

6 Searching the EFDB for Emission Factors or Other Parameters

You can access the start page of the search process by clicking the **Find EF** link located at the top menu. The Find EF Start Page contains three options (Figure 6-1).

Figure 6-1 Find EF – Start Page

Find EF - Start Page

This is the start page of searching the EFDB for emission factors. You have several options to choose from. The first option is to search EFDB by specifying the criteria such as the IPCC Source/Sink Category, Fuel (if applicable), Gas(es) and fulltext filters. The second one is to search EFDB using FULLTEXT search by specifying the keywords. The last option allows to search for one particular EF by specifying its unique ID.

Choose your option:

- Search by specifying the criteria such as the IPCC Source/Sink Category, Gas and fulltext filters
- Fulltext search using keywords
- Find Emission Factor or other parameter using its unique ID

- 1) In case you are looking for emission factors or other parameters for a particular IPCC Source/Sink Category, Option 1 “Search by specifying the criteria such as the IPCC Source/Sink Category, Gas and fulltext filters” will be useful. → **See Section 6.1 (page 10)**

- 2) In case you wish to look for emission factors or other parameters by some keywords without specifying a particular IPCC Source/Sink Category, you can take Option 2 “Fulltext search using keywords” → **See Section 6.2 (page 16)**

- 3) If you already know the specific ID number of data record you want to retrieve, e.g.,
 - in case you need to revise the data record you submitted earlier;
 - in case you have picked up the data record earlier and remember its ID; or
 - in case you have a short list of data records resulted from Option 1 or Option 2 and want to see details of a particular data record included in the short list;
 Option 3 “Find Emission Factor or other parameter using its unique ID” will be useful. → **See Section 6.3 (page 19)**

IMPORTANT! - In any case, you should always obtain the **Emission Factor Detail** for emission factors or other parameters that have been identified by any of the 3 options and that are being considered for use. → **See Section 6.4 (page 19)**

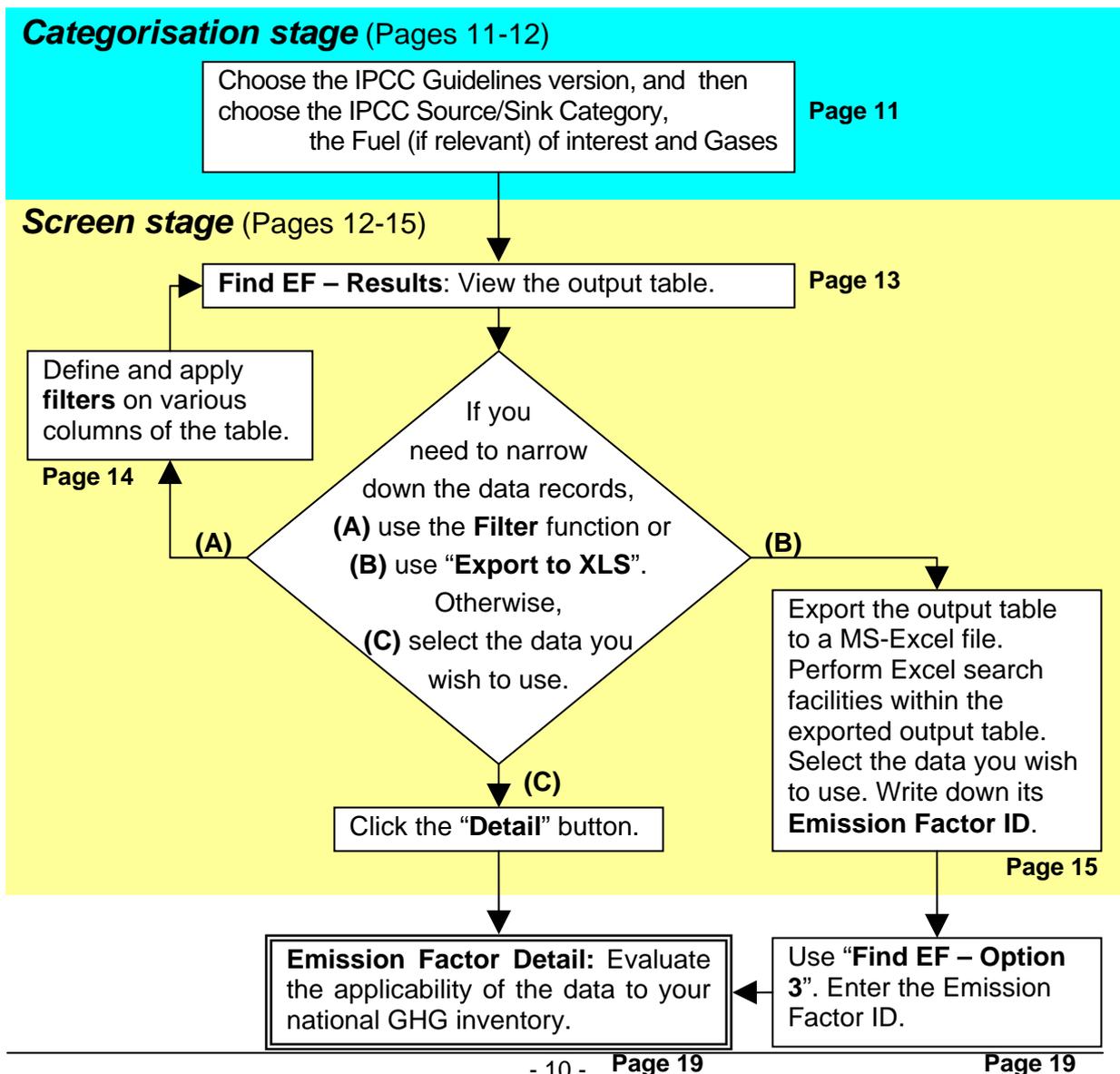
Click the option button to choose the desired option and press the **OK** button to proceed.

