



**Stockholm Convention
on Persistent Organic
Pollutants**

**Conference of the Parties to the Stockholm
Convention on Persistent Organic Pollutants
Seventh meeting**

Geneva, 4–15 May 2015

Item 5 (a) (ii) of the provisional agenda*

**Matters related to the implementation of the Convention:
measures to reduce or eliminate releases from intentional
production and use: DDT**

**Report by the United Nations Environment Programme on
progress in the implementation of the Global Alliance for the
Development and Deployment of Products, Methods and
Strategies as Alternatives to DDT for Disease Vector Control**

Note by the Secretariat

As referred to in the note by the Secretariat on the evaluation of the continued need for DDT for disease vector control and promotion of alternatives to DDT (UNEP/POPS/COP.7/5), the annex to the present note contains a report by the United Nations Environment Programme on progress in the implementation of the Global Alliance for Alternatives to DDT. The present note, including its annex, has not been formally edited.

* UNEP/POPS/COP.7/1.

Annex

Report by the United Nations
Environment Programme on
Progress in the Implementation of
the Global Alliance for the
Development and Deployment of
Products, Methods and Strategies as
Alternatives to DDT for Disease
Vector Control (Global Alliance on
DDT)

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Acronyms and Abbreviations

BRS Secretariat	Secretariat of the Basel, Rotterdam and Stockholm Conventions
COP	Conference of the Parties
DTIE	Division of Technology, Industry and Economics
ESM	Environmentally sound management
EU	European Union
GEF	Global Environment Facility
ICCG	<i>Centre International de Conférences Genève</i>
IGO	Intergovernmental Organization
POPs	Persistent Organic Pollutants
RECETOX	Research Centre for Toxic Compounds in the Environment
UNEP	United Nations Environment Programme
WHO	World Health Organization

1. Introduction

Pursuant to decision SC-5/6 on DDT of the Conference of the Parties (COP) to the Stockholm Convention on Persistent Organic Pollutants (POPs), the Secretariat of the Basel, Rotterdam and Stockholm Conventions (BRS Secretariat) had facilitated a sustainable transition of the leadership of the Global Alliance for the Development and Deployment of Alternatives to DDT for Disease Vector Control to the Chemicals Branch of the United Nations Environment Programme (UNEP) Division of Technology, Industry and Economics (DTIE). At its sixth meeting, in Geneva, Switzerland, 28 April-10 May 2013, through decision SC-6/1 on DDT (paragraph 15), the COP invited UNEP to report on progress in the implementation of the Global Alliance to the COP at its seventh meeting.

UNEP Chemicals Branch, in its function as the secretariat of the Global Alliance, has worked in close consultation with the BRS Secretariat and the World Health Organization (WHO) and to facilitate the work of the Global Alliance (see paragraph 16 of decision SC-6/1). The provision of leadership and administrative support for the Global Alliance has been approved within UNEP's Subprogramme 'Chemicals and Waste 2014-2015' and project 'Support to implementation of the chemicals and waste Multilateral Environmental Agreements (MEAs)' for output 524.

The following gives an overview of the activities undertaken to date and explains the current status of the Global Alliance.

2. Structure of the Global Alliance

2.1. Membership

Since the sixth meeting of the COP to the Stockholm Convention, the Global Alliance has slightly expanded and now counts 93 members (status as of 18.02.2015), as compared to 85 in 2013.

2.2 Steering Committee

2.2.1. Members

According to the terms of reference of the Global Alliance on DDT contained in annex 3 of the document UNEP/POPS/COP.6/INF/3, the membership of governmental representatives to the Steering Committee of the Global Alliance is for 2-year terms. In June 2013, the secretariat of the Global Alliance asked the members of the Bureau of the Stockholm Convention to nominate two candidates from each United Nations region to serve on the Steering Committee. For each region, one candidate was to be nominated for service of one year, from 2013 to 2014, in order to obtain a staggered timetable, and the other candidate, for service of two years, from 2013 to 2015. Due to the late arrival of the nominations, the terms did not start before early 2014.

The status and changes to the Global Alliance Steering Committee are as follows:

- Africa: Ms. Fagamous Sy (Ministry of Environment and Sustainable Development, Senegal), had been nominated to serve her second consecutive term for a period of one year (2014). Ms. Noluzuko Gwayi (Department of Environmental Affairs, South Africa) has been nominated and replaced Mr. David Kapindula (Environmental Management Agency, Zambia), the former Chair of the Steering Committee, and will serve for a period two years (2014-2015).
- Asia-Pacific: Mr. Rajander Singh Sharma (National Vector Borne Disease Control Programme, India) had been nominated to serve his second consecutive term for a period of one year (2014). Mr. Abdullah Naeem (Ministry of Agriculture, Yemen) has been nominated to serve his second consecutive term for a period of two years (2014-2015).
- Central and Eastern Europe: Mr. Zoltán Szabó (National Institute of Environmental Health, Hungary) had been nominated and replaced Mr. Artak Khachatryan (Ministry of Nature Protection, Armenia); he will serve for a period of one year (2014). Mr. Ivan Holoubek (Research Centre for Toxic Compounds in the Environment (RECETOX), Czech Republic) has been nominated to serve his second consecutive term for a period of two years (2014-2015).
- Latin America and the Caribbean: Ms. Maria Ines Esquivel (Ministry of Health, Panama) had been nominated and replaced Ms. Miriam Serrut (Department of Agriculture, Belize); she will serve for

a period of one year (2014). The term of Ms. Milena Mazzarri Peloza (Department of Entomology, Venezuela) has expired in 2013. To date, no new nomination has been received for the period of two years (2014-2015) and the position therefore remains vacant.

- Western Europe and Others: Ms. Robbin Lindsay (Public Health Agency, Canada) had resigned from her position in 2013. Mr. Antoine Schwoerer (Ministry of Ecology, Sustainable Development and Energy, France) had resigned from his position in 2014. To date, no new nominations have been received and the two positions therefore remain vacant.

In addition, six non-government nominated members representing various stakeholders participate in the Steering Committee.

- Mr. Paul Saoke (Physicians for Social Responsibility), continues to serve as civil society/non-governmental organization representative.
- Mr. Gordo Jain (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany) informed UNEP Chemicals of his resignation as bilateral cooperation partner representative. The position currently remains vacant.
- Mr. Robert Sloss (Innovative Vector Control Consortium) continues to serve as academic and research institutions representative.
- Mr. Egon Weinmüller (CropLife International) continues to serve as private sector representative.
- Mr. Michael Macdonald had served as WHO representative, but retired from this position in 2013. To date, WHO has not nominated a new representative.
- Mr. Gamini Manuweera (BRS Secretariat) continues to serve as representative of the BRS Secretariat.

In total, five positions remain vacant.

2.2.2 Meetings

According to its terms of reference, the Steering Committee of the Global Alliance shall meet at least once a year. However, due to lack of funding, no meetings were held in 2013 and 2014.

2.3. Thematic Groups

No changes have been made to the composition of the Thematic Groups of the Global Alliance. The leads of the Thematic Groups are as follows:

- Thematic Group on Cost Effectiveness of Alternatives to DDT: Mr. Egon Weinmueller
- Thematic Group on Malaria Vector Resistance Patterns and Mechanisms: WHO Vector Control Working Group
- The Thematic Group to Reduce Barriers to Bring New Chemicals and Products to Market: Mr. Robert Sloss
- The Thematic Group to Reduce Barriers to bring New Non-chemical Products into Use: Mr. Paul Saoke
- The Thematic Group on Strengthening of In-country Decision-making on IVM: Mr. Raman Velayudhan (WHO).

3. Financial Issues and Workplan

The financial basis for the operation of the Global Alliance and the implementation of the workplan (envisaged budget of USD 4,565,100 for 2012/2013 and 2014/2015) remains weak, in so far as the contributions received between May 2013 and December 2014 were insufficient to coordinate the Global Alliance effectively and to implement its workplan. The workplan is too ambitious against the background of limited human and financial resources and will therefore need to be revised. A revised workplan will have to rely mainly on in-kind contributions including from UNEP, the Global Alliance Steering Committee, and regional centres. Moreover, additional funding will be needed to continue the work.

Funds available for the Global Alliance's work are as follows:

- Government of Switzerland (CHF 50,000) for implementation of decision SC-6/1 on DDT including the Global Alliance. The main output will be the road map on alternatives to DDT.
- Expenditures of remaining funds were USD 9,779 for staff and a consultant to coordinate the Global Alliance and the Global Alliance's website and POPs Social.
- The present balance for the Global Alliance is USD 0.
- The members of the Steering Committee, UNEP Chemicals Branch and the BRS Secretariat supported the Global Alliance with substantial in-kind contributions (staff time and clearinghouse mechanism).

4. Meeting of the Second Assembly of the Global Alliance

The second Assembly of the Global Alliance was held in the *Centre International de Conférences Genève* (ICCG) in Geneva, Switzerland, on 7 May 2013 from 6:15 p.m. to 9:00 p.m. The meeting was held as an evening side event to the Ordinary and Extraordinary Meetings of The Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions. The meeting was organized by UNEP Chemicals Branch in its function as the secretariat of the Global Alliance.

The meeting served as an opportunity to:

- inform about the transition of the leadership of the Global Alliance from the Secretariat of the Stockholm Convention to UNEP;
- report on the activities undertaken since the First Assembly and present the outcomes of the first meeting of the Steering Committee;
- review the recent developments at the 6th meeting of the Conference of the Parties to the Stockholm Convention; and
- discuss some thoughts on ways forward for the Global Alliance.

As participants were informed, the transition of leadership did not change the structure of the Global Alliance or the status of the members of the Steering Committee. Important recent events were discussed. This included the first meeting of the Steering Committee and UNEP's participation in the Global Policy Roundtable on the use of DDT in Malaria Vector Control.

A presentation given by Mr. Michael Macdonald, Consultant for the Vector Control Unit of the Global Malaria Programme of the WHO, stressed the synergies between the work of the Global Alliance and other initiatives implemented by WHO and Roll Back Malaria and called for more effective collaboration. Mr. Macdonald introduced the Global Plan for Insecticide Resistance Management (GPIRM) aiming to tackle the growing threat of insecticide resistance and to facilitate the development of innovative vector control tools and strategies.

The meeting also featured a report by the Steering Committee on progress in implementing the Global Alliance. Its chair, Mr. David Kapindula, provided an overview of the outcomes of the three annual meetings that had been held by the Interim Steering Committee between 2009 and 2011. Notably, the workplan and budget for two biennia 2012-2013 and 2014-2015 had been developed and approved and core activities had been identified.

Another highlight of the meeting were the reports given by the Thematic Groups. Fundraising was identified as a priority and the participants voiced their dedication to advance on this issue and to engage both traditional and non-traditional donors. Meanwhile, participants noted their appreciation for the funding and in-kind contributions that had been provided by the BRS Secretariat, the Government of Germany, Biovision Foundation, and UNEP.

The meeting also served as a forum to discuss substantive issues. Some findings voiced during the meeting include the following:

- Insecticide resistance and the lack of entomological monitoring capacity are major challenges.
- Larval control should only be conducted where habitats are "few, fixed and findable".
- Global funds are investing heavily in the search for alternatives.
- It is important to find alternatives that are not POPs and as cost-effective as DDT.

- Currently, alternatives are more costly than DDT in the short-run; however, long-term considerations should be taken into account.
- Given the relatively high costs associated with the use of human resources for application of insecticides, durability is crucial.
- There is no deadline for stopping the use of DDT in the Stockholm Convention and the phase out is subject to the availability of alternatives.
- It is necessary to conduct more case studies.

The report of the meeting is set out in Appendix A of this document¹ and is also available on the web page of the Global Alliance¹.

5. Activities of the Thematic Groups and Progress in Implementing the Workplan

UNEP Chemicals Branch, in its function as Secretariat of the Global Alliance, requested the members of the Global Alliance Steering Committee and the leads of the Thematic Groups to submit their reports on progress in implementing the workplan of the Global Alliance. However, no reports on progress have been received.

The members of the Steering Committee provided input for the preparation of the road map for the development of alternatives to DDT (see item 0) and commented on the drafts.

6. DDT- and Global Alliance-related Activities of UNEP and the BRS Secretariat

In its function as the Secretariat of the Global Alliance, UNEP Chemicals Branch has kept the Global Alliance membership list and website up-to-date. UNEP Chemicals Branch also assumed responsibility for managing two groups on 'POPs Social': one for all Global Alliance members and another for the members of the Global Alliance Steering Committee. In addition to its role as the Secretariat of the Global Alliance, UNEP Chemicals Branch has been involved in a number of other activities relevant to DDT and the Global Alliance. These are discussed below.

6.1. Roadmap for the Development of Alternatives to DDT

In implementing decision SC-6/1 on DDT of the COP to the Stockholm Convention, UNEP Chemicals Branch prepared a road map for the development of alternatives to DDT. The full road map is set out in UNEP/POPS/COP.7/INF/6 and the key elements are set out in UNEP/POPS/COP.7/5. The road map defines a plan of global, regional and national activities to strengthen the development and implementation of locally safe, effective, affordable and environmentally sound alternatives to DDT in vector control. It identifies the key actors responsible for implementing the road map and explains their respective role. It also includes a status report, elaborating on recent developments in the production, trade, use and consumption of DDT, global policies and strategies for vector control, as well as the status of vector control tools.

In the preparation of the road map, UNEP Chemicals Branch was assisted by a consultant. As mandated, the road map has been prepared in in close consultation with the WHO, the DDT expert group and the BRS Secretariat. Moreover, UNEP Chemicals Branch established a working group to provide information and substantive input to the road map and comment on the drafts. The members of the working group were selected on the basis of the following considerations: (i) Comprehensive coverage of the various thematic areas related to the use of DDT for disease vector control, (ii) representation of the major actors and institutions, and (iii) synergies with the

¹

<http://chm.pops.int/Implementation/DDT/GlobalAlliance/tabid/621/mctl/ViewDetails/EventModID/1421/EventID/136/xmid/6821/Default.aspx>

Global Alliance for Alternatives to DDT. Thus, the members of the working group represented governments, industry, civil society, Intergovernmental Organizations (IGOs), and academia.

