

UNITED NATIONS DEVELOPMENT PROGRAMME

TERMS OF REFERENCE - TOR

INTERNATIONAL EXPERT IN THERMAL TREATMENT OF PCB

1. Background:

Colombia signed the Stockholm Convention on Persistent Organic Pollutants in May 2001, and ratified it in Law 1196 of 5 June 2008.

Beginning with the signing of the Stockholm Convention, the (now) Ministry of the Environment and Sustainable Development (MADS), with the support of other ministries and the private sector, has advanced in achieving the objectives of identification, prevention, reduction and elimination of these substances and their residues. Since 2003, a series of activities has been implemented to learn and analyse the national situation of persistent organic pollutants (POPs), in a first phase.

In accordance with the stipulations of Article 7 of the Convention, the country has the obligation to prepare a plan to meet the obligations of the Convention. Therefore, in 2007, what is now the Ministry of the Environment and Sustainable Development formulated the National Plan for the Application of the Stockholm Convention (NPA), and beginning at the end of 2008, a process of dissemination and negotiation of the NPA has been carried out with the related sectors, in order to facilitate its implementation.

In order to adequately address the problems identified regarding the presence of PCB in Colombia, an Action Plan was designed to identify, manage and eliminate the stocks of PCB, aiming to reduce and gradually eliminate their improper handling, in order to meet the obligations acquired with the Stockholm Convention.

The NPA's PCB Action Plan has a sectorial approach under which the electric, manufacturing and hydrocarbons sectors – as the main possessors of equipment, oils and other elements potentially polluted with PCBs – must formulate sectorial strategies adjusted to the particular conditions of each one.

“Elimination”, as one of the strategic lines of implementation of the PCB Action Plan establishes the creation of a mechanism to attract and make viable the offer of environmentally rational management services for equipment, oils and materials contaminated with PCBs in the country, and thus comply with the condition stipulated in Article 6 of the Stockholm Convention.

On December 15, 2011, the MADS issued Resolution 222, which establishes a series of mandatory responsibilities and obligations for owners of PCBs. These obligations include the annual reporting of their inventories of equipment with PCBs, the labelling of contaminated equipment and the establishment of a programme for the gradual elimination of PCBs.

Also, taking into account the strategies of the NPA, the National Government, represented by the MADS, and the United Nations Development Programme (UNDP) signed Project COL84851/71268, “Development of Management Capacity and the Environmentally Adequate Elimination of PCBs” in April 2013, to address the needs and challenges regarding the environmentally rational management of PCBs, the development of capacities and institutional strengthening, and the development of technical alternatives for their treatment and elimination, focused on complying with this priority. The project has a strategic approach with the overall objective of eliminating the use of PCBs by 2025 and the destroying the country's stocks of PCB by 2027.

The project's objective is to protect human health and the environment, in response to the problems created by the poor handling and inadequate management of PCBs in Colombia. The project will meet this objective through the implementation of a regulatory and administrative framework to promote the environmentally adequate handling of PCBs among the stakeholders, especially the electric energy generation and distribution sectors.

The obligations established in Resolution 222 of 2011 for the proprietors of PCBs justify the need for the project to contribute to the strengthening of PCB management through the following activities:

- Strengthening of the national capacity for laboratory analysis of samples containing PCBs
- Development of technical guidelines and capacities for the correct labelling of equipment containing PCBs, especially equipment that is in use.
- Development of technical guides and provision of technical assistance for the handling of PCBs in their storage and packaging, and the transportation of equipment and residues.

Project COL84851/71268 is structured in three components interconnected with results and products, as well as the component on monitoring, learning and adaptive feedback, dissemination and evaluation of results.

Specifically in Component 3 – environmental rational handling and elimination of PCBs through the implementation of pilot tests – there is a need for a consultant to provide technical support for the implementation of the activities planned for that component, which include pilot tests of the thermal destruction of PCBs by incineration and co-processing in cement kilns

This consultancy will provide technical support to the Ministry of the Environment and Sustainable Development, in the adequate implementation of burning tests, technical evaluation and the corresponding analyses of results vis-a-vis international standards, and determination of the viability of their implementation in the country.