6.1 Option 1 – Search by specifying the criteria such as the IPCC Source/Sink Category, Gas and fulltext filters

This search option consists of two main stages. These stages are designed to allow you to filter the large EFDB data set for information that is most applicable to your search criteria:

- 1) **Categorisation stage:** Specify the selection criteria. This stage results in a table of all emission factors or other parameters complying with the criteria.
 - a) Choose the IPCC Guidelines version. It is possible to choose 1996 version or the 2006 version. Relevant IPCC categorisation for selected version will be displayed. 1996 version is selected by default.
 - b) Choose the IPCC Source/Sink Category and the Fuel (if relevant) of interest;
 - c) Choose the gas(es) of interest.
- 2) **Screen stage:** Sort and filter the output table to narrow down the data records by considering properties of data, source of data, etc

These steps help you identify a manageable subset of data from which to investigate the full **Emission Factor Detail** (see Section 6.4).



6.1.1 Categorisation stage

a) Choosing the IPCC Guidelines version

Select the **IPCC Guidelines version** from the drop-down box. You can choose between 1996 or 2006 version. 1996 version is selected by default. You will be provided with the IPCC Source/Sink categorisation according to chosen IPCC Guidelines version.

b) Choosing the IPCC Source/Sink Category

Select the **IPCC Source/Sink Category** (Figure 6-2) by a hierarchical procedure. Starting at the top level, you will be presented with a series of IPCC sub-categories within the already selected category. The complete list of the IPCC Source/Sink Categories can be found in Appendix B.

Only the emission factors and other parameters defined within the selected IPCC Source/Sink Category (including the underlying levels) will be included in the search procedure.

By clicking the IPCC Source/Sink Category it becomes selected. If this category contains subcategories these will be automatically displayed. The red **o** marks the lowest level of the hierarchy of the IPCC Source/Sink Category.

You can navigate to higher levels of the hierarchy clicking the corresponding link located in the header of the IPCC navigation section. Clicking the **root** link will display the top-most level of the hierarchy (IPCC Main Sectors).

If you select the IPCC Source/Sink Category 1A (1.A for 2006 version), you must specify the **Fuel** of interest as well before proceeding. The list of Fuel Categories can be found in Appendix B.

After choosing the desired IPCC Source/Sink Category (and the Fuel if applicable), you can proceed to choosing Gas.

