**Template for Key Category Analysis (KCA)**

**Staff member responsible for populating the template - Contact Information**

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| --- | --- | --- | --- |
| Name: |  | Organization name: |  |
| Title/Position: |  | Organization postal address: |  |
| Phone number: |  | Organization web address: |  |
| Email: |  | Organization phone number: |  |

## **Introduction to Template 5. Key Category Analysis**

The purpose of this template is to help you, the National Inventory Coordinator (NIC) or key category analysis (KCA) lead, prepare your country’s national GHG inventory. You may use this template with other software or by following the guidance in the 2006 IPCC Guidelines.[[1]](#footnote-1) This template facilitates development of key category analysis consistent with future reporting requirements under the Enhanced Transparency Framework[[2]](#footnote-2) (ETF) for National GHG Inventories. The template and tool also accommodate the use of flexibility in meeting this requirement (e.g., using a lower threshold in identifying key categories).

This template uses the IPCC methodologies to determine key categories: Approach 1. Approach 1 assesses the relevance of each category compared to total national emissions in the current year (“level assessment”), and its influence on the overall trend when comparing the current year and the base year (“trend assessment”). In the Approach 1 methodology, keycategories are identified using a pre-determined cumulative emissions threshold, where key categories are those that sum to 95% of the total level when summed together in descending order of magnitude.

**To complete this template, you will perform the steps enumerated below by following the instructions above each table in this template. Green text is used throughout the template and its tables to provide instructions and guidance. When the tables are complete, delete the green text and green tables throughout this template.**

|  |  |
| --- | --- |
| **Step** | **Purpose** |
| 1. Download the latest version of the key category software from the Tool
 | You may use this software to perform the KCA. |
| 1. a. Complete the Approach 1 key category "current year level assessment” for magnitude
 | The output from this will provide a list of the key categories in terms of size of their contribution to the national total. You may then prioritize the improvement of these categories in the inventory development plan to improve their accuracy and reduce uncertainty. |
| b. If your country has GHG inventories for more than one year, complete the Approach 1 key category “base year level assessment” and “trend assessment” | The output from this will provide a list of the key categories in terms of size of their contribution to the national total, and in terms of trend (increasing or decreasing). |
| 1. Document your KCA methodologies in your inventory report
 | Keeping a record of the work that has been done is important to ensure transparency. |
| 1. Identify and apply improvements to your inventory report
 | As part of the overall GHG inventory improvement plan, aim to regularly review estimates of uncertainty, in particular for key categories and especially if trends, technologies, or management practices are changing. |

## ***Key Category Analysis***

### **STEP 1: Download the latest version of the key category software from the tool**

* Once the Excel document is downloaded is saved, double-click the file to open it and begin the KCA, following the instructions in the software. Additional instructions are available in KCA tutorials, also available in the Tool.
* Save copies of the document as different versions for draft and final analyses by inserting the date or version number at the end of the file name (e.g., “KCA Tool v2.xls”).

### **STEP 2: Complete the Approach 1 key category current year level assessment**

* Complete Table 5-1, below, using the results from the KCA you performed in Step 1. This table will be a record of the results of the IPCC Approach 1 key category level assessment for the most recent or current year (e.g., 2019). Add as many rows to the table as necessary to provide detailed information for each category.
* If or when the inventory is updated, update the KCA.

Table 5-1: Key Categories Based on Contribution to Total National Emissions in [year, e.g., 2019]\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IPCC Category Code | IPCC Category | Gas | Current Year Emissions(Gg CO2 Eq.) | Contribution to National Emissions | Cumulative Per Cent of National Emissions |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**\*Represents results from the “Tier 1 Current Year Level” sheet in the KCA tool.**

### **STEP 3: Complete the Approach 1 key category base year level assessment and trend assessment**

* Complete this step if your country has GHG inventories with a time series of more than one year.
* If your country has a GHG inventory for only one year, proceed to Step 4.