6.2. Situational Analysis of DDT

In its leadership role within the Global Alliance, UNEP Chemicals developed a situational analysis of DDT, taking into account national reports submitted by parties pursuant to Article 15 of the Convention and other relevant sources of information. The report summarizes available information on production, consumption, trade, and stockpiles of DDT. As part of this assessment, UNEP Chemicals Branch conducted a survey for the purpose of gathering additional, up-to-date information from Global Environment Facility (GEF) implementing agencies, the Global Alliance Steering Committee, the UNEP Regional Offices, and the Basel and Stockholm Convention Regional Centres. The report is set out in Appendix B of this document.

6.3. GEF Projects

UNEP Chemicals Branch is currently the implementing agency for seven DDT-related GEF projects (two global and five regional projects). The WHO is an important partner as executing agency.

6.4. Global Monitoring Plan

In the context of the Global Monitoring Plan, a mechanism to evaluate the effectiveness of measures implemented, UNEP Chemicals Branch coordinated the 'Bi-ennial Global Interlaboratory Assessment on POPs – Second Round', which was carried out in 2012/2013 with funds from the European Union (EU) and the GEF. The purpose was to assess and compare participating laboratories' performance in identifying and quantifying POPs concentrations in samples. A survey on concentrations of POPs in human milk of primiparae mothers not exposed to known sources of POPs revealed relatively high concentrations of DDT in recent years. The median of several national pools exceeded the WHO 'safety level' of 2,000 ng per gram lipid. The national pool (50 mothers) from Ethiopia showed by far the highest concentration at more than 22,000 ng *per* gram lipid. However, the findings have to be interpreted with caution, since only one composite sample was available for most countries.

6.5. Technical Guidelines for the Environmentally Sound Management of POPs wastes

Since the transfer of the leadership, the BRS Secretariat has remained an active participant in the Global Alliance and has contributed towards fulfilling its mandate through its DDT-related work. UNEP Chemicals Branch and the BRS Secretariat have been collaborating closely in their DDT- and Global Alliance-related work. For example, UNEP Chemicals Branch participated in the small intersessional working group to update and/or develop the general and the various specific technical guidelines for the environmentally sound management (ESM) of POPs wastes.

6.6. Factsheets on POPs Destruction Technologies

Another joint effort is the updating of two sets of factsheets describing the technologies recommended for the destruction or irreversible transformation of waste consisting of, containing or contaminated with POPs, including DDT. One set provides a general description of each of the generic technologies; the other contains information obtained from specific technology providers or companies. Once the editing is finalized, the updated factsheets will be published on the website of the BRS Secretariat².

² <http://www.basel.int/Implementation/Publications/TrainingManuals/tabid/2363/Default.aspx>

6.7. DDT Expert Group

On 10-12 November 2014, the BRS Secretariat organized the fifth meeting of the DDT expert group, in which UNEP Chemicals Branch was present as an observer. The meeting also provided an opportunity to seek the experts' feedback on the draft road map.

Appendix A



Meeting Report

**Second Assembly of the
Global Alliance for the Development and Deployment of Alternatives
to DDT for Disease Vector Control**

Geneva, Switzerland, 7 May 2013

UNEP/CB/DDT GA/Assembly.2

Report prepared by:

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Second Assembly of the Global Alliance for the Development and Deployment of Products, Methods and Strategies as Alternatives to DDT for Disease Vector Control

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Second Assembly of the Global Alliance for the Development and Deployment of Products, Methods and Strategies as Alternatives to DDT for Disease Vector Control

7 May 2013, 6:15 p.m. – 9:00 p.m.

Held as an evening side event of the Ordinary and Extraordinary Meetings of the Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions 2013.

Meeting Report

1 OPENING OF THE MEETING

1. The second Assembly of the Global Alliance for the Development and Deployment of Products, Methods and Strategies as Alternatives to DDT for Disease Vector Control was held in Geneva International Conference Centre in Geneva, Switzerland, on 7 May 2013 from 6:15 p.m. to 9:00 p.m. The meeting was held as an evening side event to the Ordinary and Extraordinary Meetings of the Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions. The meeting was organized by the Secretariat of the Global Alliance, which is hosted by the Chemicals Branch, Division of Technology, Industry and Economics (DTIE) of the United Nations Environment Programme (UNEP).

2. The Assembly was opened at 6:30 p.m. by Mr. Tim Kasten, Head of UNEP Chemicals Branch, DTIE. In his opening statement, he welcomed the participants to the Assembly and noted it is open to the public notwithstanding it is a regular meeting for members of the Global Alliance. He brought to attention the draft business plan for promoting a global partnership on the development and deployment of alternative products, methods and strategies to DDT for disease vector control set out in document UNEP/POPS/COP.4/6/Rev.1 adopted at the fourth meeting for the Conference of the Parties to the Stockholm Convention (SC COP 4). He highlighted that UNEP wished to maintain the organizational structure of the Global Alliance laid down in the business plan. He noted that the second Assembly, like the first Assembly, was being held during the Conferences of the Parties, but as the issues of the Rotterdam Convention are currently on the agenda of the Conferences, some members who had been present last week, when issues of Stockholm Convention were on the agenda, were now absent. He explained that the objectives of the Assembly was to inform about the transition of the leadership of the Global Alliance from the Secretariat of the Stockholm Convention to UNEP; report on the activities undertaken since the first Assembly held in Geneva in 2011; present the outcomes of the Steering Committee meeting held in Nairobi in 2012 including the workplan and the budget; review the recent developments at the Sixth Meeting of the Conference of the Parties to the Stockholm Convention (SC COP 6); and discuss some thoughts on way forward on implementation of the activities.

2 ORGANIZATIONAL MATTERS

2.1 Election of Officers

3. Ms. Noluzuko Gwayi, Senior Policy Adviser, International Chemicals and Wastes, Department of Environment Affairs of South Africa and Mr. Gordo Jain, Head of Division, International Chemicals Safety and Sustainable Chemistry, Principal Matters of International Chemicals, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany agreed to serve as Co-Chairs for the second Assembly.

2.2 Adoption of the Agenda

4. Ms. Noluzuko Gwayi, the Chair for the first half of the Assembly, introduced the agenda. Mr. Michael Macdonald, Consultant for the Vector Control Unit, Global Malaria Programme of the World Health Organization (WHO) suggested to revise the title of his presentation in the presented agenda as he would be speaking on the subject of entomology and vector control landscape rather than on the coordination of activities between WHO and UNEP although the latter was the ultimate intention of his activities. The Chair adopted the agenda as set out in the appendix to this report.

3 MATTERS RELATED TO THE IMPLEMENTATION OF THE GLOBAL ALLIANCE

3.1 REPORT FROM THE SECRETARIAT OF THE GLOBAL ALLIANCE

5. Mr. Tim Kasten briefly introduced the history and role of UNEP in relation to DDT and the establishment of Global Alliance. He reported on the implementation of decision SC-5/6, the decision of the fifth meeting of the Conference of the Parties to the Stockholm Convention (SC COP 5) to transfer the leadership of the Global Alliance from the Secretariat of the Stockholm Convention to UNEP. He explained that the Executive Secretary of the Secretariat of the Basel, Rotterdam and Stockholm Conventions (BRS Secretariat) and the Head of Chemicals Branch, DTIE, UNEP had exchanged letters; that UNEP and WHO had held meetings and had agreed on collaboration; and that the BRS Secretariat and UNEP had a mutual agreement on the practical details and arrangements of cooperation. He highlighted that the transition did not change the structure of the Global Alliance or the status of the members of the Steering Committee. He brought to attention documents UNEP/POPS/COP.6/4 and UNEP/POPS/COP.6/INF/3 which UNEP had prepared to report to the SC COP 6 on the transfer and the activities undertaken between 2011 and 2013.

6. He introduced the decision of the Twenty-Seventh Session of the UNEP Governing Council/Global Ministerial Environment Forum held in Nairobi, Kenya on February 2013. The decision requested UNEP to continue providing coordination for the Global Alliance, urged for the cooperation between WHO and UNEP for the implementation of the Global Alliance workplan, and invited UNEP to inform SC COP on the progress made in the work of the Global Alliance.

7. He introduced the activities undertaken by UNEP since the transfer. He said the First Meeting of the Steering Committee of the Global Alliance was held in Nairobi, Kenya in August 2012 in close consultation with WHO and BRS Secretariat. A joint fund-raising letter had been sent by UNEP and the BRS Secretariat. UNEP had participated in the Global Policy Roundtable on the Use of DDT in Malaria Vector Control organized by the Biovision Foundation and the Millennium Institute in Geneva, Switzerland in March 2013. Document UNEP/POPS/COP.6/INF/3, UNEP's report on activities undertaken in relation to the Global Alliance, had been prepared and submitted at SC COP 6. The second Assembly of the Global Alliance had been prepared and was being held during the Ordinary and Extraordinary Meetings

of the Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions 2013 (Ex-COP).

3.2 Report from the Secretariat of the Basel, Rotterdam and Stockholm Conventions

8. Mr. Gamini Manuweera, Programme officer, BRS Secretariat, thanked UNEP Chemicals Branch for taking over the function of the Secretariat of the Global Alliance. He congratulated both the Global Alliance and UNEP for the smooth and successful transition in the past two years and wished for a sustainable and successful outcome in the future through the support of the participants and the stakeholders of the Global Alliance. He emphasized the importance of the work of the Global Alliance in achieving the goal of the Stockholm Convention.

3.3 Presentation from the World Health Organisation

9. Mr. Michael Macdonald, Consultant for the Vector Control Unit, Global Malaria Programme of WHO, gave a presentation entitled “Entomology and Vector Control Landscape” to illustrate how the work of the Global Alliance fits in with other WHO and Roll Back Malaria initiatives. He emphasized the current challenges to vector control, that the gains in malaria control over the past decade were threatened by insecticide resistance, the challenge of maintaining coverage with constrained funding, and the dearth of entomological monitoring capacity.

10. He introduced the recommendations from the DDT Expert Group, highlighting the recommendation to strengthen systems and human resources for entomological monitoring, operational research, evidence-based decision-making and program monitoring.

11. He explained that three WHO units had normative functions for entomology and vector control: the Global Malaria Programme, the Pesticide Evaluation Scheme and Vector Ecology and Management, a cross-cutting unit that develops strategies, guidelines and standards for vector control, including pesticide management, and spearheads the Integrated Vector Management initiative. The Roll Back Malaria Partnership was a separate organization hosted by WHO. Included in the Roll Back Malaria Partnership was the Vector Control Working Group, large and diverse network with eight complementary work streams, including many of the same partners and similar issues as the Global Alliance. He encouraged the members to visit the WHO and the Roll Back Malaria Partnership websites for more information.

12. He said a key WHO and Roll Back Malaria Partnership initiative was the Global Plan for Insecticide Resistance Management (GPIRM), launched in May 2012, which aimed to tackle the growing threat of insecticide resistance and to facilitate the development of innovative vector control tools and strategies. Resistance, especially to pyrethroids appeared to be growing with Sub-Saharan Africa and India being particular areas of concern. As pyrethroids were the only class of insecticide that can be used to treat mosquito nets, their loss would be a major setback. Development of alternatives to DDT was closely related to these other efforts in GPIRM to develop alternatives and strategies to combat insecticide resistance, especially to pyrethroids.

13. He explained that the GPIRM strategy included five “Pillars” – 1) Plan and implement national insecticide resistance management strategies; 2) Ensure good national systems for entomological monitoring; 3) Develop new tools; 4) Fill gaps in knowledge; and 5) Ensure that advocacy, human and financial resources are in place. He said the first two pillars for country-level action were a critical focus for all partners.

14. He concluded that the work of the Global Alliance was closely interrelated with both these three WHO units and the Roll Back Malaria Vector Control Working Group, and emphasized the need to collaborate more effectively.

15. There were questions on larval control both in the Africa region and in India as applied to both malaria and dengue. Mr. Michael Macdonald responded that larval control for malaria in Africa was very difficult as the vector larval habitats could be temporary and widespread, and should only be conducted where these habitats were “few, fixed and findable” with good quality control on the larvicides if they were used and robust entomological monitoring of impact. He said India, as many other countries in Asia and the Americas, was challenged by the spread of dengue and chikungunya carried by the container-breeding *Aedes* mosquito. He stated DDT had no role in dengue as indoor residual spraying was not an effective control measure for the *Aedes* mosquito. Mr. Raman Velayudhan, Coordinator of the WHO Vector Ecology and Management unit explained that the WHO Pesticide Evaluation Scheme (WHOPES) had approved larvicides for domestic water containers, and that further development work in this area was being carried out, including from the International Centre for Insect Physiology and Ecology of Kenya, a Stockholm Convention Regional Centre.

4 REPORT ON THE PROGRESS OF THE IMPLEMENTATION OF THE GLOBAL ALLIANCE

4.1 Report from the Steering Committee of the Global Alliance

16. Mr. David Kapindula, Principle Inspector, Environmental Management Agency of Zambia, and the Chair of the Steering Committee of the Global Alliance, reported on the activities conducted by the Steering Committee from 2009 to 2013.

17. He explained that there had been an Interim Steering Committee from 2009 to 2011 before the Steering Committee had been established in 2011 at the first Assembly of the Global Alliance. He said the Interim Steering Committee had held three annual meetings from 2009 to 2011. He explained the outcomes of the three meetings. The first meeting of the Interim Steering Committee had been held in October 2009 in Geneva, Switzerland and had agreed to launch the Global Alliance at the 2010 Ex-COP, had developed the key elements of the plan of action to facilitate effective implementation the Global Alliance activities, and had agreed to establish five Thematic Groups by March 2010 to address the challenges in achieving the Global Alliance goals. The second meeting of the Interim Steering Committee was held in May 2010 in Delhi, India and had identified specific, priority activities to be undertaken by the five Thematic Groups, and had planned for the first Assembly of the Global Alliance. The third meeting of the Interim Steering Committee Meeting had been held on March 2011 in Bonn, Germany and had reviewed progress in the establishment of the five Thematic Groups, and had finalized the arrangements for the first Assembly of the Global Alliance.

