

ENVIRONMENTAL COMPANY OF SAO PAULO STATE - CETESB

REGIONAL CENTRE OF STOCKHOLM CONVENTION ON POPS FOR LATIN AMERICA AND THE CARIBBEAN REGION

V INTERNATIONAL TRAINING PROGRAM ON ENVIRONMENTAL SOUND MANAGEMENT ON CHEMICALS AND WASTES, ESPECIALLY ON PERSISTENT ORGANIC POLLUTANTS (POPs) AND MERCURY (Hg)

Disposal of banned pesticides: São Paulo State experience

2016

Sao Paulo - SP - Brazil















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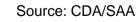


1. Stakeholders

Previous experience:

POPs disposed of by CDA /SAA (government) – 1998 to 2010				
Compound	Quantity (KG)			
Aldrina CAS 309-00-2	2			
Dieldrina CAS 60-57-1	10			
Endrina CAS 72-20-8	692			
DDT CAS 50-29-3	320			
Heptacloro CAS 76-44-8	370			
Hexaclorociclohexano CAS 58-89-9	61.430			
Não identificados	41.305			
TOTAL	104.129			







1. Institutionalization

Institutionalization: creation of a interdisciplinar working group

Formalização do GT: 28 de maio de 2009, por meio da Resolução Conjunta SMA/SAA – 2

União de esforços: representantes do poder público, indústrias, distribuidores, entidades de classe e usuários finais.

Objetivo: Elaborar Projeto Piloto, identificando seu custo, recomendações técnicas de acondicionamento, devolução, armazenamento temporário, transporte e destinação final a fim de dar a destinação adequada aos agrotóxicos obsoletos remanescentes no Estado de São Paulo.

* Only banned pesticides





2. Stakeholders

Stakeholder	Sector
Secretaria da Agricultura/ CDA e CATI	Governmment (Agriculture) – public sector
Secretaria do Meio Ambiente/ CETESB	Governmment (Environment) – public sector
Associação Nacional das Distribuidoras de Insumos Agrícolas e Veterinários – ANDAV	Distributors (private sector)
Federação da Agricultura do Estado de São Paulo – FAESP	Farmers (private sector)
Instituto Nacional de Processamento de Embalagens Vazias – inpEV	Manufacturing industry (private sector)
Organização das Cooperativas do Estado de São Paulo – OCESP	Cooperatives (private sector)
Centro Regional da Convenção de Estocolmo sobre POPs para a região da América Latina e Caribe/ CETESB (Guest member)	Governmment (Environment) – public sector

3. Working group metodology

- Multidisciplinary Approach;
- Team work;
- Shared responsibilities in the management of the project;
- Planning.





4. Diagnosis/ inventory planning



4. Diagnosis/ inventory planning

Problem identification:

HISTORIC

- •POP most commonly used in Brazil:
- •gamma-HCH (gamma-Hexachlorocyclohexane) or lindane, particularly in the coffee and cotton crops.
- •Manufacturing and use in Brazil:
- •From the 40s, with HCH and DDT factories
- •70s, intensification of manufacture and use
- •In Brazil, the HCH was commercially known as BHC





4. Diagnosis/inventory planning

Problem identification: when have these products been banned?

Was prohibited in the entire national territory, by Ordinance of the Ministry of Agriculture No. 329 of September 2, 1985, the manufacture, sale, distribution and use of organochlorine pesticides products, intended for farming





4. Diagnosis/inventory planning

Problem identification: what were the main consequences of the ban?

After the ban, lacked steps and procedures to provide appropriate destination for these products. So still are obsolete pesticide stocks in many farms, causing damage to public health and the environment.





4. Diagnosis/inventory planning

Problem identification: who is responsible for disposing of banned pesticides?

Because this is a matter of public health and environmental protection, proper disposal of these products in the interest of society as a whole;

The Convention of Stockholm recommends that the solution of this problem is shared between the government, industries, distributors, trade associations and end users.