2. Objective

To provide technical and scientific support to the Ministry of the Environment and Sustainable Development, in the preparation, design, implementation and result analysis of burning test of PCB, under the frame of Project COL84851/71268.

3. Duties and Responsibilities:

The international expert in thermal treatments shall work for the Environmental Affairs Sectorial and Urban Direction Office of MADS (Ministry of Environment and Sustainable Development). This shall be done through coordination and permanent functional reports to the responsible consultant from the general coordination office in burning testing. Said expert shall give technical support in design, implementation and result analysis of the pilot testing on PCB thermal treatments. Within this expert support activity the following responsibilities are included:

1. To analyze assessment reports of the selected facilities for the performance of burning tests.
2. To establish specific technical information on the aptitude of laboratories participating in sampling and analysis during burning tests.
3. To evaluate the aptitude of laboratories participating in sampling and analysis based on information exchange and comparison.
4. To provide scientific advice on the detailed design of PCB burning tests including validation of scope. This in reference to several material and emission analysis.
5. To be present in burning tests during performance in the incineration facilities and co-processing in a cement kiln.
6. To do technical and scientific monitoring and analysis on the responsible laboratories that take and analyze samples. This would be very important especially during the result analysis and preparation period.

7. To develop calculations on Destruction efficiency and destruction and elimination efficiencies.
8. To make each and all of the necessary documents on the burning tests. This shall be done through a final report and a summary with the purpose of being published in a scientific journal.

4. Duration

One (1) year, which could be extended according to new requirements of the project and performance of the expert.

5. Duty Station

Duty station or place of work for the consultant shall be “home-based”. This includes two (2) missions to Colombia with visits in Bogota city (incineration burning test) and Ibagué city (co-processing burning test).

6. Fees

Candidates shall issue and send an economic offer for developing the following deliverables as hereon stated with the necessary specifications for each of those as stated in Annex I. Such a proposal shall include each and all of the necessary costs and fees for two (2) missions to Bogota and Ibagué cities. Said fees and costs shall be distributed as follows:

Cities	Main Activities	Estimated duration (days)
Bogotá (Mission 1)	Project Start Meeting	2
Ibagué (Mission 1)	Support in the co-processing tests	5
Bogotá city and Mosquera town (Mission 2)	Support in developing incineration tests	5

The international consultant will receive a total lump sum fee as per the terms indicated below:

Deliverable Product	Amount upon total of contract (%)	Estimated time (months)
Report on previous information about burning tests and report on assessment of capabilities and standards of laboratories that shall participate in sample taking and analysis according to terms established for Product 1 in Annex I.	20	3
Report on development of burning tests through co-processing in a cement kiln according to terms established for Product 2 in Annex I.	30	6
Report on burning test development and results through incineration according to terms established for Product 3 in Annex I.	30	8
Final consolidated report. This in accordance to the corresponding adjustments after review by MADS and Product 4 as established in Annex I.	10	12
Summary document with the text to be published in a scientific paper.	10	12

7. Qualifications and Requirements:

Mandatory:

- a) Graduate in chemistry, chemical engineering, environmental engineering or similar areas.

- b) Graduate studies in environmental affairs.
- c) Fifteen (15) years as a minimum professional specific experience in activities of chemical substance management subject to international conventions (This means pesticides, PCB, or ozone depleting substances). The aforementioned experience shall include at least the aspects as herein stated:
 - i) Thermal treatment (co-processing or incineration) for hazardous waste from the appointed substances.
 - ii) Evaluation of the Colombian national capabilities for management and elimination of Persistent Organic Pollutants.
- d) Experience in at least three (3) projects involving design, implementation and result evaluation in PCB burning tests.
- e) English language proficiency.

Desirable qualifications and Requirements.

- f) Experience in making guidelines, technical manuals or directives within international environments as related to thermal treatments for hazardous waste, especially those related to COP and ODS.
- g) Publications in indexed journals about thermal treatment projects for waste containing COP.