Figure 6-2 Choosing the IPCC Source/Sink Category

IPCC Guidelines version: 1996

IPCC Source/Sink Category

Root -> Energy (1) -> **Fuel Combustion Activities (1A)**

- ▶ 1A1: Energy Industries
- ▶ 1A2: Manufacturing Industries and Construction (ISIC)
- ▶ 1A3: Transport
- ▶ 1A4: Other Sectors
- ▶ 1A5: Other

Fuel 1996: LIQUID -> GASOLINE -> Motor Gasoline

c) Choosing Gas

It is necessary to choose one or more **Gases** (Figure 6-3). The gases are split into several gas groups. You can choose the gas group using the selection box located at the top of the gas list. The list of gases for chosen gas group will be displayed. CO₂, CH₄ & N₂O are displayed by default. There is a checkbox located in the last column of each row of the list. It

is possible to choose one or more gases by checking the checkbox and clicking the **Apply** button. It is also possible to check/uncheck all gases within the selected group at once by checking the checkbox located in the column header and clicking the **Apply** button⁴. Status section (Figure 6-4) contains the information about your current criteria and count of emission factors matching the criteria. After choosing the desired gas(es), click the **Output table** button (Figure 6-4) to display the output table.

Figure 6-3 Choosing Gas

Gases		
CO2, CH4 & N2O [v] [OK]		
Gas name	Abbreviation	Select gas
CARBON DIOXIDE	CO2	<input checked="" type="checkbox"/>
METHANE	CH4	<input checked="" type="checkbox"/>
NITROUS OXIDE	N2O	<input checked="" type="checkbox"/>
		[Apply]

Figure 6-4 Status Section

Status

- ▶ IPCC 1996 Source/Sink Category: Energy (1) -> Fuel Combustion Activities (1A)
- ▶ Fuel 1996: Motor Gasoline
- ▶ Gases: CH4, CO2, N2O
- ▶ Number of emission factors covered by your criteria: 353

<< Back to Find EF Start Page [Output table]

6.1.2 Screen stage

This stage starts from the page titled “**Find EF – Results**” which shows the output table of all emission factors and other parameters in the EFDB that comply with the selection criteria in the Categorisation stage (Figure 6-5). This output table contains all property values for each data record.

The number of data displayed is limited to 10 records per page. If the output table contains more than 10 emission factors, you can display the next 10 records by clicking the button. You can display the previous 10 records by clicking the button. You can get to the beginning of the list by clicking the button. You can get to the end of the list by clicking the button.

If the output table does not contain many data records and you can easily identify the data you wish to use, you do not have to attempt to narrow down the data records but just to click “**Detail**” button in the row of the data record of interest. (Skip to Section 6.4, page 19.)

⁴ In order to check all gases in all groups, select the (All gases) from the drop-down box. Next check the **checkbox located in the column header** and click **Apply**.

Figure 6-5 Output Table

Find EF - Results														
Click here for online help.														
Status														
▶ IPCC 1996 Source/Sink Category: Waste (6) -> Waste Incineration (6C)														
▶ Gases: N2O														
Displayed records: 1 - 10 / 20.														
												<< Back to criteria		
Filter													Apply filter	
Active Filters													IPCC [x]	
EF ID	IPCC 1996	IPCC 2006	Gas	Description	Technologies / Practices	Parameters / Conditions	Region / Regional Conditions	Abatement / Control Technologies	Other properties	Value	Unit	Data provider	Source of data	Action
62872	6C - Waste Incineration	4.C - Incineration and Open Burning of Waste	NITROUS OXIDE	N2O Emission Factors from Waste Incineration	Facility: Stepgrate	Temperature: 780-880, Nature of Waste: Municipal refuse				11-43	g N2O /tonne waste	IPCC	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Table 6-10 on Page 6.29 of the Reference Manual)	Detail
62873	6C - Waste Incineration	4.C - Incineration and Open Burning of Waste	NITROUS OXIDE	N2O Emission Factors from Waste Incineration	Facility: Stepgrate	Temperature: 780-980, Nature of Waste: Municipal refuse				40-220	g N2O /tonne waste	IPCC	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Table 6-10 on Page 6.29 of the Reference Manual)	Detail
62874	6C - Waste Incineration	4.C - Incineration and Open Burning of Waste	NITROUS OXIDE	N2O Emission Factors from Waste Incineration	Facility: Fluidised bed	Temperature: 830-850, Nature of Waste: Municipal refuse				14-123	g N2O /tonne waste	IPCC	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Table 6-10 on Page 6.29 of the Reference Manual)	Detail

In most cases, however, the output table initially contains so many data records that you may wish to narrow them down. If that is the case, you are advised either to use the **Filter** function (see below) or to use “**Export to XLS**” (see page 15).

a) Filter function

You can narrow down the output table by defining and applying filters on the various columns of the table.