4. Diagnosis: the importance of information collection instrument

	Eormulário :	do Doolaração	4990
		de Declaração	
ВНС е	outros agrotóxicos	s obsoletos proibidos	s por lei
proibidos por lei no Estado de Si produtor rural que preencher essa	ão Paulo, conforme estabelecido pi a declaração não estará sujeito a san o faça no prazo estabelecido e mar	mento do projeto de destinação de BH ela Resolução Conjunta SMA/ SAA nº Ições administrativas (multas), conform ntenha os resíduos em condições mínir	o 002, de 28 de maio de 2009. O ne Decisão de Diretoria da Cetes
Nome do proprietário			
		scrição do produtor	
Nome da propriedade		CNPJ	
Município		Bairro	
-			
Produto*	Estado físico	Condição do Produto	Quantidade estimada
	Ilquido sólido pastoso		Quilos Litros
	Ilquido sólido pastoso		Quilos Litros
	líquido sólido pastoso		Quilos Utros
	líquido sólido pastoso		Quilos Litros
"Lista para consulta no verso	liquido sólido pastoso	embalado granel	Quilos Litros
Observações			
Assinatura do declarante		Assinatura do responsável pelo	recehimento do formulário
			de
	_	,	ue
Para uso exclusivo do respon	sável pelo recebimento do form	ulário	
	Email		
release (Email		

