

Stockholm Convention on Persistent Organic Pollutants

**Persistent Organic Pollutants Review Committee
(POPRC)**

DRAFT RISK MANAGEMENT EVALUATION

For

Chlordecone

Draft prepared by:

The ad hoc working group on chlordecone

May, 2007

Draft Risk Management Evaluation for Chlordecone

Note:

In accordance with the procedure laid down in Article 8 of the Stockholm Convention, this draft was prepared by the Persistent Organic Pollutants Review Committee (POPRC) during its inter-sessional work. Parties and observers to the Stockholm Convention are invited to provide technical and substantive comments on this draft. Comments received will be considered by the ad hoc working group and the revised draft will be made available for the third meeting of the POPRC (19-23 November in Geneva). Please submit your comments to the Secretariat of the Stockholm Convention preferably by e-mail before **July 1, 2007** to:

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This draft risk profile is based on the draft prepared by
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1 Introduction

The European Community and its Member States being parties to the Stockholm Convention have proposed Chlordecone to be listed in Annex A to the Convention (UNEP/POPS/POPRC.1/6).

1.1 Chemical identity, production and uses

Chlordecone is a synthetic chlorinated organic compound, which has mainly been used as an agricultural insecticide, miticide and fungicide.

1.1.1 Chemical Identity

Names and registry numbers:

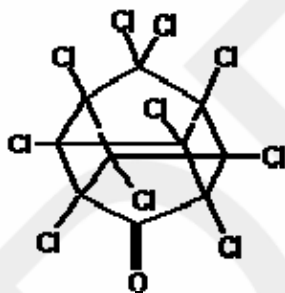
CAS chemical name: 1,1a,3,3a,4,5,5,5a,5b,6-decachloro-octahydro-1,3,4-metheno-2H-cyclobuta-[cd]-pentalen-2-one

Synonyms: Decachloropentacyclo-[5,2,1,02,6,03,9,05,8]-decan-4-one, Decachlorooctahydro-1,3,4-metheno-2H,5H-cyclobuta-[cd]-pentalen-2-one, Decachloroketone

Trade names: GC 1189, Kepone, Merex, ENT 16391, Curlone

CAS registry number: 143-50-0

Structure:



Source: <http://webbook.nist.gov>, as quoted in <http://ecb.jrc.it>

Chlordecone is closely related chemically to mirex, a pesticide which is already listed under the Stockholm Convention. The chemical structure of Chlordecone differs from mirex in that the oxygen of the keto group in Chlordecone is replaced by two chlorine atoms in mirex.

1.1.2 Production and uses

According to the Risk Profile, Chlordecone was first produced in 1951 and introduced commercially in the United States in 1958 under the trade names Kepone® and GC-1189 (Epstein, 1978; Huff and Gerstner 1978 quoted from UNEP 2006). Chlordecone was in use in the USA until 1976 (IARC, 1979). Chlordecone was also found to be present in technical

grade mirex (EPA 1978b quoted from UNEP 2006; IARC 1979a quoted from UNEP 2006) (Quoted from US ATSDR, 1995).

Between 1951 and 1975, approximately 3.6 million pounds (1.6 million kg) of Chlordecone were produced in the United States (Epstein, 1978). (Quoted from US ATSDR, 1995) Chlordecone production was discontinued in the USA in 1976.

Diluted technical grade Chlordecone (80% active ingredient) was exported from the USA to Europe, particularly Germany, in great quantities from 1951 to 1975 (Epstein, 1978) where it was converted to Kelevan which is a derivative of Chlordecone and used for the same purposes. In the environment, it oxidizes to Chlordecone and could therefore also be considered with Chlordecone for listing in the Stockholm Convention. Approximately 90-99% of the total volume of Chlordecone produced during this time was exported to Europe, Asia, Latin America, and Africa. (DHHS 1985; EPA 1978b quoted from UNEP 2006) (Modified from US ATSDR, 1995). There is no information, indicating that Kelevan is being produced or used at present.

Chlordecone was marketed in France as a formulation, Curlone, by De Laguarique from 1981 to 1993. The formulation was used in Martinique and Guadeloupe following hurricane Allen in 1979 and David in 1980 which led to considerable pest infestations. Chlordecone for this formulation was synthesised in Brazil. The authorisation for Curlone was withdrawn by the French Ministry of Agriculture in 1990. Use was continued until September, 1993. (Beaugendre, 2005) In Canada, no product containing Chlordecone has been registered as a pest control product since 2000.

