ANNEXES

April 2009

EUROPEAN COMMUNITY MANAGEMENT STRATEGY FOR THE PHASE-OUT OF THE CRITICAL USES OF METHYL BROMIDE

The Annexes contain information extracted from various available sources.

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Information contained in these Annexes comes from various sources, not necessarily from official Member State's data. Refer to List of References

List of Tables in Annex

Annex 1. List of tables that were updated annually in ECMS

During the period 2005-2008 when the EC used CUEs, the following tables were reviewed and updated annually to further develop the ECMS, with the objective of phasing out MB as soon as technically and economically feasible alternatives were available as stated in Chapter 5.

Table 1.A. List of tables to be updated in ECMS report

Table 2.1: Methyl bromide nominated, approved, licensed and used in the EC Add data for recent years.
Table 2.3: Comparison of major methyl bromide uses in EC in 1991 and 2005 onwards Add data for most recent year to show trends (if necessary, remove selected earlier years)
Table 2.4: Number of fumigators authorised by Member States to use methyl bromide Add data for most recent year to show trends (if necessary, remove selected earlier years)
Table 3.1: Summary of main pest management components used in commercial practice as MB alternatives in the soil sector Update this summary when new alternatives are added to Annex 4.C database.
Table 3.2: Summary of main pest management components used in commercial practice as MB alternatives in the post harvest sector Update this summary when new alternatives are added to Annex 4.C database.
Table 4.1: Regulatory status of chemical alternatives in soil sector in EC and selected third countries Update this summary using latest information provided in Annex 6 and TEAP/MBTOC reports.
Table 4.2: Regulatory status of chemical alternatives in postharvest sector in EC and selected third countries Update this summary using latest information provided in Annex 6 and TEAP/MBTOC reports.
Table 4.3: Examples of rapid adoption rates of MB alternatives in the EC Update this summary when additional examples are added to Annex Table 7.A. The objective is to indicate the most rapid rate that has been achieved historically for each alternative/crop category.
Table 5.1: Guiding principles New principles can be added in order to encourage more rapid phase-out of MB as soon as technically and economically feasible alternatives are available, as stated in the opening paragraph of Chapter 5. Amendments should not be made if they may weaken or undermine the existing principles.
Table 5.2: Definitions relating to alternatives and the use of the Decision Tree Definitions may be amended in order to encourage more rapid phase-out of MB as soon as technically and economically feasible alternatives are available, as stated in the opening paragraph of Chapter 5.
Table 5.3: Calculated rates of adoption based on historical rates Update this summary when Table 4.3 is updated which indicates more rapid historical rates of adoption.
Section 5.4.1 and 5.4.2: Steps to minimise MB use, emissions and leakage When MBTOC proposes revised guideline doses and formulations, the stated doses and formulations in section 5.4 will be updated. The steps listed in section 5.4.1 and 5.4.2 will be updated to ensure that "all precautionary measures practicable" are taken to prevent and minimise leakages of MB.
Table 5.4: Specific technology transfer activities and supporting activities Add further activities that will encourage more rapid adoption of alternatives and more rapid phase-out of MB.

Annex 1.B. List of tables to be updated in Annex

Annex Table 3.A. Major methyl bromide uses and consumption in the EC (tonnes), 1993 compared to recent years Add column with data for most recent year.
Annex Table 3.B. Report on Accounting Framework for MB in the EC Insert data for most recent year.
Annex Table 3.C. MB consumption for CUEs, by Member State and Use-category Insert data for most recent year.
Annex Table 3.D. CUEs in EC by Use-category, indicating relevant Member States and Quantity of MB licensed Add data for most recent year, to show trends in the main use-categories in the EC.
Annex Table 3.E & 3.F. Previous MB uses in the EC Add any MB use-categories which have been phased out or for which no nominations are received
Annex 4.C. EC database of existing MB alternatives (to be kept on Ozone Secretariat website) EC database of existing alternatives is required by Decision Ex.I/4(1) and (2) Update this series of tables, particularly new information relating to registrations, commercial use of alternatives, and alternatives under development. Add data on additional Parties where possible. The Decision requires information from Parties that no longer consume MB, as well as Parties that have CUEs. Submit updates to Ozone Secretariat website.
Annex Table 4.A and 4.B. Leading MB alternatives by pest category in the EC Update this summary, using data from Annex 4.C.
Annex 6. Registration status of MB alternatives Update using information from Annex 4.C.
Annex Table 7.A. Examples of historical rates of adoption that have occurred in practice Update with additional examples of rapid rates of adoption of MB alternatives. The aim is to provide illustrations of rapid rates, as examples that others can emulate within the resources available.
Annex 7.B. Examples of rates of training Update with examples of rapid rates of training in MB alternatives. The aim is to provide illustrations of rapid rates of training, as examples that others can emulate within the resources available.
Annex 7.C. Trends in area treated with MB in Member States that have CUEs Update the tables with data on MB-fumigated area (hectares) in recent years. Also update final column showing total crop area (hectares) for the most recent year available.

Annex 2. Relevant Decisions of the Montreal Protocol

Contents List

Decision IX/6: Critical-use exemptions for methyl bromide

1. To apply the following criteria and procedure in assessing a critical methyl bromide use for the purposes of control measures in Article 2 of the Protocol:

   (a) That a use of methyl bromide should qualify as "critical" only if the nominating Party determines that:

      (i) The specific use is critical because the lack of availability of methyl bromide for that use would result in a significant market disruption; and

      (ii) There are no technically and economically feasible alternatives or substitutes available to the user that are acceptable from the standpoint of environment and health and are suitable to the crops and circumstances of the nomination;

   (b) That production and consumption, if any, of methyl bromide for critical uses should be permitted only if:

      (i) All technically and economically feasible steps have been taken to minimize the critical use and any associated emission of methyl bromide;

      (ii) Methyl bromide is not available in sufficient quantity and quality from existing stocks of banked or recycled methyl bromide, also bearing in mind the developing countries' need for methyl bromide;

      (iii) It is demonstrated that an appropriate effort is being made to evaluate, commercialize and secure national regulatory approval of alternatives and substitutes, taking into consideration the circumstances of the particular nomination and the special needs of Article 5 Parties, including lack of financial and expert resources, institutional capacity, and information. Non-Article 5 Parties must demonstrate that research programmes are in place to develop and deploy alternatives and substitutes. Article 5 Parties must demonstrate that feasible alternatives shall be adopted as soon as they are confirmed as suitable to the Party's specific conditions and/or that they have

applied to the Multilateral Fund or other sources for assistance in identifying, evaluating, adapting and demonstrating such options;

2. To request the Technology and Economic Assessment Panel to review nominations and make recommendations based on the criteria established in paragraphs 1 (a) (ii) and 1 (b) of the present decision;

3. That the present decision will apply to Parties operating under Article 5 and Parties not so operating only after the phase-out date applicable to those Parties…

Decision Ex.I/3: Critical-use exemptions for methyl bromide for 2005

Reaffirming the obligation to phase out the production and consumption of methyl bromide in accordance with paragraph 5 of Article 2H by 1 January 2005, subject to the availability of an exemption for uses agreed to be critical by the Parties,

Recognizing that technically and economically feasible alternatives exist for most uses of methyl bromide,

Noting that those alternatives are not always technically and economically feasible in the circumstances of the nominations,

Noting also that Article 5 Parties have made substantial progress in the adoption of effective alternatives,

Mindful that exemptions must fully comply with decision IX/6, and are intended to be limited, temporary derogations from the phase-out of methyl bromide,

Mindful also that decision IX/6 permits the production and consumption of methyl bromide for critical uses only if it is not available in sufficient quantity and quality from existing stocks of banked or recycled methyl bromide,

Recognizing the desirability of a transparent presentation of data on alternatives to methyl bromide to assist the Parties to understand better the critical-use volumes and to gauge progress on and impediments to the transition,

Recognizing also that each Party should aim at significantly and progressively decreasing its production and consumption of methyl bromide for critical uses with the intention of completely phasing out methyl bromide as soon as technically and economically feasible alternatives are available,

Resolved that each Party should revert to methyl bromide only as a last resort and in the situation when a technically and economically feasible alternative to methyl bromide which is in use ceases to be available as a result of de-registration or for other reasons,

Taking into account the recommendation by the Technology and Economic Assessment Panel that critical-use exemptions should not be authorized in cases where technically and economically feasible options are registered, available locally and used commercially by similarly situated enterprises,

Noting with appreciation the work done by the Technology and Economic Assessment Panel and its Methyl Bromide Technical Options Committee,

3. That a Party using stocks under paragraph 2 above shall prohibit the use of stocks in the categories set forth in annex II A to the report of the First Extraordinary Meeting of the

Parties to the Montreal Protocol[1] when amounts from stocks combined with allowable production and consumption for critical uses exceed the total level for that Party set forth in annex II A to the present report;

4. That Parties should endeavour to allocate the quantities of methyl bromide recommended by the Technology and Economic Assessment Panel as listed in annex II A to the report of the First Extraordinary Meeting of the Parties[2];

5. That each Party which has an agreed critical use should ensure that the criteria in paragraph 1 of decision IX/6 are applied when licensing, permitting or authorizing the use of methyl bromide and that such procedures take into account available stocks. Each Party is requested to report on the implementation of the present paragraph to the Ozone Secretariat;

7. Bearing in mind that Parties should aim at significantly and progressively reducing their production and consumption of methyl bromide for critical-use exemptions, that a Party may request reconsideration by the Meeting of the Parties of an approved critical-use exemption in the case of exceptional circumstances, such as unforeseen de-registration of an approved methyl bromide alternative when no other feasible alternatives are available, or where pest and pathogens build resistance to the alternative, or where the use-reduction measures on which the Technology and Economic Assessment Panel based its recommendation as to the level necessary to satisfy critical uses are demonstrated not to be feasible in the specific circumstances of that Party;

Decision Ex.I/4: Conditions for granting and reporting critical-use exemptions for methyl bromide

Mindful of the principles set forth in the report[3] by the Chairman of the informal consultation on methyl bromide held in Buenos Aires on 4 and 5 March 2004, namely, fairness, certainty and confidence, practicality and flexibility, and transparency,

Recognizing that technically and economically feasible alternatives exist for most uses of methyl bromide,

Noting that those alternatives are not always technically and economically feasible in the circumstances of nominations,

Noting that Article 5 and non-Article 5 Parties have made substantial progress in the adoption of effective alternatives,

Mindful that exemptions must comply fully with decision IX/6 and are intended to be limited, temporary derogations from the phase-out of methyl bromide,

Recognizing the desirability of a transparent presentation of data on alternatives to methyl bromide to assist the Parties to better understand the critical-use volumes and to gauge progress on and impediments to the transition from methyl bromide;

Resolved that each Party should aim to significantly and progressively decrease its production and consumption of methyl bromide for critical uses with the intention of completely phasing out

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1 UNEP/OzL.Pro.ExMP/1/3.

2 UNEP/OzL.Pro.ExMP/1/3.

3 UNEP/OzL.Pro.ExMP/1/INF/1, para. 11.

methyl bromide as soon as technically and economically feasible alternatives are available,

Recognizing that Parties should revert to methyl bromide only as a last resort, in the event that a technically and economically feasible alternative to methyl bromide which is in use ceases to be available as a result of de-registration or for other reasons,

1. That each Party which has an agreed critical use under the present decision should submit available information to the Ozone Secretariat before 1 February 2005 on the alternatives available, listed according to their pre-harvest or post-harvest uses and the possible date of registration, if required, for each alternative; and on the alternatives which the Parties can disclose to be under development, listed according to their pre-harvest or post-harvest uses and the likely date of registration, if required and known, for those alternatives. The Ozone Secretariat is requested to provide a template for that information and to post the said information in a database entitled "Methyl Bromide Alternatives" on its web site;

2. That each Party which submits a nomination for the production and consumption of methyl bromide for years after 2005 should also submit information listed in paragraph 1 to the Ozone Secretariat to include in its Methyl Bromide Alternatives database and that any other Party which no longer consumes methyl bromide should also submit information on alternatives to the Secretariat for inclusion in that database;

3. To request each Party which makes a critical-use nomination after 2005 to submit a national management strategy for phase-out of critical uses of methyl bromide to the Ozone Secretariat before 1 February 2006. The management strategy should aim, inter alia, to:

   (a) Avoid any increase in methyl bromide consumption except for unforeseen circumstances;
   (b) Encourage the use of alternatives through the use of expedited procedures, where possible, to develop, register and deploy technically and economically feasible alternatives;
   (c) Provide information, for each current pre-harvest and post-harvest use for which a nomination is planned, on the potential market penetration of newly deployed alternatives, and alternatives which may used in the near future, to bring forward the time when it is estimated that methyl bromide consumption for such uses can be reduced and/or ultimately eliminated;
   (d) Promote the implementation of measures which ensure that any emissions of methyl bromide are minimized;
   (e) Show how the management strategy will be implemented to promote the phase-out of uses of methyl bromide as soon as technically and economically feasible alternatives are available, in particular describing the steps which the Party is taking in regard to subparagraph (b) (iii) of paragraph 1 of decision IX/6 in respect of research programmes in non-Article 5 Parties and the adoption of alternatives by Article 5 Parties;

4. To request the Meeting of the Parties to take into account information submitted pursuant to paragraphs 1 and 3 of the present decision when it considers permitting a Party to produce or consume methyl bromide for critical uses after 2006;

5. To request a Party that has submitted a request for a critical use exemption to consider and implement, if feasible, Technology and Economic Assessment Panel and Methyl Bromide Technical Options Committee recommendations on actions which a Party may take to reduce critical uses of methyl bromide;

6. To request any Party submitting a critical-use nomination after 2004 to describe in its nomination the methodology used to determine economic feasibility in the event that economic feasibility is used as a criterion to justify the requirement for the critical use of methyl bromide, using as a guide the economic criteria contained in section 4 of annex I to the present report;

7. To request each Party from 1 January 2005 to provide to the Ozone Secretariat a summary of each crop or post-harvest nomination containing the following information:

   (a) Name of the nominating Party
   (b) Descriptive title of the nomination;
   (c) Crop name (open field or protected) or post-harvest use;
   (d) Quantity of methyl bromide requested in each year;
   (e) Reason(s) why alternatives to methyl bromide are not technically and economically feasible;

8. To request the Ozone Secretariat to post the information submitted pursuant to paragraph 7 above, categorized according to the year in which it was received, on its web site within 10 days of receiving the nomination;

9. To request the Technology and Economic Assessment Panel to:

   (a) Identify options which Parties may consider for preventing potential harmful trade of methyl bromide stocks to Article 5 Parties as consumption is reduced in non-Article 5 Parties and to publish its evaluation in 2005 to enable the Seventeenth Meeting of the Parties to decide if suitable mitigating steps are necessary;
   (b) Identify factors which Article 5 Parties may wish to take into account in evaluating whether they should either undertake new accelerated phase-out commitments through the Multilateral Fund for the Implementation of the Montreal Protocol or seek changes to already agreed accelerated phase-outs of methyl bromide under the Multilateral Fund;
   (c) Assess "economic infeasibility", based on the methodology submitted by the nominating Party under paragraph 6 above, in making its recommendations on each critical-use nomination. The report by the Technology and Economic Assessment Panel should be made with a view to encouraging nominating Parties to adopt a common approach in assessing the economic feasibility of alternatives;
   (d) Submit a report to the Open-ended Working Group at its twenty-sixth session on the possible need for methyl bromide critical uses over the next few years, based on a review of the management strategies submitted by Parties pursuant to paragraph 3 of the present decision;
   (e) Review critical-use nominations on an annual basis and apply the criteria set forth in decision IX/6 and of other relevant criteria agreed by the Parties;
   (f) Recommend an accounting framework for adoption by the Sixteenth Meeting of the Parties which can be used for reporting quantities of methyl bromide produced, imported and exported by Parties under the terms of critical-use exemptions, and after the end of 2005 to request each Party which has been granted a critical-use exemption to submit information together with its nomination using the agreed format;
   (g) Provide, in consultation with interested Parties, a format for a critical-use exemption report, based on the content of annex I to the present report, for adoption by the Sixteenth Meeting of the Parties, and to request each Party which reapplies for a methyl bromide critical-use exemption after the end of 2005 to submit a critical-use exemption report in the agreed format;
   (h) Assess, annually where appropriate, any critical-use nomination made after the end of 2006 in the light of the Methyl Bromide Alternatives Database information submitted pursuant to paragraph 1 of the present decision, and to compare, annually

where appropriate, the quantity, in the nomination, of methyl bromide requested and recommended for each pre-harvest and post-harvest use with the management strategy submitted by the Party pursuant to paragraph 3 of the present decision;

(i) Report annually on the status of re-registration and review of methyl bromide uses for the applications reflected in the critical-use exemptions, including any information on health effects and environmental acceptability;

(j) Report annually on the status of registration of alternatives and substitutes for methyl bromide, with particular emphasis on possible regulatory actions that will increase or decrease dependence on methyl bromide;

(k) Modify the Handbook on Critical-use Nominations for Methyl Bromide to take the present decision and other relevant information into account, for submission to the Sixteenth Meeting of the Parties.

Annex I (Report of EMOP1)

Requirements for annual reporting of critical-use exemptions for methyl bromide

A. Introduction

The format proposed here would apply to annual reporting by Parties that have obtained a critical-use exemption for a particular application. It is not intended to replace the format for requesting a critical-use exemption for a particular application for the first time.

It should be noted that, in addition to a reporting format for holders of multiple-year exemptions, Australia proposes that this format would also be used by holders of single-year exemptions to reapply for a subsequent year's exemption (for example, nominees approved for single-year exemptions for 2005 seeking further exemptions for 2006).

In addition, Australia notes that it may be useful for the following format to be prefaced by cover pages similar to those detailed in the 2003 critical use handbook, which summarize the critical-use nomination and provide the contact details of the nominating Party.

From 2005 onwards, Parties' experience in the submission and assessment of reporting on critical-use exemptions may reveal improvements that could usefully be made to the reporting parameters outlined in the present document. Acknowledging this potential, and to ensure continuous improvement of the exemption reporting process, it is noted that Parties will have the opportunity to review the annual reporting parameters at a future date to ensure that they continue:

(a) To meet their expectations regarding the provision of transparent and adequate data on exemption holders' progress in achieving transition;

(b) To provide a streamlined format that does not compromise the level of data required for scrutiny by the Parties, but also does not place an unnecessarily onerous burden on nominating Parties.

Table 1: Report on transition efforts and activities

Transition efforts and activities	A. Description and implement-ation status	B. Outcome s to date	C. Impact on critical-use nomination/ required quantities	D. Actions to address any delays/ obstacles	E. Any re-changes to trials/ other efforts
1. Trials of alternatives					
2. Technology transfer, scale-up, regulatory approval					
3. Commercial scale-up/ deployment, market penetration					
4. Any other broader transition activities					

B. Reporting requirements

1. Implementation of the Parties' mandate on continued efforts to find alternatives

Column A requires a description of the implementation of any trials, technology transfer activities and/or other transition activities that were identified in the earlier nomination, including advice on whether the activity is complete or still underway.

Column B requires a report on the results of the transition activities (e.g., trials of alternatives – yield results achieved with the alternative in comparison to those achieved through methyl bromide treatment; deployment – percentage of users represented in a nomination covered by deployment activities and now able to transition to alternatives). In the case of trials of alternatives, reporting would include attaching copies of formal scientific trial reports. Where formal trial reports are not available (for example, where an exemption holder's transition efforts focus on grower trials), the exemption holder could include a description of all relevant parameters of the trials that are available. These could include data, as specified in the Technology and Economic Assessment Panel Handbook on Critical Use Nominations for Methyl Bromide, such as soil and climate types in which the trials were conducted, plant-back times observed, the rate of methyl bromide and alternatives application (kg/hectare or g/m^2), the proportionate mix of methyl bromide and chloropicrin, etc.

Column C requires a summary of the implication of the trial and activity results and outcomes, such as what impact they would have on the quantity of methyl bromide required for the critical-use nomination. For example, positive results from technology transfer or deployment activities could lead to the nominating Party identifying a reduction in the quantity required for the subsequent year of the exemption.