8. Documents required for submission of the proposal

Proposals may be submitted via email to the address joarodriguez@minambiente.gov.co, with the documents as follows, in order to be taken into consideration within the selection process.

Deadline: Friday 10 April 2015, 17:00 (Colombia time).

Documents:

Curriculum Vitae where stating professional studies, dates of graduation and university that awarded such titles. Professional activities performed supporting required experience. This includes starting and end dates in the format (dd / mm / yyyy), entities or institutions for which the candidate rendered said services and dedication time (full time, part time, hours per month, etc).

Economic offers must indicate total amounts in United States Dollars according to the following charts:

Item	Amount	Unit Value (USD)	Total Value (USD)
International Air Tickets			
Domestic Air Tickets			
Travel Expenses			

Costs for making deliverable products (fees)

Product / activity	Dedication time (days)	Value per day (USD)	Total Value (USD)
1.1			
1.2			
2.1			
2.2			
2.3			
3.1			

Product / activity	Dedication time (days)	Value per day (USD)	Total Value (USD)
3.2			
3.3			
4.1			
4.2			
TOTAL			

9. Clarifications

In case any clarification should be required, it should be requested by e-mail to joarodriguez@minambiente.gov.co.

	Name	Post	Signature
Prepared by:	Edwin Camelo Martínez	Technical Consultant, PCB Project	
Reviewed by:	José Alvaro Rodríguez Castañeda	PCB Project Coordinator	
Approved by:	Francisco José Gómez	PCB Project Director	

ANNEX I – DELIVERABLES

Keeping in mind the obligations for the winning consultant, the following items or elements shall and must be included in each of the deliverable products as appointed in number five (5) herein:

1. Evaluation on Previous Information and Laboratory Capabilities

- 1.1. Document with analysis of technical information as previously required in regard to facilities where burning tests will take place. This analysis shall focus especially on technical capabilities to develop burning tests.
- 1.2. Information report about evaluation on technical capabilities of the laboratories performing activities of sample taking and analysis for burning tests in two (2) facilities.

2. Burning Test through Co-processing

- 2.1. Document containing detailed design of PCB burning tests in a cement kiln.
- 2.2. Report on burning test development by co-processing.
- 2.3. Report on burning test results through co-processing in a cement kiln. This should be compared in regard to international standards and experiences.

3. Burning Test via incineration in a rotatory Furnace

- 3.1. Document with the detailed design of PCB burning test by mean of incineration in a rotatory furnace.
- 3.2. Document about the development of burning test by incineration.
- 3.3. Report on results of the burning test by incineration with regard to international standards and experiences.

4. Support in Strengthening the Technical Capabilities in Colombia

- 4.1. Document with a consolidated report about the whole consultant activity (design, implementation, and result analysis of the burning tests).
- 4.2. Document to be published as a scientific paper.

ANNEX II - Evaluation Criteria

Educational and Professional Background: 70 points maximum. .

Criteria for punctuating the qualifications of a candidate:

Criteria	Score
1. Graduate studies (Up to 10 points)	
Master's	5
Ph.D.	10
2. Professional experience specifically related to activities in management of chemical substances subject under international conventions or agreements (Pesticides, PCB and / or ozone depleting substances) according to criteria of letter C, number 6.	
Up to twenty (20) years:	10
More than twenty (20) years:	20
3. Experience in directing and / or executing thermal treatment projects for waste containing PCB, additional to minimum required:	
One (1) project	5
Two (2) projects	10
More than two (2) projects	20
4. Experience in making guidelines, technical manuals or directives in international environments as these are related to the aspects stated in letter f, number 6.	
One (1) document.	5
Two (2) or more documents	10
5. Publications in indexed journals about thermal treatments given to COP poisoned waste.	
Up to two (2) publications	5
More than three (3) publications	10

Economic proposals shall be evaluated ONLY from those candidates that obtain more than thirty five (35) points in their technical assessments.

Economic Proposal: Maximum 30 points.