Chlordecone has been used extensively in the tropics for the control of banana root borer (Anonymous, 1978a quoted from UNEP 2006; Langford, 1978 quoted from UNEP 2006). It is regarded as an effective insecticide against leaf-cutting insects. Historically, Chlordecone has been used in various parts of the world for the control of a wide range of pests. It can be used as a fly larvicide, as a fungicide against apple scab and powdery mildew (Information Canada, 1973 quoted from UNEP 2006), and to control the Colorado potato beetle (Mottl, 1977), rust mite on non-bearing citrus, and potato and tobacco wireworm on gladioli and other plants (Suta, 1978). Chlordecone has also been used in household products such as ant and roach traps at concentrations of approximately 0.125% (IARC 1979a quoted from UNEP 2006).

1.2 Conclusions of the Review Committee regarding Annex D and Annex E information

The Committee has conducted and evaluated the risk profile in accordance with Annex E at its second meeting in Geneva 6-10 November 2006. The Committee considered that although the information on long-range environmental transport is not fully conclusive, there is evidence suggesting the relevance of some transport pathways. The Committee decided, in accordance with paragraph 7 (a) of Article 8 of the Convention, and taking into account that a lack of full scientific certainty should not prevent a proposal from proceeding (decision POPRC-2/2), that Chlordecone is likely, as a result of its long-range environmental transport, to lead to significant adverse human health and environmental effects such that global action is warranted.

Furthermore, the Committee invited the drafting group on Chlordecone which prepared the risk profile to explore any further information on long-range environmental transport and risk estimations and, if appropriate, to revise the risk profile for consideration by the Committee at its third meeting.

The Committee decided furthermore, in accordance with paragraph 7 (a) of Article 8 of the Convention and paragraph 29 of decision SC-1/7 of the Conference of the Parties to the Stockholm Convention, to establish a drafting group to prepare a risk management evaluation that includes an analysis of possible control measures for Chlordecone in accordance with Annex F to the Convention and invited, in accordance with paragraph 7 (a) of Article 8 of the Convention, Parties and observers to submit to the Secretariat the information specified in Annex F for Chlordecone before 2 February 2007.

1.3 Data sources

The draft Risk Management evaluation is primarily based on information that has been provided by parties to the Convention and observers. Responses regarding the information specified in Annex F of the Stockholm Convention (risk management) have been provided by the following countries and observers:

Table 1-1: Annex F questionnaires delivered by April 2007

Party	Institution	Date of submission
Algeria	Permanent Mission at the UNO and international organisations in Switzerland	12. 01. 2007
Canada	Environment Canada	08.02.2007
Czech Republic	Ministry of Environment	06.02.2007
Germany	Federal Environmental Agency	07.02.2007
Japan	Global Environmental Division, Ministry of Foreign Affairs	09.02.2007
Mauritius	Government	29. 01. 2007
Monaco	Government, Department of Environment	Not available
Switzerland	Federal Office for the Environment	06.02.2007
Thailand	Ministry of Public Health, Hazardous Substances Control Group	16.02.2005
Zambia	Environmental Council from Government of Zambia	31.01.2007
Country observer	Office of Pesticide Programs, US EPA	09.02.2007
Industry Observer	CropLife International	09.02.2007

In addition, France provided a report prepared for the Assemblée Nationale describing the history of production and use of Chlordecone in Martinique and Guadeloupe (Beaugendre, 2005) and a report on organochlorine pollution in the same region (Cabidoche et al., 2006).

Specific national and international risk management reports for Chlordecone have not been identified.

1.4 Status of the chemical under international conventions

Chlordecone is listed in Annex A of the Protocol to the Convention on Long-Range Transboundary Air Pollution (CLRTAP) on Persistent Organic Pollutants. The provisions of the Protocol oblige Parties to phase out all production and uses of Chlordecone. Chlordecone is included in the The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) as a substance of possible concern¹. Under the Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM Convention²) Chlordecone is listed as selected substances for immediate priority action (Recommendation 19/5, Attachment, Appendix 3) and is scheduled for elimination (Annex I, part 2)). HELCOM aims to move towards the target of the cessation of discharges, emissions and losses of hazardous substances by the year 2020.

