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METHODOLOGICAL ISSUES

ISSUES RELATING TO ARTICLES 5, 7 AND 8 OF THE KYOTO PROTOCOL

Report of the second workshop on adjustments

Note by the secretariat

Addendum

**DRAFT TECHNICAL GUIDANCE ON METHODOLOGIES FOR ADJUSTMENTS UNDER
ARTICLE 5, PARAGRAPH 2, OF THE KYOTO PROTOCOL**

Summary

This addendum to the report of the second workshop on adjustments held in Lisbon, Portugal, from 7 to 9 April 2003 in response to a request by the Conference of the Parties and the Subsidiary Body for Scientific and Technological Advice contains a refined draft technical guidance on methodologies for adjustments under Article 5, paragraph 2, of the Kyoto Protocol, resulting from the workshop.

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I. OBJECTIVE

1. The objective of this technical guidance on methodologies for adjustments under Article 5, paragraph 2, of the Kyoto Protocol¹ (hereinafter referred to as adjustments), is:

(a) To provide for adjusted estimates that fully meet the requirements of decision -/CMP.1 (*Good practice guidance and adjustments under Article 5, paragraph 2, of the Kyoto Protocol*) attached to decision 21/CP.7;²

(b) To ensure that adjustments are applied consistently,³ comparably and transparently, taking into account the time frames provided in the guidelines for review under Article 8, and that similar methods are used for similar problems as far as possible across all inventories subject to adjustments under Article 8.

II. GENERAL APPROACH

2. This guidance establishes general and specific procedures and methods for use by expert review teams to calculate adjustments.⁴ These procedures and methods are supplemented by inventory review resources, which will also facilitate consistency in calculation of adjustments by expert review teams.

A. Procedures

3. The information contained in each of the resources mentioned in paragraph 2 above will be made accessible to expert review teams. The secretariat will periodically update the information contained in these resources, following the collective recommendation of lead reviewers on ways to improve the review process,⁵ including the consistent application of this technical guidance by expert review teams. A list of the inventory review resources available to facilitate the calculation of adjustments is included in annex I of this guidance.

4. The calculation and application of adjustments shall follow paragraphs 3 to 11 of decision -/CMP.1 (*Good practice guidance and adjustments under Article 5, paragraph 2, of the Kyoto Protocol*) attached to decision 21/CP.7.

5. Adjustments shall be applied only when inventory data submitted by Parties included in Annex I (Annex I Parties) are found to be incomplete and/or are prepared in a way that is not consistent with the *Revised 1996 IPCC⁶ Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC Guidelines) as elaborated by the IPCC report entitled *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance) and any good practice guidance adopted by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP).

6. Expert review teams shall, with collective responsibility, calculate, document and recommend adjustments in accordance with the provisions for the review of annual inventories under Article 8 and this technical guidance. A compilation of the paragraphs relevant to the timing and reporting of adjustments from these guidelines is included in annex II to this guidance.

¹ All articles referred to in this guidance are those of the Kyoto Protocol.

² Document FCCC/CP/2001/13/Add.3, pages 12–13.

³ In this context, consistency means that the application of adjustments should be consistent across Parties and by all expert review teams.

⁴ This technical guidance does not cover the land use, land-use change and forestry (LULUCF) sector, guidance for which will be completed, in accordance with decision 21/CP.7, after completion of the IPCC good practice guidance on LULUCF.

⁵ This would also include any guidance for identifying departures from the IPCC good practice guidance.

⁶ Intergovernmental Panel on Climate Change.

