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# IPCC National GHGI Reporting and Guidelines for Energy, Waste Sectors –

## Reporting Guidance and Tables Recalculation

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INTERGOVERNMENTAL PANEL ON climate change



# What is Recalculation?



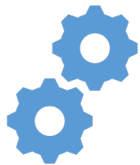
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## Definition:

The process of revisiting and adjusting emission estimates when inventory capacity and data availability improve.



## Purpose:

Ensure accuracy and completeness of emission estimates.



## Occasions for Recalculation:

Method changes or refinements.  
Inclusion of new source categories.  
Correction of errors in estimates.

# What is Recalculation?



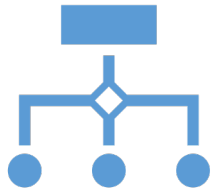
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## Methodological Changes:

Shift to a different tier or national method.  
Often driven by the development of new data sets.  
Example: Adoption of a higher tier method for better accuracy based on site-specific emissions measurements.



## Methodological Refinements:

Same tier, but applied with different data source or aggregation level.  
Example: Further disaggregation of livestock enteric fermentation model for homogenous animal categories.

# Why Recalculation?



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## Importance of Recalculation



### Accuracy and Completeness:

Ensures emission estimates are up-to-date and accurate.



### Assessing Emission Trends:

Holistic analysis of the entire time series, not just recent years.



### Methodological Changes and Refinements:

Essential for adapting to improved data, methods, and changing circumstances.



### Good Practice:

Documentation of recalculations for transparency and reliability.  
Peer review or validation before implementation, particularly if base year data will change.

## Reasons for recalculations



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Changes or refinements in methods

Inclusion of new sources

Correction of errors

## Reasons for recalculations Cont.



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### Changes or refinements in methods

It is good practice to change or refine methods when:

Available data have  
changed

The previously used  
method is not  
consistent with good  
practice guidance for  
that source category

A source category has  
become key

The previously used  
method is insufficient  
to reflect mitigation  
activities in a  
transparent manner

The capacity for  
inventory preparation  
has increased

New methods become  
available

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## Reasons for recalculations Cont.



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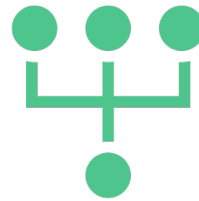
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### Inclusion of new sources



In some circumstances, inventory agencies may identify new source categories or new gases that should be included in their emissions inventories.



In this case, an inventory agency will need to develop or implement a new methodology.



This situation is not formally considered a methodological change or refinement

## Reasons for recalculations Cont.



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### Correction of errors

# 01

It is possible that the implementation of the QA/QC procedures, will lead to the identification of errors or mistakes in the emissions inventory.

# 02

It is good practice to correct errors in previously submitted estimates.

# 03

The correction of errors should not be considered a methodological change or refinement.



# Approaches to recalculations



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## Recalculations using a new method for all years



### Introduction:

Highlight the importance of recalculating previous estimates for data consistency.



### Best Practice:

Emphasize that it is good practice to recalculate using the same method and a consistent data set in every inventory year.



### Reliability for Accurate Trends:

Communicate that this approach is the most reliable means of ensuring accuracy and consistency in trend analysis over the time period.



### Challenges in Recalculation:

Acknowledge the challenge: In some cases, it may not be possible to recalculate using the same method and a consistent data set over the entire time series.



### Probable Difficulty: Lack of Complete Data:

Identify the most probable difficulty: Lack of a complete data set for past years when using a new method for recalculation.



### Exploring Solutions:

Encourage considering various means of obtaining necessary data before concluding data unavailability.



### Possible Approaches:

Mention possibilities:

- Initiating new data collection activities.
- Obtaining additional data from statistical offices, sector experts, or industry contacts.



## Alternative recalculation techniques

### 1. Overlap



#### Applicability

Data necessary to apply both the previously used and the new method must be available for at least one year.

#### Comments

Most reliable when the overlap between two or more sets of annual emissions estimates can be assessed.