Mahir/Aldrina	Indies	
inônimos, nomes comerciais e comuns: Agrichem, Aldersten EC 30, Aldocit, Aldrec, Aldrec.	Sinónimos, nomes comerciais e comuns: Accelerate, Agrine, Cmpd 269, Compd Compound 26	
Ndrex 2, Aldrex 30, Aldrex 40, Aldrex 5, Aldrimul, Aldrin, Aldrin 1,25% Dust, Aldrin 30, Aldrin 40	Coo 157, Drinafog, En 57, Endrey, Endrical, Endricol, Endrin 1,6 EC, Endrin 19,5 EC, Endrin 2C, Endr	
C/WP, Aldrin 50 WP, Aldrin dispensivel, Aldrin técnico, Aldrine, Aldrine reis, Aldrine-Sandoz,	mixture, Endrine, Engar, Envel, Experimental insecticide nº 269. Hexadrin, Insectrin, Insectrin, 1.6	
Ndrice, Aldrosof, Algran, Altox, Bangald, Compound 118, Drinox, Farmon Aldrin 30, Geigy 95,	Isodrin epoxide, Mendrin, Multitox 19,5% C.E., Nendrin, Oktanes, OMS 197, Palmarol, SD941	
#-IDN, Hortag Aldrin Dust, Kortofin, Murphy Aldrin Dust, Occalene, SD 2794, Seedin, Socida.	Shell endrex, Velsical, Velsical 116 CE e Zetalgon.	
Solodrine, Tatuzinho, Tipula e Toxadrin.	Salarisate rasca reaco i in cerebrajos.	
	Heptakiro	
Na-hesatorocidohesano	Sindnimos, nomes comerciais e comunis Aahepta, Agroceres, Basaklor ^a , Clorahep 20C, Clorahe	
inônimos, nomes comerciais e comuns Berzec, HCH, Hexachlor e Hexacloro-Ciclohexano.	25 PS, Clorahep 3 CE, Clorahep SG, Drinoirf, E 3314, Goldonst H-60, CPIO+, H-34, Heptachronan	
	Heptagran", Heptagranox, Heptamak, Heptamul, Heptasol, Heptox, Rhodiachlor, Solepta	
leta-heraclaroticherans	Termide* e Velsicol 104*.	
inônimos, nomes comerciais e comuns: Bencide, HCH, Huesyclan e Trivex T.		
	Headurbenero	
HCIHCH/Untino	Sinônimos, nomes comerciais e comuns Amacin, Anti-Carie, Bunt-cure, Bunt-no-more, Carito	
inônimos, nomes comerciais e comuns Gammesane-26 DL HCH Técnico e	Celiu C.B., Co-op Hexa, Ferill Percloro, Granero, Granox N.M., Granozol, HCB, HCB Valagro 1	
texaclorocidoheano.	HexaCB, Hexaclorobenzol, Julin's Carbon Chloride, No Bunt, No Bunt 40, No Bunt 80, No Bu	
	Liquid, Pentachlorophenyl Chloride, Percloroberzeno, Res-Q, Sanocide, Smut-Go, Snieciotox	
Turdato inónimos, nomes comerciais e comuns: 1068, Alfa-cloridano, Aspon, Aspon-Chloridane,	Tetragil.	
Attaclor, Belt, Beltin, CD 68, Chlor Kil, Chlor kill, Chlorahep, Chlordan, Chlordane, Chlordane 30,		
stacor, bec, beth, CD os, Chor ka, Chor ka, Choranep, Chlordan, Chlordane, Chordane 30,	Metoriclam	
Chloriandin, Chlorindan, Chloride, Chlorogen, Cloratox, Clordan, Clordane, Clordano valagro,	Sinônimos, nomes comerciais e comuns Chemforn, Denka veeluis poeder, Dimethoxy-D	
Dordisol, Clorvel, Corodan, Corodane, Corollan-neu, Cotnion M 50, Detia-Ameisenpuder,	DMDT, Double M.E.C., Maralate, Marlate, Methoxo, Methosychlor 2 EC, Methoxyck	
Olfadol, Dowchlor (ENT-9932), Endriner, Firacloro, Formical, Formidane 50, Formiquil, Gamma-	Methony-DEXT, Metidion 270, Metosychlor e Reina-Vloeibaar.	
thlordan, Gold coin 4482 ST, Grovex GX2SS, HCS 3260; Insecto-solo, Insox, Insox-8, Kenex		
mierendood, Kilver-Indane, Kypchlor, Luxan Mierendood M 140, M 140, M 410,	MinscOxdeniclam	
Naco-chlordane 83C, NCI-C00099, Niran, Octachlor, Octacloro, Octa-Klor, Octaterr, Ortho-Klor,	Sinônimos, nomes comerciais e comuns: Bichlorendo, CG1283, Dechlorane, Dechlorane 40.	
Pencackior, Prentox, RCR Nº30, RCR Nº37, RCR Nº46, SD 5532, Sell SD-532, Sydane, Syndox,	Dodecacloro, ENT 25719, Fernamicide, GC 1283, HRS 1276, Mineney, Minex 300, Minex 45	
lynkler, Synklor, TAT Chlor 4, Termide, Termide DR, Tornagran, Topichlor 20, Topicior,	NCI-C06428, Paramex, Perchlorodihomocubane e Perchloropentacyclodecane.	
Toxichlor, Velsicol e Velsicol-1068.		
	Notacioni	
	Sinônimos, nomes conterciais e comunis não tem	
inônimos, nomes comerciais e comuns: Chlordecone, Ciba 8514, Decachloroketone, GC-1189		
r Kepone	Pertadordenano	
	Sinônimos, nomes comerciais e comuns: PeCB e Quinsochloroberaene.	
Turcheration		
Sinônimos, nomes comerciais e comuns Acar, Acaraben, Acarabene, Acarben 4F, Acarozil 25 EC.	Personnel	
Akar, Akar 338 EC, Akar 388, Benzan EC, Benzilan, Benzo-O-Chlor, Chloroben EC, Chlorobenzilar,	Dowicide EC-7, Dowicide G. Duorotox, EP 30, Fungifen, Glazdpenta, Grundler arbezol, Laust	
Compound 338, Effetrex 25 EC, Folbex, Folbex smoke-strips, G 23992, G 338, Geigy 338, Gesapins,		
Heliocar, Kop-mice, SR-300, Super acarol EC e Toxacar 25 EC	Lauxtol A. Liroprem, Paratox, PCP, Penchloroj, Penta, Penta concentrate, Penta dragon 50 pir	
	Penta ready, Penta WR, Pentacon, Penta-kil, Pentanol, Pentasol, Penwar, Permacide, Permaga	
Sinônimos, nomes comerciais e comuns Anofest, Cezarest, Clofenocano, Decogant, Dicloro	Permasan, Pormatox, Permite, Phenchlorol, PKHF, POL NU, Prevental P, Prilox, Sancophe	
	Sinituho, Term-I-Trol, Thompson's wood fix, Vicamadera, Weedone, Wescocide 8 e Woodreat	
Olfenil Tricloroesano, Dinocide", Cenitor", Cesapol, Gesapon, Gesares, Gesarol", Guesapon",		
Suesarol*, Gyron*, Isodex*, Mard-Dram, Neocid*, Neocidol*, Pentachlorin*, Toxafeno DDT	Totalma/Carlino Closido	
5-25%, Toxametil 4-2-1, Tree mist, Twin light: no spray, Viscaliero DDT 40-20 CE, Zeidane e		
Zerdane*.	4-4, Atsac 6, Atsac 6-3, Atsac 8, Carrellochlox, Camphechlox, Camphoclox, Canfedoro, Canfed	
	dorado, Canfenos dorados, Canfodoro, Chem-phene, Chem-phene M5055, Chiorocampher	
Dicolal	Coto Chem T-994 Circocarfena, Compound 3956, Crestina, Cristona, Dipicio Dua-Tos, Ed 3975, Esconor, Fazor-Tempora, Fersicos, Ferricicia, Confelena, Olytena, Hercules 3956, Hulli Canfena, Karnfociora, M 5055, Melpas, Mercules 3956, Miller's transphrene, Mottos, Mudiciasus uti NG-C000299. Costoriocaráfena, Oeriphene, Chaafena, PCC, Penferia, Pherascide, Phenato Phenory, Pelidomocarfena, Policiocorarena, Salvadori, Salvatos 396, CE, Politona, PS, Combinera, Marchane, Marchan	
indnimos, nomes comerciais e comuns Kelthane.		
inônimos, nomes comerciais e comuns Aldrin epoxide, Alvir, Compound 497, Dieldres,		
Dieldrex 15%, Dieldrin 50, Dieldrin permetezo, Dieldrice, Dieldrice 25, Dieldric, Dielmoch, Dilstan,	Strobane-T 90, Strobano, Synthetic 3956, Toxa-Dragon 71,3% C.E. Toxadust, Toxafer, Toxafer	
Donutos, Ensodil, Exo-dieldrin, HEOD, Iltoxol, Insectlack, Kombi-albertan, Kynadrin, Moth Snub	90-10, Toxafeno E-8, Toxafeno Hercules, Toxakif, Toxaphers, Toxaphene, Toxon 63 e Vertac 909	
O. Octalox, Panaram D-13, Permeteno, Pestex, Quintox, Red shield, SO 3417, Shell Dieldrin,		
helidrice mochproofer, Supadiel, Talox e Termitox.		
hellidrise mothproofer, Supadiel, Talox e Termisox.		
helidrise mochproofer, Supadiel, Talox e Termizox.		
helldrise machproofer, Supadiel, Talox e Termizox.		
helkfrise mochproofer, Supadel, Talox e Termizox.		
heldrice mont-proofer, Supudel, Talov e Termizos.		
Preliktine mant-procele: Supudel, Talox e Termizox.	5 DEEEE	
Prelidine mant-proofer. Supudal, Talox e Terminos.	5 DEFESA	
Delidrice matriproofes Supadel, Talou e Terminos.	DEFESA ARDIVIDUAL	
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ANDA *		