Under the Basel Convention off-specification or out-dated pesticides are classified as hazardous in Annex VIII without further specification.

1.5 Any national or regional control actions taken

1.5.1 Regulation at European level

In the European Union Chlordecone is listed in Annex I to Regulation (EC) No 850/2004 on persistent organic pollutants as scheduled for elimination and with complete prohibition of production and use.

The issue of Chlordecone in waste is addressed at European level in Regulation 850/2004/EC. As amended by regulation 1195/2006/EC POP such as Chlordecone in waste have to be destroyed if concentration limits of 50 mg/kg are exceeded.

1.5.2 Regulation at national level

At national level legal control actions taken have been reported by Germany, Canada, the USA, Switzerland, Thailand and Japan.

In Canada production, sale, and use of Chlordecone is currently prohibited for all pesticide uses under the Pest Control Products Act (PCPA). Any stocks that existed at the time that pesticide registration was discontinued or suspended were to be sold, used or disposed of in accordance with an established timetable, after which their sale or use became a violation of the PCPA.

Therefore, there is no commercial reason to maintain stockpiles. In addition, Canada has established post-registration monitoring and compliance programs to ensure compliance with federal and provincial legislation. Although there is no Convention obligation to do so, federal, provincial and territorial hazardous waste programs address small quantities of retired

¹ The chemically related compound mirex is already included in the Stockholm convention. Both mirex and Chlordecone are included in the UNECE 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs). Both are included in OSPAR as substances of possible concern.

² http://www.helcom.fi/environment2/hazsubs/action/en_GB/list/?u4.highlight=Chlordecone

material in the possession of consumers and have collected and safely disposed of pesticide products that are no longer registered. No further control measures are required.

In the USA all uses of Chlordecone under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act have been cancelled by the USEPA in 1977. Under the Resource Conservation and Recovery Act (RCRA), chlordecone is listed as a hazardous waste when it is a discarded commercial chemical product off-specification species, container residue, and spill residue thereof (EPA 1980b quoted from US ATSDR 1995). US ATSDR 1995 contains an overview of further regulations and Guidelines applicable to Chlordecone in the USA. There is no record of any Chlordecone or Chlordecone-containing products registered to the U.S. FDA.

In Switzerland Chlordecone has been prohibited in 1986. In Mauritius Chlordecone is listed as a prohibited agricultural chemical in the Dangerous Chemicals Control Act (DCCA). The law prohibits import, manufacture, use or possess Chlordecone.

In Japan Chlordecone is included in a list of 300 substances (or group of substances) chosen by the Ministry of the Environment where the accumulation of the information for “environmental risk” is needed from the detection rates in environment and point of view of combined effects. These are substances which might have harmful effect on human health and ecosystem via water environment (*i.e.* “environmental risk”), but the effects are not significant, or the “environmental risk” is unknown.

In Thailand production, import, export or possession of Chlordecone for use in households and public health programs is prohibited based on the Hazardous Substances Control Act B.E. 2535 (1992).

No documented evidence of action taken at national level has been reported by Zambia.

2 Identification of possible control measures

Legal prohibition of production and use of Chlordecone or Chlordecone-containing products have been stated as major control measures by all responding parties (Annex F responses 2007).

In addition, Canada states the elimination of stocks and their environmental sound disposal as additional type of control measure taken. “Any stocks that existed at the time that pesticide registration was discontinued or suspended were to be sold, used or disposed of in accordance with an established timetable, after which their sale or use became a violation of the Pest Control Products Act (PCPA). Therefore, there is no commercial reason to maintain stockpiles. Canada has established post-registration monitoring and compliance programs to ensure compliance with federal and provincial legislation. Although there is no Convention obligation to do so, federal, provincial and territorial hazardous waste programs address small quantities of retired material in the possession of consumers and have collected and safely disposed of pesticide products that are no longer registered.”

Mauritius stressed the issue of import control to prevent uses in countries which did not produce Chlordecone.

