substances or parameter
Obligation/condition	Mandatory
Multiplicity	1
Example	EnvEurope
Format	Text → LOV
Reference list	EnvEurope IM ICP Integrated Monitoring DB definition needed

4.5.23 Method code

Metadata element name	Method code
Column name	METHOD_CODE
Definition	code for the methods defined in the table METHOD
Obligation/condition	Mandatory
Multiplicity	1
Example	METH_1
Format	Text → LOV
Reference list	See table METHOD

4.5.24 Value

Metadata element name	Value
Column name	VALUE
Definition	value of the measurement or observation
Obligation/condition	Mandatory
Multiplicity	1
Example	2,23
Format	Number
Reference list	None

4.5.25 Unit

Metadata element name	Unit
Column name	UNIT

Definition	unit of the observation or measurement
Obligation/condition	Mandatory
Multiplicity	1
Example	µg/l
Format	Text –LOV Ref_UNIT
Reference list	see Data Reporting Format sheet

4.5.26 Quality flag

Metadata element name	Quality flag
Column name	FLAGQUA
Definition	data quality flag
Obligation/condition	Mandatory
Multiplicity	1
Example	E
Format	Text → LOV
Reference list	L less than detection limit E estimated from measured value

4.5.27 Status flag

Metadata element name	Quality flag
Column name	FLAGSTA
Definition	Status flag on how the data were aggregated
Obligation/condition	Mandatory
Multiplicity	1
Example	E
Format	Text → LOV
Reference list	Ref_FLAGSTA (can be extended user defined) FLAGSTA Explanation X Arithmetic average, mean; e.g. monthly average W Weighted mean S Sum M Mode A Minimum Z Maximum XA average monthly minimum XZ average monthly maximum SZ maximum daily sum

5 Data Reporting - Data upload

The data reported can be directly uploaded by the beneficiaries and then accessed and downloaded using the ftp-repository at the Environment Agency Austria/Umweltbundesamt. The link to the ftp-repository is:

ftp://ftp.umweltbundesamt.at/KnownUsers/2253_2/EnvEurope_DataCollection/.

5.1 Access to the ftp-repository

The ftp-repository is password secured.

- Username: **KU2253_2**
- password: **lter_member**

There are several ways to connect to the ftp-repository

Windows Explorer

The direct access to the ftp-repository in the Microsoft Windows Explorer is possible (preferably NOT the Internet Explorer). For this copy the link

ftp://KU2253_2:lter_member@ftp.umweltbundesamt.at/KnownUsers/2253_2/EnvEurope_DataCollection/

in the address space of Explorer. This link already includes username and password.

FTP-Client

Alternatively any ftp-Client can be used to access the ftp-repository. We recommend Core-ftp-Lite which is a freeware ftp-client. This client can be downloaded from

<http://www.coreftp.com/download.html>.

When using Core ftp Lite the ftp-connection can be specified using the menu item "FILE" → "CONNECT". There the details about the connection can be specified, e.g. ftp, user name and password. Further specify under "ADVANCED" in this window the start directory. This needs to be set to /KnownUsers/2253_2/EnvEurope_DataCollection/.