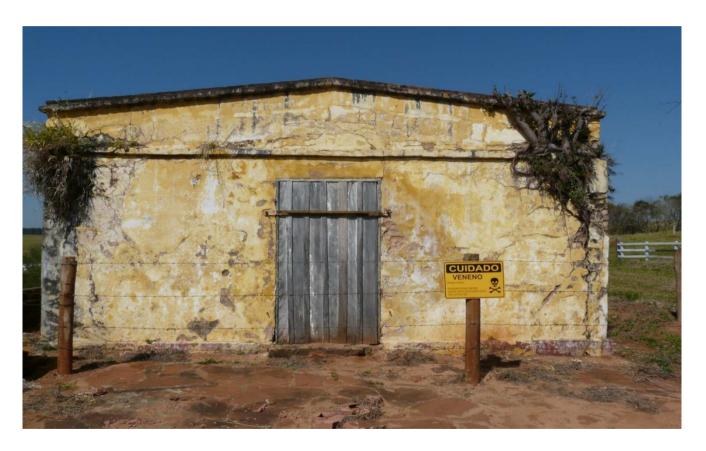












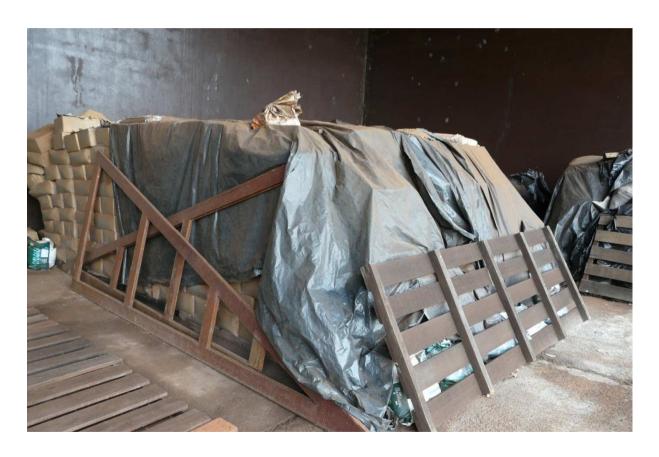
















4. Diagnosis/ inventory results

318 forms were declared about 270 tons of obsolete pesticides.

The statements contained amounts of information ranging from 0.5 kg to 60,000 kg, distributed in 123 municipalities in the state of São Paulo.

The quantities estimated to have been declared, it was necessary to make a check in the 52 largest claimants, which found a shift to more on the order of 50%, totaling approximately 420 tonnes to be designed properly.