### **STEP 3.1: Base year level assessment**

* Complete Table 5-2, below, using the results from the "Tier 1 Base Year Level" sheet in the KCA tool. This table will be a record of the results of the IPCC Approach 1 key category level assessment for the base year, e.g., 2000.
* Enter the first inventory category identified as a key category (highlighted in green in the table on this sheet in the software) and include its GHG type (e.g. gas), emission estimate, “level assessment” (or contribution to national emissions), and cumulative percentage. Continue to add the next inventory category until all categories that are highlighted in green (identified as key) are entered. The cumulative total of the level assessment amounts for these categories should account for at least 95% of national emissions.
* Add as many rows to the table as necessary to provide detailed information for each category.
* If or when the inventory is updated, update the KCA.

Table 5-2: Key Categories Based on Contribution to Total National Emissions in Base Year [year, e.g., 2000]\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IPCC Category Code | IPCC Category | Gas | Base Year Emissions(Gg CO2 Eq.) | Contribution to National Emissions | Cumulative Per Cent of National Emissions |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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**\*Represents results from the “Tier 1 Base Year Level” sheet in the KCA tool.**

### **STEP 3.2: Trend assessment**

* Conduct the trend assessment using both the base year estimates and current estimates. The trend assessment identifies categories whose trends which differ significantly from the trend of the total inventory, regardless of whether the category’s trend is increasing or decreasing, or it is a sink or source. Categories with trends that diverge the most from the total trend should be identified as key when this difference is weighted by the level of emissions or removals of the category in the base year. The IPCC defines the “inventory category trend” as the change in net emissions from the base year to the current year, as a percentage of current year net emissions from that inventory category. The “total trend” is the percentage change in total inventory net emissions from the base year to the current year.
* Complete Table 5-3, below, using the results from the "Tier 1 Trend" sheet in the KCA tool. This table will be a record of the results of the IPCC Approach 1 key category trend assessment for the period from the base to the current year, e.g., 2000-2017.
* Enter the first inventory category identified as a key category (highlighted in green in the table on this sheet in the software) and include its GHG type, its base year and current year estimates, “trend assessment” (or contribution to the trend), and cumulative percentage. Continue to add the next inventory category until all categories that are highlighted in green (identified as key) are entered. The cumulative total of these categories should account for at least 95% of the total national trend in emissions.
* Add as many rows to the table as necessary to provide detailed information for each category.
* If or when the inventory is updated, update the KCA.

Table 5-3: Key Categories Based on Contribution to Overall Trend in National Net Emissions\*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IPCC Category Code | IPCC Category | Gas | Base Year Emissions(Gg CO2 Eq.) | Current Year Emissions(Gg CO2 Eq.) | Contribution to Trend | Cumulative Contribution to Trend |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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### **STEP 4: Record potential improvements to the GHG inventory identified as a result of the KCA**

* Check the IPCC Tier of the method used to estimate emissions or removals from each key categories, and examine the quality and accuracy of the activity data, emission factors, and model used to estimate emissions or removals. If Tier 1 methods were used to estimate emissions or removals from a key category, examine ways to use higher tier approaches to improve accuracy and reduce uncertainty.
* Record suggested improvements to the inventory in Table 5-7, below.
* Add as many rows to the table as necessary to provide detailed information for each category.

Table 5-4: Improvements to the GHG inventory

| Improvement # | Sector | Source Category and IPCC Tier Used | Potential Improvement | Steps Needed to Implement This Improvement |
| --- | --- | --- | --- | --- |
| 1 |  |  |  |  |
| 2 |  |  |  |  |

1. The IPCC Inventory Software also performs KCA. However, the steps in this template will be different from either of these approaches since they follow the structure of the EPA KCA software tool. [↑](#footnote-ref-1)
2. See 18/CMA.1, Modalities, Procedures and Guidelines (MPGs), Annex Chapter II, [Section C.2 Methods and E.1 Reporting guidance](https://unfccc.int/sites/default/files/resource/CMA2018_03a02E.pdf) for National Greenhouse Gas Inventory Report (available at http://unfccc.int/decisions). [↑](#footnote-ref-2)