7. The expert review team should collectively decide on the methodological approach for calculation of any adjustment, including relevant components of the adjustment method (such as data sources, drivers and clusters used).
8. Expert review teams should apply this guidance in a consistent and comparable manner and use similar methods for similar problems as far as possible across all inventories reviewed under Article 8, taking into account the provisions for obtaining conservative estimates, as described in paragraph 50 below.
9. Expert review teams should apply the appropriate adjustment method, selected from table 1, in a simple manner, given the limited time available for the calculation of adjustments according to the provisions for the review of annual inventories in the guidelines for review under Article 8 (see paragraph 3 of annex II).
10. In considering the need for an adjustment, expert review teams should adhere to standard inventory review approaches, which also include assessment of the time series for a given estimate.
11. Adjustments should be calculated only for individual inventory years, specifically, the base year or the latest year of the commitment period under review, and not on entire time series or on a group of years. Adjustments should not be retroactively calculated for any year preceding the inventory year subject to review.
12. The selection of data and other components required for an adjustment method should take into account the time series for that component.
13. The secretariat will archive information relating to adjustments contained in the review reports and any additional information received from expert review teams, and make it available and easily accessible for expert review teams to enable them to apply adjustments consistently across countries.
14. To enhance consistency in the application of adjustments for any given Party, the same adjustment method should be used in cases where the same inventory problem was adjusted in an earlier year (e.g. for the base year or for an earlier year of the commitment period). This provision applies to both the basic adjustment method, and the main components used in the calculation of the adjustment, as appropriate, such as the source of international data, drivers, country clusters and any other inventory parameter used.
15. If some aspects of a particular case are not fully covered by this guidance, the experts calculating the adjustment shall adhere to paragraphs 3 to 11 of decision -/CMP.1 (*Good practice guidance and adjustments under Article 5, paragraph 2, of the Kyoto Protocol*) and, as closely as possible, to this guidance.

B. Applicability and limitations in triggering adjustments

16. If the expert review team finds that an estimate submitted by a Party leads to an underestimation of emissions in the base year or an overestimation of emissions in a year of the commitment period, the estimate should not be adjusted.
17. An adjustment procedure should be initiated if the information provided by the Party is not sufficiently transparent, taking into account the provisions of paragraph 5 above.
18. If the expert review team identifies a deviation from the IPCC Guidelines as elaborated by the IPCC good practice guidance that is caused by the allocation of estimates to a wrong source category,

adjustments should be applied only if reallocation to the correct source category affects total emissions from sources included in Annex A to the Kyoto Protocol.⁷

III. METHODS AND CONSERVATIVENESS

A. Choice of methods and data

19. In choosing the method and data for calculating an adjustment, expert review teams should follow the general provisions in this part of the guidance and relevant sector-specific elements included in chapter IV, and should use the relevant inventory review resources listed in annex I, as appropriate.
20. In general, expert review teams shall calculate each adjustment at the level at which the problem is identified, e.g. the IPCC source category level or for the specific component in question. If the problem is limited to only one IPCC source category, only the estimate for that source should be replaced. Similarly, if only one component of a given estimate is problematic (such as inconsistent, incorrect or misapplied emission factors or other inventory parameters, or activity data), the review team should replace only that component in calculating the adjusted estimate.
21. In choosing any input data for calculating an adjustment, expert review teams should give, as appropriate, preference to the national data available in the respective Party's inventory submission or made available by the Party before or during the review, provided that these data were not the cause for the adjustment. Expert review teams should not search for national data that have not been made available to the review team by the Party, or generate new country-specific data.
22. If national data as indicated in paragraph 21 above are not available or are not deemed suitable for the respective adjustment case, expert review teams should select data from the recommended international data sources included in the inventory review resources listed in annex I.
23. The international data sources to be included in the inventory review resources listed in annex I, should meet most of the following criteria:
- (a) The organizations that make the data available are recognized international intergovernmental organizations (e.g. United Nations, International Energy Agency (IEA));
 - (b) The data are regularly updated, maintained and disseminated;
 - (c) The data are originally generated by the countries themselves (national statistics);
 - (d) The data are widely applicable to Annex I Parties;
 - (e) The data are easily accessible by the secretariat and expert review teams (e.g. through internet or CD-ROM), in a timely manner and at reasonable costs;
 - (f) Sufficient information is available to assess the applicability of activity data, drivers or emission factors (e.g. descriptions of how the data are collected, which definitions are used, geographic coverage).
24. If the necessary input data or parameters are not available at the IPCC source category level at which the problem is identified, or the problem involves more than one component of an emission estimation method used by the Party, more aggregate data should be used as the basis for the adjustment. However, following the provisions of paragraph 20 above, expert review teams should make every effort

⁷ If the reallocation will not have such effect, reallocation is recommended to the Party as part of the review of annual inventories under Article 8.

to make the adjustment at the levels at which the problems were identified in order to avoid data that do not qualify for an adjustment becoming subject to the adjustment.

1. Reallocation

25. Problems of the allocation of emissions to the wrong source category should be addressed as described in paragraph 18 above.