Column D: where any obstacles or delays beyond the control of the exemption holder arose to hinder their transition activities, this column requires a description of those obstacles or delays and a detailed plan, including time-specific milestones, for actions to address such problems and maintain the transition momentum.

Column E: where trials, technology transfer or other transition activities have been undertaken but have yielded negative results (e.g., trials demonstrated technical problems with an alternative, deployment activities revealed unanticipated economic infeasibility, etc), column E requires a description of the new or alternative transition activities to be undertaken by the exemption holder to overcome such obstacles to transition.

Row 4: "Any other broader transition activities" provides a nominating Party with the opportunity to report, where applicable, on any additional activities which it may have undertaken to encourage a transition, but need not be restricted to the circumstances and activities of the individual nomination. Without prescribing specific activities that a nominating Party should address, and noting that individual Parties are best placed to identify the most appropriate approach to achieve a swift transition in their own circumstances, such activities could include market incentives, financial support to exemption nominees and exemption holders, labelling, product prohibitions, public awareness and information campaigns, etc.

Notes: For an exemption holder or nominee to qualify for an exemption, a commitment must be demonstrated to finding technically and economically viable alternatives and achieving a transition to the use of alternatives. In particular, decision IX/6 requires the following of an exemption nominee:

> *"It is demonstrated that an appropriate effort is being made to evaluate, commercialize and secure national regulatory approval of alternatives and substitutes... Non-Article 5 Parties must demonstrate that research programmes are in place to develop and deploy alternatives and substitutes. Article 5 Parties must demonstrate that feasible alternatives shall be adopted as soon as they are confirmed as suitable to the Party's specific conditions…"*

Section 1 provides the means by which exemption holders and nominees can report on their current progress in implementing that mandate. The nature of the information provided would vary according to the specific actions that had been outlined in each original nomination, but for ease of review the information should be structured as presented in table 1 above.

2. Registration of an alternative

Where a nomination identified that an alternative was not yet registered at the time of the original nomination's submission, but it was anticipated that one would be subsequently registered, the nominating Party should report on the progress of the alternative through the registration process. This report should include any efforts by the Party to "fast track" or otherwise assist the registration of the alternative.

Where significant delays or obstacles have been encountered to the anticipated registration of an alternative, the exemption holder should identify the scope for any new/alternative efforts that could be undertaken to maintain the momentum of transition efforts, and identify a time-frame for undertaking such efforts.

Where an alternative was de-registered subsequent to submission of the original nomination, the nominating Party would report the de-registration, including reasons for it. The nominating Party would also report on the de-registration's impact (if any) on the exemption holder's transition plan and on the proposed new or alternative efforts that will be undertaken by the exemption holder to maintain the momentum of transition efforts.

Notes: It is understood that progress in registration of a product will often be beyond the control of an individual exemption holder as the registration process must be undertaken by the manufacturer or supplier of the product. The speed with which registration applications are processed also falls outside the exemption holder's control, resting with the nominating Party. Consequently, this section requires the nominating Party to report on any efforts it has taken to assist the

registration process, noting that the scope for expediting registration will vary from Party to Party.

In recognition of the fact that it would be unreasonable to revise exemption holders' nomination because of registration delays beyond their control, this section also requires a report on the actions that are being taken to continue transition despite registration delays.

3. Implementation of recommendations of the Methyl Bromide Technical Options Committee and the Technology and Economic Assessment Panel

In developing recommendations on exemption nominations submitted in 2003, the Methyl Bromide Technical Options Committee and the Technology and Economic Assessment Panel in many cases recommended that nominees should explore and, more appropriate, implement:

(a) Options for reducing the quantity of methyl bromide required; or

(b) The use of particular alternatives not originally identified by the exemption holder as part of its transitional plan, but considered key alternatives by the Methyl Bromide Technical Options Committee and the Technology and Economic Assessment Panel.

Where the approval granted by the Meeting of the Parties' for exemptions included conditions incorporating those recommendations, the exemption–holder should report on its progress in exploring or implementing them as part of its annual reporting obligations.

Where a condition required the testing of an alternative or adoption of an emission minimization measure, reporting should be structured in the same format as table 1 (report on transition efforts and activities).

Where a condition related to an assessment of the economic viability of an alternative or measure to minimize use or emissions, the reporting should address the relevant economic data requirements identified in section 4 below.

4. Economic feasibility

Where a nomination has been approved on the basis of the economic infeasibility of an alternative, the exemption holder should report any significant changes to the underlying economics. This could include any changes to:

(a) The purchase cost per kilogram of methyl bromide and of the alternative;

(b) Gross and net revenue with and without methyl bromide, and with the next best alternative;

(c) Percentage change in gross revenues if alternatives are used;

(d) Absolute losses per hectare/cubic metre if alternatives are used;

(e) Losses per kilogram of methyl bromide requested if alternatives are used;

(f) Losses as a percentage of net cash revenue if alternatives are used;

(g) Percentage change in profit margin if alternatives are used.

Notes: Where an exemption has been approved on the basis of the economic infeasibility of an alternative, the exemption holder must have clearly described the nature of the economic infeasibility in its original nomination.

The economics of methyl bromide and of alternatives can be subject to changes over time, and it is possible that those changes could have an impact on the exemption holder's claim that an alternative is not economically viable and on its continuing eligibility for an exemption.

Given that criteria for assessing the economic feasibility of alternatives have not yet been agreed by the Parties, at the current time the seven data points identified above represent suggested guidance only. As criteria are developed and approved by the Parties for inclusion in the Technology and Economic Assessment Panel/MBTOC Handbook, the data to be provided in annual reporting would reflect those criteria and any accompanying new data requirements.

5. Reduction in quantity of methyl bromide required

Exemption holders should indicate whether the number of hectares or cubic metres identified in their earlier nominations has changed. Where the number has been reduced, the exemption holder should quantify any resultant change in the quantity of methyl bromide required.

Notes: The Critical Use Nomination Handbook requests pre-planting Parties making nominations to provide information on the number of hectares or cubic metres to be treated with methyl bromide.

In some cases, it is possible that the number of hectares or cubic metres to be treated could vary over time. As such variations can also change the quantity of methyl bromide required for the exemption, this section provides the means to monitor such variations.

Exemption quantity details

Quantity requested in original nomination: _____

Quantity recommended by Methyl Bromide Technical Options Committee Technology and Economic Assessment Panel: _____

Quantity approved by Parties: _____

Quantity required for [year]: _____

Decision XVI/4: Review of the working procedures and terms of reference of the Methyl Bromide Technical Options Committee

Reaffirming that each Party should aim significantly and progressively to decrease its production and consumption of methyl bromide for critical uses with the intention of completely phasing out methyl bromide as soon as technically and economically feasible alternatives are available for critical uses in the circumstances of the nominations according to decision IX/6,

To adopt the elements related to procedures and terms of reference of the Methyl Bromide Technical Options Committee related to the evaluation of nominations for critical uses of methyl bromide as set out in annex I to the report of the Sixteenth Meeting of the Parties.

Annex I (Report of MOP16)

A. Working procedures of the Methyl Bromide Technical Options Committee relating to the evaluation of nominations for critical uses of methyl bromide

1. The schedule for the MBTOC assessment of critical-use exemptions will be revised as set out in the following table: [shown on next page]

2. Standard presumptions that underlie MBTOC recommendations of critical-use nominations need to be transparent and technically and economically justified, and should be clearly stated in its reports, and submitted to the Parties for approval at the Seventeenth Meeting of the Parties, and thereafter on an annual basis. Reaffirming that the individual circumstances are the primary point of departure for an assessment of a nomination, MBTOC should not apply standard presumptions where the Party has demonstrated that the individual circumstances of the nomination indicate otherwise.

3. In the event that a nomination has been recommended for rejection or reduction as assessed under action 6 above, MBTOC will give the nominating Party the opportunity to send detailed corroborating information taking into account the circumstances of the nomination. On the basis of this additional information (and possible consultations with the nominating Party by pre-arranged teleconference) MBTOC will reassess this nomination.

4. Although the burden of proof remains with the Party to justify a request for a critical-use exemption, MBTOC will provide in its report a clear explanation of its operation with respect to the process of making determinations for its recommendations, and clearly state the approach, assumptions and reasoning used in the evaluation of the critical-use nominations. When cuts or denials are proposed, the description should include citations and also indicate where alternatives are technically and economically feasible in circumstances similar to those in the nomination, as described in decision Ex.1/5, paragraph 8.

5. Communications between the nominating Party and MBTOC will be based on the principles of fairness and due process, on the basis of corroborating written documentation, and will be properly reflected in the MBTOC and TEAP reports.

6. The role of the Secretariat should be central in regard to assistance in organizational, administrative and technical aspects of the process whereby the efficiency, operations and communications could be enhanced.

7. MBTOC is requested to develop and keep up to date an expanded matrix describing the conditions under which alternatives are technically and economically feasible. The matrix should include detailed references, such as citations of trial reports demonstrating this feasibility or case studies of commercial operation. Before application, the Parties should approve the matrix and any subsequent changes.

Actions	Indicative completion date
Parties submit their nominations for critical-use exemptions to the Secretariat	24 January
The nominations are forwarded to MBTOC co-chairs for distribution to the subgroups of appointed members	7 February
Nominations in full are assessed by the subgroups of appointed members. The initial findings of the subgroups, and any requests for additional information are forwarded to the MBTOC co-chairs for clearance	28 February
MBTOC co-chairs forward the cleared advice on initial findings and requests for additional information on to the nominating Party concerned and consult with the Party on the possible presumption therein	7 March
Nominating Party develops and submits its response to the MBTOC co-chairs	28 March
MBTOC meets as usual to assess nominations, including any additional information provided by the nominating Party prior to the MBTOC meeting under action 5 and any additional information provided by nominating Party through pre-arranged teleconference, or through meetings with national experts, in accordance with paragraph 3.4 of the terms of reference of TEAP, advises the nominating Party of any outstanding information regarding the information requested under action 3 for those critical-use nominations where it was unable to assess the nomination, and provides its proposed recommendations to TEAP	11 April
TEAP meets as usual in May, among other things, to assess the MBTOC report on critical-use nominations and submits the finalized report on recommendations and findings to the Secretariat	early May
The Secretariat posts the finalized report on its web site and circulates it to the Parties	mid-May
Nominating Party has the opportunity to consult with MBTOC on a bilateral basis in conjunction with the Open-ended Working Group meetings	early July
The nominating Party submits further clarification for the critical-use nomination in the "unable to assess" category or if requested to do so by the Open-ended Working Group, and provides additional information should it wish to appeal against a critical-use nomination recommendation by MBTOC	early August
MBTOC meets to reassess only those critical-use nominations in the "unable to assess" category, those where additional information has been submitted by the nominating Party and any critical-use nominations for which additional information has been requested by the Open-ended Working Group	late August
MBTOC final report is made available to Parties through TEAP	early October

8. MBTOC, when holding its meeting, can consult the nominating Party through pre-arranged teleconference or through face-to-face discussions with national experts, in accordance with paragraph 3.4 of the terms of reference for the Technology and Economic Assessment Panel, in order to facilitate a transparent exchange of information and understanding between MBTOC and the critical-use exemption applicant.

9. It is recalled that paragraphs 9 (f) and 9 (g) of decision Ex.I/4 request TEAP to recommend an accounting framework and to provide a format for a critical-use exemption report.

10. Despite the opportunities given to the nominating Party to supply any additional information required in support of its nomination, MBTOC should categorize the nomination as "unable to assess" if there is insufficient information to make an assessment, and clearly explain what information was missing. […]

C. Further guidance on the criteria for the evaluation of nominations for critical uses of methyl bromide

1. On the availability of technically and economically feasible alternatives, and economic feasibility

11. Pending further consideration by the Meeting of the Parties, MBTOC shall continue to define:

(a) "Alternatives" as any practice or treatment that can be used in place of methyl bromide;
(b) "Existing alternatives" as those alternatives in present or past use in some regions; and
(c) "Potential alternatives" as those alternatives in the process of investigation or development.

12. Understanding of the concept of "availability" shall be primarily guided by the alternative's market presence in sufficient quantities and accessibility, taking into account, among other things, regulatory constraints.

13. To the factors already listed in annex I, part B, paragraph 4 of the report of the Extraordinary Meeting of the Parties, with regard to paragraphs 6 and 9 (c) of decision Ex.I/4, the following are added:

(a) The difference in purchasing costs between methyl bromide and the alternatives per treated areas, mass, or volume, and related costs such as new equipment, labour costs and losses resulting from closing the fumigated object for an extended period of time;
(b) Difference in yield per hectare, including its quality, and harvest time, between the alternative and methyl bromide;
(c) Percentage change in net revenue if alternatives are used.

14. In line with paragraph 4 above, in any case in which a Party makes a nomination which relies on the economic criteria of decision IX/6, MBTOC should, in its report, explicitly state the central basis for the Party's economic argument and explicitly explain how it addressed that factor, and, in cases in which MBTOC recommends a cut; MBTOC should also provide an explanation of its economic feasibility.

15. As regards significant market disruption, it is recalled that paragraph 1 (a) (i) of decision IX/6 provides that a use of methyl bromide should qualify as "critical" only if the nominating Party determines that the specific use is critical because the lack of availability of methyl bromide for that use would result in a significant market disruption. Parties are invited to include in their nominations, information on their determination referred to in paragraph 1 (a) (i) of decision IX/6.

2. On the duration of critical-use nomination of methyl bromide

22. It is recalled that the Sixteenth Meeting of the Parties adopted decision XVI/3, related to the duration of critical-use nominations of methyl bromide.

3. On aggregation of nominations

23. It is reaffirmed that applications shall be considered on a case-by-case basis. In that context, MBTOC shall continue its current approach as regards the level of aggregation or disaggregation.

4. On individual circumstances of nominations

24. In the interest of fair and equal treatment, nominations should be assessed in the light of compliance with the criteria of decision IX/6 and other relevant decisions, irrespective of the size or number of tonnes in the nomination. MBTOC is invited to propose a streamlined method for assessing small nominations to the degree that the method is consistent with the principle stated above.

25. If a particular product is not registered or subject to national or local regulatory restrictions, or if it becomes de-registered, MBTOC should recommend a critical-use exemption, provided there are no other feasible alternatives according to decision IX/6 for the specific situation. MBTOC should request written advice from the nominating Party, which may include advice from the manufacturer of an alternative.

26. In cases where alternatives are currently in the registration process, MBTOC should note this fact. It is acknowledged that a Party does not always have the capability to influence the registration of alternatives. A nominating Party should inform MBTOC when registration occurs and MBTOC should take this kind of information into account when recommending critical-use exemptions, as is already requested by the Parties in decision IX/6, paragraph 1 (b) (iii).

5. On the handbook on critical use nominations for methyl bromide

27. The handbook is a general reference for all those involved in the critical-use exemption process, in part owing to the convenience of using the handbook as a general reference volume for methyl bromide decisions, as well as the critical-use nomination procedure. Therefore, the handbook should be reframed to become a comprehensive "one-stop shop" that includes information on methyl bromide decisions, working procedures and terms of reference of MBTOC, the critical-use nomination process, agreed standard presumptions and other related topics. The text should be taken as far as possible, however, directly from decisions of the Meeting of the Parties or other language that has been approved by the Parties.

28. The onus remains on the nominating Party to provide sufficient information in order for MBTOC to be able to assess whether critical-use nominations comply fully with decision IX/6. The handbook should inform Parties which information requirements are needed.

29. TEAP and its MBTOC should be responsible for updating the handbook. TEAP and its MBTOC should not put any new proposals in the handbook which do not have a basis in a decision of the Meeting of the Parties. Factual updates of the handbook incorporating the specific language of the decisions of the Parties do not require prior approval from the Parties. Otherwise, updates require approval from the Parties.

6. On approach, assumptions and reasoning to be used in the evaluation

30. Decision IX/6 is the basis for the assessment of critical-use exemptions by MBTOC.

31. While the burden of proof remains with the nominating Party to justify the request for a critical-use exemption, MBTOC, in its report, should indicate whether the nominating Party has provided the information in order for MBTOC to determine that the Party has met the applicable criteria set out in decision IX/6 and related decisions.

32. Exemptions must fully comply with decision IX/6 and other relevant decisions, and are intended to be limited to the levels needed for critical-use exemptions, temporary derogations from the phase-out of methyl bromide in that they are to apply only until there are technically and economically feasible alternatives that otherwise meet the criteria in

decision IX/6. MBTOC should take a precise and transparent approach to the application of the criteria, having regard, especially, to paragraphs 4 and 20 above.

7. On similar circumstances

33. When MBTOC makes differentiated recommendations on nominations that cover the same use, it should clearly explain why one country's nomination is being treated differently than the nominations of other countries or the nominations of the same country, based on more information and citations of feasible alternatives relevant to these nominations, thus eliminating unjustified inconsistencies in assessments and ensuring equal treatment of nominations.

8. On market penetration of alternatives

34. When considering the market penetration of an alternative in a nominating Party, MBTOC should evaluate the critical-use nominations based on information provided by the Parties and other information, in accordance with the terms of reference of TEAP, and in the light of likely implementation time in the circumstances of the nomination, and provide recommendations. In evaluating, MBTOC should request written advice from the nominating Party, which may include further information from the manufacturer of an alternative.

35. In situations where MBTOC recommends a nomination on grounds that it is necessary to have a period for adoption of alternatives, the basis for calculating the time period must be explained fully in the TEAP report and take fully into account the information provided by the nominating Party, the supplier, the distributor or the manufacturer. Relevant factors for such a calculation include the number of enterprises that need to transition, e.g., the number of fumigation and pest control companies, estimated training time assuming full effort, opportunities for importing alternative equipment and expertise if not available locally, and costs involved.

36. A case-by-case approach by MBTOC for each specific nomination (on the basis of information provided according to paragraph 35 above) is necessary above a one-size-fits-all approach when considering penetration of alternatives and transition times. […]

Decision XVI/6. Accounting framework

Noting with appreciation the work undertaken by the Technology and Economic Assessment Panel, pursuant to decision Ex.I/4, paragraph 9 (f), in developing an accounting framework,

Mindful that after the end of 2005 each Party which has been granted a critical-use exemption is requested to submit information on the quantities of methyl bromide produced, imported and exported by Parties under the terms of the critical-use exemptions,

Aware that such information must be submitted with a Party's nomination using the accounting framework format,

1. To adopt the accounting framework, as set out in annex II to the report of the Sixteenth Meeting of the Parties;

2. To request the Technology and Economic Assessment Panel to include the accounting framework in the next version of the Handbook on Critical Use Nominations for Methyl Bromide;

[Accounting framework (Annex II) is presented on next page]

Decision XVI/6: Annex II Accounting framework
Reporting accounting framework for critical uses of methyl bromide
(all quantities expressed in metric tonnes)

Party: _____

A	B	C	D		E (C + D)	F (B – E)	G	H (G + E)	I	J	K[2] (H - I -J)
Year of Critical Use	Quantity Exempted for year of Critical Use[1]	Quantity Acquired by Production for CU	Quantity Acquired for Critical Use by Import and Country(ies) of Manufacture		Total Quantity Acquired for Critical Use	Quantity Authorised but not Acquired	Amount on Hand at Start of Year[2]	Available for Use in Current Year	Amount Used for Critical Use	Amount Destroyed [4]	Amount on Hand at End of Year[3]
			Amount	Country(s)							

Notes:
1. Exempted by the Parties to the Montreal Protocol. Note that the critical use for a particular year may be the sum of quantities authorized by decision in more than one year.
2. Where possible, national Governments should include quantities on hand as of 1 January 2005 and for each year thereafter. National Governments that are not able to estimate quantities on hand as of 1 January 2005 can track the subsequent inventory of methyl bromide produced for critical uses (column L).
3. Carried forward as "Amount on hand at start of year" for next year.
4. MBTOC Handbook notes that Destruction of MB must be done by an approved process.