In the report submitted by France, the issue of soil decontamination by Chlordecone has been addressed. According to the report common techniques of soil decontamination such as solvent extraction and incineration are cost intensive. Microbiological degradation is not promising as it shows only low degradation rates and leads to degradation products with similar toxicity to Chlordecone itself. The authors of the study indicate that phytoremediation might be an economically viable option for the decontamination of soil which is polluted with Chlordecone. Chlordecone is taken up by specific plants from the soil. However it is noted that according to the current state of knowledge, phytoremediation requires large time scales (several centuries) to achieve similar decontamination rates as in solvent extraction (Cabidoche et al., 2006).

Besides this no further control measures have been reported or have been deemed necessary by contracting parties or observers.

As Chlordecone is an intentionally produced pesticide, the most evident and efficient control measure would be the **prohibition of all production and uses** of Chlordecone and Chlordecone-containing products. Alternatively, in accordance with Article 3(1), legal and administrative measures (*e.g.* withdrawal or denial of pre-production and pre-marketing authorisation of pesticide products) necessary to eliminate Chlordecone would have the same impact. As no remaining uses of Chlordecone have been identified, listing of Chlordecone in Annex A without any specific exemptions could be the primary control measure under the Convention.

Listing of Chlordecone in Annex A would also mean that the provisions of Article 3 on export and import and of Article 6 on identification and sound disposal of stockpiles and waste would start to apply.

2.1 Alternatives

Information on alternative pesticides has been reported from Canada and USA. France has provided information on related to Guadeloupe and Martinique. It should be noted that the chemical alternatives mentioned below are not concluded as safe or recommended by the POP Review Committee.

2.1.1 Description of alternatives

According to Environment Canada several alternatives to the pesticide uses of Chlordecone are currently registered and in use in Canada. However, the table referred to, was not provided (Annex F responses, Canada 2007).

In the USA the following alternatives are registered for use to control specific pests (NPIRS, 2007, referenced in the Annex F reponses, USA, 2007):

- Banana root borer: ethoprop, oxamyl.
- Tobacco wireworms: cyfluthrin, imidacloprid.
- Ants and/or cockroaches: azadirachtin, bifenthrin, boric acid, carbaryl, capsaicin, cypermethrin, cyfluthrin, deltamethrin, diazinon, dichlorvos, esfenvalerate, imidacloprid, lamda-cyhalothrin, malathion, permethrin, piperonyl butoxide, pyrethrins, pyriproxyfen, resmethrin, s-bioallerthrin, tetramethrin.

An assessment of the described alternatives has not been provided by the USEPA.

According to a French study on the use of Chlordecone in the French Antilles (Beaugrande *et al.*, 2005) the farmers used the following substances as substitutes after the use of Chlordecone had stopped:

- Aldicarbe
- Isophenphos
- Phenamiphos
- Cadusaphos
- Terbuphos

The authors concluded that exemptions for the use of Chlordecone were not justified anymore as appropriate substitutes for Chlordecone were available. According to another French study on organochlorine pollution in the French Antilles (Cabidoche *et al.*, 2006) the pesticides actually used Guadeloupe and Martinique containing active substances such as cadusaphos and glyphosate are biodegradable within several weeks.

Contracting parties which reported neither historical production nor use did not report on alternatives.

Alternatives pesticide products have been reviewed by the Canadian Pest Management Regulatory Agency (PMRA) and the environmental and health risks associated with their pesticide uses have been considered acceptable (Annex F responses, Canada 2007).

Algeria compiled a number of principal measures to control impacts of pesticides without specifically addressing Chlordecone as pesticide. Measures should include preventive techniques like soil aeration, mechanical control techniques like raking, burning of weeds, use of antagonistic macro-organisms (insects, parasites, predator insects), use of bio-insecticides and pesticides, use of composed measures; Application of precautionary principle, permitting, information and education, research and development, environmental sound waste management to protect environment and human health.

Croplife, the international association for pesticides industry, did not provide any information but stated that a comparative evaluation of the risk of the alternatives to Chlordecone is meaningless as a risk evaluation was never performed for Chlordecone itself (Annex F responses, Croplife 2007).

2.1.2 Technical feasibility

Alternative pesticide products are currently being utilized in Canada and the USA in a technically feasible manner. Technical feasibility is a requirement of registration by Canada's PMRA and for registration for use in the USA. (Annex F responses, 2007).