2. Replacement of an inventory component

26. If a problem involves only a single component of an emission estimation method used by a Party (activity data, emission factor or other inventory parameter), the expert review team should replace only that component in calculating the adjustment, following the provisions in paragraphs 32 and 33 below, as appropriate. If this is not possible due to the complexity of the methodology used by the Party, the provisions of paragraphs 24 and 27 apply, as appropriate.

3. Replacement or preparation of an entire inventory estimate

27. For other cases,⁸ the expert review team should choose one of the basic adjustment methods in this guidance for the calculation of an estimate for purposes of adjustment. For the purpose of this guidance, basic adjustment methods are those methods that provide an emission estimate before the application of a conservativeness factor described in section III.C below.

28. In choosing the basic adjustment method and the input data that are appropriate for a specific adjustment case, expert review teams should, in general, follow the methods listed in priority order in table 1, as appropriate, unless otherwise indicated in the sector-specific elements included in chapter IV. If the requirements for the highest priority adjustment method according to the table are not available, the next preferred adjustment method should be used.

29. If a consistent time series of estimates prepared in accordance with the IPCC good practice guidance is available and no more than two years' estimates are missing, a simple extrapolation of this time series would be the most appropriate adjustment method.

30. If an adjustment is triggered by lack of transparency, and this lack of transparency precludes the expert review team from assessing possible cases of over- or underestimation or from assessing the cause of the potential deviation from the IPCC Guidelines as elaborated by the IPCC good practice guidance (such as inappropriate activity data, emission factors or methods), expert review teams should also apply the basic adjustment methods in the order of priority listed in table 1.

31. In the exceptional case where none of the basic adjustment methods listed in table 1 is suitable for a given adjustment case, expert review teams may use other adjustment methods. If adjustment methods other than those included in this guidance are applied, expert review teams should report the reason for not using any of the basic adjustment methods of this guidance.

⁸ For example, if an emission estimate is missing, if the emission estimation method used by the Party was not in conformity with the IPCC Guidelines as elaborated by the IPCC good practice guidance, or if there is a problem with more than one component (emission factor, activity data or other parameter) of the emission estimation method used by the Party.

Table 1. Basic adjustment methods to obtain an emission estimate (in order of priority)

Basic adjustment method	Requirements/applicability
1 Default IPCC tier 1	Obtain activity data and emission factor following the prioritizations indicated in paragraphs 32 and 33.
2 Extrapolation of emissions	Only for a missing/inappropriate estimate for the year in question if a consistent time series of emission estimates is available.
3 Extrapolation/interpolation of emissions based on a driver	Only for a missing/inappropriate estimate for the year in question if a consistent time series of emission estimates and a corresponding driver are available.
4 Correlation of emissions between source categories or gases within an inventory	Emission estimate for the gas/source category that is correlated to the emissions that need adjustment.
5 Average emission rate from a cluster of countries based on a driver	Driver for the country in question and emission rate per driver for a cluster of countries.

Note: The methods in this table are those methods that provide an emission estimate before the application of a conservativeness factor described in section III. C below. Further details on the basic adjustment methods listed in this table are given in section III. B below.

4. Choice of activity data

32. If the calculation of an adjustment requires the use or replacement of activity data, e.g. either as input to the IPCC tier 1 default methodology or because the activity data are the cause of the adjustment, and taking into account the provisions for the use of national data referred to in paragraph 21 above, expert review teams should use, in order of preference:

(a) Recommended international data sources as included in the inventory review resources listed in annex I;

(b) Extrapolation (interpolation) methods if the international data sources do not provide data for the year in question, in which case the activity data should be obtained as follows (in order of preference):

- (i) Extrapolation (interpolation) of national activity data, if these data are available as required in paragraph 21 above, and were collected in accordance with the IPCC good practice guidance;
- (ii) Extrapolation (interpolation) of data from recommended international data sources included in the inventory review resources listed in annex I;
- (iii) Extrapolation (interpolation) using drivers or surrogate data from the inventory review resources listed in annex I.

(c) Cluster of countries using drivers (e.g. activity data per capita) following the provisions of paragraphs 34–37 below.