5. The final destination planning stage: criteria

- Minimize the handling of obsolete pesticides by farmers, covering the analysis of the cost of providing PPE and training;
- Optimizing transport routes, aiming at the reduction of transport accidents;
- Examine the need for use of temporary warehouses, the transport of products the properties to these warehouses and care for possible contamination;
- Reduce the risks inherent to the various activities of this alizando approximately 420 tonnes to be designed properly.etapa;





5. The final destination planning stage: Scenarios

 Scenario 1 / Ideal - without manipulation of obsolete pesticides by farmers: all declared products would be removed from the property by independent experts;





5. The final destination planning stage: Scenarios

 Scenario 2 - with handling small amounts of obsolete pesticides by farmers: 10 temporary warehouses in the state where the declarants with quantities less than 60 kg acondicionariam and lead products to these sites and larger amounts would be removed from the property by independent experts;





5. The final destination planning stage: Scenarios

 Scenario 3 - with handling medium quantities of obsolete pesticides by farmers: 09 temporary warehouses where reporting less than 333 kg manipulate and lead products to these sites and the largest quantities would be removed from the property by a specialized company.





5. Definition of scenario and division of responsibilities

The scenarios were constructed and analyzed by the set of given criteria, and Scenario 1 / Ideal showed the greatest environmental benefit and cost appropriate to the resources available. That was the scenario adopted for the proper disposal of declared pesticides.

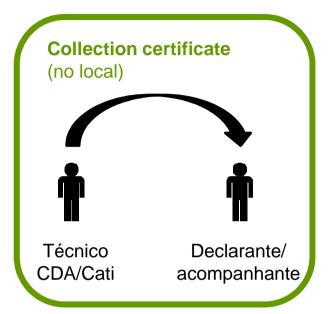
The members of the Working Group entities, aiming the importance of finalizing the project, shared the following responsibilities and their costs. The final cost of disposal of this project is of the same order of magnitude as the international similar project costs (about US \$ 4 / kg).





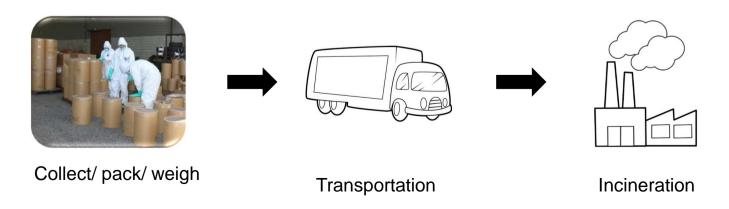
Process flow: collecting, packing, transportation and incineration

1) Scheduling (técnico CDA/Cati agenda com o declarante) Técnico Luft Técnico CDA/Cati Rural property



2) Collecting, packing, transportation and incineration

(acondicionamento com acompanhamento do técnico da CDA/Cati e do declarante/ acompanhante)



3-way Collection certificate

1^a Declarante 2ª CDA/Cati 3^a Luft

ATESTADO DE RETIRADABHC e outros agrotóxicos obsoletos proibidos por lei

Resolução Conjunta SMA/SAA Nº 002, 28/05/2009

de	kg,	_kg,(quantidade por extenso)		
de agrotóx	icos obsoletos proibidos p	or lei referentes às qua	ntidades estimadas no(s) f	Formulário(s) de Declaração
nº(s)			recebido(s) durante a (Campanha de Levantamento
realizada e	entre 27/set/2011 e 24/jul/	2012.		
	Nome	R.G.	Entidade/ empresa	Assinatura
			Coord, de Assistência Técnica Integral - CATI	
			Coord, de Defesa Agropecuária - CDA	
			Propriedade rural	
			Transporte Luft Ltda.	
			de	de 201
ocal e data				
			=	
	4		DEFES!	<u> </u>
۱ND		Cornerção de El	Routre	

6. Summary of Critical Success Factors

- Choose the appropriate stakeholders.
- Institutionalize the work.
- Adopt a working methodology that is multidisciplinary, with the team working together and sharing the difficulties and successes, including the holders farmers of obsolete pesticides. Throughout the project the focus in planning must be a constant.





6. Summary of Critical Success Factors

- In the diagnostic step, make a careful identification of the problem, design an appropriate collection instrument and establish reliable channels for the dissemination of project objectives.
- As for logistics, and meet all specifications for the collection, packaging, transport and incineration, pay special attention to the health of rural workers - who handle these products, public health and increasing the quality of the environment.





Thanks!

Grupo de Trabalho Interdisciplinar de Destinação Final de Agrotóxicos Obsoletos do Estado de São Paulo

São Paulo, January 18th, 2016.

























