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**Workshop on methyl bromide use for  
quarantine and pre-shipment purposes**  
Port Ghalib, Egypt, 3 November 2009

## **Background note**

### **Introduction**

1. The Twentieth Meeting of the Parties took decision XX/6, on actions by Parties to reduce methyl bromide use for quarantine and pre-shipment purposes and related emissions. By paragraph 8 of that decision, the Parties requested “the Ozone Secretariat, in cooperation with the Technology and Economic Assessment Panel, the International Plant Protection Convention secretariat and other relevant bodies, to organize in the margins of the Twenty-First Meeting of the Parties a workshop to discuss the report of the assessment referred to in paragraph 4 of the present decision and other relevant inputs with a view to determining possible further actions”.
2. In accordance with that decision, a workshop to tackle the issue of quarantine and pre-shipment uses of methyl bromide will be held on Tuesday, 3 November 2009, immediately prior to the Twenty-First Meeting of the Parties.
3. The present note contains background information on the quarantine and pre-shipment situation.

### **I. Background**

4. Methyl bromide is a controlled substance under the Montreal Protocol with an official ozone-depleting potential of 0.6. It is used in the following areas:
  - (a) Pre-plant fumigation of soil to control soil-borne pests and diseases in the production of some high-value crops;
  - (b) Fumigation of some foodstuffs and associated structures to control damaging pests;
  - (c) Fumigation of some commodities in trade to prevent the spread of pests and diseases.
5. Parties to the 1992 Copenhagen Amendment to the Montreal Protocol committed themselves to phasing out methyl bromide under Article 2H, save for uses that the Parties deemed “critical” following the agreed phase-out date and for quarantine and pre-shipment uses. Some methyl bromide is used as feedstock for chemical synthesis, meaning that as a non-emissive use it is not subject to phase-out. There are no process-agent uses of methyl bromide listed under table A of decision X/14.
6. The phase-out of methyl bromide in both developed and developing countries is well advanced, with the 2007 global consumption of methyl bromide, excepting that for feedstock and quarantine and

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pre-shipment uses, standing at 15 per cent of the baseline for Parties not operating under paragraph 1 of Article 5 and 40 per cent of the baseline for Parties so operating.

7. The effective equivalent stratospheric chlorine concentration, a measure of the ozone-depleting potential of the chlorinated and brominated substances in the upper atmosphere, peaked in 1997 and is now declining as a result of the control of ozone-depleting substances under the Montreal Protocol. The fall in emissions of the short-lived ozone-depleting substances methyl bromide and methyl chloroform was estimated to have contributed 20 and 60 per cent, respectively, of this decline by mid-2009. Any further reduction in methyl bromide emissions would be rapidly reflected by a decrease in the effective equivalent stratospheric chlorine concentration.

8. At its third meeting, in 2008, the Commission on Phytosanitary Measures adopted a recommendation on replacement or reduction of the use of methyl bromide as a phytosanitary measure. The recommendation outlined areas for action and guidelines to replace or reduce the use of methyl bromide as a phytosanitary measure, with the overall aim of reducing the release of methyl bromide into the atmosphere. Previously, at its fifth meeting, in 2003, the Interim Commission on Phytosanitary Measures, while recognizing the need to retain methyl bromide for critical quarantine treatments until suitable alternative phytosanitary treatments or procedures were available, called upon its members:

- (a) To take necessary and possible actions to minimize the use of methyl bromide, e.g., by restricting it to essential purposes, with a corresponding reduction in pre-shipment and other non-phytosanitary uses;
- (b) To increase the use of alternative phytosanitary measures;
- (c) To reduce as far as possible the incidence of emergency action fumigation;
- (d) To reduce the loss of methyl bromide to the atmosphere e.g., through the use of gas recovery technologies.

9. Methyl bromide is a highly toxic substance to humans. Many Parties and local jurisdictions have regulations in place to restrict worker and bystander exposure to methyl bromide emitted before, during or after fumigations to very low maximum levels. Tolerable workspace exposures are typically less than 5 parts per million volume-volume percentage with acceptable environmental levels in the parts per billion range. Some Parties have banned the use of methyl bromide for onshore fumigations, including quarantine and pre-shipment fumigations, completely.

