

DDT Review

Prepared for:

POPs Task Force
Protocol on Persistent Organic Pollutants
Convention on Long-Range Transboundary Air Pollution
United Nations Economic Commission for Europe

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1 Executive Summary

1.1 Protocol Requirements

The implementation requirements for DDT in Annex I of the POPs Protocol to the Convention on Long-Range Transboundary Air Pollution mandate Parties to eliminate the production of DDT once there is consensus that suitable alternatives are available for public health protection.

With a view to eliminate the production of DDT, Parties are required to review the availability and feasibility of alternatives to DDT in consultation with the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), and the United Nations Environment Program (UNEP).

The Protocol mandates that the review of the availability and feasibility of alternatives to DDT be completed no later than one year after entry into force of the Protocol and periodically thereafter.

The POPs Protocol entered into force October 23, 2003. Therefore, this DDT review is due no later than October 23, 2004.

The implementation requirements for DDT in Annex II of the POPs Protocol mandate DDT to be restricted to use for public health protection from diseases such as malaria and encephalitis and as a chemical intermediate to produce the pesticide dicofol.

Note: The reassessment required for the use of DDT as a chemical intermediate to produce dicofol is the subject of a separate dossier prepared by the Netherlands and is therefore not addressed in this review. Information on DDT as a formulation contaminant in dicofol is addressed in this review.

1.2 Questionnaires and Responses

In 2001 and 2004, the UNECE Secretariat sent out questionnaires to all 49 parties to the LRTAP Convention requesting information on DDT production, use, alternatives, and control measures. The Secretariat received responses from 25 countries in 2001 and 24 countries in 2004. Below is a table on the status of the responders.

Status of Responders	2001 Responses	2004 Responses
Party to POPs Protocol	13	12
Signatory to POPs Protocol	10	11
Party to LRTAP Convention only	2	1
Totals	24	25

Based on information in these questionnaires, there is no production or use of DDT for public health protection in the region.

1.3 Background on Malaria and Control Strategies

Malaria is not a significant health problem in many UNECE countries at this time. However, outside the UNECE region, DDT continues to be a tool in some countries for the control of malaria.

According to WHO, malaria kills at least one million people each year, or about 3,000 people per day. Nine out of ten cases of malaria occur in Africa south of the Sahara. Indications are that malaria is re-emerging in other areas of the world where malaria was considered "eradicated." Increases in the frequency of reported cases have also been noted in some areas.

WHO, through the Roll Back Malaria initiative, has the international mandate to assist countries to reduce their reliance on DDT. WHO also has an international testing program in place that promotes and coordinates the testing and evaluation of new public health pesticides. Therefore, WHO is uniquely suited to identify the alternatives to DDT for disease vector control.

This review includes general information on a combination of vector and disease management strategies, called Integrated Vector Management (IVM), for public health pests.

This review also provides information on the global production and use of DDT and on additional topics of relevance to malaria control. In addition, it covers DDT as a formulation contaminant in the pesticide dicofol.

1.4 Concluding Remarks

There is no production or use of DDT for public health protection in the UNECE region. In addition, malaria is not a significant health problem in many UNECE countries at this time.

However, outside the UNECE region, malaria is a significant health problem, killing at least one million people per year. DDT continues to be a tool in some countries for the control of malaria.

According to WHO, FAO, and UNEP, effective, economically-viable, and less environmentally hazardous alternatives to DDT continue to be needed in these countries for public health protection from vectors that carry diseases such as malaria.

Building on successes in the agricultural sector, the use of a combination of vector and disease management strategies using an IVM approach seems to be the best way forward, rather than simply replacing DDT with another insecticide.

As allowed by the POPs Protocol, DDT is a chemical intermediate to produce the pesticide dicofol. The European Union, Canada, and the United States have limited the DDT content in dicofol to 0.1%.

2 Introduction

This review addresses the availability and feasibility of alternatives to DDT as required in Annexes I and II of the POPs Protocol. The review was developed in consultation with experts at WHO, FAO, and UNEP.

The structure of this review uses the outline that was developed by the POPs Task Force at its first meeting in the Hague in March 2004.

2.1 Protocol Requirements

The implementation requirements for DDT in Annex I of the POPs Protocol to the Convention on Long-Range Transboundary Air Pollution mandate Parties to eliminate the production of DDT once there is consensus that suitable alternatives are available for public health protection.