5. Choice of emission factors or other inventory parameters

33. If the calculation of an adjustment requires the use or replacement of an emission factor or other inventory parameter, e.g. either as input to the IPCC tier 1 default methodology or because the emission factor or other inventory parameter itself is the cause of the adjustment, the expert review team should use, in order of preference:

(a) IPCC default values from the IPCC good practice guidance, the IPCC Guidelines or other recommended international data sources included in the inventory review resources listed in annex I, and consistent with the IPCC good practice guidance. If emission factors from other international data sources are used, the expert review team should, in the review report, justify and document the reason for their use;

(b) Extrapolation (interpolation) of the national emission factor, implied emission factor or other inventory parameter from earlier years as reported in the common reporting format (CRF) or national inventory report if the factor in question was prepared in accordance with the IPCC good practice guidance;

(c) Average implied emission factor or other inventory parameter from a cluster of countries obtained as described in paragraphs 34–37 below.

6. Choice of drivers and clusters

34. If the calculation of an adjustment requires the use of a driver, the expert review team should use the recommended drivers as included in the inventory review resources listed in annex I.

35. If the calculation of an adjustment requires the use of a cluster, expert review teams should follow the recommended approaches and tools for clustering of inventory data as included in the inventory review resources listed in annex I. The inclusion in the inventory review resources listed in annex I of drivers and approaches and tools for clustering of inventory data should be subject to guidance by lead reviewers in accordance with the provisions in paragraph 3 above.

36. Expert review teams should report the reason for the use of drivers and clusters and demonstrate the appropriateness of the cluster and/or the correlation between the driver and the emissions. The use of drivers or approaches and tools for clustering of inventory data other than those recommended in the inventory review resources listed in annex I should be explained and justified.

37. When using an average inventory parameter from a cluster of countries, assumptions made in choosing the cluster should be documented, as should how the given inventory average parameter compares with the default parameter or range provided in the IPCC good practice guidance or IPCC Guidelines, where available. Similarly, when clustering is related to the use of a driver (application of an average driver-based emission rate) from a cluster of countries, assumptions made for the composition of the cluster and the established relationship with the driver should be documented.

38. The clusters⁹ to be used in the adjustment process should, to the extent possible, be selected according to the following criteria, taking into account expert judgement:

(a) Only Annex I Parties that have undergone an individual review, and for which the relevant data were deemed accurate during the review process and for which no adjustment to any inventory parameter of the gases or source categories concerned was made, should be included. Inventory data from the Party subject to adjustment should be excluded from the cluster;

⁹ Because of the need to use reviewed data from other countries, clustering will only be possible for one year prior to the year in question. This implies that clustering would have to be combined with extrapolation techniques.

(b) The cluster should cover a minimum number of countries, as specified in the recommended approaches and tools for clustering of inventory data;

(c) The grouping of countries into clusters should, to the extent possible, take into account similar national circumstances. National circumstances could relate to, inter alia, climatic conditions, economic development, design of equipment, operation or management practices, types of oil and gas activity, or the age of equipment or installations and their technical features, depending on the source category in question.

39. The drivers to be used in the adjustment process should, to the extent possible, be selected according to the following criteria:

(a) The driver shall be adequately correlated with the emissions concerned;

(b) The significance of the relationship between the driver used and the emissions calculated needs to be demonstrated, taking into account national circumstances.

B. Details and variations on the basic adjustment methods

40. The following section provides further guidance on the application of the basic adjustment methods described in section III. A above. Because this section covers possible variations of those methods, the numbering and ordering do not match the list in table 1.

1. Default IPCC tier 1 methods

41. This basic adjustment method refers to default IPCC tier 1 methods as described in the IPCC Guidelines and as elaborated by the IPCC good practice guidance. If this adjustment method is used, the IPCC good practice guidance should always be consulted before the IPCC Guidelines. This adjustment method will only be applicable if activity data are available from national sources in accordance with paragraph 21 or from international data sources as described in paragraph 22, or are obtained as described in paragraph 32. An emission factor or other inventory parameter as required by the method and obtained as described in paragraph 33 should be used.

2. Extrapolation and interpolation methods

42. If extrapolation and/or interpolation methods are used, the expert review team should follow the guidance on trend extrapolation and interpolation provided in the IPCC good practice guidance, section 7.3.2.2.

43. *Extrapolation of emission estimates* is applicable if inventory estimates are missing or not prepared in accordance with the IPCC good practice guidance for the beginning (base year) and/or the end (latest inventory year) of the time-series, and reviewed and time-series-consistent values are available for most years of the time-series.