18. He presented the names of the current Steering Committee members. He said the First Steering Committee Meeting had been held in August 2012 in Nairobi, Kenya and its meeting report could be found in document UNEP/POPS/COP.6/INF/3. He said that as a result of this meeting, the workplan and budget for the Global Alliance activities for two biennia 2012-2013 and 2014-2015 had been developed and approved; workplans and budgets for the five Thematic Groups had been adjusted; the Thematic Groups had been requested to initiate their work; and four core activities – 1) Translating all guidance and promotional documents into UN languages; 2) making available the work of the Steering Committee to all stakeholders in an easily accessible format; 3) carrying out Comprehensive Demonstration projects in at least ten Parties with two from each region; and 4) the Steering Committee to prepare a report for each SC COPs – had been identified.

19. He added that as a Chair, he had participated in the first Assembly of the Global Alliance held on April 2011 in Geneva, Switzerland and the Global Policy Roundtable on the use of DDT in Malaria Control held on March 2013 in Geneva, Switzerland and supported the implementation of the Global Alliance activities according to the workplan.

20. A question was raised if there were any reports related to the Comprehensive Demonstration projects. Mr. David Kapindula responded that no report was available because little had happened yet due to funding constraints. The Chair added that the transfer of the Secretariat had to go through the UNEP Governing Council and that this also accounted for the delay of the implementation.

21. Mr. Tim Kasten congratulated on the work of the Steering Committee thus far and the dedication of its members to the Global Alliance. He thanked Mr. David Kapindula for his work and leadership.

4.2 Reports from the Thematic Groups of the Global Alliance

4.2.1 Thematic Group on Cost Effectiveness of DDT and Alternatives

22. Mr. Bernhard Johnen, Director of International Regulatory Policy of Croplife International in Belgium, on behalf of the lead of the Thematic Group, Mr. Egon Wienmuller from Croplife International who was absent, made a statement on the work of the Thematic Group on Cost Effectiveness of DDT and Alternatives. He underlined that he and Mr. Weinmüller were not representing a company but rather Croplife International, a global federation representing the plant science industry. He said not many activities had taken place primarily because the work of the Thematic Group was heavily dependent on consultants and funds to pay them. He expressed concerns on the lack of funds. He noted that the work of the Thematic Group was mainly to update the PEEM guidelines and mentioned that its timeframe seemed too long and its workplan contained illogicality as it stated the guidelines should be revised by 2015, while the guidelines should be translated by 2014. He added that there seemed to be a change in the approach of the Steering Committee and the Thematic Groups regarding the work of the working groups and hoped the next Steering Committee meeting would clarify this. He expressed concerns on the plan for the work to remove barriers in innovative stream, encouraged WHO to take up the centre of the mandate and carry out more hands on work and he hoped that the Global Alliance would carry out more detailed work.

23. There was a comment from the audience that finding safe, cost effective and environmentally benign alternatives was a political issue as it required money. To the question on if we were anywhere close to finding alternatives, Mr. Bernhard Johnen responded that the issue of finding alternatives was principally sought after by the Thematic Groups on Reduce Barriers to Bring New Chemicals and Products to Market, and Reduce Barriers to Bring New Non-chemical Products into Use. Mr. Michael Macdonald added to Mr. Bernhard Johnen's remark by assuring that other organizations, for example the Bill and Melinda Gates Foundation, were investing millions of dollars into the search for alternatives to DDT and pyrethroids. The Chair highlighted that each Thematic Group was focusing on each stream of work, but that the ultimate goal of the Global Alliance as a whole was to find alternatives to DDT.

24. To the comment that it was important to find alternatives that were not persistent organic pollutants and as cost-effective as DDT, Mr. Bernhard Johnen responded that although alternatives were more costly than DDT in the short run, the long term cost-effectiveness of the alternatives should be borne in mind and that the focus should be on finding ways to shorten this period. There was a comment that the cost of DDT consisted of ninety percent of man power to apply the insecticide while only ten percent of the cost was the insecticide itself, meaning that changing the durability of the product would make it more cost-effective.

25. There were discussions on the deadline to stop the use of DDT. The Chair emphasized that the stoppage on the use of DDT would be subject to the availability of alternatives to DDT. Mr. Gamini Manuweera of the BRS Secretariat explained that there was no deadline in the Stockholm Convention to stop the use of DDT and that this signaled no intention to ban the use of DDT.

4.2.2 Thematic Groups on Monitor Vector Resistance Patterns and Mechanisms, Reduce Barriers to Bring New Chemicals and Products to Market, and Reduce Barriers to Bring New Non-chemical Products into Use

26. The Chair informed that the leads of the three Thematic Groups, the Thematic Group on Monitor Vector Resistance Patterns and Mechanisms, the Thematic Group on Reduce Barriers to Bring New Chemicals and Products to Market and the Thematic Group on Reduce Barriers to Bring New Non-chemical Products into Use were absent from the Assembly and were expected to report at the third Assembly of the Global Alliance.

27. However, Mr. Paul Saoke, Executive Director for Physicians for Social Responsibility in Kenya and lead of the Thematic Group on Reduce Barriers to Bring New Non-chemical Products into Use, had delivered a brief update report on the work of his Thematic Group on 8 May 2013 via email communication to the Secretariat of the Global Alliance. The report is attached as appendix to this meeting report.

28. Mr. Gordo Jain chaired the Assembly from here onwards.

4.2.3 Thematic Group on Strengthening of In-Country Decision-making on Integrated Vector Management Programme

29. Mr. Raman Velayudhan, Coordinator of Vector Ecology and Management Chagas disease, Control of Neglected Tropical Diseases at WHO and lead of the Thematic Group on Strengthening of In-Country Decision-making on Integrated Vector Management Programme presented the work of the thematic group with focus on their next steps.

30. He explained that the goal of the integrated vector management was to make a significant contribution to the prevention and control of vector-borne diseases, not only malaria but also dengue, lymphatic filariasis, leishmaniasis and Chagas disease. He emphasized the need to streamline the activities and their challenges such as reorienting the program, capacity building, decision making process and intersectoral actions, role of integrated vector management in emergency management and mitigating the impact of climate change.

31. He introduced the four Integrated Vector Management Packages that had been developed by WHO in 2012: 1) the guidance on Policy Making for Integrated Vector Management, 2) Core Structure for Training Curricula on Integrated Vector Management, 3) Handbook for Integrated Vector Management, and 4) Monitoring and Evaluation Indicators for Integrated Vector Management.

32. He said the work that needed to be done next was to conduct more case studies although there were already several case studies in progress in several countries; to optimize the decision making process to utilize the integrated vector management approach in a more effective and ecologically sound manner; to build capacity and tools; to increase advocacy at all levels; and to establish strong and sound monitoring and evaluation methods.

33. He highlighted that case studies were now in progress in a few countries which would be documented in the coming years. He anticipated that it would help put in place a sound monitoring system and implement the integrated vector management programme in a cost effective manner. He said a project led by Durham University, Durham, United Kingdom, was aimed at identifying the keys to the integrated vector management decision making process and mapping out the decision making steps in select areas.

5 ISSUES RELEVANT TO THE STEERING COMMITTEE OF THE GLOBAL ALLIANCE

34. Ms. Heidi Fiedler, Senior Scientific Officer, Chemicals Branch, DTIE, UNEP continued the presentation by the Secretariat of the Global Alliance by introducing the members of the Steering Committee for the years from 2011 to 2013. She explained that the terms of reference for the Steering Committee allowed each member to serve on the Committee for two years with one term open for re-election.

35. She invited each region to confirm and nominate two candidates for the Steering Committee with a proposed deadline for the nominations of 30 June 2013. She added that in order to obtain a staggered timetable, each region should indicate one regional representative to serve for a term of one year only. This arrangement would have one regional member serving for a maximum of three years whereas the second member would serve for a maximum of four years.

36. The Chair adopted the proposal of the Secretariat of the Global Alliance.

6 ISSUES RELEVANT TO THE PROCESS AND OUTCOMES OF THE SIXTH MEETING OF THE CONFERENCE OF THE PARTIES TO THE STOCKHOLM CONVENTION

37. Ms. Heidi Fiedler said that on 2 May 2013, the COP had virtually adopted the draft decision as contained in the Conference Room Paper (CRP) 20 on DDT (for final version, see decision SC-6/1). Therein, the paragraphs 11, 14, 15, 16, and 17 contained text relevant to UNEP and the Global Alliance. She said the decision, however, did not resolve the financial issues of the Global Alliance and encouraged the Parties to provide financial support. The Chair welcomed the decision and indicated that it was a good step forward for the future work of the Global Alliance and thanked WHO for their contribution.

38. Mr. Tim Kasten highlighted paragraph 17 of the decision, stressing the importance to cooperate to raise funds. He promised that the Secretariat of the Global Alliance would work to raise funds together with the BRS Secretariat, but also encouraged the members of the Global Alliance to work to coordinate on this issue. The Chair indicated that the Thematic Groups agreed on the issue of fund-raising as a priority.

7 OTHER BUSINESS

7.1 Summary of Proposed Budget for Workplan (2012-2015)

39. Ms. Heidi Fiedler introduced the summary of the proposed budget for workplan for 2012 to 2015, which had been developed and approved at the first meeting of the Steering Committee Meeting. The workplan and budget was contained in the pre-session document UNEP/POPS/COP.6/INF/3. She explained that the total proposed budget of 4,565,100 USD was distributed across four years with substantial amounts allocated to activities. She added that, as almost no funds had been transferred to the Secretariat of the Global Alliance, fund-raising was crucial and that she expected the work of SC COP in this aspect. The Chair added that all members of the DDT Global Alliance were requested to contribute to fund-raising.

40. A question was raised on whether the starting year of the workplan should be adjusted as the year 2013 was almost mid-way. Ms. Heidi Fiedler responded that the years were grouped to match UNEP biennia, but would shift the years by two years so it would still be streamlined with UNEP biennia.

41. There was a request to give clarification on why the cost for the Secretariat for activities related to the non-chemicals component was much higher than the others. Ms. Heidi Fiedler answered that as the presented budget table was the summary version of the full budget table, it did not show all the details, but as could be seen in the full budget table presented in document UNEP/POPS/COP.6/INF/3, the budget to carry out country studies were placed under the Secretariat column because the consultants who would undertake the studies would be hired by the Secretariat. She agreed to the suggestion to add a footnote under the summary budget table to explain this and to add a reference to the full budget table.

7.2 Members and Membership

42. By introducing the agenda item on members and membership, Ms. Heidi Fiedler said that the Global Alliance had 85 members from 32 countries and two intergovernmental organizations as of May 2013. She requested the members to verify their contact details and notify the Secretariat of the Global Alliance of any changes. She requested interested individuals, organizations and companies to fill out the Membership Declaration Form and send it to the Secretariat of the Global Alliance via email to heidelore.fiedler@unep.org.

43. She introduced the revised Membership Declaration Form which incorporated the changes related to the transfer of the Secretariat of the Global Alliance from the BRS Secretariat to UNEP. She informed that the revised form would be made available on the Internet and was open for comments. She expressed her hope to see progress on the enlargement of the membership.

7.3 Financial Support and Cooperation

44. She then introduced the funds and support received in 2012 and 2013 for the work of the Global Alliance. She mentioned that there was still a big difference between the reality and the proposed budget to carry out the planned activities. She thanked the BRS Secretariat for their contribution of 33,300 USD from their voluntary budget and in-kind human resources support, the seven months' work of Mr. Donald Cooper, the former Executive Secretary of the Stockholm and Rotterdam Conventions who was now the Coordinator of Mitigation, Data and Analysis at the Secretariat of the United Nations Framework Convention on Climate Change. She also thanked the Government of Germany for the contribution of 15,000 USD and Biovision Foundation for their in-kind contribution in holding the Global Policy Roundtable on the Use of DDT in Malaria Vector Control in March 2013 in Geneva. She acknowledged the in-kind human resources support from UNEP.

45. The question was raised on how much money was left. Ms. Heidi Fiedler responded that the contribution from the Government of Germany was used up to fund the participants of the first meeting of the Steering Committee and that no funds were left. She indicated that the Secretariat of the Global Alliance had been transferred to UNEP without any funding to support the staff post and therefore UNEP was contributing to the work of the Secretariat with its own staff. She said full funding was needed to hold the second meeting of the Steering Committee in 2013.

46. She suggested to engage in future collaboration and cooperation with traditional donors such as Global Environment Facility and Governments. She also expressed the willingness to explore non-traditional donors such as African Leaders Malaria Alliance, Bill and Melinda Gates Foundation, Global Fund to Fight AIDS, Tuberculosis and Malaria and Wellcome Trust. She encouraged the members to approach and initiate the application for funds to these organizations.

47. There was a question on the meaning of traditional and non-traditional donors. Ms. Heidi Fiedler answered that the term traditional donors was used in UNEP to refer to donors who had already established work relations with UNEP, especially in the area of chemicals and wastes management in this case. Non-traditional donors were those who had not been active in the field of environment and those to whom UNEP did not have access so far but would have potential for collaboration especially for the work on DDT as it was also deeply related to health issues.

7.4 Next Meetings

48. Ms. Heidi Fiedler informed that the second and third meetings of the Steering Committee should be held in 2013 and 2014 respectively, with details on the venue and date to be decided. She said the third Assembly of the Global Alliance was planned to be held during the seventh meeting of the Conference of the Parties to the Stockholm Convention in 2015. She suggested for the annual Steering Committee meetings and the biennial Assembly meetings to be held back-to-back and called for proposals from the members to set the date and venue of the meetings.

8 CLOSURE OF THE MEETING

49. Mr. Tim Kasten reiterated the need for funding to carry out the activities of the Global Alliance and assured the dedication of the Secretariat to help seek funds.

50. Mr. Michael Macdonald said the Roll Back Malaria Partnership was also struggling for money to implement the activities related to malaria and encouraged the members to review WHO websites he had introduced during the presentation to check any overlap and help maximize the use of the funds.

51. Mr. Gamini Manuweera, BRS Secretariat, emphasized that the objective of the Global Alliance was not to add another structure to the already existing organizations and international collaborations working to develop and deploy alternatives to DDT, but to provide a complimentary platform to avoid duplications and enhance cooperation. He stressed the objectives of the Global Alliance to achieve the dual aims of reducing reliance on DDT and reducing transmission of the malaria vector, and that other disease carriers now controlled by DDT could be achieved by working together.