In keeping with the objective of eliminating the production of DDT, Parties are required to review the availability and feasibility of alternatives to DDT in consultation with WHO, FAO, and UNEP. In addition, Parties must promote the commercialization of safer and economically viable alternatives to DDT.

The Protocol requires that the review of the availability and feasibility of alternatives to DDT be completed no later than one year after entry into force of the Protocol. The POPs Protocol entered into force October 23, 2003. Therefore, this review is due no later than October 23, 2004.

The implementation requirements for DDT in Annex II of the POPs Protocol mandate that DDT be restricted to use for public health protection from vectors that carry diseases such as malaria and encephalitis and as a chemical intermediate to produce the pesticide dicofol.

The reassessment required for the use of DDT as a chemical intermediate to produce dicofol is the subject of a separate dossier that is being prepared by the Netherlands and is therefore not addressed in this review. The draft dossier can be viewed at www.unece.org/env/popsxg/pops_xg.htm.

For information on DDT as a formulation contaminant in dicofol, see Section 5.7 of this document.

For the full text of the requirements for DDT, see Appendix 1 of this document.

For the full text of the POPs Protocol, see www.unece.org/env/lrtap/

2.2 Questionnaires and Responses

In 2001 and 2004, the UNECE Secretariat sent out questionnaires to all 49 Parties to the LRTAP Convention requesting information on DDT production, use, alternatives, and control measures. The Secretariat received responses from 25 countries in 2001 and 24 countries in 2004.

Below is a table on the status of the responders.

Status of Responders	2001 Responses	2004 Responses
Party to POPs Protocol	13	12
Signatory to POPs Protocol	10	11
Party to LRTAP Convention only	2	1
Totals	24	25

Appendix 2 of this document contains the information obtained from the questionnaires, including country-specific control actions on DDT.

Appendix 3 contains a complete list of countries that responded to the questionnaires and their status relative to being a Party to the POPs Protocol.

3 Production, Use, and Control Actions in the UNECE Region

Based on information in the responses to the 2001 and 2004 questionnaires, there is no production or use of DDT for public health protection in the region. Only Armenia and the Czech Republic provided information about the DDT alternatives being used. Armenia reports using solphat [sic], alpha-cypermethrin, and bactoculicidum [sic]. The Czech Republic reports using organophosphates and synthetic pyrethroids.

Appendix 2 of this document contains the information obtained from the questionnaires, including country-specific control actions on DDT.

Appendix 3 contains a complete list of countries that responded to the questionnaires and their status relative to being a Party to the POPs Protocol.

4 Review of the Availability and Feasibility of Alternatives to DDT

This section provides a general discussion on malaria and various malaria control strategies that include, *inter alia*, vector control, disease control, use of insecticide-treated bednets, malaria vaccines, and other control measures.

For detailed information on these topics, the reader should consult the websites included in each section. The WHO, through the Roll Back Malaria initiative, has the international mandate to assist countries to reduce their reliance on DDT.

4.1 Malaria

According to the WHO, malaria kills at least one million people each year, or about 3,000 people a day. Almost 300 million people suffer from acute malaria each year. Forty percent of the world's population lives in areas with malaria risk but nine out of ten cases occur in Africa south of the Sahara.

For additional information on malaria, see www.rbm.who.int.

4.2 WHO Action Plan to Reduce Reliance on DDT

Under the Roll Back Malaria initiative (RBM), the WHO has initiated a program to reduce reliance on DDT, including the development of the WHO Action Plan for Reducing Reliance on DDT.

This program provides an international framework for coordinating action with respect to DDT. RBM is developing a standard needs assessment methodology for use by national governments to identify the managerial, technical, and financial requirements to improve malaria vector control and reduce reliance on DDT. Based on these needs assessments, WHO will support countries in the preparation of national action plans that establish integrated strategies for enhancing malaria control while reducing reliance on DDT.

For more information on RBM, see www.rbm.who.int.

4.3 Vector and Disease Management Strategies

In countries where malaria is a significant public health concern, numerous factors contribute to the continued use of DDT and the selection of vector control strategies. These include, *inter alia*, the incidence of malaria, vector dynamics, level of mobilization of health and vector control services, and available resources. Furthermore, vector control is only one component of malaria control. Direct medical interventions, particularly disease detection and treatment, are also essential and, in some situations, are more cost-effective.