Decision XVII/9: Critical-use exemptions for methyl bromide for 2006 and 2007

Noting with appreciation the work done by the Technology and Economic Assessment Panel and its Methyl Bromide Technical Options Committee,

Noting with appreciation that some Parties have made substantial reductions in the quantities of methyl bromide authorized, permitted or licensed for 2005 and have significantly reduced the quantities for 2006,

Noting that Parties submitting requests for methyl bromide for 2007 have supported their requests with a national management strategy,

1. For the agreed critical-use categories for 2006, set forth in table A of the annex to the present decision for each Party, to permit, subject to the conditions set forth in the present decision and decision Ex.I/4, to the extent that those conditions are applicable, the levels of production and consumption for 2006 set forth in table B of the annex to the present decision which are necessary to satisfy critical uses;

2. For the agreed critical-use categories for 2007, set forth in table C of the annex to the present decision for each Party, to permit, subject to the conditions set forth in the present decision and in decision Ex. I/4, the levels of production and consumption for 2007 set forth in table D of the annex to the present decision which are necessary to satisfy critical uses, with the understanding that additional levels of production and consumption and categories of uses may be approved by the Meeting of the Parties to the Montreal Protocol in accordance with decision IX/6;

3. That a Party with a critical use exemption level in excess of permitted levels of production and consumption for critical uses is to make up any such differences between those levels by using quantities of methyl bromide from stocks that the Party has recognized to be available;

4. That Parties shall endeavour to licence, permit, authorize or allocate quantities of critical- use methyl bromide as listed in tables A and C of the annex to the present decision;

5. That each Party which has an agreed critical use renews its commitment to ensure that the criteria in paragraph 1 of decision IX/6 are applied when licensing, permitting or authorizing critical use of methyl bromide and that such procedures take into account available stocks of banked or recycled methyl bromide. Each Party is requested to report on the implementation of the present paragraph to the Ozone Secretariat by 1 February for the years to which this decision applies;

6. That Parties licensing, permitting or authorizing methyl bromide that is used for 2007 critical uses shall request the use of emission minimization techniques such as virtually impermeable films, barrier film technologies, deep shank injection and/or other techniques that promote environmental protection, whenever technically and economically feasible;

7. To request Parties to endeavour to use stocks, where available, to meet any demand for methyl bromide for the purposes of research and development;

8. To request the Quarantine and Pre-shipment Task Force of the Technology and Economic Assessment Panel to evaluate whether soil fumigation with methyl bromide to control quarantine pests on living plant material can in practice control pests to applicable quarantine standards, and to evaluate the long-term effectiveness of pest control several months after fumigation for this purpose, and to provide a report in time for the twenty-sixth meeting of the Open-ended Working Group;

9. That each Party should ensure that its national management strategy for the phase-out of critical uses of methyl bromide addresses the aims specified in paragraph 3 of decision Ex.I/4;

10. To request the Technology and Economic Assessment Panel and its Methyl Bromide Technical Options Committee to report for 2005 and annually thereafter, for each agreed critical use category, the amount of methyl bromide nominated by a Party, the amount of the agreed critical use and either:
    (a) the amount licensed, permitted or authorised; or
    (b) the amount used.

Decision XIX/9: Critical-use exemptions for methyl bromide for 2008 and 2009

Noting with appreciation the work done by the Technology and Economic Assessment Panel and its Methyl Bromide Technical Options Committee,

Noting that Parties submitting requests for methyl bromide have supported their requests with management strategies as requested under decision Ex.I/4,

1. To permit, for the agreed critical-use categories for 2008 set forth in table A of the annex to the present decision for each Party, subject to the conditions set forth in the present decision and decision Ex.I/4 to the extent that those conditions are applicable, the levels of production and consumption for 2008 set forth in table B of the annex to the present decision which are necessary to satisfy critical uses, in addition to the amounts permitted in decision XVIII/13;

2. To permit, for the agreed critical-use categories for 2009 set forth in table C of the annex to the present decision for each Party, subject to the conditions set forth in the present decision and in decision Ex.I/4 to the extent that those conditions are applicable, the levels of production and consumption for 2009 set forth in table D of the annex to the present decision which are necessary to satisfy critical uses, with the understanding that additional levels of production and consumption and categories of uses may be approved by the Meeting of the Parties in accordance with decision IX/6;

3. To request the Technology and Economic Assessment Panel to ensure that recent findings with regard to the adoption rate of alternatives are annually updated and reported to the Parties in its first report of each year and inform the work of the Panel;

4. That when assessing supplemental requests for critical use exemptions for 2009 for a specific nomination, the Technology and Economic Assessment Panel should take into account the most current information, including any information on domestic implementation of related 2008 and 2009 critical uses, in accordance with paragraph 2 of decision IX/6;

5. That a Party with a critical use exemption level in excess of permitted levels of production and consumption for critical uses is to make up any such differences between those levels by using quantities of methyl bromide from stocks that the Party has recognized to be available;

6. That Parties shall endeavour to license, permit, authorize or allocate quantities of critical-use methyl bromide as listed in tables A and C of the annex to the present decision;

7. That each Party which has an agreed critical use renews its commitment to ensure that the criteria in paragraph 1 of decision IX/6 are applied when licensing, permitting or authorizing critical use of methyl bromide and, in particular, the criterion laid down in paragraph 1 (b) (ii) of decision IX/6. Each Party is requested to report on the implementation of the present paragraph to the Ozone Secretariat by 1 February for the years to which this decision applies;

8. To request the Technology and Economic Assessment Panel to continue publishing annually in its progress report prior to each meeting of the Open-ended Working Group the stocks of methyl bromide held by each nominating Party as reported in that Party's accounting framework report;

9. To recognize the continued contribution of the Methyl Bromide Technical Options Committee's expertise and to agree that, in accordance with section 4.1 of the Technology and Economic Assessment Panel's terms of reference, the Committee should continue to develop its recommendations in a consensus process that includes full discussion among all available members of the Committee;

10. To note the importance of transparency in the critical-use exemption process and to request the Technology and Economic Assessment Panel to provide to the Open-ended Working Group at its next meeting a written explanation of its methodology for using its meta-analysis in its work and to disclose to the Parties in a written explanation any significant changes or deviations it intends to make to that methodology before it undertakes any such change or deviation;

11. That Parties licensing, permitting or authorizing methyl bromide for critical uses shall request the use of emission minimization techniques such as virtually impermeable films, barrier film technologies, deep shank injection and/or other techniques that promote environmental protection, whenever technically and economically feasible;

12. That each Party should continue to ensure that its national management strategy for the phase-out of critical uses of methyl bromide addresses the aims specified in paragraph 3 of decision Ex.I/4.

Decision XX/5: Critical-use exemptions for methyl bromide for 2009 and 2010

Noting with appreciation the work done by the Technology and Economic Assessment Panel and its Methyl Bromide Technical Options Committee,

Noting that Parties submitting requests for methyl bromide have supported their requests with management strategies as requested under decision Ex.I/4, and that they should periodically provide updated information,

1. To permit, for the agreed critical-use categories for 2009 set forth in table A of the annex to the present decision for each Party, subject to the conditions set forth in the present decision and decision Ex.I/4 to the extent that those conditions are applicable, the levels of production and consumption for 2009 set forth in table B of the annex to the present decision which are necessary to satisfy critical uses, in addition to the amounts permitted in decision XIX/9;

2. To permit, for the agreed critical-use categories for 2010 set forth in table C of the annex to the present decision for each Party, subject to the conditions set forth in the present decision and in decision Ex.I/4 to the extent that those conditions are applicable, the levels of production and consumption for 2010 set forth in table D of the annex to the present decision which are necessary to satisfy critical uses, with the understanding that additional levels of production and consumption and categories of uses may be approved by the Meeting of the Parties in accordance with decision IX/6;

3. To request the Technology and Economic Assessment Panel to ensure that recent findings with regard to the adoption rate of alternatives are annually updated and reported to the Parties in its first report of each year and inform the work of the Panel;

4. That when assessing supplemental requests for critical use exemptions for 2010 for a specific nomination, the Technology and Economic Assessment Panel should take into account the most current information, including any information on domestic implementation of related 2009 and 2010 critical uses, in accordance with paragraph 2 of decision IX/6;

5. That a Party with a critical use exemption level in excess of permitted levels of production and consumption for critical uses is to make up any such differences between those levels by using quantities of methyl bromide from stocks that the Party has recognized to be available;

6. That Parties shall endeavour to license, permit, authorize or allocate quantities of critical-use methyl bromide as listed in tables A and C of the annex to the present decision;

7. That each Party which has an agreed critical use renews its commitment to ensure that the criteria in paragraph 1 of decision IX/6 are applied when licensing, permitting or authorizing critical use of methyl bromide and, in particular, the criterion laid down in paragraph 1 (b) (ii) of decision IX/6. Each Party is requested to report on the implementation of the present paragraph to the Ozone Secretariat by 1 February for the years to which the present decision applies;

8. To request the Technology and Economic Assessment Panel to continue publishing annually in its progress report prior to each meeting of the Open-ended Working Group the stocks of methyl bromide held by each nominating Party as reported in that Party's accounting framework report;

9. To recognize the continued contribution of the Methyl Bromide Technical Options Committee's expertise and to agree that, in accordance with section 4.1 of the Technology and Economic Assessment Panel's terms of reference, the Committee should ensure that it develops its recommendations in a consensus process that includes full discussion among all available members of the Committee and should ensure that members with relevant expertise are involved in developing its recommendations;

10. To request the Technology and Economic Assessment Panel to ensure that the critical-use recommendations reported in its annual progress report clearly set out the reasons for recommendations and that, where requests are received from Parties for further information, the Methyl Bromide Technical Options Committee should provide a response within four weeks of submission of such a request;

11. That Parties licensing, permitting or authorizing methyl bromide for critical uses shall request the use of emission minimization techniques such as virtually impermeable films, barrier film technologies, deep shank injection and/or other techniques that promote environmental protection, whenever technically and economically feasible;

12. That each Party should continue to ensure that its national management strategy for the phase-out of critical uses of methyl bromide addresses the aims specified in paragraph 3 of decision Ex.I/4, and that each Party should periodically update or provide supplements to its national management strategy to provide new information on actions, such as identifying alternatives or regulatory updates, being undertaken to make significant progress in reducing critical use nominations, and indicating currently envisaged progress towards a phasedown;

13. To request the Technology and Economic Assessment Panel to ensure that in its consideration of nominations it analyse the impact of national, subnational and local regulations and law on the potential use of methyl bromide alternatives, and that it include a description of such analysis in its critical use nomination report;

Annex 3. Methyl bromide use trends – historical and current

Table 3.A. Trends in major methyl bromide uses in the EC (tonnes), 1993 compared to 2005 - 2008

Crops/uses	1993 estimated use for 8 major Member States	2005 CUE quota allocation[c] for 25 Member States	2006 CUE quota allocation[d] for 25 Member States	2007 CUE quota allocation[e] for 25 Member States	2008 CUE quota allocation[f] for 27 Member States
Tomato	[4,270] (29%)	801 (29%)	532 (32%) [a]	80 (15%)	0
Strawberry (fruit + runners)	3,055 (21%)	909 (33%)	618 (37%)	302 (58%) [b]	212 (99.7 %) [b]
Flowers, bulbs, ornamentals	1,049 (7%)	296 (11%)	140 (8%)	65 (12%)	0
Cucumber	847 (6%)	158 (6%)	0 [a]	0	0
Melon	775 (5%)		38 (2%)	0	0
Vegetables, salad – unspecified	731 (5%)	11 (0.4%)	5 (0.3%)	1 (0.3%)	0
Fruit – unspecified	>715 (5%)	15 (0.5%)	9 (1%)	0	0
Pepper, eggplant	697 (5%)	360 (13%)	163 (10%)	50 (10%)	0
Nurseries	487 (3%)	10 (0.4%)	6 (0.4%)	2 (0.3%)	0
Potting soil	298 (2%)	0	0	0	0
Tobacco seedbeds	125 (1%)	0	0	0	0
Potato, lettuce, citrus, mushrooms	165 (1%)	0	0	0	0
Postharvest uses	[…]	195 (7%)	144 (9%)	23 (4%)	0.5 (0.2 %)
Miscellaneous	170 (1%)	0	0	0.1 (0%) [g]	0.2 (0.1 %) [g]
Total tonnage MB	**[14,385] (100%)**	**2,777 (100%)**	**1,654 (100%)**	**522 (100%)**	**213 (100%)**

(a) CUE of 36,500 kg for tomato-cucumber cropping system in Greece is included in the total for tomato in 2006.
(b) CUEs in 2007 and 2008 were for strawberry runners only.
(c) Published in Commission Decision 2005/625/EC (OJ L219, 24.8.2005).
(d) Published in Commission Decision 2006/350/EC (OJ L130, 18.5.2006), and Commission Decision 2007/129/EC (OJ L 55, 23.2.2007).
(e) Published in Commission Decision 2007/386/EC (OJ L143, 6.6.2007).
(f) Published in Commission Decision 2008/320/EC (OJ L109, 19.4.2008, p.32-34).
(g) CUE for research only.

Table 3.B. Report on Accounting Framework for Critical Uses of Methyl Bromide in the EC, 2005, 2006, 2007 and 2008

A	B		C	D[a]		E[a] (C+D)	F (B-E)	G[a]	H (G+E)	I	J	K (H-I-J)
Year of critical use, 1 Jan - 31 December	Total quantity approved by the Parties [b] (kg)	Quantity authorised by the Commission Decision for 1 Jan - 31 Dec (kg)	Quantity acquired by production for critical use (kg)	Quantity acquired for critical use by import & countr(y)(ies) of Manufacture		Total quantity acquired for critical use (kg)	Quantity authorised but not acquired (kg)	Amount on hand – start of year [c] (kg)	Available for use in current year (kg)	Amount used for critical use (kg)	Amount destroyed (kg)	Amount on hand – end of year [d] (kg)
				kg	country							
2005	4,392,812	2,777,333		2,209,508	Israel	2,435,319	341,764	216,198	2,651,517	2,530,099	0	121,023
				220,190	USA							
2006	3,536,755	1,654,358	0	1,337,915	Israel	1,462,747	191,611	114,953	1,577,700	1,558,557	0	19,144
				124,832	USA							
2007	689,142	521,836	0	….	Israel	484,842	36,994	31,635	516,477	508,031	0	8,558
				….	USA							
2008	245,146	212,671	0	107,797	Israel,	206,146	6,525	6,409	212,555	212,463	0	92
				98,349	USA							

(a) Data from EC ODS website

(b) Quantity exempted by the Parties to the Montreal Protocol.

(c) Where possible, national Governments should include quantities on hand as of 1 January 2005 and for each year thereafter. National Governments that are not able to estimate quantities on hand as of 1 January 2005 can track the subsequent inventory of methyl bromide produced for critical uses (column L).

(d) Carried forward as "Amount on hand at start of year" for next year. In the table, the amount on hand at the end of a year does not fully match the amount at the start of the following year for several reasons. For example, at the end of 2007 the EC had stocks of 8558 kg in 5 Member States, but in 2008 only 2 Member States (ES, PL) had CUEs and these countries hald 6409 kg of the stocks at the start of 2008. The remaining 2007 stocks (2149 kg) were held in FR, IT, NL and were not used for CUEs.

Table 3.C: MB consumption for CUEs, by Member State and use-category

Quota allocations for CUEs for 2005 - 2008, as stated in the EC Decisions listed in footnotes.
Use data taken from the EC accounting framework reports on the use of MB for 2005 – 2008

Critical Use category (S) Soil (PH) Post-harvest	2005		2006		2007		2008	
	MB (kg) quota allocation [4]	MB (kg) used	MB (kg) quota allocation [5]	MB (kg) used	MB (kg) quota allocation [6]	MB (kg) used	MB (kg) quota [7]	MB (kg) used
BELGIUM								
(S) Asparagus	225	97	0	0	0	0	0	0
(S) Chicory	0	0	0	0	0	0	0	0
(S) Cucumber	549	346	0	0	0	0	0	0
(S) Cut flowers chrysanthemum	896	896	0	0	0	0	0	0
(S) Cut flowers excl roses and chrysanthemum	2,794	626	0	0	0	0	0	0
(S) Endive	2,190	760	0	0	0	0	0	0
(S) Leeks and onions (plantlets)	660	0	0	0	0	0	0	0
(S) Lettuce - protected	23,000	11,456	0	0	0	0	0	0
(S) Nursery	630	0	0	0	0	0	0	0
(S) Berryfruit, orchard pome fruit berries replant	1,350	0	0	0	0	0	0	0
(S) Pepper and eggplant - protected	3,000	897	0	0	0	0	0	0
(S) Strawberry runners	2,306	0	0	0	0	0	0	0
(S) Tomatoes - protected	4,846	833	0	0	0	0	0	0
(S) Tree nursery	230	0	0	0	0	0	0	0
(PH) Mills and processors	200	200	0	0	0	0	0	0
(PH) Electronic equipment	50	50	0	0	0	0	0	0
(PH) Wood working premises	101	101	0	0	0	0	0	0
(PH) Food processing facilities	300	300	0	0	0	0	0	0
(PH) Food storage (dry) facilities	120	120	0	0	0	0	0	0
(PH) Old buildings, monuments & houses	438	438	0	0	0	0	0	0
(PH) Empty silos	43	43	0	0	0	0	0	0
(PH) Food processing premises	15	15	0	0	0	0	0	0
(PH) Old buildings	282	200	0	0	0	0	0	0

4 Commission Decision 2005/625/EC (23 August 2005) determining the quantities of methyl bromide permitted to be used for critical uses in the European Community from 1 January to 31 December 2005 pursuant to Regulation (EC) No 2037/2000 of the European Parliament and of the Council on substances that deplete the ozone layer (Official Journal of the European Union L 219, 47-53, 24.8.2005).

5 Commission Decisions 2006/350/EC and 2007/129/EC (Official Journal L 130, 29-36, 18.5.2006; and Official Journal L 55, 28-30, 23.2.2007).