52. The Chair noted that the Global Alliance was an ongoing effort and although it needed to overcome some challenges, he expected to see progress and good results when the Assembly would gather again in 2015.

53. The Chair thanked the Secretariat, the speakers, the members and the participants. The meeting was closed at 9:00 p.m. on 6 May 2013, past the planned closing time of 7:45 p.m.

9 APPENDIX 1: AGENDA OF THE SECOND ASSEMBLY OF THE DDT GLOBAL ALLIANCE

Second Assembly of the Global Alliance for the Development and Deployment of Products, Methods and Strategies as Alternatives to DDT for Disease Vector Control

Geneva, 7 May 2013
CICG, Room 15, 6:15 p.m. -7:45 p.m.

Agenda item	Presenter
1. Opening of the meeting	Tim Kasten
2. Organizational matters	
(a) Election of officers	Tim Kasten
(b) Adoption of the agenda	Chair
3. Matters related to the implementation of the Global Alliance	
(a) Report from the Secretariat	Tim Kasten
(b) Report from the Basel, Rotterdam and Stockholm Conventions Secretariat	Gamini Manuweera
(c) Entomology and vector control landscape	Michael Macdonald
4. Report on the progress of the implementation of the Global Alliance	
(a) Report from the Steering Committee	David Kapindula
(b) Reports from the Thematic Groups	-
5. Issues relevant to the Steering Committee	Heidi Fiedler
6. Issues relevant to the process and outcomes of the Sixth meeting of the Conference of the Parties to the Stockholm Convention	Heidi Fiedler
7. Other business	Heidi Fiedler
(a) Workplan and budget (summary)	
(b) Members and membership	
(c) Financial support and cooperation	
(d) Next meetings	
8. Closure of the Assembly	Chair

10 APPENDIX 2: LIST OF PARTICIPANTS

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11 APPENDIX 3: REPORT FROM THE THEMATIC GROUP ON REDUCE BARRIERS TO BRING NEW NON-CHEMICAL PRODUCTS INTO USE

The following summary was provided by Mr. Paul Saoke, the Lead of the Thematic Group.

11.1 Update on Non-chemical Vector Control Thematic Group

The Thematic Groups established under the Global Alliance for alternatives to DDT work as implementing instruments of the strategies developed by the Alliance Assembly through the steering committee. Each Thematic Group addresses a set of challenges to achieve a particular goal.

For effective interventions in addressing the challenges to reach the four goals, the thematic groups formulate the strategies taking into consideration, all related elements and conditions prevailing in developing countries. Therefore the expertise of each thematic group is carefully identified to ensure that required competency is possessed to effectively and comprehensively achieve the desired goal. Due consideration is given to the knowledge and experience relating to developing country conditions in identifying the relevant experts.

11.2 Vision

To contribute to the control of vector transmitted diseases through environmental friendly interventions with free of adverse effects of persistent organic pesticides on humans.

11.3 Mission

To identify and reduce barriers to the use of new non chemical products and approaches in a socially acceptable and sustainable manner, bringing scientists, national programme managers, field workers and communities together to generate evidence for the formulation of policies and their implementation.

11.4 Objectives

The scope of the initial activities of this thematic group is limited to promoting non-chemical alternative products and approaches to DDT with the following objectives:

- Bringing key players to one forum;
- Collect information on and details about available evidence on non-chemical interventions;
- Establish a database on non-chemical alternatives including success stories;
- Validation of vector control efficacy and effectiveness;
- Sharing information, resources and experiences between key players.

11.5 Activities

The following activities have been proposed in the short and medium term:

- Establish a web-based mechanism for the development of a database of nonchemical options and to facilitate proper validation of effectiveness, where applicable (March 2011);
- Critical review of available evidence on non-chemical methods, barriers to implementation and possible solutions;
- Develop advocacy and guidance materials based on a field study to identify key barriers and opportunities for promotion of nonchemical alternatives (2012);
- Implement demonstration projects of nonchemical options within Integrated Vector Management in malaria disease vector control initiatives towards promotion and generation of evidence (2014-2015);
- Awareness raising and advocacy (2013-2015).

11.6 Outputs

Major outputs of the proposed programme include:

- Current information on Non-chemical alternatives to DDT compiled;
- Supporting documents and information for the implementation of activities to address the gaps are developed;
- Non-chemical tools are promoted in vector control interventions by the disease endemic countries;
- Information is made accessible to all interested entities;
- Coordination between individual initiatives is improved.

11.7 Target group

The activities will target national programme managers of public health vector control in disease endemic countries, Non-Governmental Organizations, research, industry and Inter Governmental Organizations.

11.8 Approach

The approach focuses on building-up the ownership of the programme by all stakeholders and their full participation:

- The Stockholm Convention social network is used for the establishment of the database and invite core-team members to populate and manage;
- The above social network will be used to promote interest among the stakeholder groups and to facilitate development of alternatives;
- The information sources such as booklet and meeting and project documents recently produced on alternatives to DDT by various interest groups and experts will be used as a basis for the preliminary survey. The alternative products will include botanicals and other categories of non-chemical products that have been produced and those products that have gone through testing, registration etc. This may provide immediate action items that could help the thematic group to move forward in terms of availability of data and marketability.
- Feeding the above survey data and meeting out come to the GA website to share with the Global community including local vector control programme managers;

One of the objectives of the Steering Committee of the Global Alliance for the Development and Deployment of Alternatives to DDT Disease Vector Control that took place on 27–28 August 2012 at ICIPE in Nairobi, Kenya was to develop thematic group work plans. Members of the Non chemical control thematic group presented met, brainstormed and agreed a work plan with a budget. However during the process of disseminating and discussing the work plan with the core group members of the Thematic Group, it was suggested that we incorporate the re-introduction and training of the Sanitary Engineer. Sanitary engineering (according to Wikipedia) is the application of engineering methods to improve sanitation of human communities, primarily by providing the removal and disposal of human waste, and in addition to the supply of safe potable water. Skills within this field are usually employed for the primary goal of disease prevention within human beings by assuring a supply of healthy drinking water, removing garbage from inhabited areas, and so on.

The engineer used to be a core member of the malaria and mosquito control program, but it seems to have fallen out of favor. At the formation of the Roll Back Malaria Program a few workshops were held on urban malaria and malaria related to infrastructure projects but the idea was not taken up and has remained in the background. WHO is in the process of revising the Larval Source Management guidelines that has a substantial section on non-chemical control through habitat modification and habitat manipulation. And so for larval control, much of the “knowledge” is available, what lacks are the “skills” and the strategic vision to incorporate many of these techniques into municipal public works, housing and infrastructure projects.

Appendix B

Initial Situation Analysis on DDT - Status 2015

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Acronyms and Abbreviations

BRS Secretariat	Secretariat of the Basel, Rotterdam and Stockholm Conventions
CEE	Central and Eastern Europe
COP	Conference of the Parties
DDT	Dichlorodiphenyl trichloroethane
DPRK	Democratic People's Republic of Korea
DTIE	Division of Technology, Industry and Economics
ESM	Environmentally sound management
GEF	Global Environment Facility
GMP	Global Malaria Programme
GMP	Global Monitoring Plan
GRULAC	Latin American and Caribbean Group
NIPs	National Implementation Plans (under the Stockholm Convention)
PIFs	Project identification forms
POPs	Persistent Organic Pollutants
PRC	People's Republic of China
SSC	Secretariat of the Stockholm Convention
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
U.S.A.	United States of America
WEOG	Western European and Others Group
WHO	World Health Organization
WHOPES	WHO Pesticide Evaluation Scheme

1. Introduction

The Stockholm Convention on Persistent Organic Pollutants (POPs)¹ entered into force on 17 May 2004. It aims to eliminate the production, use, and trade of POPs listed in either annex A, B or C, to protect human health and the environment. Dichlorodiphenyl trichloroethane (DDT) is listed in annex B 'Restriction', part I. Despite international efforts to develop and deploy alternatives, DDT is still being produced, traded, stockpiled and used for disease vector control.

Parties to the Convention may only produce or use DDT for the purpose of disease vector control and if locally safe, effective and affordable alternatives are not available to the Party in question². Such use must be in accordance with the recommendations and guidelines of the World Health Organization (WHO). Moreover, Parties are requested to notify the Secretariat of the Basel, Rotterdam and Stockholm Conventions (BRS Secretariat) if they intend to use or produce DDT. Stockpiles of DDT and wastes consisting of, containing or contaminated with DDT must be managed in a manner protective of human health and the environment. This implies a number of obligations: Parties are to develop strategies for identifying DDT stockpiles and wastes; identify DDT stockpiles to the extent practicable; manage stockpiles in a safe, efficient and environmentally sound manner; take appropriate measures so that DDT wastes are handled, collected, transported, stored and disposed of in an environmentally sound manner; and endeavour to develop appropriate strategies for identifying sites contaminated by DDT.

In its leadership role within the Global Alliance for the development and deployment of products, methods and strategies as alternatives to DDT for disease vector control, the Chemicals Branch of the Division of Technology, Industry and Economics (DTIE), United Nations Environment Programme (UNEP) prepared this initial DDT situation analysis with the aim of gathering and summarizing available information on past and present production, trade, consumption and stockpiles as well as concentrations of DDT in humans and the environment. The substantial part of this report is structured along these elements. It is preceded by a discussion of the sources of information and methodology used for this report as well as a short discussion of the limitations and challenges upon data gathering and statistical analysis. This situation analysis is important to identify trends and thus assess progress in moving towards (i) phase-down and ultimate elimination of the production and use of DDT, (ii) identification and environmentally sound management (ESM) of DDT stockpiles, and (iii) monitoring concentrations of DDT in humans and the environment.

As stated above this report is an initial assessment based on a substantial – but not complete – share of the data available to date. Reporting by Parties and others is often incomplete and not suited to give a clear picture. The estimates given in this report can therefore only be read with caution. Nonetheless, they are sufficient to give some general ideas of the current situation and recent trends. Based on the conclusions from these findings, the report also provides some policy recommendations.

¹ UNEP, 2001

² The specific exemption for the production and use of DDT as intermediate in the production of dicofol expired.

2. Methodology

2.1. Sources of Information

In the preparation for this report, the following sources have been consulted:

- The first, second and third national reports submitted by Parties under the Stockholm Convention reporting procedure³: Article 15 of the Stockholm Convention, requires each Party to the Convention to report to the Conference of the Parties on the measures it has taken to implement the provisions of the Convention and on the effectiveness of such measures in meeting the objectives of the Convention. Deadlines for submission had been set at 31 December 2006, 31 October 2010, and 31 August 2014, but were extended to 31 July 2007 and 31 July 2011 for the first and second national reports, respectively. 45 Parties submitted their first national report, 95 the second, and only 58 the third⁴.
- Initial and – where available – updated National Implementation Plans (NIPs)⁵: According to Article 7 of the Stockholm Convention, Parties are required to prepare and submit a plan for the implementation of their obligations under the Convention, and to review and update it, as appropriate, on a periodic basis. While general in scope, the NIPs include sections on DDT, including information production, stockpiles, trade and use of DDT. 152 Parties have submitted their first NIP and 22 of them the reviewed and updated one⁶.
- DDT register⁷: Parties producing and/or using DDT and Parties intending to produce and/or use DDT are to submit a notification to the BRS Secretariat for inclusion the DDT Register.
- DDT questionnaires⁸: Every three years, Parties that produce or use DDT report the conditions of such production/use to the BRS Secretariat using a DDT questionnaire adopted by COP-1. Filled questionnaires are available for the reporting periods 1998-2000, 2001-2003, 2003-2005, 2006-2008, and 2009-2011⁹.
- Reports of the DDT Expert Group¹⁰: The DDT Expert Group was established by COP-1 to assess scientific, technical, environmental and economic information related to DDT and prepare a report with recommendations for the next COP on its evaluation of the continued need for DDT for disease vector control. These reports also contain information on the production, use, trade, and stockpiles of DDT. The DDT Expert Group meets once at least six months before each Conference of the Parties (COP) of the Stockholm Convention. To date, five reports have been developed.
- DDT-related projects funded by the Global Environment Facility (GEF)^{11, 12}: These projects typically focus on demonstrating, introducing and scaling-up alternatives to DDT. So far, the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO) and UNEP have implemented such projects. The GEF website – www.thegef.org - currently lists four approved national projects, four approved regional projects and two approved global projects targeting DDT. For the purpose of this report, data

³ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2015a

⁴ As of 9 March 2015

⁵ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014b; only the information in English NIPs were included in this initial assessment; French, Spanish, Estonian and Arabic NIPs still need to be included

⁶ As of 9 March 2015

⁷ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015b

⁸ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015c

⁹ As of 9 March 2015

¹⁰ Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014

¹¹ The GEF is the principal financial mechanism for the Stockholm Convention

¹² GEF, 2014; The project data base publicly available on the GEF's website has been searched using the query 'DDT'; it should be noted that there may be additional projects covering DDT inventories and/or disposal, notably those more generally targeted at the environmentally sound management of POPs; however, for this initial report, these have not been taken into account

have been extracted from documents such as project identification forms (PIFs) and, where available, mid-term and/or final evaluation reports.

- The 'Road Map survey' by UNEP¹³: UNEP Chemicals Branch conducted a survey for the purpose of gathering additional, up-to-date information on the amounts of (i) DDT produced, (ii) imported for use, (iii) consumed, (iv) stockpiled, (v) destroyed within national boundaries, (vi) exported for destruction, and (vii) imported for destruction. In addition, the survey also targeted information as to the status of chemical and non-chemical alternatives for DDT, as well as existing processes or initiatives for the development and deployment of alternatives. While the primary aim was to collect data from Global Environment Facility (GEF) implementing and executing agencies on completed and ongoing GEF projects, the reporting template (see Annex A) was also sent to the members of the Steering Committee of the Global Alliance, the UNEP Regional Offices, and the Basel and Stockholm Convention Regional Centres. Only two completed questionnaires have been returned (one Steering Committee member of the Global Alliance and UNIDO).
- DDT Information System¹⁴: The Information System on DDT has been established jointly by UNEP Chemicals Branch, WHO Global Malaria Program (GMP) and the Secretariat of the Stockholm Convention (SSC). It provides information on country-basis.
- The WHO Pesticide Evaluation Scheme's (WHOPES) 'Global Insecticide Use for Vector-Borne Disease Control – A 10 Year Assessment (2000-2009)'¹⁵.
- Information from the International Programme on Chemical Safety¹⁶.
- Data generated for the Global Monitoring Plan (GMP): The GMP is a component of the effectiveness evaluation of the Stockholm Convention and provides a harmonized organizational framework for the collection of monitoring data on the presence of POPs¹⁷ from all regions.
- Official data made publicly available by government agencies.
- Peer-reviewed articles published in scientific journals.