In light of this country-specific variability, it is unlikely that one single strategy will be adequate for controlling malaria world-wide. Therefore, the WHO supports the development and use of a combination of vector and disease management strategies, called Integrated Vector Management, or IVM, for public health pests, not simply the replacement of DDT with another indoor vector control pesticide.

In place of DDT, countries have relied on other chemical insecticides, biological controls, personal protective measures, and environmental management strategies. In some cases, these can be effective alternative strategies. However, many countries do not have adequate resources or capacity to conduct effective vector control programs using DDT or alternatives. This is especially true in most countries in Africa.

Therefore, additional tools are needed for these countries that are effective, affordable, appropriate for use under local circumstances, and consistent with IVM. This will require concerted international action and resources to support research, development, and training activities.

WHO, international donor agencies, and research institutions are conducting a variety of efforts, including: development of malaria vaccines as well as new drug treatments; development of non-chemical vector control tools; strengthening of health services and technical capacity at the national level; and promotion of insecticide-treated bednets (ITNs).

The United States Agency for International Development has recently published an environmental assessment on the use of insecticide-treated bednets in sub-Saharan Africa. The assessment states that ITNs can significantly reduce malaria transmission, with estimates of six lives saved per 1,000 children protected by ITNs.

For information on IVM, see

<http://mosquito.who.int/docs/ecr20.pdf>

<http://www.chem.unep.ch/pops/pdf/redelipops/redelipops.pdf>

For information on control strategies, see

[www.who.int/dsa/cat98/vect8.htm#Vector Control](http://www.who.int/dsa/cat98/vect8.htm#Vector%20Control)

[who.int/bookorders/anglais/detart1.jsp?sesslan=1&codlan=1&codcol=15&codcch=448](http://www.who.int/bookorders/anglais/detart1.jsp?sesslan=1&codlan=1&codcol=15&codcch=448)

For information on insecticide-treated bednets, see

www.encapafrika.org/sectors/pestmgmt.htm

www.afr-sd.org/SDPublications.htm

4.4 WHO Pesticide Evaluation Scheme

The WHO Pesticide Evaluation Scheme, established in 1960, is a key international program that promotes and coordinates the testing and evaluation of new pesticides proposed for public health use. It functions through the participation of representatives of governments, the pesticide industry, the WHO collaborating centers, university associations, associate laboratories as well as other WHO Programs. Through this program, the WHO has identified several pesticides that meet the WHO guidelines for malaria control.

For additional information, see <http://www.who.int/ctd/whopes/index.html>

4.5 Use of Chemical Pesticides

Several pesticides are routinely used for vector control in place of DDT. A cost-comparison of DDT and alternative insecticides for malaria control was published in 2000 and is included in the table below.

Though these pesticides are alternatives to DDT, 1998 to 1999 global cost evaluations indicate that DDT is still the least expensive *on a cost per house sprayed basis*.

However, evaluating the cost of an insecticide only on the purchase price of an individual product or application can be misleading. The most cost effective insecticide in any given country or area should be determined on a case-by-case basis.

1998-1999 cost comparison of insecticides for indoor vector control, excluding operational costs. Adapted from Walker, 2000

Insecticide (SP=synthetic pyrethroid)	Product cost range per house per 6 months (US\$) ratio based on number in bold	Cost ratio (DDT = 1)
DDT	1.50 - 3.00	1
Malathion	3.20 - 6.40 (4.08)	1.4
Lamda-cyhalothrin (SP)	3.75 - 4.5 (4.51)	1.5
Cyfluthrin (SP)	2.20 - 5.50	1.8
Deltamethrin (SP)	3.20 - 8.00	2.7
Etofenprox	4.00 - 12.00 (8.00)	2.7
Bendiocarb	4.00 - 10.00 (8.00)	2.7
Permethrin (SP)	2.8 - 13.60	4.5
Fenitrothion	7.70 - 15.40	5.1
Propoxur	28.00 - 56.00	18.7

The decision to use DDT or another insecticide for vector control may be influenced by several factors, particularly local efficacy and cost. The heavy use of a particular insecticide, either for vector control or in agricultural areas where disease vectors breed, may cause vectors to develop resistance to that insecticide. Any vector control strategy should be based on a long-term sustainable approach that reduces reliance on pesticides.