6 Commission Decision 2007/386/EC (Official Journal L 143, 27-30, 6.6.2007).

7 Commission Decision 2008/320/EC (Official Journal L 109, 32-34, 19.4.2008).

Critical Use category (S) Soil (PH) Post-harvest	2005		2006		2007		2008	
	MB (kg) quota allocation [4]	MB (kg) used	MB (kg) quota allocation [5]	MB (kg) used	MB (kg) quota allocation [6]	MB (kg) used	MB (kg) quota [7]	MB (kg) used
(PH) Antique structures & furniture, objects	199	188	0	0	0	0	0	0
(PH) Flour mill (Rentokil)	72	0	0	0	0	0	0	0
(PH) Flour mills	4,264	4,078	2,752	2,752	0	0	0	0
(PH) Structures and objects (churches, houses, food processing structures)	307	13.5	307	294		0	0	0
(PH) Churches, monuments, ships quarters	59	12.4	0	0	0	0	0	0
Total Belgium	**49,126**	**21,670**	**3,059**	**3,046**	**0**	**0**	**0**	**0**
FRANCE								
(S) Carrots (sandy-soil)	8,000	7,950	5,000	5,000	1,400	1,400	0	0
(S) Cut flowers, bulbs	21,785	21,764	12,000	11,998	9,600	9,544	0	0
(S) Forest nurseries	2,000	2,000	1,500	1,500	1,500	1,485	0	0
(S) Orchard replant	10,000	9,951	7,500	7,510	0	0	0	0
(S) Orchard and raspberry nurseries	2,000	1,905	2,000	2,000	0	0	0	0
(S) Pepper	0		0	0	0	0	0	0
(S) Strawberry fruit	34,000	34,000	0	0	0	0	0	0
(S) Strawberry runners	37,600	37,433	35,000	32,927	25,000	22,423	0	0
(S) Tomato and eggplant	33,250	33,225	0	0	0	0	0	0
(S) Cucurbits, cucumber	21,140	21,141	0	0	0	0	0	0
(S) Melon seeds	0	0	0	0	0	0	0	0
(PH) Chestnuts	2,000	1,500	1,800	1,800	1,800	1,800	0	0
(PH) Mills and processors	21,440	21,376	8,000	7,412	0	0	0	0
(PH) Seeds	135	135	121	121	96	96	0	0
(PH) Rice	1,400	1,400	0	0	0	0	0	0
Total France	**194,750**	**193,780**	**72,921**	**70,268**	**39,396**	**36,748**	**0**	**0**
GERMANY								
(PH) Artefacts	250	100	0	0	0	0	0	0
(PH) Mills and processors	19,350	0	0	0	0	0	0	0
Total Germany	**19,600**	**100**	**0**	**0**	**0**	**0**	**0**	**0**
GREECE								
(S) Cucurbits	24,000	23,869	36,500	0	0	0	0	0
(S) Tomato	92,000	91,999				0	0	0
(S) Cut flowers	8,000	2,000	0	0	0	0	0	0
(PH) Commodity dried fruit	3,081	3,081	1,347	0	0	0	0	0
(PH) Rice, legumes	0		924	0	0	0	0	0
(PH) Mills and processors	16,000	16,000	8,000	0	0	0	0	0
Total Greece	**143,081**	**136,949**	**46,771**	**0**	**0**	**0**	**0**	**0**
IRELAND								
(PH) Flour mills	0		888	450	0	0	0	0
Total Ireland	**0**		**888**	**450**	**0**	**0**	**0**	**0**

Critical Use category (S) Soil (PH) Post-harvest	2005		2006		2007		2008	
	MB (kg) quota allocation [4]	MB (kg) used	MB (kg) quota allocation [5]	MB (kg) used	MB (kg) quota allocation [6]	MB (kg) used	MB (kg) quota [7]	MB (kg) used
ITALY								
(S) Cut flowers, bulbs	162,000	139,766.5	74,000	72,765	20,000	19,760	0	0
(S) Eggplant	96,000	88,499.1	40,000	39,384	0	0	0	0
(S) Melon	112,000	95,939.4	38,000	37,393	0	0	0	0
(S) Pepper	111,000	100,142.5	73,000	71,883	50,000	49,400	0	0
(S) Strawberry fruit	130,000	111,286.7	75,000	72,828	0	0	0	0
(S) Strawberry runners	78,000	57,773.8	60,000	55,986	35,000	34,579	0	0
(S) Tomato	671,000	614,838.6	495,000	494,423	80,000	79,040	0	0
(PH) Artefacts	4,180	3,009.8	5,000	3,835	0	0	0	0
(PH) Mills and processors	89,600	94,528.0	55,000	52,289	18,000	16,500	0	0
Total Italy	**1,453,780**	**1,305,785**	**915,000**	**900,786**	**203,000**	**199,279**	**0**	**0**
NETHERLANDS								
(PH) Strawberry runners	120	138	120	95	120	90.5	0	0
Total Netherlands	**120**	**138**	**120**	**95**	**120**	**90.5**	**0**	**0**
POLAND								
(S) Strawberry runners	34,600	33,908	28,000	28,000	24,500	24,500	11,995	11,995
(PH) Coffee and cocoa beans	0	-	1,836	1,631	1,200	1,192	500 [8]	368
(PH) Herbs and dried mushrooms	3,500	3,465	2,700	2,700	1,500	1,500	0	0
Total Poland	**38,100**	**37,373**	**32,536**	**32,331**	**27,200**	**27,192**	**12,495**	**12,363**
PORTUGAL								
(S) Cutflowers	35,000	35,000	0	0	0	0	0	0
Total Portugal	**35,000**	**35,000**	**0**	**0**	**0**	**0**	**0**	**0**
SPAIN								
(S) Cutflowers Andalusia	47,700	41,102	39,000	29,807	35,000	32,247	0	0
(S) Cutflowers Catalonia	18,000	17,787	15,000	13,300			0	0
(S) Peppers	150,000	150,000	50,000	49,999	0	0	0	0
(S) Strawberry fruit	330,000	319,776	180,000	168,080	0	0	0	0
(S) Strawberry runners	230,000	217,427	230,000	230,000	217,000	212,475	200,000	199,937
(S) Research: strawberry, peppers	-	-	-	-	70	0	151	151
(S) Research: cut flowers	-	-	-	-	-	-	25	12
(PH) White rice processing storage	0		36,000	36,000	0	0	0	0
Total Spain	**775,700**	**746,092**	**550,000**	**527,186**	**252,120**	**244,722**	**200,176**	**200,100**
UNITED KINGDOM								
(S) Ornamental tree nurseries	5,000	3,650	2,500	1,150	0	0	0	0
(S) Cut flowers	0		0	0	0	0	0	0
(S) Raspberries	3,700	35,150	1,500	1,500	0	0	0	0
(S) Strawberry fruit	32,000		10,000	9,450	0	0	0	0

[8] CUE only for imported coffee beans in 2008

Critical Use category (S) Soil (PH) Post-harvest	2005		2006		2007		2008	
	MB (kg) quota allocation [4]	MB (kg) used	MB (kg) quota allocation [5]	MB (kg) used	MB (kg) quota allocation [6]	MB (kg) used	MB (kg) quota [7]	MB (kg) used
(S) Topsoil	0		0	0	0	0	0	0
(PH) Aircraft	0		0	0	0	0	0	0
(PH) Cheese stores traditional	1,561	590	1,248	899	0 [9]	0	0	0
(PH) Whitworths structures	880	0	450	450	0	0	0	0
(PH) Whitworths commodities	1,571	508	900	900	0	0	0	0
(PH) Spices structures	1,080	0	1,591	0	0	0	0	0
(PH) Food processing Ryvita	1,787	1,787	839	838	0	0	0	0
(PH) Mills	10,195	11,464	7,900	6,658	0	0	0	0
(PH) Cereal processing plant	8,131		6,098	2,550	0	0	0	0
(PH) Spices and pappadums	46	0	37	0	0	0	0	0
(PH) Spices processing (Pataks)	1,000	0	0	0	0	0	0	0
(PH) Spices structures (Newly Weds Foods)	1,125	0	0	0	0	0	0	0
(PH) Stored spices	0	0	0	0	0	0	0	0
(PH) Tobacco (product machinery)	0	0	0	0	0	0	0	0
(PH) Woven baskets	0	0	0	0	0	0	0	0
Total UK	**68,076**	**53,149**	**33,063**	**24,395**	**0**	0	0	**0**
EC Total	**2,777,333**	**2,530,099**	**1,654,358**	**1,558,557**	**521,836**	**508,031**	212,671	212,463

Note: For each year in the table above, Critical Use Nominations by the EC were submitted to the Ozone Secretariat for review by MBTOC and authorisation by the Parties of the Montreal Protocol. Subsequent reviews for licensing (allocation of quotas) at EC level took account of any further developments in alternatives and stocks, as described in Chapters 3 – 5 of the ECMS. This table indicates the quantity authorised in EC quota allocations and the quantity that MSs later reported as used for each critical use.

[9] Result of EC decision not to grant essential use status to MB under the Biocidal Products Directive for use in cheese stores

Table 3.D: CUEs in EC, by use-category, indicating relevant Member States and quantity of MB allocated in quotas for licensing in 2005, 2007 and 2008

CUEs in 2005 (summary of Commission Decision 2005/625/EC)

Soil		Post-Harvest
Nursery	***Crop production***	
Tree Nurseries (0.3%): *UK: 5,000 kg* *France: 4,000 kg* *Belgium 230 kg* Strawberry runners (14%): *Belgium: 2,306 kg* *France: 37,600 kg* *Italy: 78,000 kg* *Poland: 34,600 kg* *Spain: 230,000 kg* Other nurseries (0.02%)	Tomato (29%): *Belgium: 4,846 kg* *France: 33,250 kg (a)* *Greece: 92,000 kg* *Italy: 671,000 kg* Strawberry fruit (19%): *France: 34,000 kg* *Italy: 130,000 kg* *Spain: 330,000 kg* *UK: 32,000 kg* Peppers, eggplant (13%) Cutflowers (11%) Cucurbits ((6%) Other crops (1%)	Mills, food processing structures (6%): *Belgium: 5,120 kg* *France: 21,440 kg* *Germany: 19,350 kg* *Greece: 16,000 kg* *Italy: 89,600 kg* *UK: 24,198 kg* Commodities / food stuffs (0.4%) Artefacts and non-food items (0.3%)
Total 392,366 kg (14%)	**Total 2,190,085 kg (79%)**	**Total 194,882 kg (7%)**

(a) including eggplant

CUEs in 2007 (summary of Commission Decision 2007/386/EC)

Soil[10]		Post-Harvest
Nursery	***Crop production***	
Forest Nursery (< 1%): *France: 1,500 kg* Strawberry runners (soil) (58%): *France: 25,000 kg* *Italy: 35,000 kg* *Poland: 24,500 kg* *Spain: 217,000 kg*	Carrots (< 1%): *France: 1,400 kg* Tomato (15%): *Italy: 80,000 kg* Cutflowers (12%): *France: 9,600 kg* *Italy: 20,000 kg* *Spain: 35,000 kg* Pepper (10%): *Italy: 50,000 kg*	Mills (3%): *Italy: 18,000 kg* Commodities / food stuffs (<1%): Chestnuts *France: 1,800 kg* Coffee & cocoa *Poland: 1,200 kg* Herbs & dried mushrooms *Poland: 1,500 kg* Strawberry runners (plantlets) *Netherlands: 120 kg* Seeds (< 1%): *France: 96 kg*
Total 303,000 kg (58%)	**Total 196,000 kg (38%)**	**Total 22,716 kg (4%)**

CUEs in 2008 (summary of Commission Decision 2008/320/EC)

Soil		Post-Harvest
Nursery production	***Research***	
Strawberry runners (99.7%): *Spain: 200,000 kg* *Poland: 11,995 kg*	Research (0.1%): *Spain: 176 kg*	Coffee beans (0.2%): *Poland: 500 kg*
Total 211,995 kg (99.7%)	**Total 176 kg (0.1%)**	**Total 500 kg (0.2%)**

Table 3.E: Previous methyl bromide uses in the EC - soil sector

MB uses for which CUEs were not requested, and nominations that were not approved or not used because alternatives are available.

Soil Sector	Phased-out by 1 Jan of stated year
Aromatic plants	2005
Artichoke	2005 or earlier
Asparagus (nurseries and replant)	2006
Basil	2005
Beans	2005 or earlier
Carrots	2008
Chicory	2005
Citrus fruit	2005 or earlier
Courgette (zucchini)	2005
Cucurbits, cucumber	2007
Cut flowers	2008
Eggplant, aubergine	2007
Endive	2006
Forest nurseries	2008
Herbs	2005
Leeks	2006
Lettuce	2006
Mushrooms	2005 or earlier
Melon	2007
Nursery stock (excluding strawberry runners)	2008
Nut trees	2005 or earlier
Onions	2006
Orchard nurseries	2007
Orchard replant	2007
Peppers	2008
Potato	2005 or earlier
Pot plants	2005 or earlier
Potting soil, top soil	2005
Radish	2005
Raspberry (nurseries and fruit production)	2007
Seedbeds for vegetables	2005 or earlier
Strawberry fruit (commercial production)	2007
Strawberry runners	2009
Substrate disinfestation	2005 or earlier
Tobacco crop	2005 or earlier
Tobacco seedbeds	2005 or earlier
Tomato	2008
Vineyards	2005 or earlier
Watermelon	2005 or earlier
Various unspecified nursery uses	2005 or earlier
Research	2009

Table 3.F: Previous methyl bromide uses in the EC - post-harvest sector

Post-Harvest Sector	Phased-out by 1 Jan of stated year
Aircraft	2007
Antiques (moveable objects)	2005
Artefacts (moveable objects)	2005
Artefacts (fixed)	2007
Crafts	2005 or earlier
Cheese stores	2007
Chestnuts	2008
Churches, historical buildings	2006
Cocoa beans	2008
Coffee beans	2009
Dried fish	2005 or earlier
Dried fruit	2006
Dried mushrooms	2008
Domestic dwellings, houses	2006
Electronic equipment	2006
Empty silos	2006
Feathers	2005 or earlier
Figs (dried)	2007
Fodder	2005 or earlier
Food processing facilities	2007
Fur	2005 or earlier
Furniture (moveable objects)	2006
Herbs	2007
Mills (flour mills, rice mills, other mills)	2008
Nuts	2007
Raisins	2006
Rice	2007
Seeds	2007
Ships	2006
Spices	2007
Spices structures	2007
Strawberry runner plants (postharvest)	2008
Tea	2005 or earlier
Tobacco	2005
Wood-working premises	2006
Woven baskets	2005

Annex 4. Alternatives that are registered and existing in EC

Table 4.A. Leading MB alternatives by pest category in the EC - soil sector
Products that are registered/existing as listed in Annex 4.C tables.
For information on the future registration status of pesticides refer to Annex 6.
For information on crops and countries refer to Annex 4.C on Ozone Secretariat website:
http://ozone.unep.org/Exemption_Information/Critical_use_nominations_for_methyl_bromide/National_Management_Strategy_for_Phase.shtml

Pest category	Existing leading MB alternatives (status in February 2009)

Nematodes (mainly *Meloidogyne* spp. and *Pratylenchus*)	• Chemicals
	  ○ 1,3-dichloropropene [11]
	  ○ Dazomet
	  ○ Metam sodium
	  ○ Specific nematicides such as fenamifos, ethoprophos, oxamyl, fosthiazate
	• Grafting (on nematode-resistant rootstock)
	• Substrates (various and free of pests) – for specific crops
	• Replacement soil/sand (free of pests)
	• Resistant varieties
	• Rotating crops
	• Soil-less cultivation; substrates
	• Soil steaming (modern methods)
	• Soil solarisation (especially for protected crops and seedling production)
	• Short solarisation + fumigant or nematicide [12]
	• Biofumigation (in suitable crops/regions) [10]
	• Green manure catch crop *Tagetes patula* [13]
	• IPM systems which include monitoring, crop rotation and strict hygiene [14]
	• Black fallow; anaerobic composting [15]
	
	+ Combinations of the above

Soil borne pathogens	• Chemicals
	  ○ Azoxystrobin
	  ○ Carbendazim
	  ○ Chloropicrin (PIC)
	  ○ Dazomet

11 Excluded from Annex I to Directive 91/414/EEC, which lists active substances authorised for incorporation in plant protection products. MSs may grant a period of grace until 20 March 2009. Following a review of the impacts of withdrawal on the use of MB, the standard grace period was not extended. The manufacturer has applied for re-registration in June 2008. The final results of the risk assessment are expected by the end of 2009

12 Biofumigation and solarisation + vydate nematicide treatments are available for the production of tomato, peppers, eggplant in Bulgaria, for example (Annex 4.C tables). Biofumigation + solarisation is used on about 40 ha of pepper production in Spain, for example (Annex 4.C tables).

13 Implemented on a wide scale in the Netherlands in crops such as strawberry, lily and nursery stock where Pratylenchus is one of the main plant parasitic nematodes. More than 70% of strawberry growers are estimated to use *Tagetes patula.* (Runia WT, Molendijk LPG, and Evenhuis B (2007) Desk study on efficacy of alternatives to methyl bromide against soilborne fungi and plant parasitic nematodes in strawberry runners. PPO no.3250070000 part 1. Applied Plant Research, Wageningen).

14 For example, the Nematode Control Strategy used in the Netherlands, www.digiaal.nl.

15 Effective in reducing population of *Meloidogyne* and *P. penetrans* (Runia et al. (2007) *ibid.*)

Pest category	Existing leading MB alternatives (status in February 2009)
	○ Metam sodium ○ Other specific fungicides • Grafting (on pathogen-resistant rootstock) • Substrates (various and free of pests, particularly for container produced nursery and protected plants) • Replacement soil/sand (free of pests) • Resistant varieties • Soil-less cultivation; substrates • Soil steaming (modern methods) • Soil solarization (especially for protected crops and seedling production) • Short solarisation + fumigant or fungicidal treatment + Combinations of the above
Weeds	• Chemicals ○ Metam sodium ○ Specific herbicides • Mulches • Soil-less cultures; substrates • Soil solarisation (especially for protected crops and seedling production) • Soil steaming (modern) • Sterile substrates and soils (particularly for container produced nursery stock and protected crops) + Combinations of the above

Table 4.B. Leading MB alternatives by pest category in EC - post-harvest sector
For information on availability, refer to series of Tables in Annex 4.C

Pest category	Existing leading MB alternatives (status in February 2009)
Dry-rot fungi	• Heat • High frequency technique • Wood preservatives - foam formulations of fungicides + Combinations of the above
Insects (wood boring, stored product, and other groups of insects)	• Controlled atmospheres (CO_2 fumigation) • Cooling or freezing • Heat + controlled humidity • Heat + IPM • High pressure + CO_2 • Hot water • Humidified nitrogen, with heat if necessary, in fixed chambers or mobile cocoons or bubbles • Integrated pest management, including sanitation (cleaning, scrubbing surfaces, prevention of infestation, selected use of insecticides) • Irradiation • Magnesium phosphide

Pest category	Existing leading MB alternatives (status in February 2009)
	• Oxygen absorber sachet (iron + activator) + barrier plastic film used for individual wrapped artefacts • Phosphine + moderate heat or CO_2, combined with corrosion avoidance practices when necessary • Specific insecticides, such as pyrethroids • Steam • Sulfuryl fluoride for non-food uses • Vacuum-hermetic treatments (low pressure) + Combinations of the above
Mites (in general)	• Cold temperature storage for some species • Controlled atmospheres (CO_2 fumigation) • Freezing • Irradiation • Magnesium phosphide • Phosphine + moderate heat • Sanitation / Integrated pest management (cleaning, scrubbing surfaces, prevention of infestation, wax coating on cheeses) • Specific acaricides • Steam treatment + Combinations of the above
Cheese mite (*Acarus siro linnarus)*	• Integrated pest management, incl. sanitation (cleaning, vacuuming, scrubbing surfaces, prevention of infestation, wax coating on cheeses) • Ozone + UV light + Combinations of the above
Strawberry mite	• Acaricides • Pure phosphine gas • Steam treatment + Combinations of the above
Rodents	• Controlled atmospheres (CO_2 fumigation) • Heat (not accepted in some Member States for ethical reasons) • Hydrogen cyanide • Rodenticides (e.g. Sodium mono-flouracetate (1080), zinc phosphide, anticoagulants) • Rodent-proofing and trapping + Combinations of the above

Annex 4.C. EC Database of existing MB alternatives (status in February 2009)

Annex 4.C provides a series of tables, one for each critical use category (e.g. nursery trees, strawberry fruit), listing the key pests and examples of available alternatives. During the period when CUEs were authorised in the EU these tables were regarded as living documents which were updated annually. The latest Tables can be found on the Ozone Secretariat website of MB alternatives databases (http://ozone.unep.org/Exemption_Information/Critical_use_nominations_for_methyl_bromide/National_Management_Strategy_for_Phase.shtml).

Two examples of tables are provided below, for strawberry fruit production (soil sector) and for mills and food processing facilities (postharvest).

Example: Table 4.C.1. **MB alternatives used for strawberry fruit production in the EU (status in April 2008)**

Existing alternatives	Examples of countries where these alternatives are used
Biofumigation	Netherlands (~ 10 ha), Slovenia
Chloropicrin (PIC)	Belgium in open field only, Italy, Spain
Crop rotation	Denmark, Germany, Netherlands, Poland
Crop rotation + animal manure + disease-free planting stock	Poland
Dazomet	Cyprus, France, Hungary (~ 10 ha), Italy, Poland, Portugal Slovakia, Slovenia, Spain
1,3-dichloropropene (1,3-D) for nematode management	Belgium, Cyprus, Italy, Spain
1,3-D and PIC	Italy (applied separately), Spain (applied as mixture)
Fungicides for management of soil-borne fungi	Denmark (e.g. fosethyl), Estonia (e.g. tolylfluanid, iprodion on ~ 500 ha), France (e.g. e.g. fosetyl-al, mefenoxam), Netherlands (e.g. dimethomorph, fosethyl al, iprodion, procymidone, vinchlozolin used on ~ 1000 ha), Portugal, Slovenia
Herbicides for weed management	Denmark, Estonia (~ 500 ha), France, Netherlands (~ 1000 ha)
Metam sodium	Belgium, Cyprus, France, Italy, Malta, Netherlands (~ 175 ha in 2005), Poland, Portugal Spain (~ 1500 ha
Mulches primarily for weed management	Estonia (~ 50 ha), France, Germany, Slovenia (against weeds)
Nematicides for nematode management	France
Resistant varieties + pesticides	Estonia (~ 500 ha), Italy, Slovenia
Solarisation + fumigant	France, Greece, Malta
Solarization + nematicides	Cyprus
Solarization	Cyprus when nematodes are not present
Steam, primarily for protected crops	Belgium, France, Germany
Substrates	Austria, Belgium (~ 400 ha), Denmark, Finland, France (~ 300 ha in 2004, increasing), Germany, Greece, Hungary, Ireland (~ 35 ha), Italy (~ 150-500 ha), Netherlands, Poland, Spain (~ 200 ha in 2007), Sweden
Tagetes for nematode management	Germany, Netherlands (widely used), Poland

Historical use of MB in strawberry fruit: MB used in 1991: MB used in 2005: MB used in 2008:	 ~ 3420 tonnes MB on about 5200 hecares in about 12 countries, rising to more than 8000 ha in 2000. ~ 497 tonnes MB on about 3880 hectares in 4 countries. 0 tonnes MB

Refer to Alternatives Database in Annex 4.C for details of pest species. The names of pesticides in this table are presented in the way in which MSs reported the data. In some cases they are identified as active substances (active ingredients), and in other cases trade names are used.