2.2. Data Collection and Evaluation

In a systematic approach, UNEP Chemicals set-up a table (MsExcel format) listing the countries in alphabetical order and organized the variables of interest in columns for each country: Therein, several worksheets list the amounts of DDT produced, stockpiled, imported, exported and consumed. Each worksheet also includes columns specifying the reference years and the specific sources of information. For the worksheet on trade, an additional column was added to list the trade partners¹⁸. The tables were then populated with data from the sources listed above. In many instances, adjustments, assumptions and/or extrapolations had to be made to fill empty cells in the respective columns of interest. For instance, where expert judgment suggested that a certain quantity was reported using the wrong unit of measurement (*e.g.* kilogram instead of tonne) or separator (*i.e.* using a comma for decimal marks or a dot as thousands separator), it was adjusted accordingly. Whenever quantitative data were reported for an interval (*i.e.* from year x until year y), the amounts were distributed evenly across the years; except in the case of stockpiles, where the latest year was taken for assessment.

Since multiple sources have been used to gather data, there is a potential risk of 'double counting', *i.e.* different sources reporting the same amounts. In such cases, best judgment was made to remove from amounts that were already covered by another source. In deciding which data to include/exclude, the following criteria were applied: As a default, where available and if considered solid according to expert

¹³ UNEP Chemicals Branch, 2014

¹⁴ UNEP Chemicals Branch, 2009

¹⁵ World Health Organization, 2011

¹⁶ World Health Organization, 1979

¹⁷ Fiedler et al., 2013; Conference of the Parties to the Stockholm Convention 2013

¹⁸ The full data set will be published on the website of the Secretariat of the Basel, Rotterdam and Stockholm Conventions (BRS Secretariat).

judgment, data officially reported by countries, such as from the national reports or in the NIPs, were weighted higher in a 'hierarchy of sources'. In some cases, where expert judgement suggested that important data was lacking, additional sources were consulted to verify and, where considered necessary, adjust as well as to fill potential gaps.

2.3. Challenges and Limitations

In compiling the data presented in this report, some challenges were encountered, resulting in limitations as regards the statistical analysis and the corresponding conclusions that could be drawn. These limitations essentially relate to the quality of reporting and include the following:

- The reporting often does not distinguish between the production/trade/use/stockpiles of technical grade DDT (98 %-99 % active ingredient) as opposed to formulations of DDT (typically 75 % or 50 % active ingredient, respectively).
- It was often not possible to distinguish between DDT produced/consumed for disease vector control or for agriculture.
- For some countries, little quantitative information is available. For example, a number of countries reported that they used/produced DDT without specifying the amounts.
- Where available, reporting is sometimes fragmented and incomplete. For example, data are sometimes only available for a certain (often short) period of time.
- In a number of instances, different data were reported in different reporting schemes (*e.g.* different consumption levels in the national report as compared to the DDT questionnaire, for the same period).
- In some instances, countries report DDT imports/exports without specifying the country of origin/destination, making it difficult to avoid double counting.
- As regards historic data (especially before the twenty-first century), information is particularly scarce. The data are therefore mostly insufficient to assess a development and identify over time.
- Due to a lack of data, it was not possible to draw any conclusions regarding the disposal of DDT wastes.

3. Results

3.1. Production of DDT

Quantitative data on the amounts of DDT produced globally was available for nine countries, namely Azerbaijan¹⁹, Bangladesh, Brazil, the Democratic People's Republic of Korea (DPRK), India, Indonesia, the People's Republic of China (PRC), Serbia²⁰ and the United States of America (U.S.A.) (see Table 1). Commercial production started in 1944 and is still ongoing in India. The DPRK produced DDT at least until 2010. It is unclear whether production is still ongoing. The available data suggest that these countries produced ca. 2.9 million tonnes of DDT. While several sources specify that the amounts refer to technical grade material, this could not be confirmed in all cases.

Table 1: DDT production by country²¹

Country	Start of production	End of production	Amounts of DDT (tonnes)
India	1955	Ongoing	239,497
Korea, Democratic People's Republic of	1960	> 2010?	21,269
China, People's Republic of	1952	2007	467,266
Mexico	1959	2004	>92,850 ²²
Bangladesh	1966	1992	7,706
Indonesia	1986	1991	22,507
Brazil	1962	1982	75,500
Azerbaijan	1958	1980	480,549
Poland ²³	1947	1980	78,950
United States of America	1944	1973	1,383,229
Serbia	1947	1960	2,406
Total			2,792,779

The U.S.A. accounts for more than half of the total production, followed by Azerbaijan (ca. 18 %) and China (ca. 17 %) (see Figure 1). In 2014, India renewed its specific exemption for the production and use of 15 tonnes of DDT as a closed-system site-limited intermediate in the production of dicofol²⁴ (not included in Table 1).

¹⁹ Production of DDT occurred in the Azerbaijan Soviet Socialist Republic, a republic of the former Soviet Union.

²⁰ Production of DDT occurred in the Socialist Federal Republic of Yugoslavia

²¹ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014; World Health Organization, 1979; all data rounded

²² Quantitative data only available from 1971 onwards; i.e. the total does not include data between 1959 and 1970

²³ Production of DDT occurred in the Polish People's Republic.

²⁴ Conference of the Parties to the Stockholm Convention, 2015

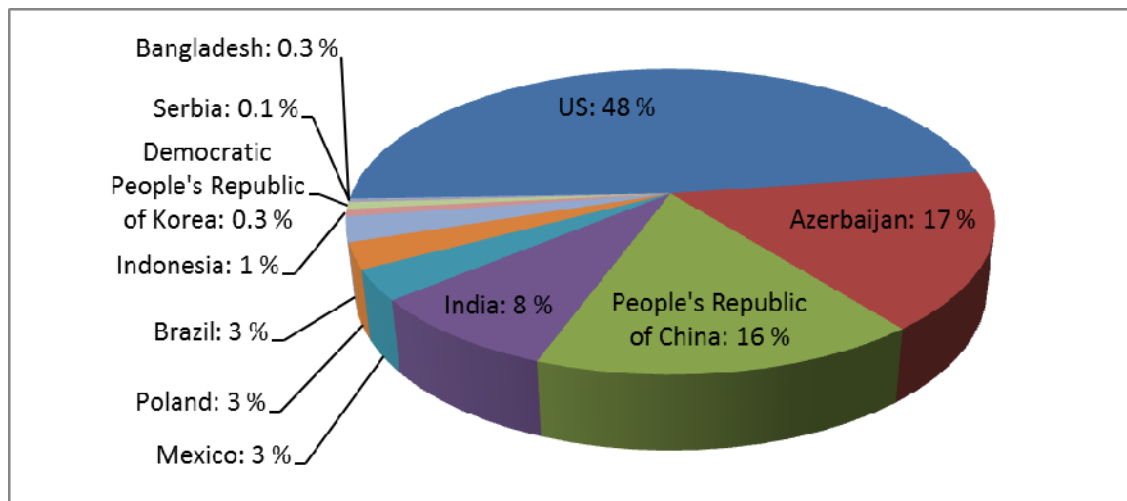


Figure 1: Cumulative global production of DDT²⁵

In addition, Ethiopia and South Africa formulated DDT with ingredients imported from China. Ethiopia stopped the production of DDT formulations in 2009. Between 2006 and 2008, Ethiopia formulated 4,800 tonnes. In 2009, South Africa formulated ca. 253 tonnes of DDT 75 % wet powder.

DDT production increased at a high rate since the 1940s and reached its peak in the 1960s with a total production exceeding one million tonnes annually (see Figure 2). Thereafter, production quickly and steadily decreased. During the first decade of the new millennium, only three countries continued producing DDT – the DPR Korea, India and China – and production amounted to ca. 68 thousand tonnes.

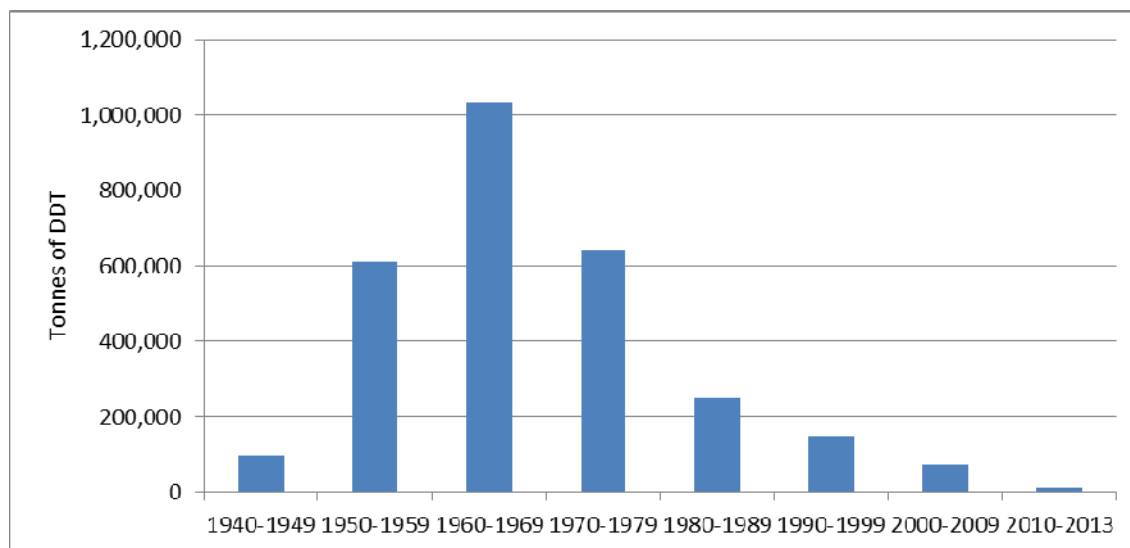


Figure 2: Production of DDT according to decade since 1940²⁶

²⁵ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014; World Health Organization, 1979; 2011; Lopez-Carillo et al., 1996

²⁶ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014; World Health Organization, 1979; Lopez-Carillo et al., 1996

At least until the 1970s, a number of other countries produced DDT. However, no quantitative data was available for these countries. For example, Germany and Japan report having produced DDT, without specifying the amounts²⁷. Moreover, in the case of Mexico, quantitative data was not available for all years of production. It is also not known how many countries and companies produced DDT in total. The lack of data suggests that worldwide production far exceeded the 2.9 million tonnes quoted above. By contrast, the US Department of Health and Human Services estimated the cumulative world production of DDT at only two million tonnes²⁸.

Although three Parties are listed in the DDT Register²⁹ for acceptable production of DDT (Ethiopia, India and Namibia), India is currently the only country that has been confirmed to produce DDT. In 2006, 2006 and 2009, respectively, Ethiopia, India and Namibia notified the Secretariat that they produce DDT for disease vector control in accordance with the WHO recommendations and guidelines. China had notified the Secretariat of its production in 2005³⁰ but ceased production in 2007³¹. Ethiopia, while registered, has not reformulated or produced DDT since its source of technical grade material from China had ceased in 2007. Likewise Namibia, while registered, has never produced or reformulated DDT according to information provided in the DDT Register. To our knowledge, in 2015 the only production facility is located in India.³²

For the reporting cycle from 2009 to 2011, of the 24 Parties that responded to the DDT questionnaire, only India reported production of DDT. The total production reported by India over the three years amounted to 10,246 tonnes or 3,315, 3,610 and 3,192 tonnes in 2009, 2010 and 2011, respectively.³³ This constitutes a decrease compared to previous years³⁴. The only facility known to have ongoing DDT production is 'Hindustan Insecticides Limited' a governmental enterprise under the Ministry of Chemicals and Fertilizers. According to company information, production amounted to *ca.* 3,872 and 2,786 tonnes of technical grade DDT in 2012/2013 and 2013/2014³⁵, respectively.³⁶ Most of this technical grade DDT was used to prepare formulations of 50 % DDT for domestic use; a much smaller share was used to prepare DDT formulations of 75% for export (see **Error! Reference source not found.**Table 2).³⁷

Table 2: Production of DDT in India³⁸

Formulation of DDT (in tonnes)	2012/2013	2013/2014
Technical grade material (98% - 99 % active ingredient)	3,872	2,786
Formulated products for export (75 % active ingredient)	383	100
Formulated products for domestic use (50 % active ingredient)	5,869	6,183

Figure 3 gives an overview of the production of DDT in India over the last ten years, *i.e.* since the entry into force of the Stockholm Convention. A trend towards decreasing production can be identified (see straight red line). In 2013, India produced *ca.* 30 % less DDT than in 2004.