For example, insecticide resistance has led to the decline in efficacy of DDT against malaria vectors in Central America and some regions of India. Conversely, the development of resistance to synthetic pyrethroid insecticides in a vector species in South Africa has prompted a return to the use of DDT. High

costs on a per house sprayed basis and market access may also limit insecticide choice.

5 Other information

This section provides information on the global production and use of DDT and on additional topics relevant to malaria control. In addition, it covers DDT as a formulation contaminant in the pesticide dicofol.

5.1 Global DDT Production and Use

Although not specifically required for this review, the Secretariat of the Stockholm Convention on POPs provided information on the global production and use of DDT.

The Stockholm Convention allows the production and use of DDT for disease vector control until effective and affordable alternatives become available; encourages the development of efficient, effective, affordable and environmentally friendly alternatives; and establishes a DDT registry of users and producers that will be publicly available.

The DDT provisions in the Convention require Parties that use DDT for disease vector control to report on such use, including conditions of use and its relevance to the country's disease management strategy. Beginning with the first meeting of the Conference of Parties and every three years thereafter, Parties are required, in consultation with the WHO, to evaluate the continued need for DDT for disease vector control on the basis of available scientific, technical, environmental, and economic information.

During the negotiations for the Stockholm Convention, China, India, and the Russian Federation indicated their intention to produce DDT for public health purposes. Thirty-two countries indicated the need to use DDT for disease vector control in accordance with the provisions for acceptable use.

These countries are Algeria, Bangladesh, Brazil, Cameroon, China, Comoros, Costa Rica, Ivory Coast, Ecuador, Eritrea, Ethiopia, India, Iran, Kenya, Madagascar, Malawi, Mauritius, Morocco, Mozambique, Namibia, Papua New Guinea, Korea, Russian Federation, Saudi Arabia, South Africa, Sudan, Swaziland, Togo, Uganda, Tanzania, Venezuela, Yemen, Zambia, and Zimbabwe.

For information on the Stockholm Convention, see www.pops.int/

5.2 Economic Analysis of Malaria Control in Sub-Saharan Africa

Although it does not address DDT specifically, the Global Forum for Health Research in conjunction with WHO published a report entitled *An Economic Analysis of Malaria Control in Sub-Saharan Africa*.

The various interventions analyzed include measures to prevent malaria in childhood (insecticide treated nets, residual spraying, chemoprophylaxis) and pregnancy (chemoprophylaxis, intermittent treatment), and measures to improve case management of uncomplicated malaria (improving compliance through: training providers, health education for patients and care-givers, and pre-packaging of chloroquine in unit doses; improving the availability of second and third line drugs; changing the first line drug for treatment; using combination therapies; introducing diagnostic tests).

The report analyzes the cost-effectiveness and economic benefits of a variety of malaria control interventions to countries in Sub-Saharan Africa, for the purpose of providing policy-makers with information on the interventions which represent the best value for money.

For information, see

www.who.int/tdr/publications/tdrnews/news63/gfhrpublication.htm

5.3 North American Regional Action Plan on DDT

DDT was one of the first targets of the Commission on Environmental Cooperation's Sound Management of Chemicals initiative. Canada, Mexico, and the United States approved the North American Regional Action Plan on DDT in 1997 with the goal of reducing Mexico's use of DDT by 80 percent by 2002. Efforts focused primarily on employing alternative methods of controlling mosquitoes and were so successful that DDT use was stopped in 2000.

For information, see www.cec.org/programs_projects/pollutants_health/smoc/

5.4 GEF Projects to Phase-Out DDT

Building on the successful model described above in North America, the Global Environmental Facility (GEF) has established mechanisms to promote international co-operation and foster actions in providing additional grant and concessional funding to developing countries to phase-out DDT.

The GEF has funded work in Mexico and Central America to phase-out DDT. The GEF has also funded a project developed by WHO for countries in Africa.

Projects for the WHO Eastern Mediterranean and South-east Asia Regions are also under development by WHO in collaboration with UNEP.

These GEF projects will develop and test new alternative methods using an IVM approach tailored to the needs of the regions. In addition, it will strengthen technical expertise and community involvement as necessary for the effective use of alternative strategies. For example, in villages in Mexico, the community worked to clean algae from streams, as the malaria mosquitoes were breeding in the algae.

5.5 World Bank Loans to India

In a separate effort, the World Bank (project 010511) has provided a substantial loan to India to strengthen its malaria control program that will include the promotion of selective vector controls, including non-chemical methods and reduced chemical applications.