Calculations shall be made with basis on the following expression:

$$\frac{\text{Economic Proposal}}{\text{Candidate Proposal}} \times 30$$

Final Score = Technical Evaluation Score + Economic Proposal Score.

UNITED NATIONS DEVELOPMENT PROGRAMME

TERMS OF REFERENCE - TOR

INTERNATIONAL EXPERT IN THERMAL TREATMENT OF PCB

1. Background:

Colombia signed the Stockholm Convention on Persistent Organic Pollutants in May 2001, and ratified it in Law 1196 of 5 June 2008.

Beginning with the signing of the Stockholm Convention, the (now) Ministry of the Environment and Sustainable Development (MADS), with the support of other ministries and the private sector, has advanced in achieving the objectives of identification, prevention, reduction and elimination of these substances and their residues. Since 2003, a series of activities has been implemented to learn and analyse the national situation of persistent organic pollutants (POPs), in a first phase.

In accordance with the stipulations of Article 7 of the Convention, the country has the obligation to prepare a plan to meet the obligations of the Convention. Therefore, in 2007, what is now the Ministry of the Environment and Sustainable Development formulated the National Plan for the Application of the Stockholm Convention (NPA), and beginning at the end of 2008, a process of dissemination and negotiation of the NPA has been carried out with the related sectors, in order to facilitate its implementation.

In order to adequately address the problems identified regarding the presence of PCB in Colombia, an Action Plan was designed to identify, manage and eliminate the stocks of PCB, aiming to reduce and gradually eliminate their improper handling, in order to meet the obligations acquired with the Stockholm Convention.

The NPA's PCB Action Plan has a sectorial approach under which the electric, manufacturing and hydrocarbons sectors – as the main possessors of equipment, oils and other elements potentially polluted with PCBs – must formulate sectorial strategies adjusted to the particular conditions of each one.

“Elimination”, as one of the strategic lines of implementation of the PCB Action Plan establishes the creation of a mechanism to attract and make viable the offer of environmentally rational management services for equipment, oils and materials contaminated with PCBs in the country, and thus comply with the condition stipulated in Article 6 of the Stockholm Convention.

On December 15, 2011, the MADS issued Resolution 222, which establishes a series of mandatory responsibilities and obligations for owners of PCBs. These obligations include the annual reporting of their inventories of equipment with PCBs, the labelling of contaminated equipment and the establishment of a programme for the gradual elimination of PCBs.

Also, taking into account the strategies of the NPA, the National Government, represented by the MADS, and the United Nations Development Programme (UNDP) signed Project COL84851/71268, “Development of Management Capacity and the Environmentally Adequate Elimination of PCBs” in April 2013, to address the needs and challenges regarding the environmentally rational management of PCBs, the development of capacities and institutional strengthening, and the development of technical alternatives for their treatment and elimination, focused on complying with this priority. The project has a strategic approach with the overall objective of eliminating the use of PCBs by 2025 and the destroying the country's stocks of PCB by 2027.

The project's objective is to protect human health and the environment, in response to the problems created by the poor handling and inadequate management of PCBs in Colombia. The project will meet this objective through the implementation of a regulatory and administrative framework to promote the environmentally adequate handling of PCBs among the stakeholders, especially the electric energy generation and distribution sectors.

The obligations established in Resolution 222 of 2011 for the proprietors of PCBs justify the need for the project to contribute to the strengthening of PCB management through the following activities:

- Strengthening of the national capacity for laboratory analysis of samples containing PCBs
- Development of technical guidelines and capacities for the correct labelling of equipment containing PCBs, especially equipment that is in use.
- Development of technical guides and provision of technical assistance for the handling of PCBs in their storage and packaging, and the transportation of equipment and residues.

Project COL84851/71268 is structured in three components interconnected with results and products, as well as the component on monitoring, learning and adaptive feedback, dissemination and evaluation of results.

Specifically in Component 3 – environmental rational handling and elimination of PCBs through the implementation of pilot tests – there is a need for a consultant to provide technical support for the implementation of the activities planned for that component, which include pilot tests of the thermal destruction of PCBs by incineration and co-processing in cement kilns

This consultancy will provide technical support to the Ministry of the Environment and Sustainable Development, in the adequate implementation of burning tests, technical evaluation and the corresponding analyses of results vis-a-vis international standards, and determination of the viability of their implementation in the country.