For example, if you are looking for data applicable to Asia, you can type the keyword “Asia” in the **Filter** textbox above the column for “Region / Regional Conditions”. It is possible to use keywords in combination with Boolean operators. (For details on Boolean operators, see page 17.) For example, if you are looking for data applicable to South Asia, you can type the keyword “+South +Asia” in the **Filter** textbox above the column for “Region/Regional Conditions” (Figure 6-6).

Figure 6-6 Filter function (keywords in combination with Boolean operators)

	+South +Asia	
ers / ons	Region / Regional Conditions	Abate Con Techno

Multiple filters defined over the same field will be automatically combined with **AND** logical operator. Filters defined for different fields are always combined with **AND** logical operator. Words that have less than 4 characters and common language constructs (like *where, every, etc.*) are ignored. The active filters are always displayed in the row labelled **Active filters**. Each filter has its own **[x]** link, which will switch that particular filter on or off. (Figure 6-7)

Figure 6-7 Filter function (Active filters)

Displayed records: 1 - 1 / 1

Filter						
Active Filters			high quality forage [x]		Europe [x] AND Western [x]	
EF ID	Gas	Description	Technologies / Practices	Parameters / Conditions	Region / Regional Conditions	Abatement Control Technology
43106	METHANE	Enteric Fermentation Emission Factors for Cattle	Highly productive commercialised dairy sector feeding high quality forage and grain. Dairy cows also used for beef calf production.	Average milk production of 4,200 kg/head/yr	Region: Western Europe	

You can also sort the output table. Clicking the column header labels (links) of each column (except Value and Unit) will sort records by that column. Small arrow next to column label represents the sorting order (ASC – ascending, DESC – descending). Clicking the same column header will switch sorting order between ascending and descending.

The sorting and filtering techniques described above will facilitate your search for the subset of data records for which you may wish to obtain and consider the detail information. This avoids time spent considering the detail information for factors not relevant to your specific search criteria.

Clicking the “**Detail**” button in the last column of the list for each data record displays the complete information (see Section 6.4).

b) Export to XLS

Clicking the “**Export to XLS**” button at the bottom of the screen (Figure 6-8) will export the whole output table to Microsoft Excel.

Microsoft Excel search facilities can then be used, independently of the EFDB web application, to perform more advanced searching within the exported output table.

Figure 6-8 Export to XLS



Figure 6-9 Exported output table and Emission Facto ID

D5 fx Facility: Stepgrate, Nature of Waste: Municipal refuse				
output.xls				
	A	B	C	
1	EF ID	Gas	Description	
2	62174	NITROUS OXIDE	Nitrous Oxide Emission Factor	09100: resider
3	62962	NITROUS OXIDE	Emission Factors for N2O from Waste Incineration	Inciner
4	62882	NITROUS OXIDE	N2O Emission Factors from Waste Incineration	Facility, Sludge
5	62872	NITROUS OXIDE	N2O Emission Factors from Waste Incineration	Facility, Munici
	62874	NITROUS OXIDE	N2O Emission Factors from Waste	Facility

When you find the data you wish to examine more details to evaluate its applicability to your national GHG inventory, you should write down its **Emission Factor ID (EF ID)**. Then you should go back to the EFDB web application and implement **Find EF - Option 3** “Find Emission Factor or other parameter using its unique ID” (see page 19). You can directly get to the detail information on the data record you selected.

6.2 Option 2 – Fulltext search using keywords

This option implements full text search on keywords⁵ allowing to query the database for emission factors or other parameters. The keywords entered will be matched against EF related textual data such as: *data provider name, Gas, IPCC Source/Sink Category code, IPCC Source/Sink Category name, Fuel, EF description, IPCC worksheet number, source of data, technical reference, abstract in English, data quality, data quality reference, other information on data quality, comments from provider, comments from others and properties.*

Records that match the keywords will be automatically sorted with decreasing relevance.