As India presently uses more than half of the total DDT produced annually, this project may have a significant impact on DDT use overall.

For information, see <http://web.worldbank.org/>

5.6 Guidance on Sustainable Pest and Vector Management

Since nine of the twelve substances included in the Stockholm Convention on POPs are pesticides, WHO, UNEP and FAO with the Global IPM Facility have jointly developed guidance on alternative strategies for sustainable management of disease vectors and pests including termites. This guidance is intended to assist countries in reducing and eliminating the use of persistent organic pesticides.

The guidance emphasizes the importance of integrated management approaches and inter-sectoral collaboration. It urges countries to consider problems associated with approaches that rely solely on replacing POPs pesticides with other chemical control measures.

Other activities include the establishment of a UNEP/FAO/Global IPM Facility Termite Expert Group that has produced a report and a web site dedicated to alternative management approaches for the control of termites within the agricultural and construction sectors.

For additional information, see <http://www.pops.int/>

5.7 DDT as a Formulation Contaminant in Dicofol

For some UNECE countries, the use of dicofol may be a source of DDT emissions to the environment. The FAO/WHO product specification for DDT in dicofol is 1g/kg (0.1%). The European Union, Canada, and the United States have limited the DDT content in dicofol to 0.1%. This specification provides an international point of reference against which the quality of products can be judged, either for regulatory or commercial purposes. Manufacturers should be encouraged to reduce the content of DDT in dicofol to these levels.

For information on specifications, see www.fao.org/AG/AGP/AGPP/Pesticid/.

6 Concluding Remarks

DDT is not produced or used by most countries in the UNECE region, nor is malaria a significant health problem in the region at this time. However, indications are that the disease is re-emerging in other areas of the world where malaria was considered “eradicated.” Increases in the frequency of reported cases have also been noted in some areas.

Outside the UNECE region, DDT continues to be a tool in some countries for the control of malaria.

In place of DDT, some countries outside the UNECE region have relied on other chemical insecticides, biological controls, personal protective measures such as insecticide-treated bednets, and environmental management strategies such as controlling the habitat of the mosquito that carries malaria. Disease control interventions, particularly early diagnosis and treatment of malaria, are essential and, in some situations, are more cost-effective than vector control programs.

Building on successes in the agricultural sector, the use of a combination of vector and disease management strategies using an IVM approach seems to be the best way forward, rather than replacing DDT with another insecticide.

Based on global information from the Stockholm Convention, China, India, and the Russian Federation have indicated their intention to produce DDT for public health purposes and 32 countries have indicated the need to use DDT for disease vector control.

As allowed by the POPs Protocol, DDT is a chemical intermediate to produce the pesticide dicofol. Most countries in the UNECE region have limited the DDT content in dicofol to 0.1%.

Conclusion: According to WHO, FAO, and UNEP, effective, economically-viable, and less environmentally hazardous alternatives to DDT continue to be needed for public health protection from vectors that carry diseases such as malaria.

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Appendix 1

LRTAP POPs Protocol Obligations for DDT

Annex I -- Substances Scheduled for Elimination

Substance	Implementation Requirements	
	Elimination	Conditions
DDT CAS: 50-29-3	Production	<p>1. Eliminate production within one year of consensus by the Parties that suitable alternatives to DDT are available for public health protection from diseases such as malaria and encephalitis.</p> <p>2. With a view to eliminating the production of DDT at the earliest opportunity, the Parties shall, no later than one year after the date of entry into force of the present Protocol and periodically thereafter as necessary, and in consultation with the World Health Organization, the Food and Agriculture Organization of the United Nations, and the United Nations Environment Programme, review the availability and feasibility of alternatives and, as appropriate, promote commercialization of safer and economically viable alternatives to DDT.</p>
	Use	None, except as identified in annex II.

Annex II -- Substances Scheduled for Restrictions on Use

Substance	Implementation Requirements	
	Restricted to uses	Conditions
DDT CAS: 50-29-3	<p>1. For public health protection from diseases such as malaria and encephalitis.</p> <p>2. As a chemical intermediate to produce dicofol.</p>	<p>1. Use allowed only as a component of an integrated pest management strategy and only to the extent necessary and only until one year after the date of the elimination of production in accordance with annex I.</p> <p>2. Such use shall be reassessed no later than two years after the entry into force of the present Protocol</p>
	Use	None, except as identified in annex II.

Appendix 2

Responses to POPs Questionnaires sent out by the UNECE Secretariat in 2001 and 2004

Country	Production	Use	Actions to Control Production and Use/Comments
Armenia	No production	Banned	In Armenia, DDT use was banned in 1970 by the order of former USSR Ministry of Health. At present, DDT is not included in the "List of plant protection chemical and biological substances allowed for use in Republic of Armenia" approved by the Minister of Agriculture decree (No198-N on November 18, 2003); this means that DDT import and use is banned in Armenia. In Armenia for vector control as preventive and combat measures against malaria - for indoor treatment is used the solphat, for cow houses treatment – alpha-cypermethrin and in case of treatment the open surface waters sources is applied bactoculicidum.
Austria	No Production	No use	
Belgium	Banned	No use	Source: 2000 questionnaire.
Bulgaria	No Production	Banned	DDT is banned for use with the Order of the Minister of Agriculture and Forestry, Minister of Health and Minister of Environment and Water.
Canada	No Production	Banned	Unless registered under the Canadian Pest Control Products Act, pesticides may not be imported, sold or used in Canada. DDT is no longer registered for use in Canada.
Croatia	No Production	Banned	Forbidden in 1972, excluded from Poison list in 2001 (Official Gazette No.7/2001).
Cyprus	No Production	No use	Import prohibited since 1.12.76.
Czech Republic	No Production	No use	DDT is a part of ongoing monitoring and control programmes (air, waters, sediments, soils, vegetation, feedstuffs, food, foodstuffs, total diet study, human exposure). Monitoring annual reports; National POPs inventory. Alternatives: organophosphates, synthetic pyrethroids
Denmark	No Production	Banned	Source of information: 2000 questionnaire response. Use of annex 1 substances has been forbidden since December 1995 in accordance with Act No. 438, June 1994.
European Community			Currently production of DDT is not regulated in the Community. The marketing and use of DDT as a plant protection product has been prohibited by Council Directive 79/117/EEC, whereas the other uses have not been regulated. On the other hand, DDT is not known to be produced and used in the Community, except as a site-limited closed-system intermediate in the production of dicofol. The Commission has in June 2003 proposed a Regulation of the European Parliament and the Council on Persistent Organic Pollutants (COM(2003) 333 final) which contains a ban of production, placing on the market and use of DDT. The Parliament has in February 2004 adopted a legislative resolution on the Regulation, and the Council and the Parliament are expected to adopt the Regulation in spring 2004.
Finland	No Production	Banned	The use of DDT as a pesticide was banned in 1976 (The Decision of the Ministry for Agriculture and Forestry 503/1976).
France	No Production	No use	
Georgia		No use	Note: Georgia has not signed the POPs Protocol. DDT is not listed in the List of Agrochemicals Permitted for Use in Georgia adopted under the Law on Hazardous Chemicals, 1998. However the situation with DDT is of special concern: despite DDT ban, there remains still the "tradition" from the soviet time of DDT use as insecticide in coastal areas, military zones and facilities, etc. This practice is continuing today in significantly smaller scale through smagling (smuggling?), due to low public awareness mainly. At the same time health central and local authorities of MoH have appropriate knowledge, experience and technologies (e.g. pyrethroids) to combat malaria. Appropriate measures are planned to be taken in the nearest future to overcome problem.
Germany	Banned	Banned	According to a specific law on DDT (issued in 1972) any manufacture, use, import or export of DDT is prohibited in Germany. Since 1990 this applies also for the former GDR. Gesetz über den Verkehr mit DDT (DDT-Gesetz) vom 7. August 1972
Ireland	No Production	Banned	DDT has been banned as a plant protection product in Ireland since 1985.
Italy	No Production	Banned	The Health Ministerial Order of 11 October 1978 banned the use of DDT in agriculture for the protection of the culture and the defence of food stored products. Residues in