Example: Table 4.C.2. MB alternatives used for mills and food processing facilities in the EU (status in April 2008)

Existing alternatives	Examples of countries where these alternatives are used
Heat + IPM	Austria, Belgium, Denmark, Finland, Germany, Hungary, Netherlands, Poland, Sweden
Hydrogen cyanide	Czech Republic
IPM + monitoring + sanitation	Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Netherlands, Poland, Sweden, UK
Liquid CO2 for treatment of equipment	Slovenia
Mechanical treatment of final product	Czech Republic
Phosphine + raised temperature if necessary	Belgium, Bulgaria, Greece, Ireland, Italy, Latvia, Lithuania, Slovakia, Slovenia, Spain
Cylinderised phosphine	Denmark
Sulfuryl fluoride + raised temperature if necessary	Belgium (empty mills and food processing facilities), Germany, Hungary, Ireland, Italy, Spain, UK. Registration since April 2008: Greece.
Historical use of MB in mills and facilities: MB used in 1991: MB used in 2005: MB used in 2008:	 ~ 640 tonnes MB in approx 12.8 million m^3, in about 15 countries 1.6 tonnes MB in approx 0.2 million m^3, in 1 country 0 tonnes MB

Compiled from: Information on the Use of Methyl bromide and alternatives in Mills in the European Community, report provided by the EC to MBTOC-QSC, April 2008.
Refer to Alternatives Database in Annex 4.C for details of pest species.

Sources used for compiling the tables in Annex 4.C:
MBTOC reports, registration information provided by experts and Member States, EC database of available alternatives (http://ozone.unep.org/Exemption_Information/Critical_use_nominations_for_methyl_bromide/National_Management_Strategy_for_Phase.shtml), information provided in CULA-CUNA forms of 2006-8, and other technical reports.

Annex 4.D. Certification requirements and standards relating to permitted levels of pest contamination, etc. in the EC

Annex 4.D.1. Strawberry runner health certification requirements in the Netherlands (source: Certificeringsreglement Aardbeiplanten NAKB, 1996, subject to update in 2006)

General health requirements for strawberry runners:

1. Crop produced on field without rootknot nematode infestation
2. 0-Tolerance for the following diseases: Arabis mosaic virus, *Colletotrichum acutatum*, *Phytophthora fragariae* pv. *fragariae*, raspberry ringspot virus, strawberry crinkle virus, strawberry latent ringspot virus, strawberry mild yellow edge virus, tomato black ring virus, *Xanthomonas fragariae*
3. Practically no to no symptoms of the following pests: *Aphelenchoides* spp., *Caetosiphon fragariae*, *Ditylenchus* spp., Tarsonemidae, *Tetranychus urticae*, *Alternaria alternata*, *Gnomonia comari*, *Sphaerotheca alchemillae*, *Verticillium* spp., *Phytophthora cactorum.*
4. Practically no to no symptoms of the following weeds: *Cyperus esculentum*, other persistent weeds.

Specific health requirements, leading to classification in SEE, SE, EE or E (S = Supreme; E = Elite):

Pest	Maximum tolerance off field (%)			
	SEE	SE	EE	E
Aphids, a.o. *Chaetosiphon fragaefolii*	0	0	0.5	1
Steneotarsonemus fragariae	0	0	0	0
Aphelenchoides spp.	0	0	0	0.5
Ditylenchus dipsaci	0	0	0	0.5
Pratylenchus spp.	0	0	0	0.5
Virus diseases	0	0	0	0
Gnomonia comari	0	0	0.5	1
Alternaria alternata	0	0.5	1	1
Rhizoctonia solani	0	0.5	0.5	1
Botrytis cinerea	0	0.5	0.5	1
Phytophthora cactorum	0	0	0	0.5
Verticillium spp.	No symptoms			

Annex 4.D.2. Strawberry runner health certification requirements in Poland (source: Polish Journal of Laws # 59, item 565, 9 April 2004)

Strawberry runners are certified as SE (super elite) – pre-basic material; E1 and E2 (elite, basic material); O (original, certified material). Field inspection takes place in summer, before lifting of plants or before sale of potted plants.

General crop and health requirements for strawberry runners in Poland:

1. Crop produced at sufficient distance from wild plants of genus *Fragaria* spp. (50 to 200 m distance);
2. Pure species and variety;
3. Crop produced on field not planted to strawberry, potato, cucumber, tomato, flax, currant bush, gooseberry, raspberry or blackberry bush over the previous 4 years;
4. Crop should be free from quarantine organisms;
5. No visible symptoms of the following:
    i. Pathogens: Arabis mosaic virus, Raspberry ringspot virus, Tomato black ring virus, Strawberry mild yellow edge virus, Strawberrymottle virus; Strawberry vein banding virus, Strawberry green petal phytoplasma, Aster yellows phytoplasma, pathogen causing strawberry june yellows, *Phytophthora cactorum, Vertiliciium dahliae, Colletotrichum* spp., *Mycosphaerella fragariae, Sphaeroteca macularis* ssp. *fragariae, Diplocarpon earliana, Meloidogyne* spp., *Ditylenchus dipsaci.*
    ii. Pests: *Aphelenchoides ritzemabosi, Aphelenchoides fragariae, Phytonemus pallidus* ssp. *fragariae*, Aphididae, Jassidae, Thripidae, *Tetranychus urticae.*

Annex 4.D.3. Examples of requirements and standards relating to pests in mills and milled products

Countries	Regulatory requirements and government guidelines
All EC countries	All food facilities including mills are required to comply with EC legislation (Regulation (EC) No 852/2004) on the hygiene of foodstuffs. This requires companies to implement permanent procedures based on hazard analysis and critical control point (HACCP) principles. Companies must ensure that products are protected against contamination, using hygienic production methods, transport and storage conditions for the cleanliness of plant products. Food premises must be kept clean and maintained in good repair and condition to prevent food contamination. Companies are required as far as possible to prevent pests from causing contamination. Companies are required to keep records to demonstrate effective application of the measures, and to make records available to the national authorities on request. Food facilities are audited and controlled by national authorities.
All EC countries	Extraneous matter such as dead insects and fragments of insects is restricted in cereals such as common wheat, durum wheat that are submitted to intervention agencies (Commission Regulation (EC) No 824/2000 establishing procedures for the taking-over of cereals by intervention agencies and laying down methods of analysis for determining the quality of cereals)
All EC countries	Milled products that are exported from the EC to other countries are required to comply with the legislation of the importing country. EC milled products exported to the USA, for example, are obliged to comply with the FDA requirements relating to insect fragments in milled products under the US Food Drug and Cosmetic Act (s.402(a)(3) and all other US legislative requirements.
Austria	Government guidelines on good practices in the milling sector: Leitlinie für Mühlbetriebe [Guideline for the milling sector], Bundesministerium für Gesundheit und Frauen, www.bmgf.gv.at
Czech Republic	Regulatory standards control the level of the infestation of raw materials and products with pests: the product must be free of pests or fragments or pest fragments (under the national Food Act and Act on Public Health)
Estonia	The following standards applied in Estonia before joining the EC recently: • No dead insects permitted in wheat flour specification (EVS 761:1999 Nisujahu. Üldnõuded) • No visible insects permitted in rice specification (EVS-ISO 7301:2004 Riis. Tehnilised tingimused) • Determination of insect infestation in cereals and pulses (EVS 679:1995 Teravili ja kaunvili. Kahjuritega nakatatuse määramine) Further information: www.evs.ee/pdf/kataloog/Kataloog_01_01_2008.pdf, p.681
Hungary	A national Decree requires the following: "The producer shall preventively disinfest empty grain stores, and keep the grains, the storage and processing places free from infestation during the whole storage period. No grains, grits, flour, fodder and seeds, except for disinfestation, may be moved out and marketed from a place infested by a storage pest." (Decree of the Minister of Agriculture and Regional Development 5/2001. (I. 16.) FVM on plant protection activity, Article 4)
Lithuania	Guide to Good Hygiene Practice for grain preparation and storage establishments: Geros higienos praktikos taisyklės grūdų suprikimo, paruošimo ir saugojimo įmonėms, PATVIRTINTA, Ministry of health of the republic of Lithunia (2004) www.sam.lt
Slovenia	Rules concerning the quality of cereal products set the criteria for mill products - zero tolerance on the presence of items of animal origin e.g. insects (OJ of RS, No. 26/03 in 31/04). National legislation - Rules on conditions, procedures and means for disinfection and disinfestation requires that pest control management can be performed only by registered companies using registered active substances (OJ of RS, No. 88/2000). This requirement as well as official control contributes to efficient and effective pest control.

Data sources:

EC (2008) Information on the use of methyl bromide and alternatives in mills in the European Community. Information provided by the EC to MBTOC-QSC, April 2008, Annex 2. This report also provides examples of industry standards and guidelines.

Annex 5. Registration procedures for chemical MB alternatives

Annex 5.A. Overview of EC Plant Protection Products Directive and Biocidal Products Directive

The Plant Protection Products Directive (91/414/EEC[16]) harmonizes the placing on the market of plant protection products *i.e.* agricultural pesticides. The Biocidal Products Directive (98/8/EC[17]) harmonizes the placing on the market of biocidal products *i.e.* all other non-agricultural pesticides. The following table provides a brief overview and comparison of both Directives – full information is available on the websites listed below.

Table 5.A. Comparison of Biocidal Products Directive and Plant Protection Products Directive

	Biocidal Products Directive (BPD) 98/8/EC	Plant Protection Products Directive (PPPD) 91/414/EEC
Definition	Biocidal Products are active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means (according to Article 2(1)(a) of BPD). An exhaustive list of 23 product types with an indicative set of descriptions within each type is given in Annex V to this Directive.	Plant Protection Products are active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to: 1. protect plants or plant products against all harmful organisms or prevent the action of such organisms, in so far as such substances or preparations are not otherwise defined below; 2. influence the life processes of plants, other than as a nutrient, (e.g. growth regulators); 3. preserve plant products, in so far as such substances or products are not subject to special Council of Commission provisions on preservatives; 4. destroy undesired plants; or 5. destroy parts of plants, check or prevent undesired growth of plants (According to Article 2(1) of PPPD).
Key criteria	Authorization only if the biocidal product according to Article 5(1)(b) of BPD: (i) is sufficiently effective, (ii) has no unacceptable effects on the target organisms, such as unacceptable resistance or cross-resistance or unnecessary suffering and pain for vertebrates, (iii) has no unacceptable effects itself or as a result of its residues, on human or animal health, directly or indirectly (e.g. through drinking water, food or feed, indoor air or consequences in the place of work) or on surface water and groundwater, (iv) has no unacceptable effect itself, or as a result of its residues, on the environment having particular regard to the following considerations: • its fate and distribution in the environment; particularly contamination of surface waters (including estuarial and seawater), groundwater and drinking water, • its impact on non-target organisms. See further criteria in Article 5 subparagraphs	Authorisation only if the plant protection product: (According to Article 4(1)(b) of PPPD): (i) is sufficiently effective; (ii) has no unacceptable effect on plants or plant products; (iii) does not cause unnecessary suffering and pain to vertebrates to be controlled; (iv) has no harmful effect on human or animal health, directly or indirectly (e.g. through drinking water, food or feed) or on groundwater; (v) has no unacceptable influence on the environment, having particular regard to the following considerations: • its fate and distribution in the environment, particularly contamination of water including drinking water and groundwater, • its impact on non-target species. See further criteria in Article 4 subparagraphs

[16] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31991L0414:EN:NOT
[17] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998L0008:EN:NOT

Pesticides are covered by the PPPD if they are intended to protect plants or plant products from harmful organisms, preserve plant products, destroy undesired plants (e.g. herbicides) or influence the life processes of plants (e.g. growth regulators). The BPD covers pesticides designed for items other than plants, such as disinfectants, hygiene products, slimicides, preservatives, rodenticides in some cases, and anti-fouling products (see Table 5.B). The Commission has provided a guidance document to clarify borderline areas.[18]

Annex 5.B. Plant Protection Products Directive (91/414/EEC)

The European Commission DG SANCO has provided an overview of the Plant Protection Products Directive (PPPD, Council Directive 91/414/EEC) on the PPPD website: http://ec.europa.eu/food/plant/protection/evaluation/index_en.htm

Protection of human health and the environment is a major concern for European Commission policy on the authorisation of active substances of plant protection products. In 1992, the European Commission started a Community-wide programme to review all active ingredients (about 1000 substances) used in plant protection products that were on the market within the European Union on or before 25 July 1993 (existing active substances). This review is based on scientific assessments and applicants have to demonstrate that the use of the active substances poses no unacceptable risks to human health and the environment. By March 2009 the review was almost completed; about 250 substances (26%) passed the harmonised EU safety assessment, while many others have been withdrawn from the market or rejected.

Principle of **mutual recognition** (Article 10 of PPPD): A plant protection product authorised in one Member State shall be authorised upon application also in any other Member State unless there are specific grounds to derogate from this principle of mutual recognition.

According to Article 12 of Directive 91/414/EEC (PPPD), Member States shall within a period of one month at the end of each quarter at least, inform each other and the Commission in writing of any plant protection products authorized or withdrawn, in accordance with the provisions of this Directive, indicating at least:

(a) the name or business name of the holder of the authorization,
(b) the trade name of the plant protection product,
(c) the type of preparation,
(d) the name and amount of each active substance which it contains,
(e) the use or uses for which it is intended,
(f) the maximum residue levels provisionally established where they have not already been set by Community rules,
(g) where relevant, the reasons for withdrawal of an authorization,
(h) the dossier needed for the evaluation of the maximum residue levels provisionally established.

The Commission has set up a database[19] summarising the results of the review of active substances. It does not include details of the specific uses and tonnages applied, but in some cases provides links to background documents. It does not take account of possible derogations for essential uses available under Article 8(4) of 91/414/EEC.

The European Commission provides a **List of Guidance Documents**[20] for the implementation of the PPPD. The list below provides examples of documents relevant to the registration of new alternatives and re-registration of existing substances under PPPD:

[18] http://ec.europa.eu/food/plant/protection/evaluation/borderline_en.htm
[19] http://ec.europa.eu/food/plant/protection/evaluation/database_act_subs_en.htm
[20] http://ec.europa.eu/food/plant/protection/resources/publications_en.htm#council

- **Guideline on the Preparation and Presentation of Complete Dossiers for the Inclusion of Active Substances in Annex I**[21] of Directive 91/414/EEC (Article 5.3 and 8.2): this document briefly describes where to find templates and which formats to follow when submitting dossiers to support an active substance.
- **Procedures for the evaluation of new actives substances**[22] for possible inclusion in Annex I gives practical advice to applicants.
- **Guidance document on the re-registration of existing substances**[23].
- **List of contact points**[24] in the Member States and in the Commission for the implementation of PPPD.

Annex 5.C. Biocidal Products Directive 98/8/EC

The European Commission has provided an overview of the Biocidal Product Directive 98/8/EC (BPD) on the website: http://ec.europa.eu/environment/biocides/index.htm. The BPD aims to harmonise the European market for biocidal products and their active substances. At the same time it aims to provide protection for humans, animals and the environment. To achieve these aims the Directive lays down rules and procedures for approval of the active substances used in biocidal products at Community level and authorisation of biocidal products in the Member States. The scope of the Directive encompasses 23 product types divided into the four major areas, disinfectants, preservatives, pest control and other biocidal products.

The harmonisation of the biocidal products market is achieved by having a common set of data requirements for both active substances and biocidal products containing those active substances, and by assessing and evaluating the submitted data in accordance with harmonised evaluation criteria, the so-called "uniform principles" (see Annex VI of the Directive).

The Directive defines a biocidal product as active substances or preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means.[25] When products fall within the definition above, the products are required to be authorised before they can be placed on the market for a specific use. Member States shall authorise a biocidal product only if it fulfils the following criteria:

- the active substance is listed in one of the Annexes to the Directive: Annex I (active substances in biocidal products) or IA (active substances in low-risk biocidal products)
- the biocidal product, under normal conditions, is sufficiently effective
- has no unacceptable effects (itself or as a result of its residues) on human or animal health or the environment.[26]

Principle of **mutual recognition**: When a biocidal product has been authorised in one Member State, the manufacturer can apply for mutual recognition in other Member States. Other Member States may, only under exceptional circumstances, derogate from the principle of mutual recognition.[27]

The Directive established a 10 years' transitional period from its entry into force, 14 May 2000, for the purpose of conducting a systematic examination of "existing" active substances. After such an examination, a decision is taken whether or not to include the active substance in Annex

[21] http://ec.europa.eu/food/plant/protection/resources/EC_guidance_dossier_format_2005-rev5.pdf
[22] http://ec.europa.eu/food/plant/protection/evaluation/guide_new_en.htm
[23] http://ec.europa.eu/food/plant/protection/resources/re-reg-guidancev10-3.pdf
[24] http://ec.europa.eu/food/plant/protection/evaluation/contact_points_rev47.xls
[25] Article 2(1)(a) Directive 98/8/EC.
[26] Article 5 Directive 98/8/EC.
[27] Article 4 Directive 98/8/EC.

I or IA to the Directive. Following such a decision, Member States shall ensure that authorisations for biocidal products containing that active substance are in compliance with the provisions of the Directive and where necessary the authorisations are granted, modified or cancelled as appropriate. Details of the review programme have been laid down in Commission Regulations 1896/2000, 2032/2003 and 1451/2007.[28]

According to Article 18(1) of Directive 98/8/EC (BPD), Member States shall, within a period of one month from the end of each quarter, inform each other and the Commission of any biocidal products which have been authorised or registered within their territory or for which an authorisation or registration has been refused, modified, renewed or cancelled, indicating at least:

(a) the name or business name of the applicant for, or the holder of, the authorisation or registration;
(b) the trade name of the biocidal product;
(c) the name and amount of each active substance which it contains, as well as the name and amount of each dangerous substance in the meaning of Article 2(2) of Directive 67/548/EEC and their classification;
(d) the product-type and the use or uses for which it is authorised;
(e) the type of formulation;
(f) any proposed limits on residues which have been established;
(g) conditions of the authorisation and where relevant, the reasons for the modification or cancellation of an authorisation;
(h) an indication of whether the product is of a special type (e.g. within a frame-formulation, low-risk biocidal product)."

According to Article 24 (1) of Directive 98/8/EC (BPD), Member States have to take the necessary arrangements to monitor whether biocidal products placed on the market comply with the requirements of the Directive. Every three years after the entry into force (14 May 2000), Member States shall forward to the Commission a report on their action in these matters together with information on any poisonings involving biocidal products. The Commission shall within one year of receipt of this information prepare and publish a composite report.

The Commission website on Directive 98/8/EC is the major source of information about the progress achieved under the review program of the Directive.

Biocides website of the **European Commission DG Environment:**

- Basic Principles: http://ec.europa.eu/environment/biocides/basic.htm.
- Guidance documents: http://ec.europa.eu/environment/biocides/borderline.htm.
- Manual of decisions: http://ec.europa.eu/environment/biocides/manual.htm.
- Substances authorised: http://ec.europa.eu/environment/biocides/annexi_and_ia.htm.
- Substances not authorised under the BPD: http://ec.europa.eu/environment/biocides/non_inclusions.htm.

Biocides website of the **Institute for Health and Consumer Protection** (formerly of the European Chemicals Bureau), Joint Research Centre of the European Commission**:** http://ecb.jrc.ec.europa.eu/

- Evaluation procedures.
- Technical guidance on the submission and evaluation of existing and new substances for inclusion in Annex I of BPD..

[28] http://ec.europa.eu/environment/biocides/regulation.htm

Table 5.B: Biocidal Product Types
as defined in Annex V to the Biocides Directive (98/8/EC).

In each main group, the left column provides the code for the relevant product type.

MAIN GROUP 1: Disinfectants and general biocidal products		MAIN GROUP 2: Preservatives		MAIN GROUP 3: Pest control		MAIN GROUP 4: Other biocidal products	
1	Human hygiene biocidal products	6	In-can preservatives	14	Rodenticides	20	Preservatives for food or feedstock
2	Private area and public health area disinfectants and other biocidal products	7	Film preservatives	15	Avicides	21	Antifouling products
3	Veterinary hygiene biocidal products	8	Wood preservatives	16	Molluscicides	22	Embalming and taxidermist fluids
4	Food and feed area disinfectants	9	Fibre, leather, rubber and polymerised materials preservatives	17	Piscicides	23	Control of other vertebrates
5	Drinking water disinfectants	10	Masonry preservatives	18	Insecticides, acaricides and products to control other arthropods		
		11	Preservatives for liquid-cooling and processing systems	19	Repellents and attractants		
		12	Slimicides				
		13	Metalworking-fluid preservatives				

Annex 6. Registration status of MB and alternatives

These tables were compiled on the basis of contributions from MSs and national experts, and are not complete in some areas. The regulatory status of pesticides is constantly changing as new products are registered and other products are de-listed. As a result the registration status of some substances mentioned in the tables may not be up-to-date. For the latest information, readers are requested to contact the relevant national authorities responsible for pesticides registration.

Table 6.A. Overview of registration status of MB and chemical alternatives in soil sector (February 2009)

Some products are registered for specific crops or situations while other are registered for general soil fumigation (refer to Annex 4.C Database of alternatives)

Country	Methyl bromide	1,3-dichloropropene	Chloropicrin	Dazomet	Dimethyl disulphide	Ethane dinitrile	Enzone	Iodo methane	Metam potassium	Metam sodium	Methyl isothiocyanate	1,3-D + PIC	1,3-D + MITC	Abamectin	Fenamiphos	Fosthiazate	Oxamyl	Other nematicides	Fungicides	Herbicides
EC	RL (m)	RL, I (j)	RL, [I] (n)	RL (n)	I		N		R (o)	R (o)	N	RL	N	R	R	R	R	R	R	R
Belgium	N	RL	R (e)	R			N		R	R					N	R(k)	R(kl)	R	R	R
Czech Rep.	N						N													
Denmark	N	N	N	R			N		N	N	N	N	N		-	-	-	R	R	R
France	RL	RL	I	R	I		N		-	R		N	N				R (l)	R	R	R
Germany	N	N	N	N			N		N	N	N	N	N		N	R	N	R	R	R
Greece	N	RL	R (d)	R			RL (i)		-	R		RL (d)			R	R	R	R	R	R
Hungary	N			[R]			N			R								R	R	R
Ireland	N	N	N	R			N		N	R	N	N	N	R	-	R	R	R	R	R
Italy	RL	RL	R	R			N		R	R		I						R	R	R
Netherland	N	N	N	R			N			R					R	R		R	R	R
Poland	N			R			N			R								R	R	R
Portugal	RL	N	-	R			N		-	R		RL (df)		R	R	-	R	R	R	R
Spain	[N]	[RL]	R	R			RL (i)		R	R		RL (bd)		R	R	R	R	R	R	R
Sweden	N	N	N	R					R	N	N	N	N	R	-	-	N	R	R	R
UK	RL	RL	R	R			N		N	R				R	N	R (k)	R	R	R	R
Non-EC																				
Australia	R	R	R	R		I		I	R	R		R						R	R	R
Canada	R	R(a)	R	R			-		-	R	[R]	R	R					R	R	R
Japan	R	R	R	R			-		-	R	R	R	R					R	R	R
USA	R	R(a)	R	R (c)	I		R(g)	R	R	R		R						R	R	R

Key to Table 6.A

R	Registered
RL	Registered for limited period of time
I	In process of registration or re-registration
N	Not registered
1,3-D	1,3-dichloropropene - details in footnote (j)
PIC	chloropicrin
Enzone	sodium tetrathiocarbonate (enzone). Authorised in Greece and Spain until 31 May 2010.
MITC	methyl isothiocyanate (MITC)
nematicides	various nematicide products, e.g. oxamyl
fungicides	various fungicide products – normally specific to certain groups of fungi
herbicides	various herbicides – normally specific to certain types of weeds

Footnotes to Table 6.A

(a) not on areas of karst topography or similar
(b) for strawberry, tomato, pepper, carnation, tobacco, onion
(c) registered for strawberry,tomato, ornamentals, turf, nurseries (e.g. forest seedlings, rose, raspberry, nut trees, fruit trees)
(d) provisional pending finalisation of re-registration of fumigants in the EC.
(e) open fields only.
(f) for tomato, strawberry, flowers, tobacco.
(g) orchard replant and several other uses
(h) nurseries [possibly several other uses in Spain]
(i) authorised in Greece and Spain until 31 May 2010
(j) excluded from Annex I to Directive 91/414, MSs may grant use until 20 March 2009. Following a review of the impacts of withdrawal of 1,3-D on the use of MB, the standard grace period was not extended. The manufacturer has applied for re-registration in June 2008. The final results of the risk assessment are expected by the end of 2009.
(k) for potatoes
(l) for flowers. In the case of France, for carnation and roses only
(m) following Commission Decision 2008/753/EC authorisations for pesticide products containing MB are withdrawn by 18 March 2009. New authorisations for products containing MB were withdrawn by 26 September 2008. MSs may grant a grace period for using existing stocks of plant protection products containing MB until 18 March 2010, provided that those uses are also authorised under Regulation (EC) No 2037/2000 on ODS.
(n) under Commission Decision 2008/934/EC authorisations for pesticide products containing these active substances are due to be withdrawn by 31 December 2010. MSs may grant a grace period until 31 December 2011. Applicants are permitted to apply for re-registration.
(o) a review of metam sodium and metam potassium has been carried out under Directive 91/414/EEC, and a decision is expected in 2009.

Sources: TEAP reports of May 2005, Oct 2005, April 2007 and May 2008, Commission Decisions under 91/414, information provided by MSs and national experts.

Table 6.B. Overview of registration status of MB and chemical alternatives in post-harvest sector (February 2009)

Some products are registered for specific situations; in other cases they are registered for more general purposes (refer to Annex 4.C Database of alternatives).

Country	Methyl bromide	Carbon dioxide	Carbonyl sulfide	Ethane dinitrile	Ethyl formate	Ethyl formate in CO_2	Hydrogen cyanide	Iodo methane	MITC	Aluminium phosphide	Magnesium phosphide	Phosphine - gas	Phosphine $+CO_2$ or N_2	Propylene oxide	Sulfuryl fluoride	Insecticides	Rodenti-cides
EC	RL (r)	R					N		N	R	R				R (o)	R	R
Austria	N						[R? (b)]			R					R (a)	R	R
Belgium	N		-	-	-	-	N			R (bh)			-	-	R (b)	R	R
Bulgaria	N									R					N	R	R
Czech Rep.	N						R (ai)			R					N	R	R
Denmark	N		-	-	-	-	N		N	R		R (k)		-	N	R	R
France	[RL]			-	-		S (i)		N	R		[I]	-	-	R (bq)	R	R
Germany	N		-	-	-	-	N			R		R	R (p)	-	R (abcfn)	R	R
Greece	N		-	-	-	-	N			R	R		-	-	R (cf)	R	R
Hungary	N														R	R	R
Ireland	N	N	-	-	-	-	N		N	R	N	R	-	-	R (b)	R	R
Italy	[RL]									R					R (bc)	R	R
Latvia	N									R					N	R	R
Lithuania	N									R					N	R	R
Netherland	N														R (a)	R	R
Poland	N									R					N	R	R
Slovakia	N									R					N	R	R
Slovenia	N									R			R		N	R	R
Spain	N						[R?]			R	R				R (b)	R	R
Sweden	N						N			R	N				R (a)	R	R
UK	RL		-	-	-	-	N			R	R			-	R (b)	R	R
Non-EC																	
Australia	R		I (d k n)	I (a n)	R (k)	R(cdk)	-			R		R	R (a d k)	-	R	R	R
Canada	R						R (l)			R		R	R		R (m)	R	R
Japan	R		-	-	-		R	R (j)	R	R		-	-	-	R (n)	R	R
Switzerland										R					R (b)	R	R
USA	R									R		R	R	R (d)	R (ab)	R	R

Key to Table 6.B

R	registered
I	in process of registration or re-registration
N	Not registered
S	Special permission needed for use
CO_2	carbon dioxide
MITC	methyl isothiocyanate
N_2	nitrogen
Phosphine - gas	gaseous phosphine in carbon dioxide or nitrogen (cylinders)
SF	sulfuryl fluoride.
Insecticides	various residual or aerosol insecticides suitable for use in IPM programmes

Footnotes to Table 6.B

(a) non-food structures, e.g. historic buildings
(b) empty food structures e.g. mills, storage facilities.
(c) mills, food processing facilities.
(d) stored agricultural commodities, nutmeats, cocoa, spices. PPO mixed with CO2 is registered for stored nuts in USA.
(e) permitted for herbs and spices.
(f) dried fruits, tree nuts, in some countries cereal grains.
(g) some fresh fruits and vegetables for disinfestation.
(h) some grains and cereals or flour
(i) not registered, but can be used for aircraft on special permission by Health Authorities
(j) imported timber. Quarantine schedule is in preparation in Japan.
(k) stored grains, oilseeds, grain storage premises, equipment, horticultural products.
(l) for fumigating bee hives and for controlling bacteria and fungi
(m) for uses without food contact.
(n) timber, wood
(o) Commission Directive 2006/140/EC placed sulfuryl fluoride in Annex I of the Biocides Directive (2006/140/EC), authorising its use as a biocide in the EC.
(p) only plant protection products with carbon dioxide (not mixtures with phosphine and/or N_2) are registered for storage protection in Germany
(q) details of uses and conditions can be found at http://e-phy.agriculture.gouv.fr/
(r) following Commission Decision 2008/753/EC, authorisations for pesticide products containing MB had to be withdrawn by 18 March 2009. New authorisations for products containing MB had to be withdrawn by 26 September 2008. MSs may grant a grace period for using existing stocks of plant protection products containing MB until 18 March 2010, provided that those uses are also authorised under Regulation (EC) No 2037/2000 on ODS.

Sources: TEAP reports of May 2005, Oct 2005, April 2007 and May 2008, information provided by MSs and national experts.

Table 6.C: Registration status of MB as a plant protection product and biocide in the EC, by sector (February 2009)

EC MSs	Registered uses of MB – soil sector	Registered uses of MB – postharvest sector
EC status	Following a risk assessment under Directive 91/414/EEC, authorisations for pesticide products containing MB had to be withdrawn by 18 March 2009 (Commission Decision 2008/753/EC). MSs may grant a grace period for using existing stocks of products containing MB until 18 March 2010, provided that those uses are also authorised under Regulation (EC) No 2037/2000 on ODS. CUEs have not been authorised in 2009.	All biocidal uses of MB were banned by 1 September 2006 (Commission Regulation (EC) No 2032/2003). Authorisations for plant protection products containing MB had to be withdrawn by 18 March 2009 (Commission Decision 2008/753/EC). MSs may grant a grace period for using existing stocks of products until 18 March 2010, provided that those uses are also authorised under Regulation (EC) No 2037/2000 on ODS. QPS uses are authorised under this regulation.
Austria	Not registered	Registered uses have expired, except for QPS
Belgium	Registered uses have expired	Registered uses have expired, except for QPS
Cyprus	[Registered uses have expired]	[Registered uses have expired, except for QPS]
Czech Rep.	Not registered	Registered uses have expired, except for QPS
Denmark	No permitted uses since 1998	No permitted uses since 1998. QPS not permitted since 1998
Estonia	No registered uses	[Registered only for QPS, timber, bark and wooden packaging material]
Finland	No permitted uses since 1999	No permitted uses since 1999. QPS not permitted since 1999
France	Registered soil fumigant but cannot be used because there are no authorised CUEs	Registered fumigant, can only be used for QPS
Germany	No permitted uses now	No longer registered for postharvest uses, except QPS only
Greece	[Registered uses have expired]	Registered uses have expired, except for QPS
Hungary	Registered uses have expired	Registered uses have expired, except for QPS
Ireland	Registration of MB as a plant protection product expired on 31.12.2006	Registration of MB as a plant protection product expired on 31.12.2006
Italy	Registered (cannot be used because CUEs are not authorised)	[Registered fumigant, permitted for QPS]
Latvia	Not registered	Registered uses have expired, except for QPS
Lithuania	Not registered	Registered uses have expired, except for QPS
Luxembourg	Not registered	
Malta	[Registered uses have expired]	Registered uses have expired, except for QPS
Netherlands	No permitted uses since 1992	Registered uses have expired, except for QPS
Poland	Registered uses have expired	Registered uses have expired, except for QPS
Portugal	Registered (cannot be used because CUEs are not authorised)	Registered (CUEs not authorised, can only be used for QPS)
Slovakia	Not registered	Registered uses have expired, except for QPS
Slovenia	Not registered	Registered uses have expired, except for QPS
Spain	[Registered uses have expired]	Permitted only for QPS
Sweden	No permitted uses since 1998	No permitted uses since 1998. QPS not permitted since 1998
UK	Registered until 18 March 2010 (cannot be used, CUEs are not authorised)	Regustered until 18 March 2010 (CUEs not authorised, can only be used for QPS)

Table 6.D: Registration status of non-chemical alternatives in soil sector

Country	Grafting	Resistant varieties (b)	Crop rotation	Solar or bio-fumigation	Steam or heat	Substrate or soil-less
Belgium	P	P	P	P	P (a)	P
Czech Rep.	P	P	P	P	P	P
France	P	P	P	P	P	P
Greece	P	P	P	P	P	P
Hungary	P	P	P	P	P	P
Ireland	P	P	P	P	P	P
Italy	P	P	P	P	P	P
Poland	P	P	P	P	P	P
Portugal	P	P	P	P	P	P
Spain	P	P	P	P	P	P
UK	P	P	P	P	P	P

Key to table 6.D

P Permitted, i.e. can be used without need for pesticide registration
U used in commercial practice
(a) when mobile boilers are moved, inspection is required prior to use
(b) Permitted when registered according to national crop variety registration lists

Table 6.E: Registration status of non-chemical alternatives in post-harvest sector

Country	CO_2, CA or MA (a)	cold	sanitation	heat	N_2	pressure	vacuum
Austria	P	P	P	P	P	P	P
Belgium	P	P	P	P	P	P	P
Czech Rep.	P	P	P	P	P	P	P
Denmark	P	P	P	P	P	P	P
France	P	P	P	P	P	P	P
Germany	R	P	P	P	P	P	P
Greece	P	P	P	P	P	P	P
Ireland	P	P	P	P	P	P	P
Italy	P	P	P	P	P	P	P
Netherlands	PU	P	P	P	P	P	P
Poland	P	P	P	P	P	P	P
Spain	P	P	P	P	P	P	P
Sweden	P	P	P	P	P	P	P
UK	P	P	P	P	P	P	P

Key to table 6.E

CA controlled atmosphere
MA modified atmosphere
P permitted, can be used without need for registration
R registered as pesticidal method/procedure
U used in commercial practice
(a) As part of the EC review of all biocidal products, Commission Directive 2007/70/EC authorised CO_2 as a biocide by including it as an active substance in Annex IA of the EC Biocides Directive (98/8/EC)

Annex 7. Data on rates of adoption of alternatives

Table 7.A. Examples of historical rates of adoption of alternatives in soil sector
The objective of this table is to identify rapid rates of adoption that have occurred historically, to provide examples for other MB users to emulate.

Alternative technologies	Crop/use	Examples of cases where alternatives were adopted rapidly	Adoption rate
Fumigants (e.g. 1,3-D, PIC, metam, dazomet)	Strawberry fruit (Italy)	1,3-D EC was registered Nov. 2001, PIC was registered in 2002 (Spotti 2004). Fumigation company provided some extension services to growers (Spotti 2003). Use of alternatives increased from 130 ha in 2002 to 910 ha in 2003; additional 930 ha adopted by mid-2004 in Italy. Reductions in the MB-treated area continued at the rate of 630 – 650 ha/year by end 2005. This alternative is applied by fumigation company/contractor, not by growers themselves.	about 900 ha/year immediately after registration. 630 – 650 ha/year recently.
	Strawberry fruit (Spain)	1,3-D/PIC was registered in 2000 in Spain. Adopted on 800 ha in 2001 and 1120 ha in 2002 (Carrera et al 2004), indicating 800 ha/year in 1st year after registration. Alternative is applied by fumigation company. MB-treated area was reduced from 5981 ha in 2004 (Spain CUNA data) to about 3410 ha in 2005 and 1800 ha in 2006[29], indicating a reduction of 2090 ha/year on average. Alternative fumigants (1,3-D, PIC, metam, dazomet) were applied on an estimated 3440 ha in 2005, 4040 ha in 2006 and about 7600 ha in 2007 (López-Aranda et al, 2007 – details in footnote below). This also indicates an adoption rate of 2080 ha/year on average.	800 ha in 1st year after registration. About 2080-2090 ha/year recently.
	Strawberry fruit (USA)	1,3-D (often combined with other fumigant) increased from 43 ha in 2000, to 412 ha in 2001, to 1240 ha in 2002 in California (CDPR PUR database). Often applied by drip irrigation. Use of 1,3-D, PIC and metam (various formulations) increased from estimated 1167 - 2000 ha in 2001 to at least 6128 ha (or probably about 9700 ha which is 31% of strawberry crop) in 2003 in California (Trout and Damodaran 2004; California Strawberry Commission & CMCC 2003; California Strawberry Commission 2004). Often applied by drip irrigation.	828 ha/year 2064 ha/year
	All crops (USA)	1,3-D use increased from 1824 t in 2001 to 2455 t in 2002 for all crops in California. Metam increased from 5147 t to 7039 t, largely as a MB alternative (PUR CDPR database).	
	Strawberry runner plants (Italy)	In Italy, the MB-treated area was reduced from 280 ha in 2004 to 193 ha in 2005 in strawberry runners, which equates to an adoption rate of 87 ha/yr. Between 2006 and 2008 the MB-treated area was reduced from 187 to 0ha, indicating an adoption rate of 94 ha/year (data from ECMS Annex 7.C.3).	87 – 94 ha/year

[29] Source of estimates for 2005 and 2006: López-Aranda, JM et al. (2007) Strawberry production in Spain: Alternatives to MB, 2007 results. Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions, October 31 2007, San Diego.