²⁷ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015a

²⁸ US Department of Health and Human Services, 2002

²⁹ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015b; as of 9 March 2015

³⁰ Department of International Cooperation of the Ministry of Environmental Protection of the People's Republic of China, 2005

³¹ Conference of the Parties to the Stockholm Convention, 2010

³² Conference of the Parties to the Stockholm Convention, 2014

³³ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015c

³⁴ Conference of the Parties to the Stockholm Convention, 2012

³⁵ Financial year: April 1st to March 31st

³⁶ Conference of the Parties to the Stockholm Convention, 2014

³⁷ Sharma, 2014

³⁸ Sharma, 2014

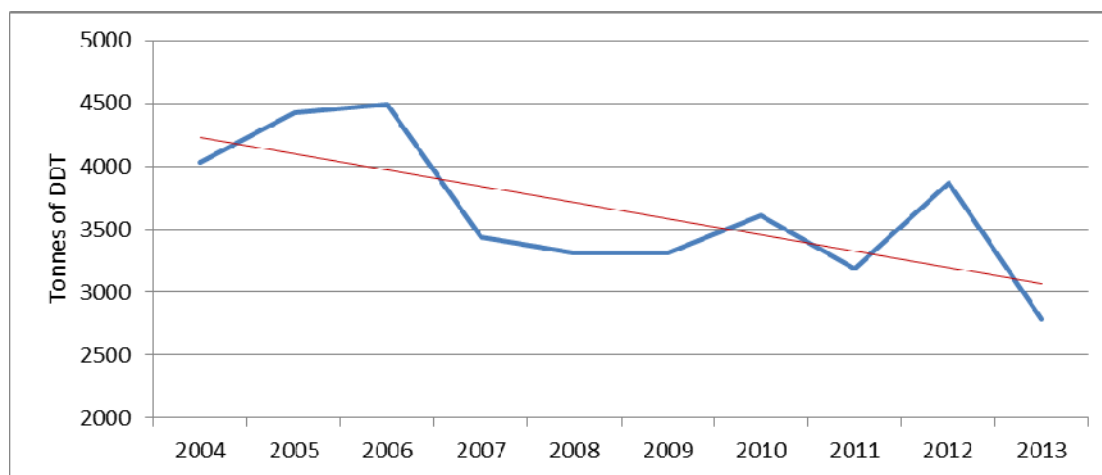


Figure 3: Production of DDT in India³⁹

3.2. Trade of DDT

Quantitative data on exports of DDT is only available for the 1970s onwards. In general, trade information is very scarce, in particular before the year 2000. For most countries, it was not possible to obtain quantitative import or export data: Only twelve countries reported concrete numbers. According to the numbers reported in the above mentioned sources, *ca.* 33 thousand tonnes of DDT were exported and *ca.* 61 thousand tonnes of DDT were imported in total⁴⁰. These numbers are very unrealistically low. The large discrepancy between imports and exports is yet another indicator of the dissatisfactory quality of the available information.

The situation is somewhat better since the entry into force of the Stockholm Convention. Figure 4 shows reported exports of DDT between 2004 and 2013. Eight countries reported exports of DDT during this period. The very low levels in the first years are mostly due to a lack of data for India. The sharp decline after 2008 is due to both India and especially China reducing exports significantly.

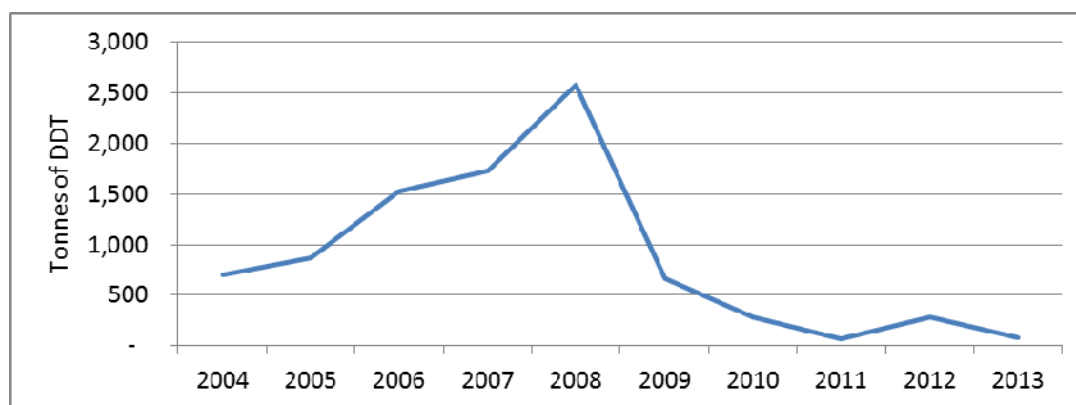


Figure 4: Export of DDT⁴¹

³⁹ Conference of the Parties to the Stockholm Convention, 2012; 2014; Sharma, 2014

⁴⁰ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

⁴¹ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

Figure 5 shows the three largest exporters of DDT since 1998. It should be noted that the missing data for India and South Africa before 2006 does not necessarily suggest that there were no exports. The figure does not distinguish between technical grade material and formulations of DDT.

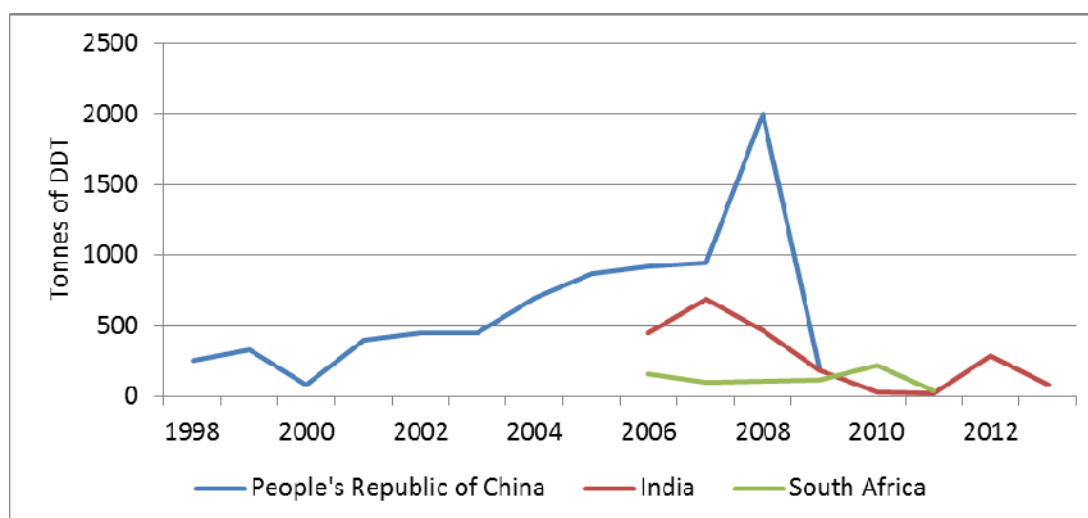


Figure 5: Major exporters of DDT⁴²

According to the latest DDT expert group report (November 2014), only India continued to export DDT after 2011⁴³. The recipient countries were Botswana (*ca.* 23 tonnes in 2012/2013), Myanmar (*ca.* 9 tonnes in 2012/2013), Namibia (*ca.* 57 tonnes in 2012/2013), South Africa (a total of *ca.* 64 tonnes in 2012/2013 and 2013/2014) and Zimbabwe (a total of *ca.* 210 tonnes in 2012/2013 and 2013/2014). In total, *ca.* 286 and 77 tonnes were exported in 2012/2013 and 2013/2014, respectively. Thus, exports decreased substantially. The number of importing countries decreased from five in 2012/2013 to two in 2013/2014 – while Botswana, Myanmar and Namibia discontinued import, South Africa and Zimbabwe were still importing, albeit at lower amounts⁴⁴. Table 3 provides an overview.

Table 3: Export of DDT from India⁴⁵

Country	Amount (in tonnes)			
	2012/2013		2013/2014	
	98 %-99 % active ingredient	75 % active ingredient equivalent	98 %-99 % active ingredient	75 % active ingredient equivalent
Botswana	23	30	-	-
Myanmar	9	12	-	-
Namibia	57	77	-	-
South Africa	33	44	31	41
Zimbabwe	164	219	46	61
Total	286	382	77	102

As already mentioned, contradictory or incomplete information made it difficult to estimate the overall volume traded or to identify the exporter or importer. The discrepancy in available data is reflected in the fact that the amounts imported since the entry into force of the Convention (see Figure 6) vary

⁴² Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

⁴³ Conference of the Parties to the Stockholm Convention, 2014

⁴⁴ Sharma, 2014

⁴⁵ Conference of the Parties to the Stockholm Convention, 2014; Sharma, 2014; all values rounded

considerably as compared to the amounts exported during the same period of time (see Figure 4). Figure 6 shows reported imports of DDT since the entry into force of the Convention.

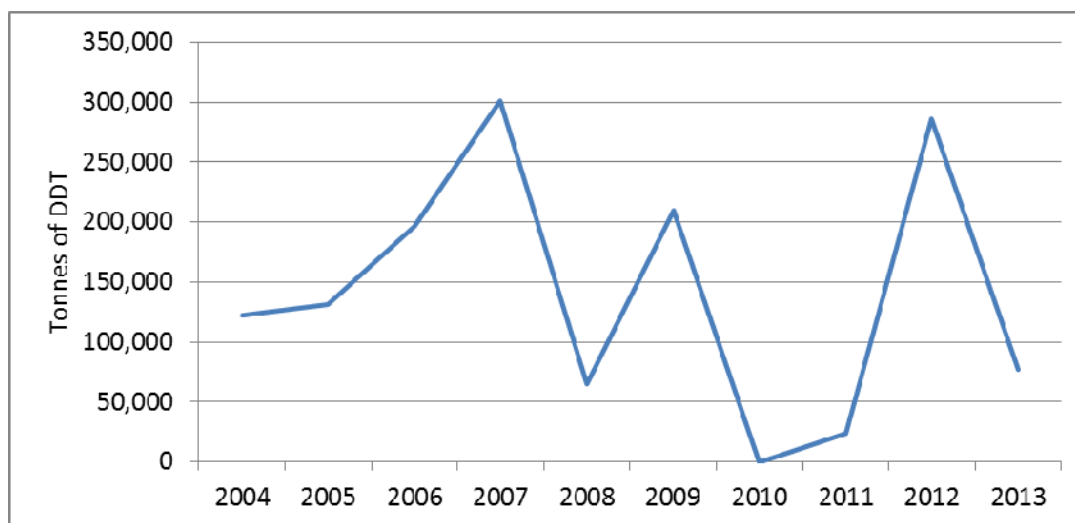


Figure 6: Imports of DDT⁴⁶

3.3. Consumption of DDT

According to the available data, approximately 1.1 million tonnes of DDT have been used in agriculture and disease vector control in total. By far the largest share was used in the U.S.A. (*ca.* 454 thousand tonnes), followed by the African region (*ca.* 284 thousand tonnes), the Asia-Pacific region (*ca.* 224 thousand tonnes) and Central and Eastern Europe (CEE). The Latin American and Caribbean Group (GRULAC) (*ca.* 11 thousand tonnes) and the Western European and Others Group (WEOG) (*ca.* 500 tonnes) reported very little use of DDT. Figure 7 provides the graphical sketch.

⁴⁶ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

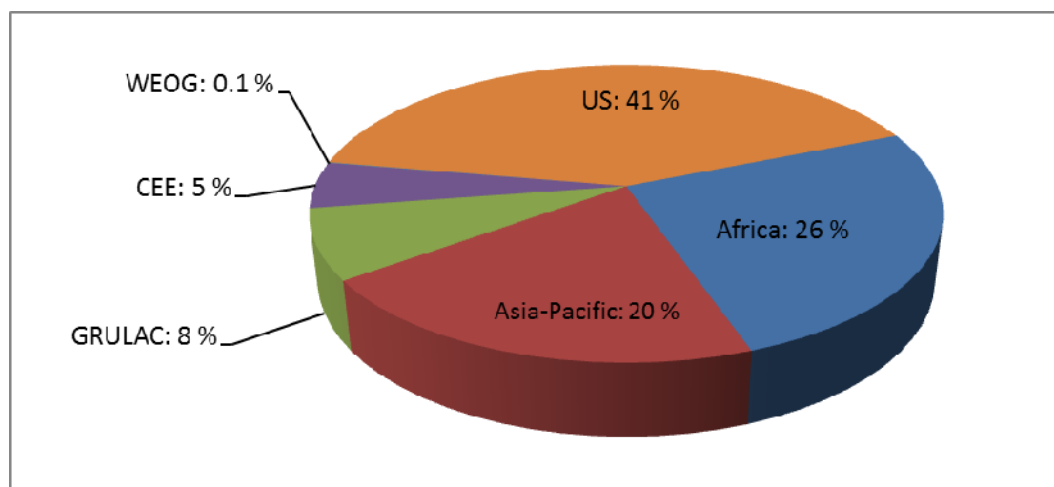


Figure 7: Consumption of DDT by region⁴⁷

The Figure 8 below shows the share of DDT consumption across regions when only relying on data reported by countries under the Stockholm Convention. In total, *ca.* 575 thousand tonnes were consumed. Most notably, this means that the data for the U.S.A. (not a Party to the Convention) and a substantial share of the data for Mexico (information obtained from sources other than official reporting under the Convention) are not included.

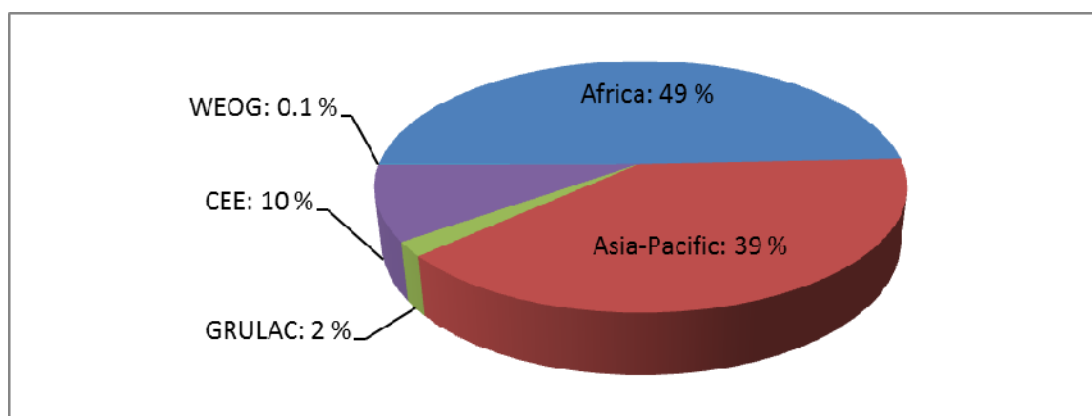


Figure 8: Consumption of DDT by region as reported under the Stockholm Convention⁴⁸

Again, there is severe lack of data, especially for consumption that occurred in the twentieth century. While good data were available for the U.S.A., little quantitative data were available for the WEOG, which in fact produced large amounts of DDT. The weakness of the data becomes clear if compared to the estimated 2.9 million tonnes of DDT produced.