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Country	Production	Use	Actions to Control Production and Use/Comments
			food are controlled according to Health Ministerial Order of 22 July 2003 (last up to date) on the maximum residue level of pesticides in food.
Kazakhstan		No use	
Latvia	No Production	Banned	Import, sales and use of DDT is banned. Data base on chemical substances and chemical products (Latvian Environment Agency, 1995-2000). Regulations of the Cabinet of Ministers No.107 "Regulation Regarding Prohibited Plant Protection Products" (21.03.2000). Law on Convention on the Protection of the Marine Environment of the Baltic Sea Area (03.03.1994, in force from 17.01.2000). COWI, 2001. Status on POPs Phase-out in the Baltic States (Latvia).
Lithuania	Banned	Banned	Banned import, production and use of pesticides containing this active substance from 1997. Lithuanian Hygienic Standard HN 63:2003 "Banned and restricted pesticides"
Monaco			There is no regulation about DDT in Monaco. However, European regulations concerning production and sale of this chemical compound are applied in Monaco.
Netherlands	Banned	Banned	Source of information: 2000UN-ECE questionnaire.
Norway	No Production	Banned	The use of DDT as a pesticide has been banned. The ban came into force in 1989.
Poland	No Production	Banned	In Poland marketing, use and recycling of DDT is prohibited. Some unidentified amounts of DDT are still present in old landfills. DDT (as a pesticide) has been produced and used in the 50's and 60's of the 20th century.
Slovakia		Banned	Banned since 1975.
Spain		Banned	There is since 1994 a National Regulation (Orden Ministerial, BOE 17-02-1994) banning the marketing and use of DDT, as non-agricultural pesticide.
Sweden	No production	No use	Pesticides containing DDT are not allowed within EU according to Council Directive 91/414/EEC concerning the placing of plant protection products on the market. According to Swedish legislation pesticides must be registered. The registration of DDT was revoked in 1970 except for a very limited use in forestry permitted until 1974. Council Directive 91/414/EEC is implemented in Sweden through the Swedish National Chemicals Inspectorate Regulation 1998:8 concerning Chemical Products and Biotechnical organisms.
Switzerland			According to Ordinance relating to Environmentally Hazardous Substances of 9 June 1986: "The manufacture, supply, import and use of DDT and similar compounds are prohibited in Switzerland."
Turkey		banned	It was banned by Ministry of Agriculture and Rural Affairs since 1979. Regulation on Licensing of Pesticides and Similar Products Used in Plant Production.
UK	No production	Banned	DDT is not an approved pesticide. It may therefore not be licensed for use in the UK. Pesticides 2001 (published by the Department of Environment Food and Rural Affairs and the Health and Safety Executive) and direct contact with HSE who state that DDT was banned 'over the period 1964 to 1984. The reason for the ban is that it is an environmental hazard (a persistent organochlorine) and has a high acute toxicity.'
USA	No production	Banned	Not registered under the Federal Insecticide, Rodenticide and Fungicide Act. Most uses canceled in 1972, all uses were canceled by 1989.

Appendix 3

Status of Responders under the LRTAP Convention and POPs Protocol

Country	Party to the Convention	Signatory POP Protocol	Party to the POP Protocol	Response 2001	Response 2004
Armenia	X	X		X	X
Austria	X	X	X	X	X
Azerbaijan	X				
Belarus	X				
Belgium	X	X		X	X
Bosnia and Herzegovina	X				
Bulgaria	X	X	X		X
Canada	X	X	X	X	X
Croatia	X	X		X	
Cyprus	X	X			X
Czech Republic	X	X	X	X	X
Denmark	X	X	X	X	X
Estonia	X				
Finland	X	X	X	X	X
France	X	X	X	X	X
Georgia	X			X	
Germany	X	X	X	X	X
Greece	X	X			
Holy See					
Hungary	X	X	X		
Iceland	X	X	X		
Ireland	X	X			X
Italy	X	X		X	X
Kazakhstan	X			X	
Kyrgyzstan	X				
Latvia	X	X		X	X
Liechtenstein	X	X	X		
Lithuania	X	X			X
Luxembourg	X	X	X		
Malta	X				
Monaco	X			X	
Netherlands	X	X	X	X	X
Norway	X	X	X	X	X
Poland	X	X		X	X
Portugal	X	X			
Republic of Moldova	X	X	X	X	
Romania	X	X	X		
Russian Federation	X				
San Marino					
Slovakia	X	X	X	X	
Slovenia	X	X			
Spain	X	X		X	
Sweden	X	X	X	X	X
Switzerland	X	X	X	X	X
Macedonia	X				
Turkey	X				X
Ukraine	X	X			
UK	X	X		X	X
USA	X	X		X	X
European Community	X	X			X
Total:	49	36	19	25	24

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