44. *Extrapolation of inventory parameters* (e.g. activity data): in addition to applying extrapolation methods to emission estimates it may be necessary to use extrapolation at the level of activity data, emission factors or other inventory parameters, depending on the circumstances (see paragraphs 32 and 33 above).

45. *Extrapolation of emissions using drivers or surrogate data* can be applied if inventory estimates are available for some years (at a minimum for all years but two) of the time-series but are missing or not prepared in accordance with the IPCC good practice guidance for the required year (base year and/or latest inventory year). The emissions need to be strongly correlated with other well-known and more readily available indicative data (drivers).

46. *Interpolation* is applicable for calculating an adjustment for a given inventory year provided that reviewed values of the adjacent years are available. As adjustments will be undertaken on individual inventory years, this method would most likely be applied in exceptional cases only, but could be applicable to activity data, emission factors or other inventory parameters, depending on the circumstances.

3. Adjustment methods based on clustering of countries

47. *Correlation of emissions between source categories or gases within an inventory* could in some cases be used to estimate emissions of a specific gas or from a specific source category. For example, CH₄ and N₂O emissions from fuel combustion activities could be calculated from CO₂ emissions, if available. The inventory review resources listed in annex I provide recommended approaches and tools for clustering inventory data. These should be used for identifying correlations of emissions between gases or source categories based on inventory data reported by Parties in the CRF. If an adjustment has to be made for a country that is not represented in any cluster, expert review teams should assign the Party in question to the cluster of countries to which it would most likely belong according to its national circumstances.

48. *Application of average inventory parameters from a cluster of countries* with comparable national circumstances for the sector in question could be used to correct any inventory parameter (e.g. emission factor) that was found not to be in accordance with IPCC good practice guidance, or as input to the IPCC tier 1 method. If an adjustment has to be made for a country that is not represented in any cluster, expert review teams should assign the Party in question to the cluster of countries to which it would most likely belong according to its national circumstances.

49. *Application of an average driver-based emission rate from a cluster of countries* can be used if an emission estimate is missing entirely or was not prepared in accordance with the IPCC good practice guidance, but data for a parameter driving the emissions from that source are available for the country in question. The estimate is derived by establishing a relationship between emissions and an appropriate driver for the cluster of countries with comparable national circumstances, and applying this relationship to the Party in question. If data for the driver are not available for the year in question, the driver should be extrapolated as described in paragraph 45.

C. Conservative approach

50. The choice of adjustment methods and application of the inventory parameters relevant to the calculation of adjustments should result in conservative emission estimates, in that emission estimates for the base year are not overestimated and emission estimates for a year of the commitment period are not underestimated relative to the likely true value of the emissions of the Party concerned.

51. As a principle to achieve conservative estimates, the calculation of an adjustment for a commitment period year should not result in an emission estimate that is lower than that originally submitted by the Party, and an adjustment for an estimate of the base year should not result in an emission estimate that is higher than the originally submitted estimate.

52. The basic approach for applying conservativeness for the purpose of adjustment is to apply a conservativeness factor to the specific component of the emission estimation method used by the Party or to the emission estimate generated by the basic adjustment methods described in sections III. A and B of this guidance. For illustration purposes, this approach may be expressed as:

$M \times CF = \text{Adjusted estimate}$

Where M is the component of an emission estimation method used by a Party, or the emission estimate generated by a basic adjustment method in this guidance, and CF is the conservativeness factor.

53. The conservativeness factor should be selected from the table of conservativeness factors for adjustment provided in annex III to this guidance.¹⁰ These conservativeness factors are derived from uncertainty values and parameters provided in the IPCC good practice guidance, and in some cases are determined by expert judgement for the purpose of this guidance, as indicated below:

(a) If the IPCC good practice guidance provides an uncertainty range for a component, this range for that component is used;

(b) If the IPCC good practice guidance provides an uncertainty range for emissions from a particular source or a combined uncertainty range can be calculated from the uncertainty values and/or ranges of the input parameters using the tier 1 method, the range generated by applying the uncertainty value for the source is used;

(c) In cases where the IPCC good practice guidance does not provide an uncertainty range for an estimate or a combined uncertainty range cannot be calculated because necessary information is not available, an assessed uncertainty range determined by expert judgement for the purposes of this guidance is used.

54. For cases where only one component (e.g. emission factor, activity data) of an emission estimation method used by a Party is replaced, the expert review team should apply the conservativeness factor to that component, as indicated in paragraph 26 above. In other cases, the expert review team should apply the conservativeness factor to the emission estimate generated by the basic adjustment method, as indicated in paragraph 27 above.

55. Different conservativeness factors are provided for use in adjustments to estimate for a base year and for a year of the commitment period. The conservativeness factors are calculated using the 25th percentile of a possible range for use in an adjustment for the base year, and the 75th percentile of a possible range for an adjustment for a year of the commitment period, assuming a log-normal distribution.

56. If, exceptionally, an expert review team considers that, in its expert judgement, the estimate generated by applying the conservativeness factor corresponding to the 25th or 75th percentile is not conservative or is overly conservative for the Party concerned,¹¹ the expert review team may use an alternative approach, while applying the provisions of paragraph 31. The expert review team should justify and document the technical reason for its decision, and for its choice of the alternative approach used, and include this information in the review report.

IV. SECTOR-SPECIFIC ELEMENTS

57. When calculating adjustments, expert review teams should follow the provisions of chapter III taking into account the sector-specific elements given below, as appropriate. The provisions of this

¹⁰ The table of conservativeness factors will be provided as an independent working paper for consideration by the SBSTA at its eighteenth session, as described in paragraph 16 of the workshop report (FCCC/SBSTA/2003/INF.5).

¹¹ That is, expert review team believes that the likely true value of the emissions from a source for a year of the commitment period are higher or much lower than the adjusted estimate generated, or the true value of the emissions from a source in the base year are lower or much higher than the adjusted estimate generated, taking into account any guidance from lead reviewers on this matter.

chapter apply to the calculation of the adjustments before applying the conservativeness factor described in section III.C above.

A. Fuel combustion

58. When adjusting CO₂ emissions from one or several IPCC source categories, care should be taken that total CO₂ emissions are in accordance with the total fuel uses, which are generally better known than the fuel consumption in the different IPCC source categories.

59. If adjustments need to be made on the domestic fraction of fuel used for aviation and shipping, the preferred option is to use data from international sources (such as IEA). However, the applicability of this information need to be assessed before it is used, in particular with regard to the definitions used. If this does not solve the adjustment problem, the last resort is to use data from a cluster of countries.

60. In the event that total CO₂ emissions from fuel combustion need to be adjusted, the reference approach is the preferred option for calculating an adjustment. Reference approach estimates should preferably be taken from the Party. If this is not considered appropriate, emission estimates from the IEA can be used.

61. If an N₂O emission factor from road transport needs to be replaced, increased use of catalytic converters leading to increased emission factors should be taken into account when calculating an adjustment.

B. Industrial processes

62. The expert review team should note the possibility of double counting (for instance, the use of lime in iron and steel production).

63. When drivers are used in the adjustment calculation, preference should be given to energy data provided as part of the submitted national inventory, where available (e.g. in the case of cement, iron and steel, and aluminium production).

64. If adjusting HFC, PFC and SF₆ estimates from the consumption of halocarbons and SF₆, consideration should be given to the uncertainty of sales figures (e.g. for sales of these chemicals to the foam blowing industry) and other parameters (such as the composition of the mix in coolants) as given in the IPCC good practice guidance.

C. Agriculture

65. When adjusting emissions from agricultural soils, preference should be given to tier 1.a methods.

66. The expert review team should note that when adjusting emissions from manure management systems, savanna burning, or field burning of agricultural residues, the same activity data should be used for CH₄ as for N₂O.

67. Similarly, consistent livestock data should be used for CH₄ and N₂O emissions from enteric fermentation and manure management, and for N₂O emissions from animal manure applied to soils.

D. Waste

68. Data on populations and/or urban populations, and GDP per capita, could be used in some cases to estimate the volume of solid waste, taking into account national circumstances. Urban population and protein consumption data could be used to obtain activity data to estimate domestic waste-water emissions. Production data associated with the main industries in a specific country could be used as a possible driver to estimate the amount of industrial waste water, taking into account differences in technologies (e.g. emission per unit production).