10. Quarantine and pre-shipment applications were defined by the Seventh Meeting of the Parties in decision VII/5 as follows:

- (a) "Quarantine applications", with respect to methyl bromide, are treatments to prevent the introduction, establishment and/or spread of quarantine pests (including diseases), or to ensure their official control, where:
  - (i) Official control is that performed by, or authorized by, a national plant, animal or environmental protection or health authority;
  - (ii) Quarantine pests are pests of potential importance to the areas endangered thereby and not yet present there, or present but not widely distributed and being officially controlled;
- (b) "Pre-shipment applications" are those treatments applied directly preceding and in relation to export, to meet the phytosanitary or sanitary requirements of the importing country or existing phytosanitary or sanitary requirements of the exporting country;

11. By the same decision, the Parties urged all countries, in applying the definitions, "to refrain from use of methyl bromide and to use non-ozone-depleting technologies wherever possible" and "to minimize emissions and use of methyl bromide through containment and recovery and recycling methodologies to the extent possible".

12. The successful phase-out of methyl bromide as per the schedules mandated by the Protocol has led to a situation in which global quarantine and pre-shipment consumption is greater in quantity than that of all critical-use exemptions for Parties not operating under paragraph 1 of Article 5, or the total methyl bromide use in all Parties so operating. Production of methyl bromide for quarantine and pre-shipment uses is now the largest production for an emissive use that is not regulated under the Montreal Protocol. Details of methyl bromide consumption for various uses are provided in table 1.

Table 1  
**Quantities of methyl bromide (consumption) for quarantine and pre-shipment uses compared with critical-use exemptions and consumption in Parties operating under paragraph 1 of Article 5**

<i>Particulars</i>	<i>Quantity of methyl bromide (metric tonnes)</i>	<i>Year</i>	<i>Trend</i>
Critical-use exemptions for Parties operating under paragraph 1 of Article 5 (consumed or licensed)	12 270	2005	Falling
	5 958	2007	
Consumption in Parties operating under paragraph 1 of Article 5	9 497	2005	Falling
	6 235	2007	
Reported global quarantine and pre-shipment consumption	10 828	2005	Rising or constant*
	10 753	2007	

*Source:* Data supplied by the United Nations Environment Programme and summarized by the Methyl Bromide Technical Options Committee, 2006; Ozone Secretariat data, September 2009

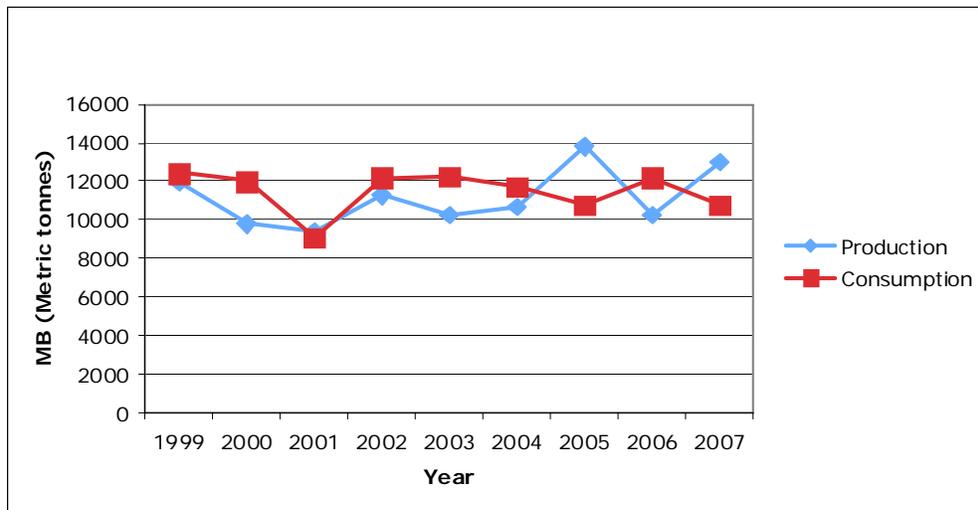
\* Rising in Parties operating under paragraph 1 of Article 5; consumption was higher in 2006 at 12,227 metric tonnes.