Alternative technologies	Crop/use	Examples of cases where alternatives were adopted rapidly	Adoption rate
	Strawberry runner plants (Poland)	In 2006 metam and dazomet were applied in Poland on about 61 ha of strawberry runners produced for export. In 2007 the area treated with alternatives increased to 104 ha. Much of the area used rotary-spading equipment which was first introduced in Poland in 2006 and adopted rapidly by commercial producers.	43 ha/year
Fumigants and other alternatives	Tomato (Italy)	The area using MB was 2650 ha in 2003, 2488 ha in 2004, 2049 ha in 2005, 1650 ha in 2006 and about 264 ha in 2007 (data from ECMS Annex 7.C.3). MB is used in alternate years, indicating reductions of about 838 to 1193 ha/year	838 – 1193 ha/year
	Cut flowers (Spain)	The Cataluña region of Spain reduced use of MB in cut flowers from about 167 ha in 2004 to about 74 ha in 2005 (calculated on rate of 240 kg/ha), a reduction of about 93 ha.	93 ha/year
	Cut flowers (France)	Use of MB for cut flower s in France was reduced from 247 ha in 2000 to 167 ha in 2001, representing a decrease of 80 ha.	80 ha/year.
Grafting	Eggplant (Italy)	Increase from about 2.2 million grafted eggplant in 2003 to about 6.5 million plants in 2004 in Italy (De Ruiter 2004). This is almost 100% of crop according to De Ruiter. "Veritable explosion" in grafted eggplant in last 2 years in Italy (Spotti 2004). Use of MB decreased from 295 ha in 2005 to 131 ha in 2006, indicating a reduction rate of 164 ha/year (data from ECMS Annex 7.C.3).	4.3 million/year, estimated at 164 ha / year
	Melon (France)	Grafted melon has increased to about 1000 ha in France (Miguel 2004a).	
	Melon (Italy)	Increased from 5 million to about 9 million grafted plants in Italy recently; increase continues (Syngenta 2004).	4 million in several years
	Tomato (Italy)	Increased from about 2-3 million to 10-12 million grafted plants in Italy recently (de Ruiter; Miguel 2004b).	At least 8 million in several years
	Tomato (Spain)	Increased from <1 million to 45 million grafted plants in 4-5 years in Spain (Miguel 2004b: 143) – most growth was in last 2 years	>10 million plants per year
	Tomato (France)	Increased to about 2800 ha in France (Miguel 2004b). Use of MB for tomato reduced from 410 t in 1997 to 141 t in 2000 (Fritsch 2002) for all alternatives, mainly grafting + other.	90 t MB/year
	Tomato (Morocco)	Increased to 2000 ha (i.e. 20 million grafted plants) in Morocco (Miguel 2004b)	
Substrates (e.g. peat/coir) or hydroponic	Strawberry fruit (France)	Increased from 178 ha in 2002 to about 300 ha in 2004 (France LA 2004)	61 ha per year average
	Strawberry fruit (Spain)	Rate of adoption of 40-80 ha/year in strawberry fruit in Spain (comments from Spain, Mar 06).	up to 80 ha/year
	Tomato (France, Netherlands)	Adopted on about 950 ha tomato in France, especially in northeast (Fritsch 2002); Adoption on 1570 ha in the Netherlands in 1998 (*pers comm* LEI, 2006 and http://www.cbs.nl/en-GB/default.htm)	Up to 950 - 1570 ha/year

Alternative technologies	Crop/use	Examples of cases where alternatives were adopted rapidly	Adoption rate
	Cucumber (France, Netherlands)	Increased to 400 ha in 2002/3 in France; continues to increase (CUN 2004). In the Netherlands in 1998, adoption on 507 ha in one year (*pers comm.* LEI, 2006 and http://www.cbs.nl/en-GB/default.htm)	Up to 400 - 507 ha/year
	Various crops	Increased from 1 ha in 1985 to 3150 ha by 2000 (Jiang et al 2000 in MBTOC 2002:60).	
Steam	Cutflowers (Netherlands)	Adoption of steam on 70% of the total area (1310 ha) of carnation, chrysanthemum, freesia and amaryllis in 1983	Up to 917 ha/year
All types of alternatives	Peppers (Spain)	Use of MB in Spanish pepper production was reduced from 1000 ha in 2005 to 333 ha in 2006 (data from ECMS Annex 7.C.5). This indicates a reduction rate of about 667 ha/year.	667 ha/year
	Melon (Italy)	Use of MB in Italian melon production was reduced from 480 ha in 2004 to about 125 ha in 2006 (data from ECMS Annex 7.C.3), indicating a reduction rate of about 178 ha/year.	178 ha/year
	Strawberry fruit (France)	Use of MB in French strawberry fruit production was reduced from about 468 ha in 2003 to 170 ha in 2005 (data from ECMS Annex 7.C.1). This indicates a reduction rate of about 150 ha/year.	150 ha/year
	Tomato (Greece)	Use of MB in protected tomato in Greece was reduced from 520 ha in 2004 to about 307-368 ha in 2005 (data from ECMS Annex 7.C.2), indicating a reduction rate of 152 – 213 ha/year.	152 – 213 ha/year
	Cucumber (Greece)	Use of MB in protected cucumber production in Greece was reduced from about 240 ha in 2004 to about 96 ha in 2005 (data from ECMS Annex 7.C.2), indicating a reduction rate of about 144 ha/year.	144 ha/year
	Cut flowers (Italy)	Use of MB in Italian cut flower production was reduced from 466 ha in 2005 to about 66 ha in 2007 (data from ECMS Annex 7.C.3), indicating a reduction rate of about 200 ha/year.	200 ha/year
	Cut flowers (EC)	Total MB-treated area for cut flowers in EC was reduced from about 1660 ha in 2002 to about 855 ha in 2005, giving reduction rate of 268 ha/year. The main types of alternatives include fumigants, IPM, substrates and steam.	268 ha/year (EC total)

Table 7.B. Examples of historical rates of adoption of alternatives in postharvest sector

The objective of this table is to identify rapid rates of adoption that have occurred historically, to provide examples for other MB users to emulate.

Alternative technologies	MB use	Examples of cases where alternatives were adopted rapidly	Adoption rate
Heat treatment	Airplanes and silos (Netherlands)	Application increased from 130,320 m^3 in 2004 to 153,900 m^3 in 2005 The Netherlands (data ECO_2)	Adoption on 22,500 m^3 / year
	Mills and food processors (Italy)	In Northern Italy, heat treatment will be taken up in 2006 by 6 more flour mills and pasta industries with a total volume of 296,117 m^3 (data ECO_2); additional uptake is feasible in a year.	> 296,117 m^3 per year
High-pressure CO_2	Dried herbs (Poland)	Medicinal herbs were fumigated with about 3,500 kg MB in 2005, representing a volume of approx. 93,000 m^3. High-pressure CO_2 treatment facilities were installed at two sites in the last 2 years, and the use of MB was reduced to 0kg in 2008 (CUN data).	Approx. 46,500 m^3 / year
Modified atmosphere	Structures (rodent control) (Netherlands)	Application increased from 1,149,680 m^3 in 2004 to 1,356,100 m^3 in 2005 in the Netherlands (data ECO_2); additional uptake is feasible in a year because this technology has been rapidly adopted in earlier years.	Adoption on 200,000 m^3 in recent year
Sulfuryl fluoride, and heat +IPM etc.	Mills and food factories (Germany)	Germany reduced MB use in mills and food facilities from 53 tonnes in 2004 to zero in 2005. Assuming a dose rate of 12.5 to 15 g/m^3, this represents the adoption of alternatives in 3,500,000 – 4,600,000 m^3 in a year (CUN data)	up to 3,500,000 – 4,600,000 m^3 / year
All types of alternatives: SF, phosphine, heat, IPM, others	Mills and food processing structures (EC)	Based on the quantity of MB nominated for CUNs, EC countries used more than 360 tonnes MB for mills and food processing structures in 2003. The estimated volume was more than 14,380,000 m^3. MB use was reduced to 150 tonnes in 2005, 74 tonnes in 2006. This indicates an average reduction rate of about 3,560,000 m^3./year.	3,560,000 m^3./year
Phosphine	Cocoa beans and coffee beans (Poland)	Imported coffee and cocoa beans infested with mites or insects have been fumigated with MB at two major ports. This amounted to approx. 2000 containers per year (about 60,000 m^3). Phosphine was initially thought to be impossible from the perspective of logistics, however phosphine equipment was installed at one of the ports in 2007, and MB use was reduced from about 1836 kg in 2006 to about 500 kg in 2008, a reduction of 73% (CUN data of Jan 2006, Jan 2007).	Approx. 21,900 m^3 / year

Annex 7.C. Examples of rates of training

Examples of rapid training carried out for MB alternatives:

- In the first year of a project in Argentina about 3000 farmers were trained in the effective use of MB alternatives, alternative systems were installed on these farms, and as a result the MB consumption in this sector was reduced quickly and substantially (MBTOC 2004).

The CULA assessment in 2004 indicated that most Member States that applied for CUNs had not organised training or on-farm technical assistance to help MB fumigators and users to adopt alternatives. Yet it is clear from projects of the Multilateral Fund that training and other forms assistance provide useful ways to ensure that alternatives can be adopted rapidly.

Article 2 countries have pressed or encouraged Article 5 countries to carry out MLF projects to implement large-scale training and installation programmes to achieve MB phase-out, but the Article 2 countries do not apply the same standard by organising equivalent training and adoption programmes in their home territory.

Annex 7.C. Trends in area treated with methyl bromide in Member States that have CUEs
Data sources: Primarily CUNs, CULAs and EC Accounting Framework Reports (AFR) on the use of MB.

Table 7.C.1. France: Historical trend in crop area treated with MB (hectares)

Crop / year Source of data:	1995 CULA	1998 CUN	2001 CUN	2002 CUN	2003 CULA	2004 CULA	2005 CULA, AFR	2006 CUN, AFR	2007 CUN, AFR	Total crop area CUN
Carrots		10	12	16	14.2	14.2	16	10	3 (a)	180 in 2004
Cucumber (cucurbits)		200	150	150	41	40	35	0	0	670 in 2005
Cut flowers	320	264 (in 1998)	167	163	141	100	43.6	24 (a)	19 (a)	336 in 2005
Eggplant		110	70	65	67	50	19	0	0	479 in 2004
Forest nursery	40	35	20	20	20	20	20	3 (a)	3 (a)	210 in 2004
Orchard replant		220	220	220			40 (a)	30 (a)	0	2500
Melon (seeds)		56	17	17			0	0	0	
Nursery: orchard, raspberry (b)	20	20	20	15			4 (a)	4	0	400 in 2002
Pepper		110	70	65	78	60	25	0	0	636 in 2004
Strawberry fruit		500 - 570	400	400	468	340	170	0	0	3,665 in 2002
Strawberry runners		140	100	100	100	90	80	70 (a)	48 (a)	200 in 2004
Tomato		220	140	130	127	100	37	0	0	2,829 in 2004

(a) Area was estimated by dividing MB tonnage (as reported in AFRs) by typical doses reported in CUNs.
(b) Nursery: about 200 ha of total 400 ha is checked under French Fruit Certification

Table 7.C.2. Greece: Historical trend in crop area treated with MB (hectares)

Crop / year Source:	1995	1997 CUN	1998 CUN	2000 CUN	2001 CUN	2002 CUN	2003 CUN	2005 CUN, AFR	2006 AFR	2007 AFR	Total crop area CUN
Tomato protected		600	600	600	520	520	520	307-368 (a)	0	0	4,196 all greenhouse crops in 2001
Cucumber protected		393 (a)	379 (a)	273 (a)	240 (a)	240 (a)	240 (a)	96 (a)	0	0	940 in 2003
Cut flowers	30.3	-	34.6	37.2	39.3	39.8		6 (a)	0	0	200 in 2002

(a) Area was estimated by dividing MB tonnage (as reported in AFRs) by average doses reported in CUNs.

Table 7.C.3. Italy: Historical trend in crop area treated with MB (hectares)

Crop / Year	1993	1995	2001	2002	2003	2004	2005	2006	2007	Total crop area 2004
Source:	calc from MBTOC 95	calc from MBTOC 95	CUN	CUN	CUN	CULA, CUN	CULA	CUN/AFR	CUN/AFR	CUN
Cut flowers bulbs	1,400	1,188	604	604	570	560	466	243 (a)	66 (a)	3,200
Melon	1,400	996	514	506	500	480	320 (a)	125 (a)	0	3,433
Eggplant		1,164	600	594	460	400	295 (a)	131 (a)	0	1,991
Pepper	2,100	1,562	580	570	510	500	334	240 (a)	165 (a)	2,835
Strawberry fruit	2,100	2,404	1,206	1,236	1,000	900	371 (a)	243 (a)	0	4,300
Strawberry runners			300	300	280	280	193	187 (a)	115 (a)	280
Tomato	5,600	5,650	3,050	2,888	2,650	2,488	2,049	1,650 (a)	264 (a)	7,861
Potting soil	420						0	0	0	
Nurseries	700						0	0	0	
Other	280						0	0	0	

(a) Estimated by dividing the used tonnage of MB (as reported in AFRs) by the typical doses stated in CUNs.

Table 7.C.4. Poland: Historical trend in crop area treated with MB (hectares)

Crop / year	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total crop area
Source:		CUN	CUN	CUN	CUN	CUN; GEF survey (a)	CUN; GEF survey (a)	CUN	AFR, bilateral	CUN, AFR	CUN, bilateral	CUN, bilateral	CULA, bilateral
Strawberry runners		0	3.1	38	67	69.5	99	100	86	71	62	31	580 ha in 2004 (166 ha export runners in 2007)
Tomato, pepper, cut flowers, other crops						> 7.0	11.7		0	0	0	0	substantial area of crops

(a) Survey of MB use in crops in Poland carried out by national authorities for UNEP-UNDP GEF regional MB phaseout project for CEIT countries.

Table 7.C.5. Spain: Historical trend in crop production area treated with MB (hectares)

Crop / Year	1994	1995	1998	1999	2000	2001	2002	2003	2005	2006	2007	2008	Total crop area 2002
Source of data:	Vares 1997, Bonte 1995	CUN	CUN	CUN	CUN	CUN	CULA	CULA	CULA	CUN,AFR	CUN, AFR	CUN	CULA
Cut flowers Andalusia	500	?	?	?	?	765	702	584	400	340	215 (a)	0	900 in 2005
Cut flowers Catalonia		470	521	456	356								
Peppers	2,300	1,920	1,915	1,940	1,910	1,970	1,820	1,750	1,000	333	0	0	2,012 Murcia & Valenciana (National: 12,000)
Strawberry fruit	3,500				5,287 (est.)		5,560	6,123	3,410 (b)	1,800 (b)	0	0	7,100 in 2005
Strawberry runners	1,000	981	949	1,114	1,045	977	1,150	1,240	1,456	1,533 (a)	1,417 (a)	1,333 (a)	1,292 in 2005

(a) Estimated by dividing the used tonnage of MB (as reported in AFRs) by the typical doses stated in CUNs.
(b) Source of estimate: López-Aranda, JM et al. (2007) Strawberry production in Spain: Alternatives to MB, 2007 results. Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions, October 31 2007, San Diego.

Annex 8. Blank CULA-CUNA forms for assessment of CUs in soil and postharvest sectors

Annex 8.A. EC CRITICAL USE LICENSING ASSESSMENT (CULA) - CRITICAL USE NOMINATION ASSESSMENT (CUNA) - SOIL SECTOR

GENERAL INSTRUCTIONS

Any Member State applying for CUNs-CUEs is requested to update the latest CULA-CUNA form, as follows:
1. Download the latest completed CULA-CUNA form (from the previous round of assessments) from CIRCA website;
2. Add any new sections from this form into the previous CULA-CUNA, and complete the new sections;
3. Update previous information where relevant, except parts where the COM/assessor is required to complete the information;
4. If a CULA or CUNA form does not exist, use the forms in this Annex (one for soil sector, another for postharvest sector);
5. Append to the Form any additional information necessary, making it clear in the Form the link to any additional information;
6. Refer to definitions and guidance provided in the ECMS (most recent version).

Member State:
Title of Nomination:
Quantity of MB licensed in the COM decision in previous year: kg
Quantity MB requested for year xxx: kg
File Code [Assessor to complete]: CULA [or CUNA] 200x-
Confirm that all attachments mentioned in the CULA are present [Assessor to complete]:

Step 1. The lack of MB for this use would result in significant market disruption? (Refer to ECMS for guidance - Decision IX/6 paragraph 1(a)(i) and ExI/4 paragraph 6):

Determination of significant market disruption	Status	Action
Has the Member State provided calculations that demonstrate significant market disruption?	[Assessor to complete]	
Has this statement been signed?	[Assessor to complete]	

Step 2. Summary of pest species and information relevant to Step 3

Main pests	List target pest species Region A	Region B (if relevant)	Region C (if relevant)
Nematodes			
Soilborne fungi			
Weeds			
Other			
Comments on crop circumstances			

Information about crop area, MB use, and alternatives in use

Total crop area last year (ha)	
% of total crop area treated with MB last year	
Area proposed for MB use in CUN (ha)	
Area treated with MB in last 5 years (ha per year)	
Quantity MB requested in nomination (Kg)	
Quantity of MB used in last 5 years (kg per year)	
Alternatives used for this specific crop in Member State	
*Alternatives used for this crop in countries where the same pest species are present	
** Refer to ECMS Annex 4.C Alternatives Database and to alternatives used by similar farms that sell to the same markets as MB users (TEAP report May 2003 and Decision Ex.I/3)*	

Step 3. Assessment: Are there no technically feasible alternatives available to MB users and suitable to the crops and circumstances
(Decision IX/6, para. 1(a)(ii)) and 'no adequate alternatives… available in any Party'? EC Regulation Art. 3, 2 (ii))

Alternatives	**List reasons why applicant states alternative is not available, not suitable, etc.**	**Is alternative registered and commercially available for this crop / circumstance?**	**Is efficacy (in terms of reduced pathogen populations) and yield adequate compared to MB? – for target pest species**	**Is alternative suitable / adequate for all or part of this crop and circumstance?**	Comments by assessor
Chemical alternatives					
Example 1: 1,3-dichloropropene (1,3-D, Telone)					
Example 2: Chloropicrin (PIC, Tripicrin)					
Example 3: Dazomet (Daz, Basamid)					
Example 4: Metam sodium (MS, Nemasol; Sistan)					
Example 5: 1,3-D + Chloropicrin (1,3-D/PIC, Telone C35, Agrocelhone)					

Alternatives	List reasons why applicant states alternative is not available, not suitable, etc.	Is alternative registered and commercially available for this crop / circumstance?	Is efficacy (in terms of reduced pathogen populations) and yield adequate compared to MB? – for target pest species	Is alternative suitable / adequate for all or part of this crop and circumstance?	Comments by assessor
Example 6: Metam + PIC, or other fumigant + fumigant					
Example 7: Combinations of nematicides, fungicides etc.					
Combination chemical + non-chemical					
Examples: Grafted plant + fumigant					
Resistant variety + fumigant					
Solarisation + fumigant					
Non-chemical alternatives					
Substrates (please focus on low-cost substrate systems)					
Steam					
Grafted plants					
Resistant varieties					
Conclusion: MB alternatives that are available, technically feasible / adequate and suitable for the specific circumstances:					

Step 3a. Calculation of feasible rate of adoption of alternatives

Member State is requested to provide answers, in the table below, to allow calculation of the feasible rate of adoption of alternatives, assuming full effort, i.e. that MB will be phased out as soon as alternatives are available.

Alternatives from conclusion of Step 3	**Issues to consider when calculating rate of adoption**	**Estimated quantity or time (in weeks) for completion of activities, assuming full effort** (estimates to be provided by applicant)
First most likely alternative name: [MS write name of alternative here, starting with alternatives in Conclusion of Step 3]	Identify companies/technicians that supply equipment and know-how for the effective application of this particular technology	
	Number of fumigators/applicators that provide this alternative in this crop at present	
	Number of additional fumigators/applicators that would be needed to allow half of the MB hectares to be replaced	
	Additional equipment or supplies needed by fumigators or others, so this alternative can be used to replace half of the MB hectares. Indicate quantity and type of equipment, and time (weeks) for delivery of equipment	
	Calculate time (in weeks) needed to train applicators how to use this alternative, assuming full effort	
	Calculate time (in weeks) needed to train half of users how to use this alternative (if training is needed), or time to produce other information for users, assuming full effort	
	Time (weeks) for other key activities (if any), assuming full effort	
	Total time (weeks) for carrying out the activities listed above, assuming full effort	
Second most likely alternative name: [MS write name of alternative here]	Identify companies/technicians that supply equipment and know-how for the effective application of this particular technology	
	Number of fumigators/applicators that provide this alternative in this crop at present	
	Number of additional fumigators/applicators that would be needed to allow half of the MB hectares to be replaced	
	Additional equipment or supplies needed by fumigators or others, so this alternative can be used to replace half of the MB hectares. Indicate quantity and type of equipment, and time (weeks) for delivery of equipment	
	Calculate time (in weeks) needed to train applicators how to use this alternative, assuming full effort	
	Calculate time (in weeks) needed to train half of users how to use this alternative (if training is needed), or time to produce other information for users, assuming full effort	
	Time (weeks) for other key activities (if any), assuming full effort	
	Total time (weeks) for carrying out the activities listed above, assuming full effort	
Third most likely alternative name: [MS write name of alternative here]	Identify companies/technicians that supply equipment and know-how for the effective application of this particular technology	
	Number of fumigators/applicators that provide this alternative in this crop at present	
	Number of additional fumigators/applicators that would be needed to allow half of the MB hectares to be replaced	

	Additional equipment or supplies needed by fumigators or others, so this alternative can be used to replace half of the MB hectares. Indicate quantity and type of equipment, and time (weeks) for delivery of equipment	
	Calculate time (in weeks) needed to train applicators how to use this alternative, assuming full effort	
	Calculate time (in weeks) needed to train half of users how to use this alternative (if training is needed), or time to produce other information for users, assuming full effort	
	Time (weeks) for other key activities (if any), assuming full effort	
	Total time (weeks) for carrying out the activities listed above, assuming full effort	

Step 4. Make an economic assessment of alternatives identified in Step 3 and/or 3-4 leading alternatives to determine if there are no economically feasible / adequate alternatives (Decision IX/6 para. 1(a)(ii) and EC Regulation Art. 3,2(ii)).