Figure 6-10 FULLTEXT search using keywords

6.2.1 How FULLTEXT search works and what can be expected from it

The FULLTEXT search function matches a natural language query against a text collection (which is simply the set of columns covered by a FULLTEXT index). For every row in a table it returns relevance - a similarity measure between the text in that row (in the columns that are part of the collection) and the query. The rows returned are automatically sorted with decreasing relevance. Relevance is a non-negative floating-point number. Zero relevance means no similarity. Relevance is computed based on the number of words in the row, the number of unique words in that row, the total number of words in the collection, and the number of documents (rows) that contain a particular word. **Any "word" that is present in the stopwords list or just too short (3 characters or less) is ignored.** Every correct word in the collection and in the query is weighted, according to its significance in the query or collection. This way, a word that is present in many documents will have lower weight (and may even have a zero weight), because it has lower semantic value in this particular collection. Otherwise, if the word is rare, it will receive a higher weight. The weights of the words are then combined to compute the relevance of the row. Such a technique works best with large collections (in fact, it was carefully tuned this way). For very small tables, word

⁵ It should be noted that the words spelled differently are treated as different words. For example, you cannot detect the word “centre” when you enter “center” as a keyword. It is recommended to enter both “center” and “centre” as keywords if you wish to detect such a word regardless of the way how it is spelled.

distribution does not reflect adequately their semantic value, and this model may sometimes produce bizarre results.

For example, search for the word “**IPCC**” will produce no results. The word “**IPCC**” is present in more than half of rows, and as such, is effectively treated as a stopword (that is, with semantic value zero). It is, really, the desired behaviour - a natural language query should not return every second row from a very large table. A word that matches half of rows in a table is less likely to locate relevant documents. In fact, it will most likely find plenty of irrelevant documents.

6.2.2 Using keywords and Boolean operators

This FULLTEXT search engine supports Boolean mode. This means, it is possible to use keywords in combination with Boolean operators. If you type in multiple keywords without any Boolean operators, those keywords will be combined with **OR** logical operator.

The Boolean FULLTEXT search capability supports the following operators:

- **+** A leading plus sign indicates that this word must be present in every row returned.
- **-** A leading minus sign indicates that this word must not be present in any row returned. A single keyword prefixed with a minus sign does not work. (The EFDB does not return any results.)

By default (when neither plus nor minus is specified) the word is optional, but the rows that contain it will be rated higher.

- **< >** These two operators are used to change a word's contribution to the relevance value that is assigned to a row. The **<** operator decreases the contribution and the **>** operator increases it. See the example on page 18.
- **()** Parentheses are used to group words into subexpressions.
- **~** A leading tilde acts as a negation operator, causing the word's contribution to the row relevance to be negative. It's useful for marking noise words. A row that contains such a word will be rated lower than others, but will not be excluded altogether, as it would be with the **-** operator. A single keyword prefixed with a tilde does not work. (The EFDB does not return any results.)
- ***** An asterisk is the truncation operator. Unlike the other operators, it should be **suffixed** to the word, not prefixed.
- **"** The phrase, that is enclosed in double quotes **"**, matches only rows that contain this phrase **literally, as it was typed**.

How to use keywords in combination with Boolean operators are illustrated on page 18.

It is possible to do sorting of the data set the same way as it works in the output table described in Section 6.1.2 (see page 12).

EXAMPLES OF A QUERY	RESPONSE
national inventory	Return the rows that contain “national” or “inventory” or both. (= “ OR ” search)
+national +inventory	Return the rows that contain both of “national” and “inventory” in any order. (= “ AND ” search)
"national inventory"	Return the rows that contain “national inventory”. In this case, “national inventory” is treated as one word.
+national -inventory	Return the rows that contain “national” but do not contain “inventory”.
+national inventory	Return the rows that contain “national”. If the row also contains “inventory”, it will be ranked higher.
national inventory -(+national +inventory)	Return the rows that contain either “national” or “inventory” but not both . (= “ Exclusive OR ” search)
+inventory +(national annual)	Return the rows that contain “national” and “inventory”, or “annual” and “inventory”.
+inventory +(>national <annual)	Return the rows that contain “national” and “inventory”, or “annual” and “inventory”. “national” will be prioritised in searching.
invent*	Return the rows that contain any words starting with “invent”: e.g., “inventory”, “inventories”, “invention”, etc.
-inventory	Return nothing!! A single keyword prefixed with a minus sign does not work.

6.2.3 Hints

If you specify some keywords, look at the search results and find out that the first record in the set is not exactly what you expected to get, it makes no sense to browse for next records in the same data set. This is because records are sorted with relevance decreasing.