2. Objective

To provide technical and scientific support to the Ministry of the Environment and Sustainable Development, in the preparation, design, implementation and result analysis of burning test of PCB, under the frame of Project COL84851/71268.

3. Duties and Responsibilities:

The international expert in thermal treatments shall work for the Environmental Affairs Sectorial and Urban Direction Office of MADS (Ministry of Environment and Sustainable Development). This shall be done through coordination and permanent functional reports to the responsible consultant from the general coordination office in burning testing. Said expert shall give technical support in design, implementation and result analysis of the pilot testing on PCB thermal treatments. Within this expert support activity the following responsibilities are included:

1. To analyze assessment reports of the selected facilities for the performance of burning tests.
2. To establish specific technical information on the aptitude of laboratories participating in sampling and analysis during burning tests.
3. To evaluate the aptitude of laboratories participating in sampling and analysis based on information exchange and comparison.
4. To provide scientific advice on the detailed design of PCB burning tests including validation of scope. This in reference to several material and emission analysis.
5. To be present in burning tests during performance in the incineration facilities and co-processing in a cement kiln.
6. To do technical and scientific monitoring and analysis on the responsible laboratories that take and analyze samples. This would be very important especially during the result analysis and preparation period.

7. To develop calculations on Destruction efficiency and destruction and elimination efficiencies.
8. To make each and all of the necessary documents on the burning tests. This shall be done through a final report and a summary with the purpose of being published in a scientific journal.

4. Duration

One (1) year, which could be extended according to new requirements of the project and performance of the expert.

5. Duty Station

Duty station or place of work for the consultant shall be “home-based”. This includes two (2) missions to Colombia with visits in Bogota city (incineration burning test) and Ibagué city (co-processing burning test).

6. Fees

Candidates shall issue and send an economic offer for developing the following deliverables as hereon stated with the necessary specifications for each of those as stated in Annex I. Such a proposal shall include each and all of the necessary costs and fees for two (2) missions to Bogota and Ibagué cities. Said fees and costs shall be distributed as follows:

Cities	Main Activities	Estimated duration (days)
Bogotá (Mission 1)	Project Start Meeting	2
Ibagué (Mission 1)	Support in the co-processing tests	5
Bogotá city and Mosquera town (Mission 2)	Support in developing incineration tests	5

The international consultant will receive a total lump sum fee as per the terms indicated below:

Deliverable Product	Amount upon total of contract (%)	Estimated time (months)
Report on previous information about burning tests and report on assessment of capabilities and standards of laboratories that shall participate in sample taking and analysis according to terms established for Product 1 in Annex I.	20	3
Report on development of burning tests through co-processing in a cement kiln according to terms established for Product 2 in Annex I.	30	6
Report on burning test development and results through incineration according to terms established for Product 3 in Annex I.	30	8
Final consolidated report. This in accordance to the corresponding adjustments after review by MADS and Product 4 as established in Annex I.	10	12
Summary document with the text to be published in a scientific paper.	10	12

7. Qualifications and Requirements:

Mandatory:

- a) Graduate in chemistry, chemical engineering, environmental engineering or similar areas.

- b) Graduate studies in environmental affairs.
- c) Fifteen (15) years as a minimum professional specific experience in activities of chemical substance management subject to international conventions (This means pesticides, PCB, or ozone depleting substances). The aforementioned experience shall include at least the aspects as herein stated:
 - i) Thermal treatment (co-processing or incineration) for hazardous waste from the appointed substances.
 - ii) Evaluation of the Colombian national capabilities for management and elimination of Persistent Organic Pollutants.
- d) Experience in at least three (3) projects involving design, implementation and result evaluation in PCB burning tests.
- e) English language proficiency.

Desirable qualifications and Requirements.