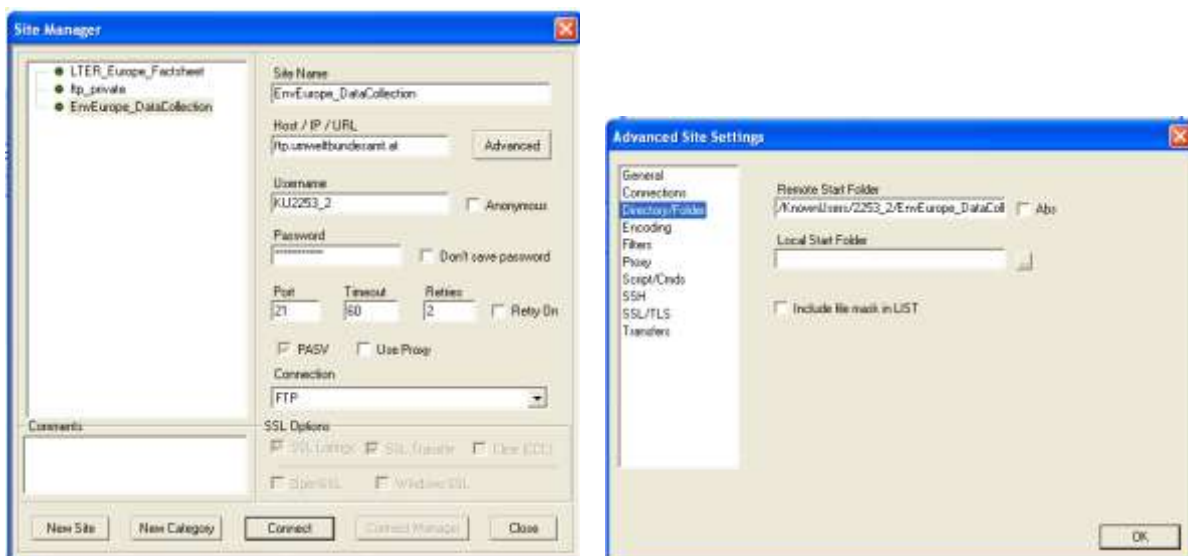


Figure 2 Specifying the ftp-link, user name and password with Core-ftp Lite as well as the remote start folder

5.2 Directory structure

The repository contains sub directories for the different countries. Each beneficiary can upload her/his file in her/his country folder, naming it by using the specified naming convention specified here following.

In addition to the country directories, a directory containing the reference lists for taxa, substances and methods used by the UNECE ICP Integrated Monitoring are provided for the data reporting.

Naming convention

The names of the data file needs to be set to

<Country code, 2 letters>_<Site code>_<Date of data submission>.xls

e.g. AT_SI001496_20111021.xls

In addition if files are split according to different sub-programmes, e.g. Vegetation, the sub-programme should be used in the file name

e.g. AT_SI001496_Vegetation_20111021.xls

6 Selection of relevant datasets

The selection of relevant datasets is one of the results of the Bucharest meeting. Prior to the meeting a data collection format was sent to beneficiaries to test the future collection of datasets (EnvEurope Data Reporting Format). The data reporting format is in fact containing a list of 65 parameters (see attached list).

During the meeting in Bucharest no other parameter was added to the list, but a number of project proposals have been submitted (14 project proposals). The list of parameters and possible datasets needed from different beneficiaries is found on the attached project list. The list proposed can be amended by project needs in future.

Table 1 Data collection – List of parameters (defined by Action 3)

Parameter	Name	Description
ALK	Alkalinity	
BOD	Biochemical oxygen demand	Essential to state incubation time - see pre-treatment list: Incubation.
TC	Total carbon	
CODCR	Chemical oxygen demand COD-Cr	
CODMN	Chemical oxygen demand COD-Mn	
DC	Dissolved carbon	
DIC	Dissolved inorganic carbon	
DOC	Dissolved organic carbon	
DOD	Direct oxygen demand	
NH3	Ammonia	
NH4	Ammonium	
NH4N	Ammonium as nitrogen	
NKJ	Kjeldahl nitrogen	
NO2	Nitrite	
NO23	Nitrite nitrate	Nitrite and nitrate
NO23N	Nitrite nitrate as nitrogen	Nitrite and nitrate as nitrogen
NO2N	Nitrite as nitrogen	
NO3	Nitrate	
NO3N	Nitrate as nitrogen	
NOXNDO	Nitrogen oxides as NO2	
NTOT	Total nitrogen	
O2	Oxygen	
O2D	Dissolved oxygen	
O2S	Oxygen saturation	The amount of oxygen dissolved in the water compared to what theoretically can be dissolved at the same temperature expressed as percentage value.
PO4	Phosphate	
PO4P	Phosphate as phosphorous	
PTOT	Total phosphorous	

TIC	Total inorganic carbon	
TOC	Total organic carbon	
TOD	Total oxygen demand	
COND	Conductivity	
DEPTHB	Depth of sampling from bottom	
DEPTH S	Depth of sampling from surface	
DEPTHT	Depth to bottom	
EH	Redox potential	
FLOW	Flow	
HH	Humidity	
LENGTH	Length	
PH	pH	
SDT	Secchi disc transparency	
TEMP	Temperature	
TS	Total solids	
SS	Suspended solids	
TURB	Turbidity	
WL	Water level	
WLL	Water level local level	Water level compared to a local point.
WLS	Water level sea level	Water level compared to the sea.
BPP	Biological primary production net	
BPY	Biological primary productivity net	
CP	Chlorophyll a	
PREC	Precipitation	
DISCH	Discharge	
P	Phosphorus	
LDEP		litter fall amount (oven dry weight)
WEIGHT	Weight	
BIOMASS	biomass of	groups; to be specified by user; to be described in the metadata
SPNB	number of species	groups; to be specified by user; to be described in the metadata
AB	abundance of	groups; to be specified by user; to be described in the metadata
THP	total population in the site	human population
HDENSITY	density	human population
HAGESTR	age structure	human population
HECONACT	main economic activity	human population
HINCOME	average income	human population
LANDUSE	land use	
LANDCOV	land cover	