Example:

Let's say that you want to search for emission factor for CO₂ for swine in asia temperate region. Your keywords will be: **carbon dioxide swine asia temp** (note that we cannot use CO₂ as a keyword because words with 3 characters and less are ignored). First record of the returned data set will contain Manure management for cattle swine and buffalo, but for **METHANE NOT CO₂!**. This is because there is no CO₂ emission factor for manure management in the EFDB. So it makes no sense to browse for it in the actual result set.

6.3 Option 3 – Find Emission Factor or other parameter using its unique ID

This option can be used to directly display the detail of one particular emission factor in case the user knows (or remembers) its unique ID. For example;

- in case you need to revise the data record you submitted earlier;
- in case you have picked up the data record earlier and remember its ID; or
- in case you have a short list of data records resulted from Option 1 or Option 2 and want to see details of a particular data record included in the short list. (See page 15, “b) Export to XLS”.)

You have to type the numeric ID in the textbox and click OK. The first number of the ID represents the IPCC Main Sector (according to the source/sink categories in the Revised 1996 IPCC Guidelines) where the emission factor or other parameter belongs (e.g. 1xxxx for Energy, 4xxxx for Agriculture, etc.) (Figure 6-11).

This option is useful when you need to quickly revisit those data records that you once visited (e.g. when you want to revise the data record you submitted earlier.)

Figure 6-11 Find EF using unique ID

Find EF - Search by EF ID

This option can be used to directly display the detail of one particular emission factor in case you know (or remember) its unique ID. You have to type the numeric ID in the textbox and click OK. If emission factor with this ID exists in the EFDB, you will get the detailed information of that emission factor.

The screenshot shows a small window titled "Emission Factor ID". Inside the window, there is a text input field with the value "43143" and an "OK" button below it.

Back to Find EF Start Page

6.4 Emission Factor Detail

This page contains the complete information for the particular emission factor or other parameter (Figure 6-12). You should always obtain the **Emission Factor Detail** for emission factors or other parameters that have been identified by any of the search options and that are being considered for use. It is only on the **Emission Factor Detail** page that the complete information for an emission factor or other parameter in the EFDB is provided. This detail can be exported to Microsoft Excel and Microsoft Word clicking the “**Report to XLS**” and “**Report to DOC**” buttons.

Figure 6-12 Emission Factor Detail

Emission Factor Detail (ID: 43143)

Administrative information

Data Provider:	IPCC
Data Provider Country:	(Not applicable)
Data Provider Contact:	ipcc-efdb@iges.or.jp
Date calculated:	Unknown
Date submitted to EFDB by Data Provider:	(Not applicable)
Date posted to EFDB by IPCC:	2002-09-27

View history

Technical information

Gas:	METHANE
IPCC 1996 Source/Sink Category:	Agriculture (4) -> Manure Management (4B) -> Horses (4B6)
IPCC 2006 Source/Sink Category:	Agriculture, Forestry, and Other Land Use (3) -> Livestock (3.A) -> Manure Management (3.A.2) -> Horses (3.A.2.f)
Properties	
Technologies/Practices:	All manure is assumed to be managed in dry manure management systems, including pastures and ranges, drylots, and daily spreading on fields.
Parameters/Conditions:	Annual Average temperature is greater than 25 C; MCF value used in the estimation is 2%
Region/Regional Conditions:	Climate: Warm; Country: Developing Countries
Abatement/Control Technologies:	
Others:	
Description:	Manure Management Emission Factor
Value:	2.2 kg/head/yr
Value in common units:	
Equation:	Equation 4.15 on Page 4.30 of the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories
IPCC Worksheet:	Worksheet 4-1, Sheet 1 of 2
Source of data:	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Table 4-5 on Page 4.12 of the Reference Manual)
Technical Reference:	Woodbury, J.W. and A. Hashimoto (1993), "Methane Emissions from Livestock Manure." In International Methane Emissions, US Environmental Protection Agency, Climate Change Division, Washington, D.C., U.S.A.
Reference language:	English
Abstract in English:	
Uncertainties expressed as 95% confidence limit:	Upper: 20% Lower: -20%
Data quality:	IPCC default
Distribution shape:	
Data quality reference:	
Other info on data quality:	

Usage/Review information

Type of parameter:	1996 IPCC default
Comments from the data provider:	
Comments from others:	
Link:	

Back to Find EF by ID page

Report to DOC

Report to XLS