13. By decision XX/6, the Technology and Economic Assessment Panel, in consultation with the International Plant Protection Convention secretariat, was requested “to review all relevant, currently available information on the use of methyl bromide for quarantine and pre-shipment applications and related emissions, to assess trends in the major uses, available alternatives, other mitigation options, and barriers to the adoption of alternatives or determine what additional information or action may be required to meet those objectives”. The decision requires the preparation of a comprehensive report considering:

- (a) Volumes of methyl bromide used for quarantine and pre-shipment uses, by the major uses and target pests;
- (b) Technical and economic availability of alternative substances and technologies for the main methyl bromide uses, by volume, and of technologies for methyl bromide recovery, containment and recycling;
- (c) Quarantine and pre-shipment applications for which no alternatives are available to date and an assessment of why alternatives are not technically or economically feasible or cannot be adopted;
- (d) Illustrative examples of regulations or other relevant measures that directly affect the use of methyl bromide for quarantine and pre-shipment treatment;
- (e) Barriers preventing the adoption of alternatives to methyl bromide;
- (f) Projects demonstrating technically and economically feasible alternatives, including technologies for recapture and destruction of methyl bromide for quarantine and pre-shipment applications;

14. Paragraph 6 of decision XX/6 requests an indication of opportunities for reducing methyl bromide use or emissions for quarantine and pre-shipment uses. The figure below shows estimated trends of methyl bromide use in quarantine and pre-shipment applications. Significant variations in methyl bromide production and consumption for quarantine and pre-shipment uses can be observed over the past five years. It has been suggested that the increase in 2005 was associated with the widespread introduction of international standard for phytosanitary measures No. 15, which governs wood packaging materials in trade. The standard came into force in 2005 and requires wood packaging materials to be treated either with heat or methyl bromide fumigation as per the standards of the International Plant Protection Convention.

Compared reported global production and consumption of methyl bromide for quarantine and pre-shipment uses 1999–2007



Source: Ozone Secretariat data, 2009, Quarantine and Pre-Shipment Task Force interim report (2009) and Methyl Bromide Technical Options Committee estimates (Methyl Bromide Technical Options Committee 2006 assessment report)

15. The impact of quarantine and pre-shipment use of methyl bromide for 2007 (the latest year for which complete information is available) is equivalent to some 7,800 ODP-tonnes.

16. As stated above, the use of methyl bromide for purposes other than quarantine and pre-shipment applications is decreasing. As per the Methyl Bromide Technical Options Committee’s progress report for 2009, consumption of that nature decreased from some 56,000 metric tonnes in 1991 to 8,475 metric tonnes in 2007 in Parties not operating under paragraph 1 of Article 5 and from 18,100 metric tonnes in 1998 (peak level) to 6,230 metric tonnes in 2007 in Parties so operating. This decrease has been partially offset by the increase in quarantine and pre-shipment applications, while aggregate consumption in Parties not operating under paragraph 1 of Article 5 for critical-use exemptions and for controlled uses in Parties so operating continue to exhibit a marked downward trend. Continued production of methyl bromide may also result in low prices being maintained, which will indirectly act as a disincentive to the phase out of methyl bromide.

17. Controls are thus critical to ensuring that methyl bromide intended for quarantine and pre-shipment for specific uses is actually put to such uses and subsequently reported. Any increase in uses also results in the risk of methyl bromide being procured for quarantine and pre-shipment applications but being used for other purposes.

18. Table 2 presents an assessment of impact of the scenario described above on Parties operating under paragraph 1 of Article 5 and those not so operating.

Table 2

**Impact of exempted quarantine and pre-shipment consumption vis-à-vis controlled consumption in 2007 (ODP-tonnes)**

	<i>Consumption for non-quarantine and pre-shipment applications in 2007</i>	<i>Reported consumption for quarantine and pre-shipment applications in 2007</i>
All Parties not operating under paragraph 1 of Article 5	3 575	2 970
All Parties so operating	3 741	3 482

Source: Ozone Secretariat data, 2009 and Quarantine and Pre-Shipment Task Force interim Report, 2009

Note: Consumption for quarantine and pre-shipment uses shows substantial variations and was higher in 2006 (2,804 ODP-tonnes for Parties not operating under paragraph 1 of Article 5 and 4,532 ODP-tonnes for Parties so operating).