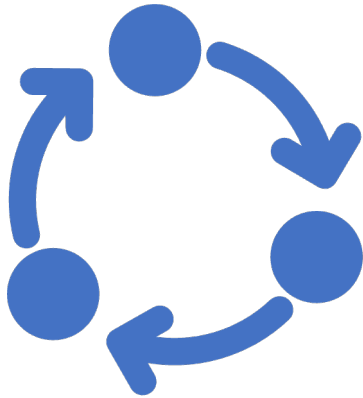
If the relationship observed using the two methods is inconsistent, the recalculation should be based on two or more annual emissions estimates.

If the emission trends observed using the previously used and new methods are inconsistent and random, this approach is not good practice.



## Alternative recalculation techniques

### 2. Surrogate Method



#### Applicability

Emission factors or activity data used in the new method are strongly correlated with other well-known and more readily available indicative data.

#### Comments

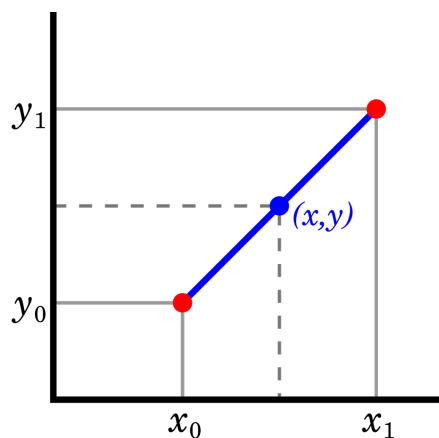
Multiple indicative data sets (singly or in combination) should be tested in order to determine the most strongly correlated.

Should not be done for long periods.



## Alternative recalculation techniques

### 3. Interpolation



#### Applicability

Data needed for recalculation using the new method are available for intermittent years during the time series.

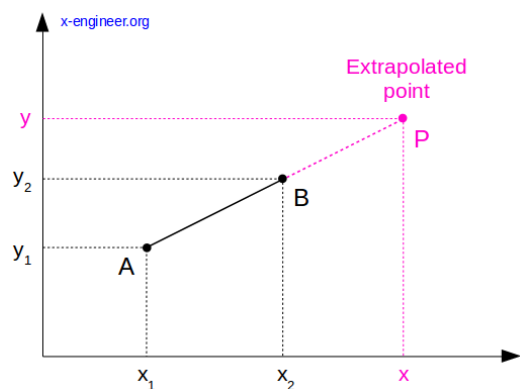
#### Comments

Emissions estimates can be linearly interpolated for the periods when the new method cannot be applied



## Alternative recalculation techniques

### 4. Trend Extrapolation



#### Applicability

Data for the new method are not collected annually and are not available at the beginning or the end of the time series.

#### Comments

Most reliable if the trend over time is constant.

Should not be used if the trend is changing (in this case, the surrogate method may be more appropriate).

Should not be done for long periods



## Alternative recalculation techniques

### 5. Specific Situations: Customized Approaches



#### Introduction:

Highlight the need for customized approaches in certain situations to best estimate emissions over time.



#### Examples of Specific Situations:

Illustrate scenarios where standard alternatives may not be valid, such as when technical conditions change throughout the time series (e.g., due to the introduction of mitigation technology).



#### Challenges with Changing Technical Conditions:

Emphasize that technical conditions evolving over time may require the development of revised emission factors.



#### Careful Consideration of Trends:

Stress the importance of carefully considering the trend in factors over the period when using customized approaches.



#### Thorough Documentation:

Promote the good practice of thoroughly documenting customized approaches.



#### Comparisons with Standard Alternatives:

Encourage special consideration of how resultant emissions estimates from customized approaches compare to those developed using more standard alternatives.



#### Benefits of Documentation:

Highlight that comprehensive documentation aids in transparency and understanding the decisions made during customized estimation.

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# Documentation



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Clear documentation of recalculations is essential for transparent emissions estimates, and to demonstrate that the recalculation is an improvement in accuracy and completeness. In general, the following information should be provided whenever recalculations are undertaken;



The effect of the recalculations on the level and trend of the estimate (by providing the estimates prepared using both the previously used and new methods)



The reason for the recalculation



A description of the changed or refined method



Justification for the methodological change or refinement in terms of an improvement in accuracy, transparency, or completeness.



The approach used to recalculate previously submitted estimates.



The rationale for selecting the approach which should include a comparison of the results obtained using the selected approach and other possible alternatives, ideally including a simple graphical plot of emissions vs. time or relevant activity data or both.



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