- f) Experience in making guidelines, technical manuals or directives within international environments as related to thermal treatments for hazardous waste, especially those related to COP and ODS.
- g) Publications in indexed journals about thermal treatment projects for waste containing COP.

8. Documents required for submission of the proposal

Proposals may be submitted via email to the address joarodriguez@minambiente.gov.co, with the documents as follows, in order to be taken into consideration within the selection process.

Deadline: Friday 10 April 2015, 17:00 (Colombia time).

Documents:

Curriculum Vitae where stating professional studies, dates of graduation and university that awarded such titles. Professional activities performed supporting required experience. This includes starting and end dates in the format (dd / mm / yyyy), entities or institutions for which the candidate rendered said services and dedication time (full time, part time, hours per month, etc).

Economic offers must indicate total amounts in United States Dollars according to the following charts:

Item	Amount	Unit Value (USD)	Total Value (USD)
International Air Tickets			
Domestic Air Tickets			
Travel Expenses			

Costs for making deliverable products (fees)

Product / activity	Dedication time (days)	Value per day (USD)	Total Value (USD)
1.1			
1.2			
2.1			
2.2			
2.3			
3.1			

Product / activity	Dedication time (days)	Value per day (USD)	Total Value (USD)
3.2			
3.3			
4.1			
4.2			
TOTAL			

9. Clarifications

In case any clarification should be required, it should be requested by e-mail to joarodriguez@minambiente.gov.co.

ANNEX I – DELIVERABLES

Keeping in mind the obligations for the winning consultant, the following items or elements shall and must be included in each of the deliverable products as appointed in number five (5) herein:

1. Evaluation on Previous Information and Laboratory Capabilities

- 1.1. Document with analysis of technical information as previously required in regard to facilities where burning tests will take place. This analysis shall focus especially on technical capabilities to develop burning tests.
- 1.2. Information report about evaluation on technical capabilities of the laboratories performing activities of sample taking and analysis for burning tests in two (2) facilities.

2. Burning Test through Co-processing

- 2.1. Document containing detailed design of PCB burning tests in a cement kiln.
- 2.2. Report on burning test development by co-processing.
- 2.3. Report on burning test results through co-processing in a cement kiln. This should be compared in regard to international standards and experiences.

3. Burning Test via incineration in a rotatory Furnace

- 3.1. Document with the detailed design of PCB burning test by mean of incineration in a rotatory furnace.
- 3.2. Document about the development of burning test by incineration.
- 3.3. Report on results of the burning test by incineration with regard to international standards and experiences.

4. Support in Strengthening the Technical Capabilities in Colombia

- 4.1. Document with a consolidated report about the whole consultant activity (design, implementation, and result analysis of the burning tests).
- 4.2. Document to be published as a scientific paper.

ANNEX II - Evaluation Criteria

Educational and Professional Background: 70 points maximum. .

Criteria for punctuating the qualifications of a candidate:

Criteria	Score
1. Graduate studies (Up to 10 points)	
Master's	5
Ph.D.	10
2. Professional experience specifically related to activities in management of chemical substances subject under international conventions or agreements (Pesticides, PCB and / or ozone depleting substances) according to criteria of letter C, number 6.	
Up to twenty (20) years:	10
More than twenty (20) years:	20
3. Experience in directing and / or executing thermal treatment projects for waste containing PCB, additional to minimum required:	
One (1) project	5
Two (2) projects	10
More than two (2) projects	20
4. Experience in making guidelines, technical manuals or directives in international environments as these are related to the aspects stated in letter f, number 6.	
One (1) document.	5
Two (2) or more documents	10
5. Publications in indexed journals about thermal treatments given to COP poisoned waste.	
Up to two (2) publications	5
More than three (3) publications	10

Economic proposals shall be evaluated ONLY from those candidates that obtain more than thirty five (35) points in their technical assessments.

Economic Proposal: Maximum 30 points.

Calculations shall be made with basis on the following expression:

$$\frac{\text{Economic Proposal}}{\text{Candidate Proposal}} \times 30$$

Final Score = Technical Evaluation Score + Economic Proposal Score.