69. For activity data, a cluster of countries based mainly on waste management practices could be used for estimating certain types of data, such as the waste generation rate, but not for estimating other types of data, such as the amount of waste incinerated or the amount of waste deposited, because these data largely depend on national environmental waste management policies.
70. When adjusting emissions from waste incineration, the applicability of drivers is very limited.
71. When adjusting emissions from solid waste disposal sites or waste-water treatment, the recovery of the methane needs to be considered. For solid waste disposal the expert review team should also take into account that if activity data are constant or increasing and the country used the IPCC tier 1 default method, this will have resulted in a conservative emission estimate.

Annex I

LIST OF INVENTORY REVIEW RESOURCES RELEVANT FOR THE CALCULATION OF ADJUSTMENTS

This annex lists inventory review resources relevant for the calculation of adjustments using the adjustment methods and approaches described in the guidance.

The information contained in the inventory review resources listed here will be maintained by the UNFCCC secretariat and made available to expert review teams by electronic means. This information will be updated periodically as established by the provisions of paragraph 3 of the guidance.

A. Resources for supporting the review of GHG inventories

1. Recommendations for improving the technical review of GHG inventories and for applying common approaches in the review by expert review teams (*resulting from meetings of lead reviewers*)
2. Recommended international data sources (*for activity data, drivers and emission factors*)
3. Recommended approaches and tools for clustering of inventory data
4. Recommended drivers (*prepared on the basis of data obtained from external data sources that have adequate correlation with GHG emission estimates*).

B. Specific resources for the calculation of adjustments

1. Information on previous adjustment calculations by expert review teams

Annex II**PROVISIONS IN THE GUIDELINES FOR REVIEW UNDER ARTICLE 8 OF THE
KYOTO PROTOCOL THAT RELATE TO ADJUSTMENTS****I. TIMING**

1. Within the review of the inventory, the expert review team shall list all the problems identified, indicating which would need an adjustment, and send this list to the Annex I Party no later than 25 weeks from the submission due date of the annual inventory. This list should be prepared under the collective responsibility of the expert review team.
2. The Annex I Party shall comment on these questions within six weeks and, where requested by the review team, may provide revised estimates.
3. If adjustments are still needed, the expert review team shall calculate adjustments in accordance with this guidance, in consultation with the Party concerned, and shall prepare a draft individual inventory review report which includes, where appropriate, adjusted estimates and related information, within eight weeks of the receipt of the comments on the questions posed, and shall send the draft report to the Party concerned.
4. The Annex I Party shall be provided with four weeks to comment on the draft individual inventory review report and, where appropriate, on whether, and for what reasons, it accepts or rejects the adjustment. If the Party concerned disagrees with the proposed adjustment(s) the expert review team should send the notification from the Party, along with the recommendation of the expert review team, in its final report to the COP/MOP and the Compliance Committee, which will resolve the disagreement in accordance with the procedures and mechanisms on compliance.

II. REPORTING

5. The following information on adjustments shall be reported by the expert review teams in the review reports:
 - (a) The original estimate, if applicable;
 - (b) The underlying problem;
 - (c) The adjusted estimate;
 - (d) The rationale for the adjustment;¹
 - (e) The assumptions, data and methodology used to calculate the adjustment;
 - (f) A description of how the adjustment is conservative;
 - (g) The expert review team's identification of possible ways for the Annex I Party to address the underlying problem;
 - (h) The magnitude of the numerical values related to an adjusted problem as:
 - (i) The percentage by which the aggregate adjusted GHG emissions for an Annex I Party exceed the aggregate submitted emissions, defined as aggregate

¹ This includes procedures for selection of the calculation methods used for the adjustments.

submitted emissions of the gases and from the sources listed in Annex A to the Kyoto Protocol, for any single year;²

(ii) The sum of the numerical values of the percentages calculated in subparagraph (i) above for all years of the commitment period for which the review has been conducted;

(i) The number of reviews that identified and adjusted the problem previously, and the percentage that the key source category contributed to the aggregate submitted emissions, defined as aggregate submitted emissions of the gases and from the sources listed in Annex A to the Kyoto Protocol;

(j) An indication whether the adjustment was agreed upon by the Annex I Party and the expert review team.

Annex III

TABLE OF CONSERVATIVENESS FACTORS

(Note: Table of conservativeness factors will be provided as an independent working paper for consideration by the SBSTA at its eighteenth session, as described in paragraph 16 of the workshop report (FCCC/SBSTA/2003/INF.5))

² “Any single year” refers to the years of the commitment period.