Alternatives from conclusion of Step 3	**Costs for 3 years** (data from applicant)	**Gross and net revenue** (data from applicant)	**Cost and revenue data from other sources** (data from assessor)	**Assessment of cost or net revenue over several years** (data from assessor)	Comments by assessor
Conclusion: MB alternatives that are economically feasible / adequate:					

Step 5: Identify all technically and economically feasible steps to minimise MB use and emissions (Decision IX/6 1(b)(i)) **and all precautionary measures to prevent and minimise leakages of MB** (EC Regulation Article 17, 2)

Steps to minimize emissions / leakage	**Information relating to requested CUN** (information from MS or applicant)	**Assessment of steps to minimise emissions / leakage** (to be completed by assessor)	**Calculation of MB reductions (Kg or %)**
Quantity MB requested(Kg)			
MB treated area requested (ha)			
Any proposed increase in MB use since previous year? (give data)			
MB dosage rate (a.i. only)			
Percentage using (a) broad acre and (b) strip fumigation?			
Application method e.g. injection, hot gas			
Formulation (% MB/PIC)			
Frequency of MB fumigation			
Area where VIF is used (%)		VIF is compulsory under EC Regulation = 100 % of area	
Number of days for which VIF lies on the soil		Further reductions would be feasible	
On-site pest monitoring prior to fumigation		Monitoring system would be expected to reduce MB	
Prior approval for each MB fumigation		Prescription system would reduce MB further	
Other steps…			
Reductions to minimise MB emissions / leakage (Kg or %):			

Step 6: Has applicant demonstrated appropriate effort to evaluate, commercialize and secure regulatory approval of alternatives ? Applicant must demonstrate that research programmes are in place to develop and deploy alternatives (Decision IX/6 para. 1(b)(iii))

Actions by applicant	**MS to summarise activities stated by applicant, and append any additional information**	**COM / assessor to determine whether this demonstrates appropriate effort, and progress since last year (Pass / Fail), and provide comments**
Effort to evaluate alternatives		
Effort to commercialise alternatives		
Effort to register alternatives		
Programmes to develop and deploy alternatives		

Plan for stepwise reduction of MB		

Step 7: Assessment: Is MB available in sufficient quantity from existing stocks (Decision IX/6 para. 1(b)(ii)) **and is recycled or reclaimed MB available from any of the Parties'?** (EC Regulation Article 3,2(ii))

Stocks available	**Stocks (Kg)**
In EC	[to be completed by COM]
In any Party	[to be completed by COM]
Total available	[to be completed by COM]

Step 8: Summary: checklist of compliance with criteria of Decision IX/6 and EC Regulation 2037/2000

Steps	**Criteria**	**Complies fully**
Step 1	Member state demonstrated that there is significant market disruption (Decision IX/6, paragraph 1(a)(i))	
Step 3	There are no technically feasible alternatives available to MB users and suitable to the crops and circumstances (Decision IX/6, paragraph 1(a)(ii)) and no adequate alternatives available in any Party (EC Regulation Art. 3,2(ii))	
Step 4	There are no economically feasible alternatives available to MB users and suitable to the crops and circumstances (Decision IX/6, paragraph 1(a)(ii)) and no adequate alternatives available in any Party (EC Regulation Art. 3,2(ii))	
Step 5	No technically and economically feasible steps can be taken to minimize MB use and emissions (Decision IX/6, paragraph 1(b)(i)) and no precautionary measures to prevent and minimise leakages of MB (EC Regulation Article 17, 2)	
Step 6	Applicant demonstrated appropriate effort to evaluate, commercialize and secure regulatory approval of alternatives. Applicant must demonstrate that research programmes are in place to develop and deploy alternatives (Decision IX/6 para. 1(b)(iii))	
Step 7	MB is not available in sufficient quantity from existing stocks (Decision IX/6 para. 1(b)(ii)) and no recycled or reclaimed MB is available from any of the Parties (EC Regulation Article 3,2(ii))	[to be completed by COM]
Has application met all criteria of Decision IX/6 and EC Regulation 2037/2000?		

Step 9: Summary: Quantity of MB eligible for licensing (quota allocation)

Steps	Description	**MB (Kg)**
Quantity of MB licensed in previous year	Licensed by the Commission in previous year, as shown in the COM Decision.	
Quantity of MB used in previous year	Quantity of MB used in previous year, as shown in EC Accounting Framework Report.	
Ceiling established by Montreal Protocol	Maximum quantity of MB approved at the relevant meeting(s) of the Parties for this use-category and year	
Quantity MB requested	Quantity of MB requested by the MS to be licensed (quota allocation)	
Reductions for feasible / adequate alternatives	MB reductions to account for available alternatives as identified in Steps 3 - 4	
Reductions to minimise emissions / leakage	Reductions to minimise MB emissions / leakage as identified in Step 5	
Eligible quantity of MB	**MB production / imports (Kg) eligible for licensing by EC, before deducting available stocks**	

Existing MB stocks	MB available from stocks as identified in Step 7	[to be completed by COM]
Final quantity eligible for licensing	**Quantity of MB eligible for licensing for production / importation (Kg)**	[to be completed by COM]

Step 10 (if relevant): Summary: Quantity of MB eligible for Critical Use Nomination

Requested nomination	**MB (kg)**
Year for which MB is nominated for a critical use (e.g. 2008)	To be filled by MS
Quantity of MB requested for nomination (kg):	To be filled by MS
Crop area proposed for MB use (ha):	To be filled by MS
Comments and additional information needed for assessment of nomination: [to be completed by COM / assessor]	
Decision on nomination	**MB (kg)**
Reductions for technically and economically feasible alternatives (Step 3-4 applied to year of nomination)	
Reductions to minimise MB use / emissions (Step 5 applied to year of nomination)	
Quantity of MB that complies fully with Decision IX/6, relevant Decisions relating to CUEs, consistent with the ECMS (kg)	[to be completed by COM]

Annex 8.B. EC CRITICAL USE LICENSING ASSESSMENT (CULA) – CRITICAL USE NOMINATION ASSESSMENT (CUNA) - POST- HARVEST SECTOR

GENERAL INSTRUCTIONS

Any Member State applying for CUNs-CUEs is requested to update the latest CULA-CUNA form, as follows:
1. Download the latest completed CULA-CUNA form (from the previous round of assessments) from CIRCA website;
2. Add any new sections from this form into the previous CULA-CUNA, and complete the new sections;
3. Update previous information where relevant, except parts where the COM/assessors are required to complete information;
4. If a CULA or CUNA does not exist, use the forms in this Annex (one for soil sector, another for postharvest sector);
5. Append to the Form any additional information necessary, making it clear in the Form the link to any additional information;
6. Refer to definitions and guidance provided in the ECMS (most recent version).

Member State:
Title of Nomination:
Quantity of MB licensed in the COM decision in previous year: kg
Quantity MB requested in xxxx year: kg
File Code [Assessors to complete]:CULA [CUNA] 200x-
Confirm that all attachments mentioned in CULA are present [Assessors to complete]:

Step 1. The applicant determines that the lack of MB for this use would result in significant market disruption? (Refer to ECMS for guidance - Decision IX/6 paragraph 1(a)(i) and ExI/4 paragraph 6):

Determination of significant market disruption	Status	Action
Has the Member State provided calculations that demonstrate significant market disruption?	[Assessors to complete]	
Has the statement been signed?	[Assessors to complete]	

Step 2. Summary of treated structure / commodity and pest species relevant to Step 3

Structure / commodity(s) and main pests	Structure / commodity A	Structure / commodity B (if relevant)	Structure / commodity C (if relevant)	Comments by assessor
Structure / commodity(ies) fumigated with MB				
List **common** target **insect** pest species (as stated by applicant)				
List **minor** target **insects** species (as stated by applicant)				
List **other** target pest species (stated by applicant)				

Comments on circumstances of MB use				

Information about volume of commodity / structure and alternatives in use

Total volume of commodity and number of structures/facilities in Member State	
Volume treated with MB last year, or % of total in Member State	
Volume proposed for MB use in year of nomination	
Quantity MB requested in nomination (Kg)	
MB consumption in last five years (Kg/year)	
Alternatives used for key target pests in this sector (in Member State)	
*Alternatives used for this commodity / structure in countries where the same pest species are present	
** Refer to ECMS Annex 4.C Alternatives Database and to alternatives used commercially by similar enterprises that sell to the same markets as MB users (TEAP report May 2003 and Decision Ex.I/3)*	

Step 3. Assessment: Are there no technically feasible alternatives available to MB users and suitable to the crops and circumstances (Decision IX/6, para. 1(a)(ii)) **and 'no adequate alternatives… available in any Party'?** (EC Regulation 2037/2000, Article 3,2(ii))

Alternatives	**List reasons why applicant states alternative is not available, not suitable, etc.**	**Is alternative registered and commercially available for this structure / commodity / circumstance?**	**Is efficacy / results (in terms of reduced pest populations) adequate compared to MB? – for target pest species**	**Is alternative suitable / adequate for all or part of this structure / commodity and circumstance?**	Comments by assessor
Example 1: Sulfuryl fluoride* (Sulfuryl difluoride, SF, *ProFume*)					
Example 2 Phosphine*					
Example 3: Heat + IPM					
Example 4: Insecticides + IPM					
Others ….					

Alternatives	List reasons why applicant states alternative is not available, not suitable, etc.	Is alternative registered and commercially available for this structure / commodity / circumstance?	Is efficacy / results (in terms of reduced pest populations) adequate compared to MB? – for target pest species	Is alternative suitable / adequate for all or part of this structure / commodity and circumstance?	Comments by assessor
Conclusion: MB alternatives that are available, technically feasible / adequate and suitable for the specific circumstances.					
** footnote: combined with heat if necessary*					

Step 3a. Calculation of feasible rate of adoption of alternatives

Member State is requested to provide answers, in the table below, to allow calculation of the feasible rate of adoption of alternatives, assuming full effort.

Alternatives from conclusion of Step 3	Issues to consider when calculating rate of adoption	Estimated quantity or time (in weeks) for completion of activities, assuming full effort
First most likely alternative name: [MS write name of alternative here, starting first with alternatives listed in Conclusion of Step 3]	Identify companies/technicians that supply equipment and know-how for the effective application of this particular technology	
	Number of fumigators/applicators that provide this alternative at present	
	Number of additional fumigators/applicators that would be needed to allow half of the MB volume to be replaced	
	Additional equipment or supplies needed by fumigators or others, so this alternative can be used to replace half of the MB volume. Indicate quantity and type of equipment, and time (weeks) for delivery of equipment	
	Calculate time (in weeks) needed to train applicators how to use this alternative, assuming full effort	
	Calculate time (in weeks) needed to train half of users how to use this alternative (if training is needed), or time to produce other information for users, assuming full effort	
	Time (weeks) for other key activities (if any), assuming full effort	
	Total time (weeks) for carrying out the activities listed above, assuming full effort	
Second most likely alternative name: [MS write name of alternative here]	Identify companies/technicians that supply equipment and know-how for the effective application of this particular technology	
	Number of fumigators/applicators that provide this alternative at present	
	Number of additional fumigators/applicators that would be needed to allow half of the MB volume to be replaced	
	Additional equipment or supplies needed by fumigators or others, so this alternative can be used to replace half of the MB volume. Indicate quantity and type of equipment, and time (weeks) for delivery of equipment	
	Calculate time (in weeks) needed to train applicators how to use this alternative, assuming full effort	

	Calculate time (in weeks) needed to train half of users how to use this alternative (if training is needed), or time to produce other information for users, assuming full effort	
	Time (weeks) for other key activities (if any), assuming full effort	
	Total time (weeks) for carrying out the activities listed above, assuming full effort	
Third most likely alternative name: [MS write name of alternative here]	Identify companies/technicians that supply equipment and know-how for the effective application of this particular technology	
	Number of fumigators/applicators that provide this alternative at present	
	Number of additional fumigators/applicators that would be needed to allow half of the MB volume to be replaced	
	Additional equipment or supplies needed by fumigators or others, so this alternative can be used to replace half of the MB volume. Indicate quantity and type of equipment, and time (weeks) for delivery of equipment	
	Calculate time (in weeks) needed to train applicators how to use this alternative, assuming full effort	
	Calculate time (in weeks) needed to train half of users how to use this alternative (if training is needed), or time to produce other information for users, assuming full effort	
	Time (weeks) for other key activities (if any), assuming full effort	
	Total time (weeks) for carrying out the activities listed above, assuming full effort	

Step 4. Make an economic assessment of alternatives identified in the Conclusions of Step 3 and/or 4 leading alternatives to determine if there are no economically feasible / adequate alternatives (Decision IX/6 para. 1(a)(ii) and EC Regulation Art. 3,2(ii)).

Alternatives from conclusion of Step 3	**Economic reasons** (stated by applicant)	**Costs for 3 years** (stated by applicant)	**Cost data from other sources** (data from assessor)	**Assessment of cost over several years** (data from assessor)	Comments by assessor
Conclusion: MB alternatives that are economically feasible / adequate.					

Step 5: Identify all technically and economically feasible steps to minimize MB use and emissions (Decision IX/6 para 1 (b) (I)) **and all precautionary measures practicable to prevent and minimise leakages of MB** (EC regulation 2037/2000 Art 17, 2)

Steps to minimize emissions / leakages	**Information about requested CUN** (data from MS or applicant)	**Assessment of steps to minimize emissions / leakages**	**Calculation of MB reductions (Kg or %)**
Quantity MB requested (Kg)			
Volume to be treated with MB (m3)			
Any proposed increase in MB use compared to previous year ? (give data)			
MB dosage rate (a.i. only)		Lowest technically feasible doses of MB	
List gas-tightness estimate for each premises		Improve sealing standards Pressure testing of buildings Check gas tightness with smoke or other specialist gases	
Can temperature be raised to reduce MB dose?		Increase temperature	
Frequency of fumigation		High standard of sanitation would reduce the need for fumigation Fumigation every second year instead of every year	
On-site pest monitoring prior to fumigation		Monitoring systems would be expected to reduce MB	
Prior approval for each MB fumigation		Prescription system would reduce MB further	
Monitoring MB levels during fumigation		Monitoring would reduce MB use	
Use of recapture-recycling equipment			
Other steps…			
MB reductions to minimise MB emissions / leakages (Kg)			Reduction:

Step 6: Has applicant demonstrated appropriate effort to evaluate, commercialize and secure regulatory approval of alternatives? Applicant must demonstrate that research programmes are in place to develop and deploy alternatives (Decision IX/6 para. 1(b)(iii))

Actions by Applicant	**MS to summarise activities and append any additional information**	**COM / assessor to determine whether the information provided demonstrates adequate effort, and progress since last year (Pass / Fail), comments**
Effort to evaluate alternatives		
Effort to commercialise alternatives		
Effort to register alternatives		

Actions by Applicant	MS to summarise activities and append any additional information	COM / assessor to determine whether the information provided demonstrates adequate effort, and progress since last year (Pass / Fail), comments
Detailed plan to develop and deploy alternatives		

Step 7: Assessment: Is MB available in sufficient quantity from existing stocks (Decision IX/6 para. 1(b)(ii)) **and is recycled or reclaimed MB available from any of the Parties?** (EC Regulation Article 3,2(ii))

Stocks available	Stocks (Kg)
In EC	[to be completed by COM]
In any Party	[to be completed by COM]
Total available	

Step 8: Summary: checklist of compliance with criteria of Decision IX/6 and EC Regulation 2037/2000

Steps	Criteria	Complies fully
Step 1	Member state has provided calculations to demonstrate that there is significant market disruption (Decision IX/6, paragraph 1(a)(i))	
Step 3	There are no technically feasible alternatives available to MB users and suitable to the crops and circumstances (Decision IX/6, paragraph 1(a)(ii)) and no adequate alternatives available in any Party (EC Regulation Art. 3,2(ii))	
Step 4	There are no economically feasible alternatives available to MB users and suitable to the crops and circumstances (Decision IX/6, paragraph 1(a)(ii)) and no adequate alternatives available in any Party (EC Regulation Art. 3,2(ii))	
Step 5	No technically and economically feasible steps can be taken to minimize MB use and emissions (Decision IX/6, paragraph 1(b)(i)), and no precautionary measures practicable to prevent and minimise leakages of MB (EC regulation 2037/2000 Art 17, 2)	
Step 6	Applicant demonstrated appropriate effort to evaluate, commercialize and secure regulatory approval of alternatives. Applicant must demonstrate that research programmes are in place to develop and deploy alternatives (Decision IX/6 para. 1(b)(iii))	
Step 7	MB is not available in sufficient quantity from existing stocks (Decision IX/6 para. 1(b)(ii)) and no recycled or reclaimed MB is available from any of the Parties (EC Regulation Article 3,2(ii))	[information from COM]
Has application met all criteria of Decision IX/6 and EC Regulation 2037/2000?		

Step 9: Summary: Eligible quantity of MB for licensing (quota allocation)

Steps	Description	MB (Kg)
Quantity of MB licensed in previous year	Licensed by the Commission in previous year, as shown in the COM Decision.	
Quantity of MB used in previous year	Quantity of MB used in previous year, as shown in EC Accounting Framework Report.	
Ceiling established by Montreal Protocol	Maximum quantity of MB approved at the relevant meeting(s) of the Parties for this use-category and year	
Quantity MB requested	Quantity of MB requested by the MS to be licensed	
Reductions for feasible / adequate alternatives	MB reductions to account for available alternatives as identified in Steps 3 - 4	

Reductions to minimise emissions / leakage	Reductions to minimise MB emissions / leakage as identified in Step 5	
Eligible quantity of MB	**MB production / imports (Kg) eligible for licensing by EC, before deducting available stocks**	
Available MB stocks	MB available from existing stocks as identified in Step 7	[to be completed by COM]
Final quantity eligible for licensing	**Quantity of MB eligible for licensing for production / importation (Kg)**	[to be completed by COM]

Step 10 (if relevant): Summary: Eligible quantity of MB for Critical Use Nomination

Requested nomination	**MB (kg)**
Year of critical use nomination	To be filled by MS
Quantity of MB requested to be nominated (kg):	To be filled by MS
Volume or quantity of commodities or structures proposed for MB use (m^3 or tonnes)	To be filled by MS
Comments and additional information needed for assessment of nomination: [to be completed by COM and assessor]	
Decision on nomination	**MB (kg)**
Reductions for technically and economically feasible alternatives (Step 3-4 applied to relevant year)	
Reductions to minimise MB use / emissions (Step 5 applied to relevant year)	
Quantity of MB that complies fully with Decision IX/6, relevant Decisions relating to CUEs and consistent with ECMS (kg)	[to be completed by COM]

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This report has also drawn extensively on information provided by national experts, and the data reported in Critical Use Nominations and CULA-CUNA forms.