At least Mexico and the U.S.A. started using DDT as early as 1945⁴⁹. Large-scale use of began in the 1950s. Figure 9 shows the development of DDT consumption between 1945 and 2013 according to available data. The very high levels between 1953 and 1970 are mostly due to DDT consumption in the U.S.A.. A

⁴⁷ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014; World Health Organization, 1979; 2011; Lopez-Carillo et al, 1996

⁴⁸ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

⁴⁹ Lopez-Carillo et al, 1996

second considerable increase is largely explained by high consumption reported in Tanzania. The third notable increase comes with the availability of data from India.

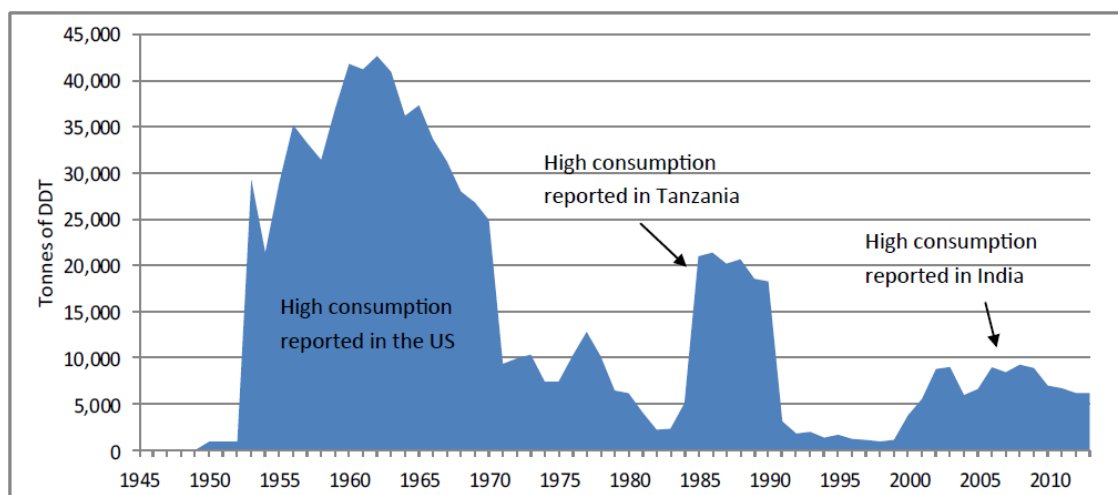


Figure 9: Consumption of DDT 1945 - 2013⁵⁰

According to a study conducted for the BRS Secretariat, *ca.* 4,953 tonnes, 5,219 tonnes and 3,950 tonnes of DDT were used for disease vector control in 2003, 2005 and 2007, respectively. While the majority was used for malaria control, *ca.* 20% were used for control of visceral leishmaniasis. India accounted for *ca.* 86 % of global use between 2003 and 2007. Ecuador, Mexico and Venezuela had phased out the use of DDT in 2000, while Gambia, Mozambique, Zambia and Zimbabwe had reintroduced it in 2008, 2005, 2000 and 2004, respectively. In 2007, an estimated 13 countries were using DDT for disease vector control.⁵¹

To some degree varying data are reported by the WHO: Use of DDT has experienced an overall increase between 2000 and 2009 and reached its peak in 2009 with more than six thousand tonnes of active ingredient used globally (see Figure 10).

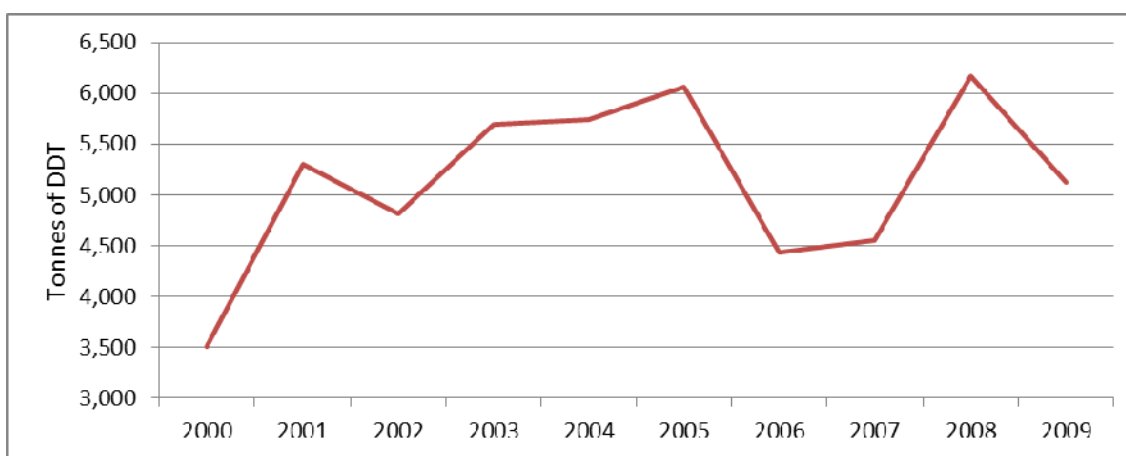


Figure 10: Trend in the global use of DDT for vector control, as reported to WHO⁵²

⁵⁰ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014; World Health Organization, 1979; 2011; Lopez-Carillo et al, 1996

⁵¹ Van den Berg, 2008

⁵² World Health Organization, 2011

According to the DDT register⁵³, 17 Parties are currently registered for acceptable use of DDT, including 13 from the African Group (Botswana, Eritrea, Ethiopia, Madagascar, Mauritius, Morocco, Mozambique, Namibia, Senegal, South Africa, Swaziland, Uganda and Zambia), three from the Asia-Pacific Group (India, Marshall Islands and the Republic of Yemen), and one from the Latin American and Caribbean Group (GRULAC) (Venezuela).⁵⁴ In 2012, Myanmar informed the Secretariat that it had discontinued the use of DDT⁵⁵. China followed with the same notification in 2014⁵⁶.

For the reporting cycle of 2009 to 2011, only twelve of the Parties registered for acceptable production of DDT responded to the DDT questionnaire. Of these, 7 reported use of DDT for disease vector control, namely Eritrea, Mauritius, Mozambique, India, South Africa, Swaziland and Zambia. Although not listed in the register, Gambia also reported use. Table 4 lists the amounts used by the respective countries as *per* the national reporting. Five of the registered Parties reported no use (Ethiopia, Madagascar, Morocco, Uganda, and the Republic of Yemen). In total, more than 20,000 tonnes of formulated DDT – corresponding to *ca.* 10,246 tonnes of active ingredient – were used between 2009 and 2011. India accounted for *ca.* 98 % of global use, making it by far the largest user, followed by South Africa (*ca.* 168 tonnes), Zambia (*ca.* 57 tonnes) and Eritrea (*ca.* 54 tonnes).⁵⁷

Table 4: Amounts of DDT used by countries during the reporting cycle 2009-2011⁵⁸

Country	Formulated material ⁵⁹ used (tonnes)			Sub-total
	2009	2010	2011	
Eritrea	13	18	23	54
Gambia	21	15	15	51
India	6,830	6,694	6,446	19,970
Mauritius	0	1	0	1
Mozambique	1	2	3	6
South Africa	85	21	62	168
Swaziland	5	3	4	12
Zambia	32	25	0	57
Sub-total	6,987	6,779	6,553	
Grand total				20,319

Figure 11 visualizes the consumption of DDT according to the sources listed above since the entry into force of the Stockholm Convention. The largest share was used in India. At least in India, use has continued between 2012 and 2014, with 6,183 tonnes reportedly used for disease vector control in 2013/2014.⁶⁰

⁵³ As of 9 March 2015

⁵⁴ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015b

⁵⁵ Ministry of Environmental Conservation and Forestry of the Republic of the Union of Myanmar, 2012

⁵⁶ Department of International Cooperation of the Ministry of Environmental Protection of the People's Republic of China, 2014

⁵⁷ Conference of the Parties to the Stockholm Convention, 2012, 2014; Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015c

⁵⁸ Conference of the Parties to the Stockholm Convention, 2012, 2014; Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015c; all values rounded

⁵⁹ The percentage of active ingredient of DDT in the formulation used in India 50 %, whereas that of the other countries is 75 %

⁶⁰ Conference of the Parties to the Stockholm Convention, 2014; Sharma, 2014

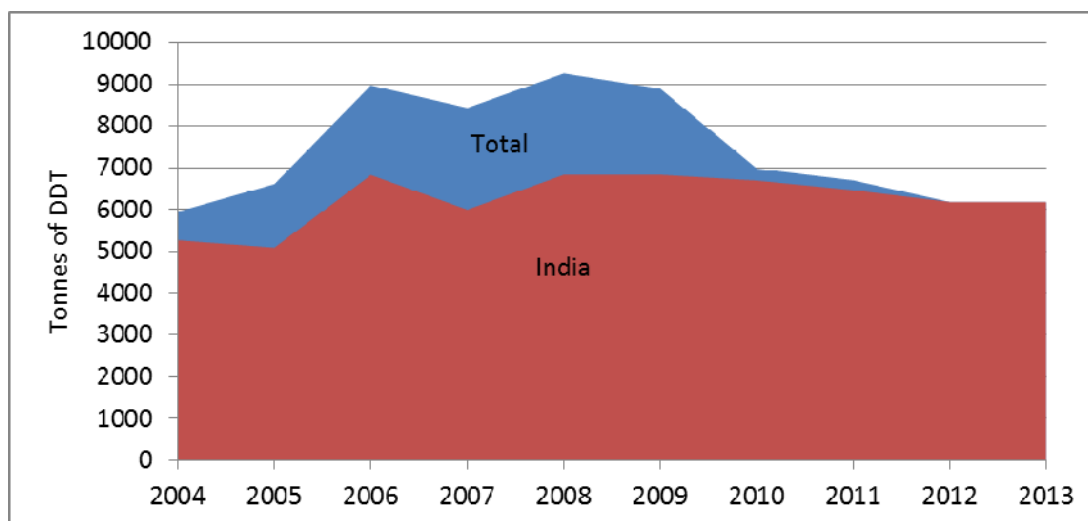


Figure 11: Consumption of DDT between 2004 and 2013⁶¹

Between 2000 and 2009, about 81 % of DDT was used in vector control to fight malaria and 19 % towards visceral leishmaniasis⁶². During the reporting cycle of 2009 to 2011, DDT was mainly used for malaria control. India reported the use of DDT for control of visceral leishmaniasis and Mauritius for control of *chikungunya* and dengue⁶³. Since 2008/2009, use for control of visceral leishmaniasis has increased substantially, while use for control of malaria has steadily decreased. In 2013/2014, more than 40 % of DDT in India was reportedly used for control of visceral leishmaniasis (see Figure 12)⁶⁴.

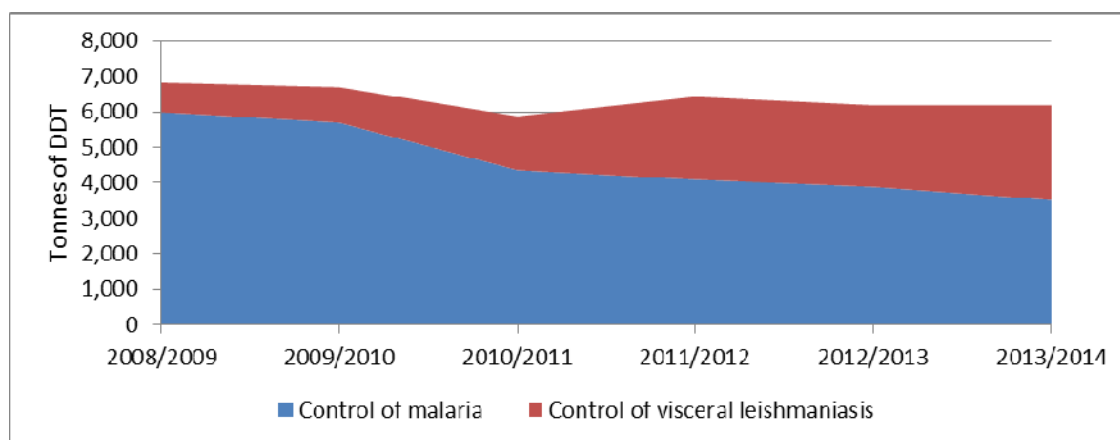


Figure 12: DDT use in India between 2008/2009 and 2013/2014⁶⁵

3.4. Stockpiles

76 countries reported DDT stockpiles⁶⁶. It was not possible to give a reasonable estimate of the total. The best estimate gives an average amount of 741 tonnes and a median of 32 tonnes. These data show that

⁶¹ Conference of the Parties to the Stockholm Convention, 2014; Sharma, 2014

⁶² World Health Organization, 2011

⁶³ Conference of the Parties to the Stockholm Convention 2012

⁶⁴ Sharma, 2014

⁶⁵ Sharma, 2014

⁶⁶ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

the size of the stockpiles is highly skewed with a lot of countries reporting relatively small stockpiles, but a few countries reporting relatively large stockpiles. In total, these 76 countries reported a cumulative total of approximately 56 thousand tonnes.⁶⁷

For a number of reasons, this number is not informative: Available data are not sufficient to provide an overview of the historic development of stockpiles. This is mainly due to a lack of quantitative data before 2000. Moreover, it is difficult to know whether the same stockpiles that have been reported recently mirror those reported in the past (double counting) or present newly identified and additional amounts. In most cases, it is also not clear whether stockpiles reported in past years have been disposed or used where they are no longer mentioned in later reporting. Where different amounts were reported for different years, it is difficult to determine whether these there were new stocks or the previously reported stock grew/decreased.

In a number of cases, the numbers suggest that countries have reduced their stockpiles significantly or disposed them. For example, Mauritius had reported stocks of 88 tonnes of DDT for the reporting period between 2006 and 2008, while only 5 tonnes were still kept as stocks in 2014. The stocks of South Africa decreased from approximately 133 tonnes in 2008 to only 36 tonnes in 2011.⁶⁸

For the reporting cycle b 2009 to 2011, six out of 24 countries provided information on stockpiles of DDT. The largest stocks were held by India (2,046 tonnes of DDT at 50 % active ingredient), followed by South Africa (36 tonnes at 75 %). Total reported stockpiles amounted to 2,126 tonnes. Swaziland reported unspecified stocks of obsolete DDT.⁶⁹ This information is summarised in Table 5.