2.1.3 Costs, including environmental and health costs

Information on costs of alternatives has not been provided from parties. In Canada however, PMRA reviewed environmental and health risks from alternatives in use and considered them acceptable (Annex F responses, Canada 2007). Correspondingly at least a slight benefit for the environment and health could be expected. There are important general points to consider when evaluating the costs of alternatives for any product as specified in (Ackerman et al., 2006):

- Alternatives with a higher initial purchase cost may actually be more cost effective over the life of the product when durability and other factors are taken into account.
- Mass-production of alternatives can significantly lower their costs.
- The costs of initiatives to protect health and the environment are frequently overestimated in advance and later decline rapidly after the regulation is implemented.

2.1.4 Efficacy

Alternative pesticide products have been reviewed by the PMRA and have been determined to be efficacious for each registered pesticide use (Annex F responses, Canada 2007). This topic has not been commented on by the USA.

2.1.5 Availability

The alternative pesticide products listed in chapter 2.1.1. were readily available in the USA. In Canada availability of all the registered alternatives listed in 2.1.1. was reported to be market dependent. (Annex F responses, 2007)

2.1.6 Accessibility

The alternatives listed in chapter 2.1.1 are accessible in the USA and in Canada was reported to be market dependent. (Annex F responses, 2007)

2.2 Efficacy and efficiency of possible control measures in meeting risk reduction goals

2.2.1 Technical feasibility

In all parties responding to the questionnaire production, sale, and use of Chlordecone is prohibited. This essential phase-out of production and use of Chlordecone indicates that technically feasible alternatives have already been implemented. Any stocks that existed in Canada at the time that pesticide registration was discontinued or suspended were to be sold, used or disposed of in accordance with an established timetable, after which their sale or use became a violation of the Pest Control Products Act (PCPA). Therefore, there is no commercial reason to maintain stockpiles. Canada has established post-registration monitoring and compliance programs to ensure compliance with federal and provincial legislation. Although there is no Convention obligation to do so, federal, provincial and territorial hazardous waste programs address small quantities of retired material in the possession of consumers and have collected and safely disposed of pesticide products that are no longer registered. Also in the USA it was deemed technically feasible to cancel the registration of all uses. (Annex F responses, 2007)

2.2.2 Costs, including environmental and health costs

The phase-out of Chlordecone that has already occurred indicates that costs of alternatives have not inhibited their substitution. For the USA, there would be no additional costs to cancel the use of Chlordecone, as USEPA cancelled these uses in 1977. In Canada disposal of no longer registered pesticides has already been taken place (see 2.2.1). No specific comments have been provided by other parties. (Annex F responses, 2007) Costs could arise from elimination of unknown production and potential disposal of remaining stocks. Costs, however, are not expected to be important, even though no information has been provided. Benefits to health and environment are expected from decreasing environmental levels when ban of chlordecone production and use is established at a global scale

2.3 Summary of information on impacts on society of implementing possible control measures

2.3.1 Health, including public, environmental and occupational health

No discernible negative impacts on society have been reported from prohibition or phase-out of Chlordecone as it is apparently not currently in use. A listing in Annex A would prevent future production and integration into products. This would therefore prevent negative impacts on public, environmental and occupational health that would accrue from any future production or use of chlordecone.

As production, sale and use of Chlordecone as a pesticide are prohibited in Canada, negative human health effects due to an ongoing pesticide use of Chlordecone are eliminated.

As Chlordecone has not been and is not used, no impacts in the context of pesticide use are expected from a regulation of Chlordecone under the Stockholm Convention for Germany. On

a global level, a positive impact on human health can be expected from a ban of Chlordecone from the German point of view. (Annex F responses, Germany 2007)

2.3.2 Agriculture, including aquaculture and forestry

No discernible negative impacts on agriculture have been reported from prohibition or phase-out of Chlordecone due to the existence of viable alternatives.

There are no negative impacts on this sector in Canada as viable alternative pesticide products are available. A corresponding situation can be expected for the USA and other regions although no specific comment has been provided on this topic. No impacts in the context of pesticide-use are expected from a regulation of Chlordecone under the Stockholm Convention in countries which never used this pesticide. (Annex F responses, 2007)

2.3.3 Biota (biodiversity)

As production, sale and use of Chlordecone as a pesticide are prohibited in Canada, negative effects on biota due to an ongoing pesticide use of Chlordecone are eliminated.

As Chlordecone has not been and is not used, no impacts in the context of pesticide use are expected from a regulation of Chlordecone under the Stockholm Convention for Germany. On a global level, a positive impact on biota can be expected from a ban of Chlordecone from the German point of view. (Annex F responses, Germany 2007)

2.3.4 Economic aspects

No negative economic impacts to Canada are apparent through the current prohibition of Chlordecone as a pesticide. As Germany does not use Chlordecone, no impacts in the context of pesticide-use are expected from a regulation of Chlordecone under the Stockholm Convention. Information for other countries is not available, however cost competitive alternatives that do not exhibit POPs characteristics have already been implemented for all uses of Chlordecone, so no negatives economic impacts from a global ban on Chlordecone are expected.

2.3.5 Movement towards sustainable development

The prohibition of Chlordecone contributes positively to sustainable development in that protection of crops through previous Chlordecone pesticide uses is still maintained by alternative methods and the risk to the environment and human health is less (Canada).

As the persistent, bioaccumulative and toxic properties of Chlordecone as well as it's potential for a long-range transboundary transport were shown under the POPs-Protocol and by the POP RC of the Stockholm Convention which concluded that Chlordecone meets the screening criteria listed in Annex D, a positive impact on a globally sustainable development from a ban/restriction of the substance is to be expected (Germany). As Germany does not use Chlordecone, no impacts in the context of pesticide use on the national level are expected from a regulation of Chlordecone under the Stockholm Convention.

Reduction and elimination of Chlordecone is consistent with sustainable development plans that seek to reduce emissions of toxic chemicals. A relevant global plan is the Strategic Approach to International Chemicals Management (SAICM) that emerged from the World Summit on Sustainable Development³. The Global Plan of Action of SAICM contains specific measures to support risk reduction that include prioritizing safe and effective alternatives for persistent, bioaccumulative, and toxic substances.

2.3.6 *Social costs*

No negative social costs to Canada are apparent through the current prohibition of Chlordecone used as a pesticide. Since Chlordecone has already been replaced with other substances or technologies, the impact of an Annex A listing on consumers and farmers should be invisible and not incur any social costs

2.3.7 *Other impacts (waste and disposal implications- technical feasibility)*

Technical feasibility of waste and disposal of Chlordecone is not applicable any more in Canada, as any stocks that existed at the time that pesticide registration was discontinued or suspended were to be sold, used or disposed of in accordance with an established timetable. Canada has established post-registration monitoring and compliance programs to ensure compliance with federal and provincial legislation and federal, provincial and territorial hazardous waste programs address and have collected and safely disposed of small quantities of retired pesticide products in the possession of consumers.

As the pesticide was not applied in Germany, no obsolete stocks of Chlordecone are expected to be found. But, the introduction of a critical threshold for Chlordecone in waste (regulation 1195/2006/EC⁴) will lead to measures taken in Germany as well. At the current moment no information on costs is available.

Further Regulations concerning the annexes of directive (EC) 850/2004 are expected to be elaborated for the European Union. These are related to thresholds and regulations of destruction measurements.

All in all, no data on existing Chlordecone stockpiles have been provided but it can be assumed that some countries may still possess obsolete stockpiles which would need to be managed as waste. At least two regions (Sub-Saharan Africa and South East Asia / South Pacific) have identified Chlordecone as a possible substance of concern in their Regionally Based Assessment of Persistent Toxic Substances but no further information on possible obsolete stockpiles is provided in those reports. (UNEP 2002a, UNEP 2002b)

³ <http://www.chem.unep.ch/saicm/>

⁴ Amending Regulation (EC) 850/2004

2.4 Other considerations

2.4.1 Access to information and public education

The Pest Management Regulatory Agency of Health Canada (PMRA) provides a wide variety of information regarding pesticide regulation through its web site, www.pmra-arla.gc.ca, including information regarding regulatory decisions taken on pest control products. In taking regulatory decisions on registered products, the PMRA considers the availability of alternatives, and includes relevant information in its documentation. The PMRA website also provides access to a Public Registry that includes a collection of information on pesticides or the pesticide regulatory system, including all publicly available information on currently registered pesticides.

In the Czech Republic information on Chlordecone is part of the SC/UN ECE CRLTAP education and awareness raising campaign under the national implementation plan.

In Zambia access to environmental information is low, though it has improved in the recent past (ECZ 2001, State of the Environment, Lusaka, Zambia).

2.4.2 Status of control and monitoring capacity

Information on control and monitoring capacity has been provided by Canada, Czech Republic and Zambia only. In Canada control and monitoring capacity of pesticide uses is managed by the PMRA through compliance mechanisms in place at border crossings and entry points to prohibit import of Chlordecone or any other applicable chemicals into Canada. Compliance issues within Canada may be identified to the PMRA through the following avenues:

- PMRA compliance activities;
- reporting of suspected infractions; and/or
- results reported from other government agencies.

In Zambia general chemical control and monitoring capacity available through the Environmental Protection and Pollution Control Act which is enforced by the Environmental Council of Zambia (ECZ 2001, State of the Environment, Lusaka, Zambia).

In the Czech Republic specific control and monitoring capacity for Chlordecone has been reported as none. Other Parties and observers did not cover this topic in their answers.

In general, listing Chlordecone in Annex A will involve control measures that are straight forward to communicate and therefore should be effective and suitable, even in countries that have limited chemical regulatory infrastructure.

3 Synthesis of information

According to the Risk Profile on Chlordecone main production of Chlordecone in the USA ceased in 1975 and use of Chlordecone (or related formulations) may have largely ceased by the end of the eighties, but it is assumed that it can still be produced or used as an agricultural pesticide in some developing countries, although there are no reports of such production or use. In French overseas territories Chlordecone has been used until September 1993. If it is still used as pesticide, it will be directly released to the environment. Moreover, the high persistency of the substance has caused high contamination of soil and waters in areas where it has been used and these contaminated sites can serve as a source of pollution for long times.

Chlordecone is already listed in Annex I of the CLRTAP POP Protocol and in the European POP Regulation (EC) No 850/2004. In addition it is addressed under the OSPAR and HELCOM convention. At the national level a legal ban has been reported by Germany, Canada, the USA and Switzerland. In Japan Chlordecone is included in a list of substances where further information on “environmental risk” is sought.

Chlordecone is an intentionally produced pesticide and thus the most evident and efficient control measure would be the prohibition of all production and uses of Chlordecone and Chlordecone containing products. As no remaining production uses of Chlordecone have been identified, listing of Chlordecone in Annex A without any specific exemptions would be the primary control measure under the Convention. Listing of Chlordecone in Annex A would also mean that the provisions of Article 3 on export and import and of Article 6 on identification and sound disposal of stockpiles and waste would apply.

As production of Chlordecone has ceased some decades ago in the main producing countries, availability of alternatives, efficacy and cost implications do not constitute a problem. Based on the same background significant impacts on society are not expected if Chlordecone is listed in Annex A of the Convention. No needs for specific exemptions have been identified.

A beneficial effect could be expected as currently unknown production in parts of the world could cease. In addition, potential ongoing uses in developing countries or management and disposal of potentially remaining stocks would be further regulated. Finally reintroduction of Chlordecone which currently remains possible and which would directly lead to increased releases and levels in the environment would be prevented on a global scale.

To effectively avoid releases of Chlordecone into the environment however, also the issue of environmental degradation of related substances or derivatives (such as Kelevan) into Chlordecone would have to be taken into consideration. Simple listing of Chlordecone in Annex A would not cover this type of release, unless a supplementary provision will be added in Annex A Part II.

4 Concluding statement

The Committee at its second meeting evaluated the risk profile for Chlordecone. Taking into account that a lack of full scientific evidence certainly should not prevent a proposal from proceeding, the Committee decided that this chemical is likely, as a result of long-range environmental transport, to lead to significant adverse effects on human health and/or the environment such that global action is warranted.

The Committee prepared a risk management evaluation and decides that it is important to prevent the re-introduction of Chlordecone, recognizing it is not known to be currently produced or used.

Therefore, in accordance with paragraph 9 of Article 8 of the Convention, the Committee recommends the Conference of the Parties to the Stockholm Convention to consider listing and specifying the related control measures of Chlordecone in Annex A. As no remaining production or uses of Chlordecone have been identified, listing of Chlordecone in Annex A without any specific exemptions is feasible.

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