Table 5: DDT stockpiles during the reporting cycle 2009-2011⁷⁰

Country	Active ingredient	Amount (in tonnes)
Gambia	75 %	14
India	50 %	2,046
Jordan	75 %	25
Mauritius	75 %	5
South Africa	75 %	36
Swaziland	n.a.	n.a.
Total		2,126

There may be additional stocks that were not reported. For example, Ethiopia has about 1,300 tons of obsolete insecticide (over 99% DDT) that needs to be disposed of⁷¹ and Bangladesh reportedly had stockpiles amounting to 602,389 tonnes of obsolete DDT⁷².

3.5. Concentrations in Humans and the Environment

The Conference of the Parties to the Stockholm Convention established a Global Monitoring Plan to evaluate the effectiveness of measures implemented. UNEP and the World Health Organization jointly implement human milk surveys on concentrations of POPs in human milk, which was selected as a core matrix. The sampling protocol and the data reporting assess baseline concentrations (*i.e.*, mothers not exposed to known sources of POPs) of primiparae reporting one pooled sample *per* country. According to

⁶⁷ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2014a; 2014b; 2015a; 2015b; 2015c; Conference of the Parties to the Stockholm Convention, 2006; 2008; 2010; 2012; 2014; GEF, 2014; UNEP Chemicals Branch, 2009; 2014

⁶⁸ Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015c

⁶⁹ Conference of the Parties to the Stockholm Convention, 2012

⁷⁰ Conference of the Parties to the Stockholm Convention, 2012

⁷¹ President's Malaria Initiative, 2014

⁷² Rahman, M., 2013

the protocol, it is recommended to prepare pools containing milk from 50 mothers for each 50 million of population.⁷³

Data for DDT (including the metabolites DDE and DDD) are available since 2001 and Figure 13 shows the concentrations in these national pools starting with the oldest samples at the left side of the graph. It can be seen that in recent years, relatively high concentrations have been detected in countries where the survey was conducted for the first time. For orientation: the WHO 'safety level' is at 2,000 ng *per* gram lipid.⁷⁴

⁷³ Fiedler et al., 2013

⁷⁴ Fiedler et al., 2013

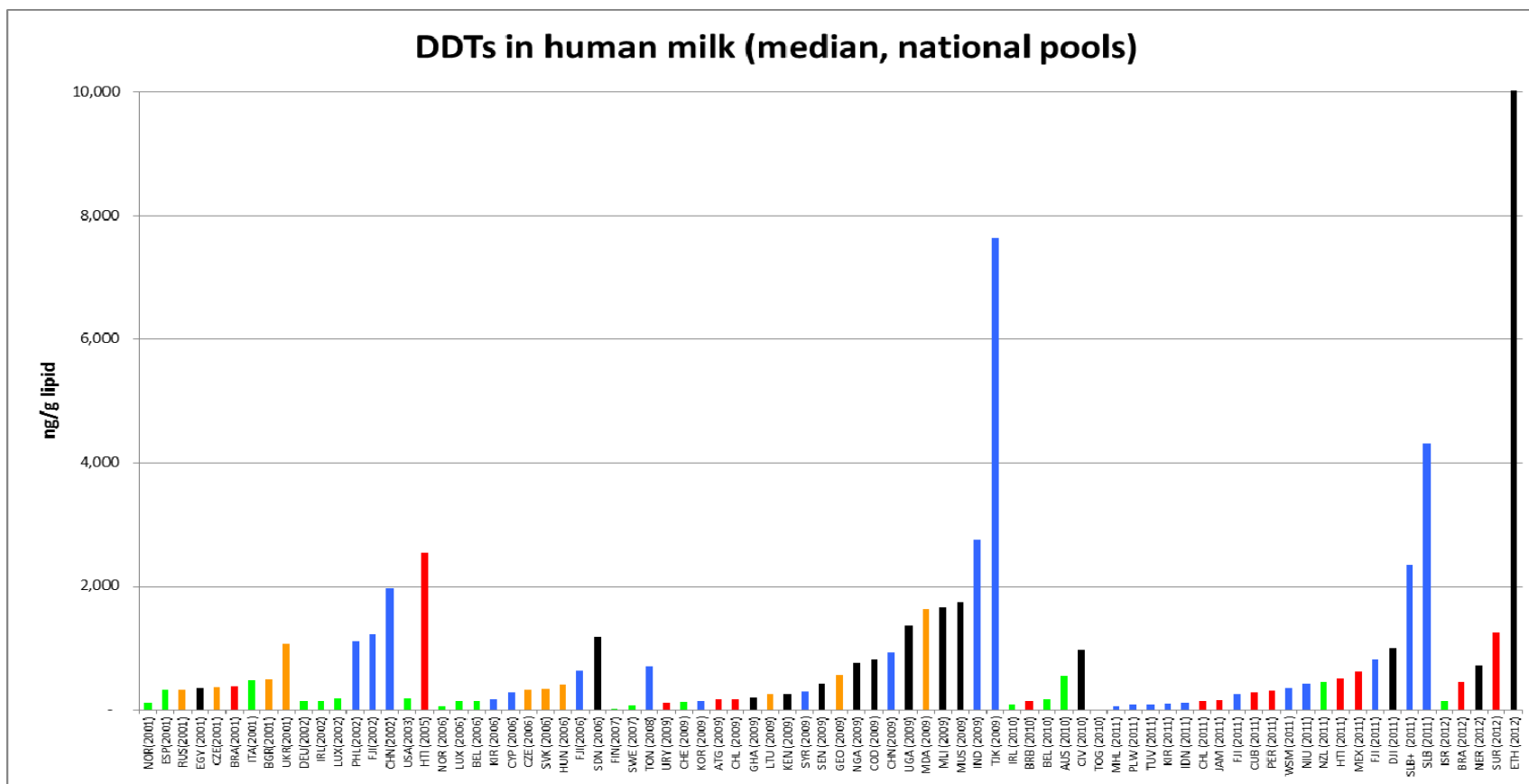


Figure 13: Concentrations of DDTs in human milk⁷⁵
 Countries are designated by ISO-3 code and sampling year
 Color codes are: Africa-black, Asia-Pacific-blue, CEE-orange, GRULAC-red, WEOG-green
 Note: right bar for ETH(2012) goes out of range (concentration: >22,000 ng/g lipid)

⁷⁵ Fiedler et al., 2013

Figure 14 shows results for countries where more than one result is available. The green bars identify countries where the more recent sample has lower concentrations than the previous. For Fiji, no trend could be established. The data have to be interpreted with care since the populations are not always the same and for most countries only two samples are available.⁷⁶

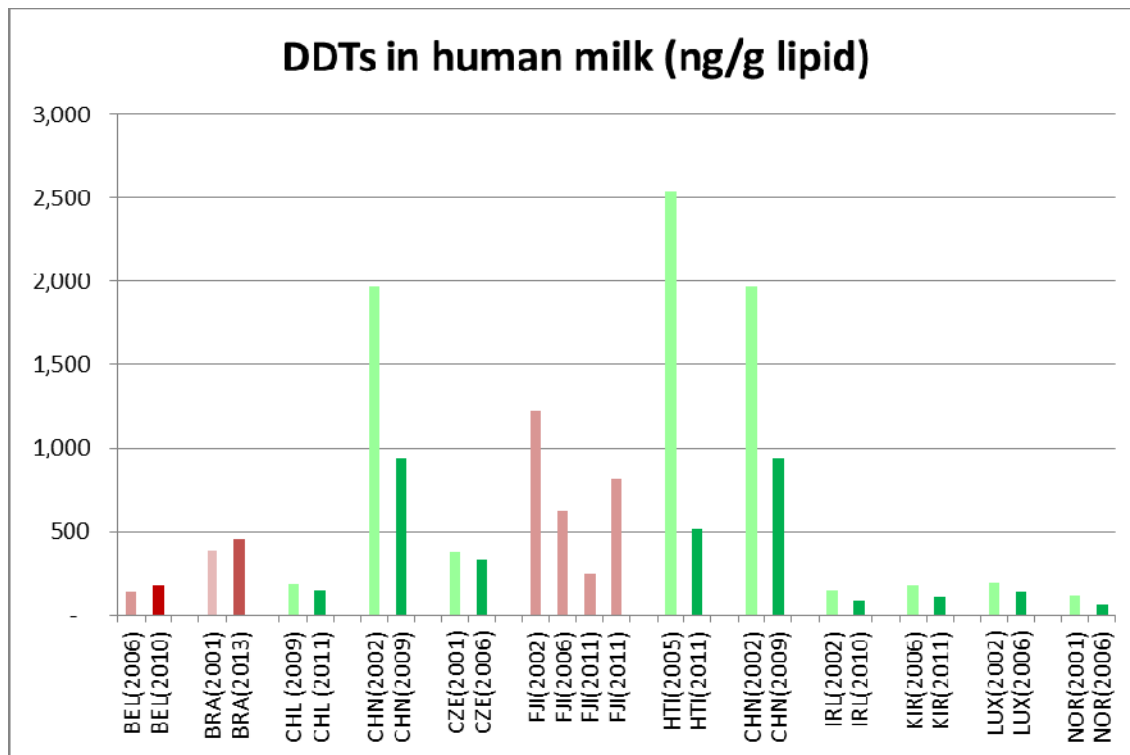


Figure 14: Concentrations of DDTs in human milk for countries where at least two samples are available⁷⁷
 Countries are designated by ISO-3 code and sampling year

⁷⁶ Fiedler et al., 2013

⁷⁷ Fiedler et al., 2013

4. Concluding Remarks

This report presents a preliminary analysis of existing data on DDT. Therefore, this compilation is only an initial step in the evaluation of production, use, trade, and disposal of DDT. Data are limited in several areas, in particular for periods before the entry into force of the Stockholm Convention. While recent trends in the production, trade and consumption of DDT are relatively clear, it was not possible to obtain a comprehensive overview of DDT stockpiles. Data on the amount of DDT wastes already eliminated are yet scarcer. This is despite the fact that the identification of DDT stockpiles and the elimination of DDT wastes are obligations under the Stockholm Convention. Further work will be necessary to refine the present analysis as well as to incorporate additional information as it becomes available. Future assessments could also include additional sources of information beyond the scope of the Stockholm Convention reporting mechanisms.

Despite the limitations of the present analysis, some findings deserve highlighting: Production of DDT – a reported total of 2.9 million tonnes – is still ongoing. For one country this is confirmed, for another further investigation may be necessary. Historically, current production levels are very low. While production decreased significantly since the entry into force of the Stockholm Convention, it seems to have stabilized in recent years. Export of DDT is now equally concentrated in a small number of countries. India currently seems to be the only exporter of DDT; South Africa had exported formulations of DDT at least until 2011. China stopped DDT exports in 2009.

The U.S.A. consumed relatively large amounts of DDT during the 1950s and 1960s, mainly for agricultural purposes, making it the largest user of DDT according to the sources consulted for this analysis. Only taking into account reporting under the Stockholm Convention, Africa accounts for almost half of total consumption and the Asia-Pacific region for almost forty percent. Analogous to the production of DDT, India has been the major user of DDT since the entry into force of the Convention and is currently reported to be the only country using DDT. It is important to note that India is using a decreasing amount of DDT for malaria control and an increasing amount for the control of visceral leishmaniasis. Despite the trends towards lower use of DDT, relatively high levels of DDT concentrations in human milk have been detected in recent years. This is likely the result of high 'legacy' concentrations of DDT in the environment, caused by high consumption levels in the past.

As noted above, data on stockpiles and DDT wastes are very scarce. For the reporting cycle of 2009 to 2011, more than two thousand tonnes of stockpiles were reported by six countries. The actual number is likely much higher. The identification of obsolete DDT stockpiles and the elimination of DDT wastes has so far not received sufficient attention – including in GEF projects, which set other priorities. Given that DDT is possibly carcinogenic to humans and since the highest concentrations in human milk among all POPs is for DDT, this should be made a priority.

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Annex A: Reporting Template

To the extent possible, please fill out where relevant or applicable; expand cells or rows where necessary. Thank you

Name of party/organisation/institution:
 Contact person:
 Email:
 Telephone:
 Date of information (dd/mm/yyyy):

Amount of DDT produced

Year	Mass (tons)	Active ingredient content (%)	Source of information	Comments

Amount of imported for use

Year	Mass (tons)	Active ingredient content (%)	Country of export	Source of information	Comments

Amount of DDT uses

Year	Mass (tons)	Active ingredient content (%)	Application				Source of information	Comments
			Malaria	kala azar	Other disease (please specify)	Other use (please specify)		

Amount of DDT stockpiled within national boundaries

Year	Mass (tons)	Active ingredient content (%)	Site		Storage arrangement	Financial assistance*		Identification	Project		Contacts		Source of information	Comments
			Location	Owner		GEF/IA*	Other (please specify)		Key steps	Major outputs	National	IA*		

Amount of DDT destroyed within national boundaries

Year	Mass (tons)	Active ingredient content (%)	Site of destruction	Technology	Overall costs (USD)	Financial assistance*		Identification	Project		Contacts		Source of information	Comments
						GEF/IA*	Other (please specify)		Key steps	Major outputs	National	IA*		

Amount of DDT exported for destruction

Year	Mass (tons)	Active ingredient content (%)	Country of import	Technology	Overall costs (USD)	Financial assistance*		Identification	Project		Contacts		Source of information	Comments
						GEF/IA*	Other (please specify)		Key steps	Major outputs	National	IA*		

Amount of DDT imported for destruction

Year	Mass (tons)	Active ingredient content (%)	Country of export	Technology	Overall costs (USD)	Financial assistance*		Identification	Project		Contacts		Source of information	Comments
						GEF/IA*	Other (please specify)		Key steps	Major outputs	National	IA*		

* Implementing Agency

We would also be grateful if you can provide qualitative information as indicated below (please expand as necessary):

Status of chemical alternatives to DDT:

Status of non-chemical alternatives to DDT:

Existing processes/initiatives for the development and deployment of alternatives: