



**Gap Analysis on Article 15 Reporting Requirements and  
Data and Information generated under Article 7 (NIP)  
development under the Stockholm Convention on  
Persistent Organic Pollutants (POPs)**

**Integrated Stockholm Toolkit to Improve the Transmission of Information Under  
Articles 07 and 15**

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# 1 Executive Summary

The gap analysis determined on both the 2006 NIP report and the current 2018 NIP update was compared with Article 15 reporting requirements of Stockholm Convention (SC) revealed the enormity of the existing data and information gaps required by the Party. Indicative assessments showed PNG did not conform to the reporting requirements up to the 4<sup>th</sup> cycle. Given the notable limitations and the challenges, the listings of additional POPs (16 new) further propagated the predicament as further exacerbated by increased activity in large impact projects undertaken in mining, petroleum and infrastructure developments within the country.

A summary of quantitative data and information presented in Table 15 indicated that 49% of the required data was reportable in which 10% was established as reported in the updated NIP. The other 51% was unattainable due to absence of specialist downstream chemical manufacturing of POPs chemicals and articles and products which was further supported by lack of export data available. In addition, the dynamic global enforcement of SC obligations by developed nations, in eliminating, restriction and reduction of POPs showed decline in imports of POPs chemicals especially those initially listed. As reported in 2006, the presence of legacy DDT stockpiles within the country remains unresolved. Assessable data and information gaps exist for stockpiles, usage, waste stockpiles and the contaminated sites and are not readily available. Similarly, the qualitative measures regarding the legal framework, institutional capacity, environmental sound management, educational awareness and training information were gradually pursued but not to an operational extent as obligated under SC.

CEPA endeavours to fulfil obligations of Article 15 reporting requirements outlined in Table 2. The subsequent details of gaps and overlaps were discussed in Table 5 and Table 6. In addition, the National Report requirements for specific POPs chemicals on qualitative and quantitative assessment gaps are presented in Tables 7 to 14. From this assessment, the imminent recommendations and action items derived in accordance to Article 15 guidelines will determine in compiling a systematic data and information recording system. A comprehensive review and assessments for POPs (Pesticides, PBDEs, PFOS, PCBs and uPOPs) should both cover historical and current data and information and for periods 2017-2019. These action plans will be added to the existing plans for further review and update which will ensure Article 15 reporting requirements are achieved.

## 2 Introduction

Article 15 requires Parties to provide regular updates on progress in implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) through submission of National Reports every four years.

Article 7 of the Convention requires Parties to update their National Implementation Plans (NIPs) to address new persistent organic pollutants (POPs) as they are added to the Convention annexes. The fourth, fifth, sixth, seventh and eight Conference of Parties (COP) of the Stockholm Convention (SC) listed an additional seventeen chemicals, that prompted the need for Parties to update their NIPs within the two years after the amendments entered into force for each Party.

The NIP and the National Reports submitted to the Stockholm Convention Secretariat under Articles 7 and 15 respectively are the key data sources used in the evaluation of the effectiveness of the implementation of the Stockholm Convention.

Papua New Guinea became a party to the Stockholm Convention in May 1992 and is required to submit National Reports in line with Article 15 as well as develop and update National Implementation Plans (NIP) in accordance with Article 7 of the Convention

This gap analysis report sets out to identify the overlaps and gaps in information and data required by Article 15 reporting and information and data generated in the PNG NIP development process and update as well as other national reports on POPs in the country. This analysis will also assist to establish a way forward including conclusions and recommendations to correlate the processes of reporting under Article 15 and other reporting obligations under the Stockholm Convention with the process of developing and updating the NIPs.

This analysis represents the baseline for development of an electronic toolkit that will be used to ensure PNG in meeting its obligations under the Stockholm Convention through improved transmission, accessibility and use of data contained in NIPs (Article 7) and National Reports (Article 15).

## 3 Objectives and methodology

### 3.1 Objective

The main objectives of the analysis are to identify and compile:

- the data and information, both qualitative and quantitative, requested to be included within the Article 15 reporting;
- the data and information, both qualitative and quantitative, requested to be included within other reports to be prepared under the Stockholm Convention (POP- Pesticides and DDT, POP-PBDEs; PFOS/PFOSF, uPOPs);
- the data and information, both qualitative and quantitative, generated during the NIP development and/or update;
- the overlapping and gaps between the data and information requested to be included within the Article 15 reporting and the data and information generated during the NIP development and/or update;
- the overlapping and gaps between the data and information requested to be included within other reporting obligations under the Stockholm Convention (DDT, PCBs, PBDEs; PFOS, uPOPs) and the data and information generated during the NIP development and/or update;
- an overview of the mechanism for reporting and time schedule of all reporting obligations under Stockholm Convention;
- Conclusions and recommendations to correlate the processes of reporting under Article 15 and other reporting obligations under the Stockholm Convention with the process of developing and updating the NIP.

Upon fulfilling these objectives, this will eventually provide a structured reporting cycle protocols for the Party to comply with Article 15 requirements. Additional assessment of the data and information will then be required for an electronic reporting (ERS) (UNEP) online.

## 3.2 Methodology

### 3.2.1 Approach

The development of the report was completed in three steps:

1. Data and information identification, collection and classification - initial screening of the key documents on the subject;
2. Compilation and evaluation of data and information;
3. Review of the analysis and consultations.

### 3.2.2 Data and information collection and classification

Key documents, information sources identified and available for screening are as shown in Table 1 below.

Table 1 Key documentation screened and reviewed for the identification of information and data on POPs in PNG

Relevance to SC Reporting Obligations	Reference Documentation
Article 15/Article 7	Reference Report Gap Analysis – SC Toolkit Project ( See Table 5 & Table 6)
Article 7 (NIP)	Draft National Implementation Plan (NIP) update 2019 (CEPA, 2018)
Article 15 (PCB)	ULO Audit Report
Article 7 ( New POPs)	Inventory Report on New POPs for PNG – A partial Review and update of National Implementation Plan (NIP) for POPs ( (EAL, 2017)
Article 7 & Article 15	Draft National Mercury Inventory for Papua New Guinea (CEPA, 2018)

### 3.2.3 Compilation and evaluation of data and information

Information and data on POPs were collected and compiled from article 7 (NIP update 2019) and Article 15 reporting requirements under the Stockholm Convention. These information and data were then compared to identify overlaps and gaps pursuant to Article 7 and Article 15 as well as other reporting requirements under the SC. Figure presented in Appendix A showed the NIP update and review cycle framework that outlines the link between listed POPs, inventory assessments, strategies, action plans, implementation and the reporting of country situations.

### 3.2.4 Challenges and limitations

The assessment was based on comparisons made between article 15 reporting requirements as well as other reporting requirements under the SC and the information and data generated during the NIP development and/or update process to identify and overlaps and gaps in data and information on POPs.

Challenges were encountered in compiling and analysing this information resulting in some noteworthy limitations to the report and its findings. These limitations were due to the country not having met previous reporting requirements under article 15 and well as other reporting obligations under the SC. Additionally, the NIP development and update process in itself contained significant information and data gaps.

The immediate data and information gaps listed herein 8.2 of this report will be pursued as outlined.

## 4 Article 15 Reporting under the Stockholm Convention

Article 15 of the Stockholm Convention states that each Party shall report to the Conference of the Parties on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures in meeting the objectives of the Convention.

Each Party shall provide to the Secretariat:

- Statistical data on its total quantities of production, import and export of each of the chemicals listed in Annex A and Annex B or a reasonable estimate of such data; and
- To the extent practicable, a list of the States from which it has imported each such substance and the States to which it has exported such substance.

Such reporting shall be at periodic intervals and in a format to be decided by the Conference of the Parties at its first meeting.

### 4.1 PNGs performance in previous reporting cycles under Article 15 of Stockholm Convention

PNG was not able to meet obligations under Article 15 of the SC in respect to reporting during the first reporting cycle that was due on the 31<sup>st</sup> of July 2007 as well as the second reporting cycle that was due on the 31<sup>st</sup> of July 2011. The country was not able to provide this report as there were insufficient information and data available and that an initial NIP was not in place until August 2013.

In the third reporting cycle, several information and data were generated through the development of the NIP in 2006 however these information and data were based on the initial POPs and did not cover the new POPs as required in this reporting cycle and hence no completed report was submitted. In 2017, the inclusion of 16 new POPs listings prompted the need for a comprehensive inventory assessment was covering all 26 POPs covering the time range from 2006-2016.

### 4.2 Fourth Cycle – SC Article 15 Reporting Cycle

The deadline for the fourth Reporting cycle was on the 31<sup>st</sup> of August 2018 and PNG since then has not submitted a national report and therefore recognizes the importance of the Integrated SC Toolkit Project as an opportunity to fulfil its reporting obligations to the SC. The outline of the fourth reporting cycle is shown in Table 2 below.

Table 2 Structure of the fourth reporting cycle under Article 15 of SC (UNEP)

Part	Section
<b>Part A: General information</b>	
<b>Part B: Information on the measures taken by the Party to implement the provisions of the Stockholm Convention and on the effectiveness of such measures in meeting the objectives of the Convention</b>	Section I. Article 7: Implementation plans
	Section II. Article 3: Measures to reduce or eliminate releases from intentional production and use
	Section III. Article 4: Register of specific exemptions; Annex A and Annex B
	Section IV. Article 5: Measures to reduce or eliminate releases from unintentional production (PCDD/PCDF)
	Section IV. Article 5: Measures to reduce or eliminate releases from unintentional production (PCBs)
	Section IV. Article 5: Measures to reduce or eliminate releases from unintentional production (PeCB)
	Section IV. Article 5: Measures to reduce or eliminate releases from unintentional production (HCB)
	Section IV. Article 5: Measures to reduce or eliminate releases from unintentional production (PCN)
	Section IV. Article 5: Measures to reduce or eliminate releases from unintentional production (BAT/BEP)

	Section V. Article 6: Measures to reduce or eliminate releases from stockpiles & wastes
	Section VI. Information required in paragraph 2 of Article 15 of the Convention
	Section VII. Article 9: Information exchange
	Section VIII. Article 10: Public information, awareness and education
	Section IX. Article 11: Research, development and monitoring
	Section X. Article 12: Technical assistance
	Section XI. Article 13: Financial resources and mechanisms
<b>Part C: Information on progress in eliminating polychlorinated biphenyls (PCB) in accordance with subparagraph (g) of Part II of Annex A to the Convention</b>	Section I. Article 6: Measures to reduce or eliminate releases from stockpiles and wastes Section II. Part II of Annex A: Polychlorinated biphenyls Section III. Information on local destruction and import and export of PCB for destruction. Local destruction of PCB, in accordance with paragraph 1 d (ii) of Article 6 of the Convention
<b>Part D: Information specifically on the progress made in eliminating perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride in accordance with paragraph 3 in Part III of Annex B to the Convention</b>	
<b>Part E: Additional information and comments</b>	

The Party has missed all reporting cycles since ratification of the SC as shown in Figure 1 below. Given the enormity of task to fill the data and information gaps, the focus to get the implementation plans to an operational stage and to establish reporting requirements to ensure electronic reporting is fully implemented.

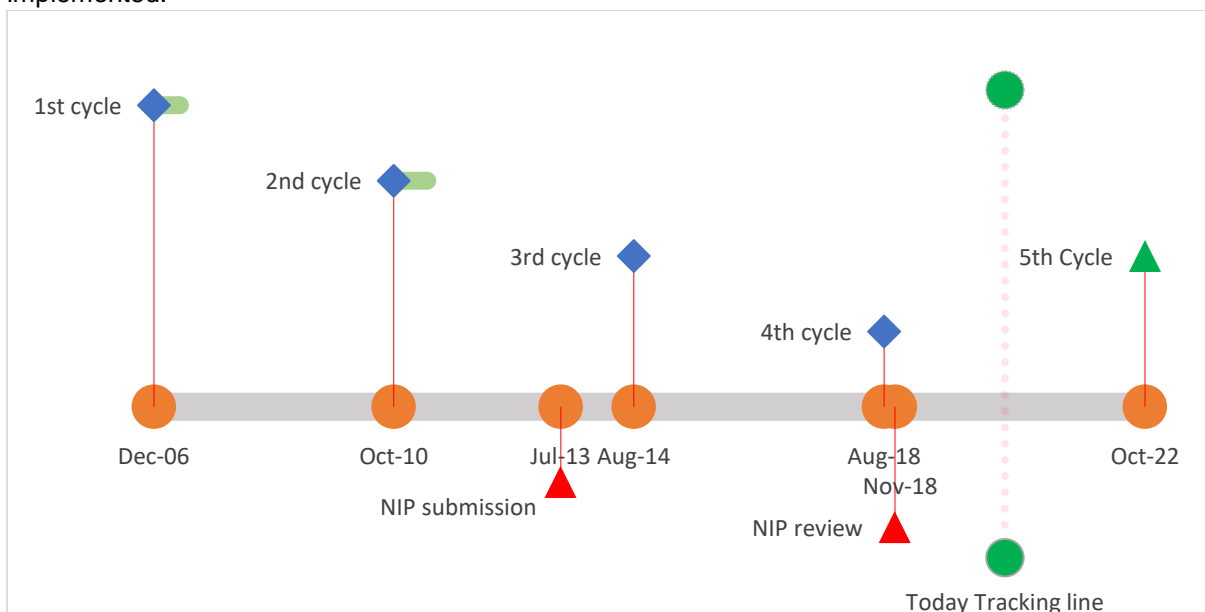


Figure 1 Article 15 reporting cycle and the NIP submissions as national reports for the Party.



## 5 National Implementation Plans (NIP) developed by PNG under Article 7 of the Stockholm Convention

### 5.1 National Implementation Plan 2006

The Initial NIP was developed in 2006 and submitted to the SC Secretariat in 2013 covering the initial 12 POPs chemicals. Table 3 outlines data and information generated during the development of the initial NIP in PNG.

Table 3 Type of data and information generated in initial NIP in 2006 (CEPA, 2006)

Section of initial NIP	Type of Data and Information generated
3.1 Existing Institutional, Policy & Regulatory Framework	Information on policy, regulatory and institutional arrangements for initial POPs
3.2.1 Assessment of Annex A Part I Chemicals (Pesticides)	Qualitative information on POPs situation in PNG
3.2.2 Assessment of Annex A Part II Chemicals (PCBs)	Qualitative information and quantitative data on PCBs transformer oils in PNG
3.2.3 Assessment of Annex B Chemicals (DDT)	Qualitative information and quantitative data on use, management and stockpiles of DDT in PNG
3.2.4 Assessment of Unintentional POPs Releases – Annex C Chemicals (PCDD/PCDF, HCB & PCBs)	Qualitative data on source categories of uPOPs emissions and quantitative data on estimations of uPOPs releases into the environment

### 5.2 National Implementation Plan Updated 2019

The review and update of the current NIP commenced in 2014 and covers chemicals listed up until the 7<sup>th</sup> COP of the SC which includes 26 of the total 28 chemicals. The NIP update at the time of this report is being finalized and should be transmitted to the SC Secretariat by the end of 2020. Table 4 outlines key data and information generated during the update process.

Table 4 Type of Data and information generated during the review and update of the NIP in 2019 (CEPA, 2018)

Section of NIP	Type of Data and Information generated
<b>3.1 Existing Institutional, Policy &amp; Regulatory Framework</b>	Information on legal, regulatory and enforcement system for initial POPs
<b>2.4 National institutional, policy and regulatory framework</b>	Information on current legal, regulatory and enforcement systems for POPs management in PNG
<b>3.2.1 Assessment of POPs Pesticides</b>	Qualitative information and quantitative data on Pesticide use in PNG
<b>3.2.2 Assessment of PCBs</b>	Qualitative information and quantitative data on PCBs (Transformer Oils) in PNG
<b>3.2.3 Assessment of POP-PBDEs, HBB and HBCD</b>	Qualitative information and quantitative data on POP-PBDEs, HBB, HBCD in PNG
<b>3.2.4 Assessment of HCB</b>	Qualitative information and quantitative data on HCB in PNG
<b>3.2.5 Assessment of PCNs</b>	Qualitative information and quantitative data on PCNs
<b>3.2.6 Assessment of DDT</b>	Qualitative information and quantitative data on DDT in PNG
<b>3.2.7 Assessment of PFOS, its salts and PFOSF</b>	Qualitative information on PFOS, its salts and PFOSF
<b>3.2.8 Assessment of uPOPs</b>	Qualitative Information on uPOPs in PNG
<b>Appendix A : Key Stakeholders</b>	Qualitative information on key stakeholders/potential sources of information and data on POPs in PNG
<b>Appendix B : POP-PBDEs Inventory</b>	Quantitative data on EEE and Transport Sector on POP-PBDE in PNG

**Appendix C: uPOPs inventory**

Quantitative data on PCCD and PCDF emissions in PNG

The new POPs that were both excluded and/or not extensively assessed during the review and update of this NIP include;

- **Alpha – hexachlorocyclohexane, Beta-hexachlorocyclohexane, Chlordane, Mirex, Hexachlorobutadiene, and Polychlorinated naphthalenes.** These POPs were not included as there were insufficient data available to determine presence in PNG.
- **Hexabromobiphenyl.** This was assumed to be non-existent in PNG as HBB was solely manufactured in the US and PNG's main trading partners were located in Asia and the Oceania regions.
- **Short-chain chlorinated paraffin (SCCP).** This was excluded in this NIP update as it was listed after COP 07 of SC.

## 6 Overlapping and gaps between data and information requested to be included within the Article 15 Reporting and the data and information generated during development of the NIP and/update

### 6.1 POPs Pesticides

The POPs Pesticides that were assessed during the development of the NIP update were imported but the quantities were not clearly ascertained are listed below;

**aldrin, technical endosulfan (related isomers), DDT, dieldrin, endrin, heptachlor, hexachlorobenzene (HCB), lindane, chlordane, toxaphene, pentachlorobenzene (PeCB), Pentachlorophenol (PCP) and its salts and esters.**

The pesticides data (quantities) were reported as clustered mixture due to HS code allocations. For example, the HS codes 3822 covered endosulfan, DDT, dieldrin, endrin, heptachlor, HCB whilst 3824 pooled lindane, chlordane, toxaphene (PNG Customs Services, 2012) as mixtures. A lack of understanding about HS code allocations is a knowledge gap that exists. A requirement to know an in-depth the Global Harmonized System (HS) codes systems to ensure the use of specific Chemical Abstract Service (CAS) Registry Number<sup>1</sup> or IUPAC<sup>2</sup> Name are correctly applied specific for chemical substances shall improve data collection on imports and export data.

Information and data generated during the NIP as well as gaps and overlaps in line with article 15 reporting on POPs Pesticides are tabulated in Table 5 and Table 6 below (overleaf). The suggestions to fill the data and information gaps as the way forward as discussed.

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<sup>1</sup> Also referred to as RN#

<sup>2</sup> International Union of Pure and Applied Chemistry

Table 5 Qualitative information overlaps and gaps for POPs Pesticides and general POPs identified in NIP development process and Article 15 Reporting under SC .

Required by Article 15 Reporting	Information required to be generated during NIP Process	Overlaps between information on POPs Pesticides generated through NIP and required by Article 15	Gaps between information on POPs Pesticides generated through PNG NIP update and required by Article 15
Legal and administrative measures necessary to eliminate releases from intentional production and use of chemicals listed in Annex A, or restrict the production and use of the chemicals listed in Annex B to the Convention.	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	<ul style="list-style-type: none"> <li>✓ Information on measures to reduce and/or eliminate releases highlighted in POPs Pesticides Action Plan, PCB Action Plan, uPOPs Action Plan. PFOS Action Plan.</li> <li>✓ Most action plan measures discusses to capture this gaps</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported. Draft National Waste Management Policy is currently in progress to curb these measures.</li> <li>⊗ Implementation of action plan is pending as outlined in 4.3.1 – Institutional Strengthening with a 2 year time frame to achieve objectives 4.3.1(a),(b)(c) on p.41 of the NIP update.</li> </ul>
Measures to regulate new pesticides or new industrial chemicals (i.e. chemicals that have not yet been introduced in the market or registered in the country.	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	<ul style="list-style-type: none"> <li>✓ Information on measures to reduce and/or eliminate releases highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan.</li> </ul>	<ul style="list-style-type: none"> <li>⊗ None reported. Implementation is inactive.</li> <li>⊗ Action item 4.3.1 (h) (i) (j) p41 to regulate with active stakeholders like, DAL, NARI, NAQIA, Customs using existing laws coordinated by CEPA.</li> </ul>
Consideration the criteria in paragraph 1 of Annex D when conducting assessments of pesticides or industrial chemicals currently in use.	UNEP Guidelines / GMP plans	<ul style="list-style-type: none"> <li>✓ Relates to GMP that needs to be desired by the Party to be included in the action plans</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No related information available.</li> <li>⊗ Requires a comprehensive Tier III study to determine contaminant levels of Annex A chemicals in waste stockpiles and the contaminated sites.</li> <li>⊗ Plan a future participatory work in partnership with GMP.</li> </ul>
Notification of the Secretariat to register for specific exemptions listed in Annex A or Annex B or for acceptable purposes listed in Annex B.	Exemption of DDT registered with Secretariat of SC	<ul style="list-style-type: none"> <li>✓ Exemption of DDT registered with Secretariat of SC.</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No exemptions reported.</li> <li>⊗ Initiate exemption process for DDT registration based on application and usage quantity. Apply the same for other POPs that requires exemption for production or use. Appendix C listed POPs required for registration. The use of PFOS as insecticide to eliminate leaf eating ant is unknown in the country.</li> </ul>
Developing strategies for identifying stockpiles consisting of, or containing, chemicals listed in either Annex A or Annex B to the Convention ( information on status,	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan	<ul style="list-style-type: none"> <li>✓ Information on measures to reduce and/or eliminate releases highlighted in POPs Pesticides Action Plan PCB</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Strategies planned as per pending activities under ESM measures in 4.3.2, p.42.</li> </ul>

Required by Article 15 Reporting	Information required to be generated during NIP Process	Overlaps between information on POPs Pesticides generated through NIP and required by Article 15	Gaps between information on POPs Pesticides generated through PNG NIP update and required by Article 15
year, type of chemical, difficulties encountered.	uPOPs Action Plan PFOS Action Plan	Action Plan, uPOPs Action Plan. PFOS Action Plan.	⊗ Identify sources by conducting inventory survey update. Perform Tier II questionnaire and site visit inspections.
Identification of stockpiles consisting of, or containing, chemicals listed in Annex A or Annex B to the Convention (information on status, year, type of chemical).	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on measures to identify stockpiles highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	⊗ Not reported ⊗ Integrate DDT disposal and elimination procedures with other Regional waste disposal projects. Requires same data for calculations of POPs/ uPOPs factions present in total waste quantities.
Quantification of the stockpiles consisting of, or containing, chemicals listed in Annex A or Annex B to the Convention (information on status, year, type of chemical).	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on quantities of stockpiles to reduce and/or eliminate releases highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	✓ Several DDT stockpile quantity and PCB transformer counts reported as historical data. ⊗ DDT and PCB are a major concerns and needs a comprehensive assessment to identify locations and quantities scattered with the country.
Measures to manage stockpiles in a safe, efficient and environmentally sound manner (information on status, year, type of chemical)	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on measures to manage stockpiles in a safe & ESM highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	⊗ Not reported ⊗ Information on specific ESM practices are implemented in major resource extraction activities. Fully document waste management plans for each specific sources of stockpiles
Disposing of wastes consisting of or containing chemicals listed in Annex A, B, or C to the Convention in an environmentally sound manner (information on status, year, type of chemical or difficulties encountered)	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on disposal of chemicals consisting of or containing chemicals listed in Annex A, B and C in a safe & ESM highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	⊗ Not reported. ⊗ Develop waste disposal plans for each individual POP. Compile best industrial practices applied at sources of disposal Share synergies with industrial leaders on best practices (BAT/BEP).
Developing strategies for identifying sites contaminated by chemicals listed in Annex A, B or C (information on status, year, type of chemical).	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on developing strategies for identification of contaminated sites highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	⊗ None identified and reported. ⊗ Lack of information derived from contaminated sources of concern. Share synergies with JPRISM II /Mercury who may identify locations of contaminated sites based on historical data

Required by Article 15 Reporting	Information required to be generated during NIP Process	Overlaps between information on POPs Pesticides generated through NIP and required by Article 15	Gaps between information on POPs Pesticides generated through PNG NIP update and required by Article 15
			⊗ Characterized waste/contaminated sites according to Basel Convention Annexes.
Identification of sites contaminated by chemicals listed in Annex A, B or C (information on status, year, type of chemical).	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on developing strategies for identification of contaminated sites highlighted in POPs Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	⊗ No specific details on number and location of contaminated sites. ⊗ Apply Basel Conventions hazardous waste characterization as listed in Annex VIII, IX such like landfills, abandoned mines, tailings disposals, chemical disposal sites, etc.
Taking steps to remediate the sites contaminated by chemicals listed in Annex A, B or C (information on status, year or difficulties encountered).	POPs Pesticides & DDT Action Plan POP-PBDE Action Plan PCB Action Plan uPOPs Action Plan PFOS Action Plan	✓ Information on remediation of contaminated sites highlighted in Pesticides Action Plan PCB Action Plan, uPOPs Action Plan. PFOS Action Plan	⊗ Currently no specific steps taken to remediate contaminated sites. ⊗ Remedial practices performed in resource and infrastructure development sites and adopt best practices. Review old abandoned mine site remedial studies e.g. Misima Mines/Wau Bulolo Goldfields.
Submission of a report on the production and use of DDT in a format provided by the Secretariat (information on status and year)	POPs Pesticides Action Plan	✓ Information on DDT use, Stockpiles in PNG. ✓ Alternatives include use of Long Lasting Insecticidal Nets (LLIN)	⊗ No specific information and statistics on DDT alternatives. DDT use was phased out in PNG
Establishing an information exchange mechanism (information on status and year)	Public Awareness and Training Action Plan	✓ Information exchange mechanism	⊗ No firm information exchange and sharing has been established. The listed MOU activities in Strategy 4.3.1 remain pending.
Measures to implement Article 10 of the Convention (information on status, year, type of public information, awareness and education or difficulties encountered)	Public Awareness and Training Action Plan	✓ Information on Public awareness and training strategy	⊗ Pending. A more structured strategy is required involving existing institutions. ⊗ Lack of awareness and education remains a challenge for the Party.
Undertaking any research, development, and monitoring and cooperation pertaining to persistent organic pollutants, and where relevant, to their alternatives and to candidate persistent organic pollutants (information on status, type of action, year, type of activity or difficulties encountered)	Research and Development Action Plan	✓ Information on action plan to undertaken research, development and monitoring of POPs	⊗ Pending. Tier III research studies on pesticides residuals were conducted by SPREP in 90's, Collaborated research work with NARI, UNITECH and FAO on pesticides residual work. Lack of resources is an ongoing issues.

Table 6: Quantitative Data overlaps and gaps for POPs pesticides identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on POPs Pesticides generated through NIP and required by Article 15	Gaps between Data on POPs Pesticides generated through PNG NIP and required by Article 15
Data on production of any chemicals listed in Annex A or Annex B to the Convention( information on type of chemical, in which the production started/ended and estimated total production [kg])	POPs Pesticides production in PNG	✓ Information on Production of POPs in PNG mainly from repackaging activities	⊗ PNG does not manufacture activities and plants POPs chemicals. Assess chemical repackaging systems– i.e. chemical blending, pharmaceutical and pest control services.
Exporting any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, destination country and total annual export (kg/year)	Information on quantities of POPs Pesticide exports in PNG	✓ Information on quantities of export of POPs Pesticides	⊗ No export data was reported. ⊗ Likely export sources are lubricants, EEE, WEEE, Motor vehicles, Pesticides, textiles and building materials such as treated timbers and plywood. Compile a HS codes listing for POPs articles and products. Contaminated wastes oil and sludge for disposal may meet this classification.
Importing any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, country of origin and total annual import (kg/year));	POPs Pesticides imported into PNG	✓ Information on quantities of POPs pesticides imported into PNG. Data clusters needs to be segregated to ensure correct quantities are reported	⊗ Reported POP-Pesticides as mixed products due to HS code allocations (38). POPs chemical substances are listed in HS code (29) as organic chemicals. ⊗ MOU with PNG Customs to extract trade data on commodities using updated HS codes as listed in page 43. ⊗ An updated list of articles containing Annex A & B chemicals will improve data collection.

## 6.2 Polybrominated diphenyl ethers (POP-PBDE)

Qualitative information required by Article 15 and generated by the NIP development process for POP-PBDE is as outlined in Table 5. Data generated during the NIP as well as gaps and overlaps on POP -PBDEs are tabulated in Table 7.

Table 7 Quantitative information overlaps and gaps specific for POP-PBDE identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on POP-PBDE generated through NIP and required by Article 15	Gaps between Data on POP-PBDE generated through PNG NIP and required by Article 15
Data on production of any chemicals listed in Annex A or Annex B to the	POP_PBDE production in PNG (historical)	✓ Information on Production of POP-PBDE in PNG (historical)	⊗ No reported PBDE chemical production activity in the country

Convention( information on type of chemical, in which the production started/ended and estimated total production [kg])			⊗ Review manufacture of PBDE based articles/products in EEE and correctly allocate HS codes.
Exporting any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, destination country and total annual export (kg/year))	<ul style="list-style-type: none"> <li>• Quantity of POP-PBDE exported (historical)</li> <li>• Quantity of POP-PBDE in articles/products exported</li> </ul>	✓ Information on quantities of export of POP-PBDE in PNG	<ul style="list-style-type: none"> <li>⊗ Limited export data is available.</li> <li>⊗ Review trade data on export quantity of POP based EEE.</li> <li>⊗ Possibility in trading refurbished EEE, such as computers, etc. Obtain export quantity from Customs trade data.</li> </ul>
Importing any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, country of origin and total annual import (kg/year));	<ul style="list-style-type: none"> <li>• Quantity of POP-PBDEs imported (historical)</li> <li>• Quantity of POP-PBDEs in article/products imported</li> </ul>	✓ Information on quantities of POPs PBDEs imported into PNG	<ul style="list-style-type: none"> <li>⊗ Reported data on transport (2017) and EEE sector (historical 2006-2017) to include assessment of new POPs.</li> <li>⊗ Update HS (6-8 digit) codes for POP-PBDE articles/products.</li> <li>⊗ Extend inventory survey to new development projects in mining, petroleum, infrastructure, and agri-forestry entities. Information on movement of large quantities is required in development stages of such projects.</li> </ul>



### 6.3 Polychlorinated biphenyl (PCBs)

Qualitative information required by Article 15 and generated by the NIP development process for PCB is as outlined in Table 5. Data generated during the NIP as well as gaps and overlaps on PCB are tabulated in Table 8.

Table 8 Quantitative information overlaps and gaps specific for PCB identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on PCB generated through NIP and required by Article 15	Gaps between Data on PCB generated through PNG NIP and required by Article 15
Data on production, import and export of any chemicals listed in Annex A or Annex B to the Convention ( information on type of chemical, in which the production started/ended and estimated total production [kg])	Quantity of PCB production, import and export in PNG (historical)	<ul style="list-style-type: none"> <li>✓ Information on Production, import, export of PCB in PNG (historical)</li> <li>✓ Establish trade names of PCBs oil in use in equipment</li> </ul>	<ul style="list-style-type: none"> <li>⊗ PCB has never been manufactured in PNG</li> <li>⊗ Qualitative assessment was insufficient to meet reporting requirements in relations to PCB oil usage, stockpile, imports, exports and contaminated sites.</li> <li>⊗ PCB use on open applications such as caulks, paints/plaster, anticorrosion coatings, small capacitors, lubricating fluids, impregnating agents, flame retardants.</li> <li>⊗ Assess for PCB applications in major economic development projects as contaminant and as value of unintentional POPs.</li> </ul>
Identification of articles and materials containing more than 0.005% (50 ppm) PCB contaminated through open applications of PCB (data on type of article and year/period)	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in transformers</li> <li>✓ Data on trade names of PCB oil used requires attention</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Some data generated, however NIP process did not generate quantitative data on concentration of PCBs in articles and equipment containing PCBs.</li> <li>✓ Data and information reported in Table 9. p29. of NIP update 2018</li> </ul>
Proportion of waste containing greater than 0.005% (50 ppm) PCB identified in your country is managed in an environmentally sound manner (data on proportion of articles identified, year in which the environmentally sound management was completed and	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Some data generated, however NIP process did not generate quantitative data on concentration of PCBs in proportion of Wastes containing PCBs.</li> </ul>

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on PCB generated through NIP and required by Article 15	Gaps between Data on PCB generated through PNG NIP and required by Article 15
proportion of waste environmentally sound managed);	<ul style="list-style-type: none"> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>		
Equipment containing greater than 10% (100,000 ppm) PCB and volumes greater than 5 liters (status of equipment, year of inventory, number of equipment, total mass of equipment [kg], mass of solid parts of equipment (equipment without oil)[Kg], mass of liquids (oil) (%) and total mass (kg))	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	<ul style="list-style-type: none"> <li>⊗ NIP Inventory process did not generate quantitative data on concentration of PCBs in Equipment containing greater than 5L</li> </ul>
Equipment containing greater than 0.05% (500ppm) PCB and volumes greater than 5 liters ( status, of equipment, year of inventory, number of equipment, total mass of equipment [Kg], mass of solid parts of equipment without oil)[Kg], mass of liquids (oil)[Kg], PCB content in oil (%) and total mass (Kg))	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	<ul style="list-style-type: none"> <li>⊗ NIP Inventory process did not generate quantitative data on concentration of PCBs in Equipment containing greater than 5L</li> </ul>
Equipment containing greater than 0.05% (500ppm) PCB and volumes greater than 0.05 liters ( status, of equipment, year of inventory, number of equipment, total mass of equipment [Kg], mass of solid parts of equipment without oil)[Kg], mass of liquids (oil)[Kg], PCB content in oil (%) and total mass (Kg))	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	<ul style="list-style-type: none"> <li>✓ Equipment count value attained for 3 storage locations. Lack of data derived for mass value of the equipment, quantity of PCB based oil &amp; PCB content in oil.</li> </ul>
Equipment containing an undefined concentration of PCB ( status of equipment, year of inventory, number of equipment, total mass of equipment [Kg], mass of solid parts of equipment Kg], mass of solid parts of equipment without oil)[Kg], mass of liquids (oil)[Kg], PCB content in oil (%) and total mass (Kg))	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	<ul style="list-style-type: none"> <li>✓ Historical equipment count value attained for 3 storage locations. Lack of data derived for mass value of the equipment, quantity of PCB based oil &amp; PCB content in oil. Quantities from other storage sites needs to be determined.</li> </ul>
Stored liquids (oil) containing PCB (status of equipment, year of inventory, number of equipment, total mass of equipment [kg],	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Equipment count value attained for 3 storage locations. Lack of data derived</li> </ul>

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on PCB generated through NIP and required by Article 15	Gaps between Data on PCB generated through PNG NIP and required by Article 15
mass of solid parts of equipment without oil) [kg], mass of liquids (oil) [kg], PCB content in oil (%) and total mass (kg))	<ul style="list-style-type: none"> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	for mass value of the equipment, quantity of PCB based oil & PCB content in oil.
Other wastes containing PCB (status of equipment, year of inventory, number of equipment, total mass of equipment [kg], mass of solid parts of equipment (equipment without oil) [kg], mass of liquids (oil) [kg], PCB content in oil (%) and total mass (kg));	<ul style="list-style-type: none"> <li>• Number of equipment in/out of services</li> <li>• Total mass of equipment in/out of service</li> <li>• Mass of liquid (oil) of equipment in/out of service</li> <li>• PCB content in oil of equipment in/out of service (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on number of equipment (transformers)</li> <li>✓ Information on amount of PCB Oil used in Transformers</li> </ul>	⊗ Equipment count value attained for 3 storage locations. Lack of data derived for mass value of the equipment, quantity of PCB based oil & PCB content in oil.
Statistical data of locally destroyed, in an environmentally sound manner, of equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB (e.g. transformers, capacitors or other receptacles containing liquid stocks) (type of PCB, year and quantity (Metric Tons))	Quantity of PCBs locally destroyed		⊗ Inventory assessments did not generate quantitative data on volume of PCBs destroyed locally in an ESM as well as PCB concentration with greater than 50ppm.
Statistical data of imported equipment, liquids, or other wastes containing greater than 0.005% (50ppm) PCB for environmentally sound destruction (type of PCB, year and quantity (Metric Tons))	Quantity of PCBs imported for Environmental sound disposal		⊗ Inventory assessment did not generate statistical data on quantitative data on imported PCB containing waste for environmentally sound disposal including quantification of PCB in Waste.
Statistical data of exported equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB (e.g. transformers, capacitors or other receptacles containing liquid stocks) for environmentally sound destruction (type of PCB, year and quantity (Metric Tons))	Quantity of PCBs imported for Environmental sound disposal		⊗ Inventory assessment did not generate statistical data on quantitative data on exported PCB containing waste for environmentally sound disposal including quantification of concentration of PCB in Waste

## 6.4 Hexabromocyclododecane (HBCD)

Qualitative information required by Article 15 and generated by the NIP development process for PCB is as outlined in Table 5. Data generated during the NIP as well as gaps and overlaps on HBCD are tabulated in Table 9 below.

Table 9 Quantitative information overlaps and gaps specific for HBCD identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on HBCD generated through NIP and required by Article 15	Gaps between Data on HBCD generated through PNG NIP and required by Article 15
Data on production of any chemicals listed in Annex A or Annex B to the Convention( information on type of chemical, in which the production started/ended and estimated total production [kg])	<ul style="list-style-type: none"> <li>Quantity of HBCD produced</li> <li>Quantity of HBCD by-product and related HBCD content (%)</li> </ul>		⊗ HBCD has never been manufactured in PNG
Exporting any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, destination country and total annual export (kg/year)	<ul style="list-style-type: none"> <li>Quantity of HBCD exported as powder, pellets as master batches, as HBCD containing EPS beads and high impact polystyrene (HIPS) pellets (tons)</li> <li>Quantity of HBCD in articles/products exported ( especially EPS and XPS in construction sector and flame retarded textile applications (tons)</li> </ul>		⊗ Current NIP does not contain information on export of waste containing HBCD article/product
Importing any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, country of origin and total annual import kg/year));	<ul style="list-style-type: none"> <li>Quantity of HBCD imported as powder, pellets as master batches, as HBCD containing EPS beads and high impact polystyrene (HIPS) pellets (tons)</li> <li>Quantity of HBCD in article/products imported( especially EPS and XPS in construction sector and flame retarded textile applications (tons)</li> </ul>	✓ Data and information on articles and products listed in under other POPs can be used to calculate HBCD import values	⊗ Current NIP does not contain information on total annual import as well as information on import of waste containing HBCD article/product. ✓ Reported historical HBCD values from 2006-2016; Table 12, p.32. of NIP 2018 report A further classifications of HS codes should improve statistical data especially applications of correct factors.

## 6.5 Hexachlorobutadiene (HCBd)

Qualitative information required by Article 15 and generated by the NIP development process for HCBd is as outlined in Table 5. Data generated during the NIP as well as gaps and overlaps on HCBd are tabulated in Table 10 below.

Table 10 Quantitative information overlaps and gaps specific for HCBD identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on HCBD generated through NIP and required by Article 15	Gaps between Data on HCBD generated through PNG NIP and required by Article 15
Data on production of any chemicals listed in Annex A or Annex B to the Convention( information on type of chemical, in which the production started/ended and estimated total production [kg])	<ul style="list-style-type: none"> <li>Quantity of HCBD by-product and related HCBD content (%)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on HCBD production</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No intentional and unintentional production of HCBD in PNG</li> </ul>
Exporting any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, destination country and total annual export (kg/year)	<ul style="list-style-type: none"> <li>Quantity of HCBD exported by-product (especially for use in agriculture sector, industrial manufacture, purification of gas streams and electrical equipment) (tons) – Historical and current</li> <li>Quantity of exported products and articles containing HCBD (tons) – historical ad current</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of export of HCBD by-products and products/articles containing HCBD</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported</li> <li>⊗ Can be exported as articles and products</li> </ul>
Importing any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, country of origin and total annual import (kg/year));	<ul style="list-style-type: none"> <li>Quantity of the HCBD imported as by-product (especially for use in agriculture sector, industrial manufacture, purification of gas streams and electrical equipment) (tons) – Historical and current</li> <li>Quantity of imported products and articles containing HCBD (tons) – Historical and current</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of HCBD and HCBD articles/products imported into PNG</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Requires GHS code to ascertain import data. Expand improve identification of HBCD articles and products.</li> </ul>

## 6.6 Polychlorinated naphthalenes (PCN)

Qualitative information required by Article 15 and generated by the NIP development process for PCN is as outlined in Table 11.

Table 11 Quantitative information overlaps and gaps specific for PCN identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on PCN generated through NIP and required by Article 15	Gaps between Data on PCN generated through PNG NIP and required by Article 15
Source Inventories and release estimates of PCN	Inventory and release estimates of PCN air, water, land, product and residue ( g-TEQ/year)	✓ Release estimates PCN to air, water, land product and residue	⊗ Limitations in the Identification of Source categories for PNG.
Data on production of any chemicals listed in Annex A or Annex B to the Convention( information on type of chemical, in which the production started/ended and estimated total production [kg])	<ul style="list-style-type: none"> <li>Quantity of PCNs produced for using as intermediate for the production of polyfluorinated naphthalenes (PFNs) or for other purposes – Historical and current</li> </ul>	✓ Information on PCN production and use	⊗ No evidence of PCN in PNG
Exporting any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, destination country and total annual export (kg/year)	<ul style="list-style-type: none"> <li>Quantities of PCN exported</li> </ul>	✓ Quantity of PCN and PCN products exported	⊗ No evidence of PCN in PNG
Importing any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, country of origin and total annual import (kg/year));	<ul style="list-style-type: none"> <li>Quantity of PCN imported</li> </ul>	✓ Quantity of PCN and PCN products imported	⊗ No evidence of PCN in PNG. Indicative assessments using HS codes may improve identify sources and users of PCN.

## 6.7 Perfluorooctane sulfonic acid (PFOS) & its related compounds

Qualitative information required by Article 15 and generated by the NIP development process for PFOS, its salts and PFOSF is as outlined in Table 5. Data generated during the NIP as well as gaps and overlaps on PFOS, its salts and Perfluorooctane sulfonyl fluoride (PFOSF) are tabulated in Table 12 below.

Table 12 Quantitative information overlaps and gaps specific for PFOS, its salts and PFOSF identified in NIP update process and Article 15 Reporting under SC

Required by Article 15 Reporting	Data required to be generated during NIP update Process	Overlaps between Data on PFOS, its salts and PFOSF generated through NIP and required by Article 15	Gaps between Data on PFOS, its salts and PFOSF generated through PNG NIP and required by Article 15
Data on production of any chemicals listed in Annex A or Annex B to the Convention( information on type of chemical, in which the production started/ended and estimated total production [kg])	<ul style="list-style-type: none"> <li>Quantity of PFOSF produced</li> </ul>	N/A	<ul style="list-style-type: none"> <li>⊗ No evidence of PFOS production in PNG</li> </ul>
Exporting any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, destination country and total annual export (kg/year)	<ul style="list-style-type: none"> <li>Quantities of PFOS exported</li> <li>Quantities of PFOS in products/articles exported ( especially in firefighting foams and hydraulic fluids) – historical and current</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of PFOS exported including PFOS in products and articles</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Limited data on PFOS including product/articles being exported out of PNG. This also includes the prices of products/articles containing PFOS being imported</li> <li>⊗ Investigate use of PFOS in other economic sectors especially in mining and petroleum.</li> </ul>
Importing any of the chemicals listed in Annex A or Annex B to the Convention (information on year, type of chemical, purpose, country of origin and total annual import (kg/year));	<ul style="list-style-type: none"> <li>Quantities of PFOS imported</li> <li>Quantities of PFOS in products/articles imported ( especially in firefighting foams and hydraulic fluids) – historical and current</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of PFOS imported including PFOS in products and articles</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Limited data on PFOS including products and article imported into PNG.</li> </ul>
Statistical data on production of PFOS for the acceptable purposes listed in Annex B of the Convention (status, year, type of acceptable purpose and estimated total production (Kg))	<ul style="list-style-type: none"> <li>Quantity of PFOS produced as allowed by the /acceptable purposes</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of PFOS being produced and used for acceptable purpose under the Convention</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No statistical data available on PFOS being produced and used in PNG</li> </ul>
Statistical data on the country's production of PFOS for the specific exemptions listed in Annex B of the Convention (status, year, type of specific exemption and estimated total production	<ul style="list-style-type: none"> <li>Quantity of PFOS produced as allowed by the specific exemptions</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of PFOS being produced for use allowed under specific exemption of the Convention</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No evidence of PFOS production in PNG</li> </ul>
Statistical data on use of PFOS for the acceptable purposes	<ul style="list-style-type: none"> <li>Quantities of PFOS used to manufacture article/products as</li> </ul>	<ul style="list-style-type: none"> <li>✓ Information on quantities of PFOS used for manufacture of products and articles</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No manufacturing of products/articles of PFOS in PNG</li> </ul>

<p>listed in Annex B of the Convention (status, year, type of acceptable purpose and estimated total production (Kg))</p>	<p>allowed by the acceptable purposes – historical and current</p> <ul style="list-style-type: none"> <li>• Quantity of PFOS in article/products in use as allowed by the acceptable purposes- historical and current</li> </ul>		
<p>Statistical data on the country's use of PFOS, its salts and PFOSF for the specific exemptions listed in Annex B of the Convention ( status, year, type of specific exemption and estimated total production (Kg))</p>	<ul style="list-style-type: none"> <li>• Quantity of PFOS, its salts and PFOSF used to manufacture article/products as allowed by specific exemption and purpose</li> </ul>	<p>✓ Information on quantities of PFOS, its salts and PFOSF used to manufacture articles and products</p>	<p>⊗ No manufacturing of products/articles of PFOS, its salts and PFOSF in PNG</p>



## 7 Overlapping and gaps between data and information requested to be included within Other Reporting Requirements of SC and the data and information generated during development of the NIP and/update

Besides Article 7 (NIP) as well as the Article 15 Reporting Obligations, Parties to the Stockholm Convention are required to provide other reports on the following;

- Action plan on release reduction of uPOPs in accordance paragraph (a)(v) of Article five (5) of the SC where a report is required to be submitted once every five (5) years;
- Progress on eliminating PCBs in accordance with paragraph (2)(g) of Part II under Annex A of the SC where a report is required to be submitted once every five (5) years;
- Progress on eliminating POP-PBDEs in accordance with Part IV (2) and Part V (2) of Annex A of the SC where a report is required to be submitted every four (4) years;
- DDT assessment including amount and conditions of DDT use as well as relevance to country's disease management strategy in accordance with Part II (4) of Annex B of the SC where a report is required to be submitted once every three (3) years.

PNG has yet to meet these reporting obligations and to date have not submitted reports to the SC Secretariat. Table 13 and

Table 14 outlines both the qualitative and the quantitative information and data required under these reporting categories compared with information and data that is generated during the development of the NIP and/or update.

Table 13 Qualitative information overlaps and gaps between other reporting obligations under the SC and NIP development process

POPS	Information requested	Overlaps between information on other reporting requirements and generated through NIP and/or update	Gaps between information on other reporting requirements and generated through NIP and/or update
UPOPS	Developing, reviewing and updating of an action plan designed to identify, characterize and address the release of the chemicals listed in Annex C (information on status, year, difficulties encountered, participation in any regional or sub-regional action plan	✓ Status of implementation of action plan of previous NIP	⊗ uPOPs action plan placed in 4.3.6 p.46 of 2018 NIP. Related data collection is not active. ⊗ CEPA to embed data collection function as daily as daily activity for Toolkit data assessment.
	Development of source inventories and release estimates of the chemicals listed in Annex C to the Convention taking into consideration the source categories identified in Annex or difficulties encountered (information on status or difficulties encountered	✓ Information on the development of source inventories and release estimates status and difficulties encountered; ✓ Annual environmental reports submitted by permit holders to provide activity rates	⊗ Sources yet identified for data collection ⊗ Identify active and updated new data sources. ⊗ Develop pathways to share data for assessment e.g. pursue pending MOU agreements.
	Undertaking an evaluation of the efficacy of the laws and policies adopted to manage releases of	✓ Existing laws and policies relating to the management of releases of unintentionally	⊗ Not related laws to curb Annex C listed chemicals.

	unintentionally produced persistent organic pollutants (information on status and year)	produced persistent organic pollutants and their effectiveness and deficiencies	⊗ General development of EA and related regulations to begin where it best fits.
	Promoting or introducing requirements for use of best available techniques (BAT) and best environmental practices (BEP) for new sources and existing sources (information on status and year for new and existing sources)	✓ Situation regarding BAT/BEP implementation within industries and facilities in Annex C	⊗ NIP does not specifically highlight BAT/BEP implementation within industries and facilities in Annex C. ✓ Recognize best industrial practices applied by major industry organizations.
<b>PCBS</b>	<ul style="list-style-type: none"> <li>• Developing strategies for identifying stockpiles consisting of or containing greater than 0.005% (50 ppm) PCB (information on status, year, types of elements included in the strategies)</li> <li>• Developing strategies for identifying products and articles in use and wastes consisting of, containing or contaminated with greater than 0.005% (50 ppm) PCB (information on status, year, types of elements included in the strategies)</li> <li>• Developing strategies for identifying products and articles containing more than 0.005% (50 ppm) PCB contaminated through open applications of PCB (e.g. cable-sheaths, cured caulk and painted objects) (information on status, year, types of elements included in the strategies)</li> <li>• Taking any measures to ensure PCB or products and articles containing greater than 0.005% (50 ppm) PCB identified as wastes are managed in an environmentally sound manner (information on status, year, types of measures)</li> <li>• Developing strategies for identifying sites contaminated by greater than 0.005% (50ppm) PCB (information on status and year);</li> </ul>	<ul style="list-style-type: none"> <li>✓ Legal, institutional, regulatory, and enforcement systems for PCBs management</li> <li>✓ Focus on use of PCBs in close and open applications</li> </ul>	<ul style="list-style-type: none"> <li>⊗ PNG has not submitted reporting to SC for PCBs. Information is based on action plan highlighted in the NIP.</li> <li>⊗ No specific information is generated for wastes, articles and products containing and consisting of PCBs including assessment and identification of articles, products, wastes containing and consisting of more than 50ppm. (Current PNG NIP only addresses Transformers, and capacitors)</li> <li>⊗ Insufficient and lack of recent data and information is difficult to ascertain.</li> <li>⊗ Specific data collection systems need establishing with users of PCBs.</li> <li>⊗ Work with PNG Power Limited ensuring the information required is furnished as part of the inventory assessment update.</li> </ul>
	<ul style="list-style-type: none"> <li>• Identification of sites contaminated by greater than 0.005% (50ppm) PCB (information on status and year)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Sites potentially contaminated / contaminated by PCBs</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Contaminated sites yet to be identified and reported. Develop identification criteria according to Basel Convention characterization of hazardous substances.</li> </ul>
	<ul style="list-style-type: none"> <li>• Taking measures to identify and label, where appropriate, equipment in use containing greater than 0.005% (50 ppm) PCB (information on status, year, types of measures)</li> <li>• Taking measures to identify and/or label, where appropriate, wastes liable to contain greater than</li> </ul>	<ul style="list-style-type: none"> <li>✓ Measures to identify and label, where appropriate, POP-containing products and articles in use. Utilize international labeling systems based on UNEP guidelines</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Assessment in NIP did not include analysis of concentration of PCB and labeling of PCB containing equipment</li> <li>⊗ Expand assessing other open applications of PCB articles/products, e.g., plasticizers, caulks, paints, etc.</li> </ul>

	<p>0.005% (50 ppm) PCB (information on status, year, types of measures)</p> <ul style="list-style-type: none"> <li>• Taking measures to identify articles containing more than 0.005% (50 ppm) PCB contaminated through open applications of PCB (e.g. cable-sheaths, cured caulk and painted objects) (information on status, year, types of measures)</li> </ul>		
	<ul style="list-style-type: none"> <li>• Development of a specific plan for the management, phase out and disposal of PCB (information on status, year or difficulties encountered)</li> <li>• Promoting any measures to reduce exposures from the use of PCB (information on status, year and types of measures)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Legal, institutional, regulatory, and enforcement systems for PCBs management / PCB Action Plan</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Current PBDE action plan does not specifically address this particular area</li> </ul>
	<ul style="list-style-type: none"> <li>• Undertaking an inventory of PCB in equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks), articles, oils and waste (information on status, type of inventory preliminary/complete or difficulties encountered)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Inventory of PCBs containing equipment in use and out of use</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Current PBDE action plan does not specifically address this particular area</li> </ul>
<b>PBDES</b>	<ul style="list-style-type: none"> <li>• Registration for a specific exemption related to brominated diphenyl ethers in accordance with part IV and/or part V of Annex A to the Stockholm Convention</li> <li>• Undertaking any review of its continuing need for registration of the continued need for a specific exemption for hexabromodiphenyl ether and heptabromodiphenyl ether and/or tetrabromodiphenyl ether and pentabromodiphenyl ether or difficulties encountered</li> </ul>	<ul style="list-style-type: none"> <li>✓ Projections on production, use, and releases of POPs;</li> <li>✓ Need for specific exemptions and/or acceptable purposes</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Has not registered for exemption related to brominated diphenyl ethers under SC</li> <li>⊗ Has not conducted studies into reviewing the need for exemption on hexabromodiphenyl ether and heptabromodiphenyl ether and/or tetrabromodiphenyl ether and pentabromodiphenyl ether.</li> <li>⊗ Develop registration and exemption processes based on stockpile and usage quantity.</li> </ul>
	<ul style="list-style-type: none"> <li>• Taking any actions or control measures to eliminate brominated diphenyl ethers contained in articles (information on status, year, types of actions or control measures or difficulties encountered)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Legal, institutional, regulatory, and enforcement systems for management, recycling and end-of life treatment of POP-PBDE- containing materials (in particular electric and electronic equipment and the transport sector and related wastes), including for contaminated sites</li> </ul>	<ul style="list-style-type: none"> <li>⊗ This issue is not addressed in current PBDE action plan.</li> </ul>
	<p>Identification of articles in use that contain or may contain brominated diphenyl ethers (information on types of articles or difficulties encountered)</p>	<ul style="list-style-type: none"> <li>✓ Articles in use that contain or may contain brominated diphenyl ethers (information on types of articles or difficulties encountered)</li> </ul>	<ul style="list-style-type: none"> <li>⊗ This issue is not addressed in current PBDE action plan.</li> </ul>
	<p>Taking measures to dispose of articles that contain or may contain brominated diphenyl ethers in an</p>	<ul style="list-style-type: none"> <li>✓ Legal, institutional, regulatory, and enforcement systems for management,</li> </ul>	<ul style="list-style-type: none"> <li>⊗ This issue is not addressed in current PBDE action plan.</li> </ul>

<p>environmentally sound manner (information on types of measures and/or articles or difficulties encountered)</p>	<p>recycling and end-of life treatment of POP-PBDE-containing materials (in particular electric and electronic equipment and the transport sector and related wastes), including for contaminated sites</p> <ul style="list-style-type: none"> <li>✓ Availability of appropriate recycling facilities and a labelling system marking the presence of POP-PBDEs;</li> <li>✓ Availability of appropriate waste management systems; and end of life treatments;</li> <li>✓ Appropriate and effective monitoring and reporting of POP-PBDE-containing materials, equipment use, movement, sale, and disposal</li> <li>✓ BAT/BEP implementation for the recycling and waste disposal of articles containing POP-PBDEs</li> </ul>	
<p>Recycled articles that contain or may contain brominated diphenyl ether ( information on actions or control; measures taken to ensure that recycling is carried out in an environmentally sound manner, types of articles, difficulties encountered)</p>	<ul style="list-style-type: none"> <li>✓ Legal, institutional, regulatory, and enforcement systems for management, recycling and end-of-life treatment of POP-PBDE-containing materials (in particular electric and electronic equipment and the transport sector and related wastes), including for contaminated sites</li> <li>✓ Availability for appropriate recycling facilities and a labelling system marking the presence of POP-PBDEs</li> <li>✓ BAT/BEP implementation for the recycling and waste disposal of articles containing POP-PBDEs</li> <li>✓ Production and articles containing POP-PBDEs in the recycling streams ( information on types of articles)</li> </ul>	<p>⊗ Current PBDE action plan does not specifically address this particular area. Major resource extraction entities have established best waste management practices that have been effectively implemented.</p>
<p>Putting in place measures to separate articles containing brominated diphenyl ethers before recycling ( information on types of measures or difficulties encountered)</p>	<ul style="list-style-type: none"> <li>✓ Legal, institutional, regulatory, and enforcement systems for management, recycling and end-of-life treatment of POP-PBDE-containing materials (in particular electric and electronic equipment and the transport sector and related wastes), including for contaminated sites</li> </ul>	<p>⊗ Current PBDE action plan does not specifically address this particular area</p>

		✓ BAT/BEP implementation for the recycling and waste disposal of articles containing POP-PBDEs	
	Using articles manufactured from recycled materials that contain or may contain brominated diphenyl ethers (information on status, types of articles)	✓ Types of used articles that are manufactured from POP PBDEs containing materials	⊗ Current PBDE action plan does not specifically address this particular area
	Disposing of articles manufactured from recycled materials that contain or may contain brominated diphenyl ethers (information on status, types of actions or control measures to ensure that it is carried out in an environmentally sound manner or difficulties encountered)	✓ Types of disposed articles that are manufactured from POP PBDEs containing materials	⊗ Current PBDE action plan does not specifically address this particular area
	taken any steps to prevent the export of articles manufactured from recycled materials that contain levels or concentrations of brominated diphenyl ethers exceeding those permitted for the sale, use, import or manufacture of those articles within its territory (information on status, year, types of measures or difficulties encountered).	✓ Legal, institutional, regulatory, and enforcement systems for management, recycling and end-of life treatment of POP-PBDE-containing materials (in particular electric and electronic equipment and the transport sector and related wastes), including for contaminated sites	⊗ Current PBDE action plan does not specifically address this particular area
<b>DDT</b>	<ul style="list-style-type: none"> <li>• Production facility and location;</li> <li>• DDT repackaged/reformulated in the country (information on origin of active ingredient)</li> <li>• Repackaging/reformulation facility</li> <li>• DDT exported (information on facility and destination country);</li> <li>• DDT imported (information on country from which DDT is imported and name of manufacturer)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Production facility and location;</li> <li>✓ DDT repackaged/reformulated in the country;</li> <li>✓ DDT exported/ imported</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not used in the country as banned chemical.</li> <li>⊗ Likely to be used as main ingredient of other major pesticides (e.g.Dicofol)</li> </ul>
	Usable stocks of DDT (information on location and conditions of storage)	✓ DDT stocks in use	✓ Listed stockpiled sites for legacy DDT.
	Using DDT for disease vector control (information on status)	✓ DDT use for disease vector control	<ul style="list-style-type: none"> <li>⊗ Obsolete use of DDT.</li> <li>✓ Alternatives used for vector control requires verification from NDoH<sup>3</sup>.</li> </ul>
	Planning to use DDT for disease vector control in the future.	✓ Need for specific exemptions and/or acceptable purposes	⊗ Formerly used, currently not relevant to PNG
	Using DDT for any other purpose besides disease vector control (information on status)	✓ DDT use for any other purpose besides disease vector control	✓ Assess indiscriminate use of DDT other than the purpose intended.

<sup>3</sup> National Department of Health & HIV

Involvement of non-government agencies in using DDT for disease vector control purposes (information on status).	✓ Activities of non-governmental stakeholders on POPs.	⊗
Type of disease and main vector species targeted by DDT used for disease vector control	✓ Disease and main vector species targeted by DDT used for disease vector control	⊗ Formerly used, currently not relevant to PNG
National laws and regulations governing or restricting the purchase or use of DDT (information on status and degree of enforcement).	✓ Legal and institutional framework for control of the production, use, import, export and environmentally sound management and disposal of the pesticides, listed in Annexes A and B of the Convention, including for contaminated sites.	⊗ Discussions to legislate for restrictive use is pending.
Quality control on the product in the country, if DDT is produced or imported (information on status).	✓ Description of the system for the assessment and regulation of chemicals already in the market	⊗ Not applicable at this stage. Importation levels to be controlled under registration requirements.
Surveillance mechanism monitoring of resistance (information status); for DDT.	✓ Existent programmes for monitoring releases and environmental and human health impacts; ✓ POPs monitoring findings	⊗ This area is not specifically addressed in the current NIP update
Bioassay test procedures used for detecting DDT resistance (information on vector species, DDT concentration & exposure time (mins.), % mortality, year last tested, geographical area concerned)		⊗ This particular area is not included for DDT in the NIP development process. Propose to participated in GMP to generate associated data.
Resistance observed for the other insecticides used in disease vector control (information on status and vectors for each chemical group)		⊗ This particular area is not included for DDT in the NIP development process
Integrated vector management (IVM) strategy endorsed at the national level (information on status and implementation coverage).	✓ Legal and institutional framework for control of the production, use, import, export and environmentally sound management and disposal of the pesticides, listed in Annexes A and B of the Convention, including for contaminated sites.	⊗ This area is not specifically addressed in the current NIP update
Research into the development and testing of locally appropriate alternative intervention to DDT (information on status and type of research/testing).	✓ Description of POPs measurement, analysis, alternatives and prevention measures; ✓ POPs research and development activities	⊗ This area is not specifically addressed in the current NIP update
DDT alternatives used information on alternative control interventions, disease targeted and source(country) (import/local).	✓ Description of POPs measurement, analysis, prevention measures. ✓ POPs research activities; alternatives and development	⊗ No related information was reported. Need to verify alternative uses for vector control.
Implementation of resistance management strategy, if alternative insecticides to DDT are used (information on status);		⊗ This particular area is not included for DDT in the NIP development process

	DDT alternatives that have been used but are no longer in use (information on alternative control interventions, disease targeted, year of last use and reasons why the use was stopped (import/local))		⊗ This particular area is not included for DDT in the NIP development process
	Programme to raise awareness among communities and households on safety issues relating to DDT use in disease vector control (information on status)	✓ Awareness raising among communities and households on safety issues relating to DDT use in disease vector control	⊗ This area is not specifically addressed in the current NIP update.
	Agencies responsible for assessing the risks posed by the use of insecticides to public health (information on status);	✓ Description of the system for the assessment and regulation of chemicals already in the market	⊗ No relevant information was reported. ⊗ Work done by NGO's (Rotary PNG) on Malaria control would be of interest as alternative solutions for DDT use.
	System in place to monitor exposure to DDT (information on status)	✓ Existent programmes for monitoring releases and environmental human health impacts; ✓ POPs monitoring findings	⊗ This area is not specifically addressed in the current NIP update
	Training facilities on insecticide use for disease vector control (information on status);		⊗ This particular area is not included for DDT in the NIP development process
	Training conducted on insecticide use for vector control (information on status)		⊗ This particular area is not included for DDT in the NIP development process
	Existence of formal mechanisms for inter sectorial collaboration in disease vector control (information on status);		⊗ This particular area is not included for DDT in the NIP development process
	Collaboration between formal mechanisms (information on status);		⊗ This particular area is not included for DDT in the NIP development process
	Using entomology laboratory for vector resistance testing (information on status and international recognition);		⊗ This particular area is not included for DDT in the NIP development process
<b>PFOS</b>	<ul style="list-style-type: none"> <li>• Chemical names/CAS numbers of the chemicals produced;</li> <li>• Purpose of the production and the years in which the chemicals were produced;</li> <li>• Chemical names/CAS numbers of the chemicals imported;</li> <li>• Purpose of the import, the countries from which the chemicals were imported and the years in which the chemicals were;</li> <li>• Chemical names/CAS numbers of the chemicals exported;</li> <li>• Purpose of the export, countries to which the chemicals were exported and the years in which the chemicals were exported;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Types of the chemicals produced exported, imported, exported and used;</li> <li>✓ Purpose of the production, import, export and use</li> </ul>	<ul style="list-style-type: none"> <li>⊗ PFOS production is insignificant in PNG so it therefore not fully considered and not addressed in current NIP</li> <li>⊗ This area is not specifically addressed in the current NIP update.</li> <li>⊗ Next planned review and update of the Inventory assessment on POPs will cover additional PFOS salts as listed in HS code update in Appendix B.</li> </ul>

<ul style="list-style-type: none"> <li>• Chemical names/CAS numbers of the chemicals used</li> <li>• Purpose of the use and the years in which the chemicals were used</li> </ul>		
<ul style="list-style-type: none"> <li>• Registration for any of the acceptable purposes or specific exemptions for PFOS, its salts and PFOSF</li> <li>• Review of the continued need for those acceptable purposes or specific exemptions</li> </ul>	<ul style="list-style-type: none"> <li>✓ Need for specific exemptions and/or acceptable purposes</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No quantifiable amount recorded. May be present in the country as AFFF. When quantified then sought registration for exemption.</li> </ul>
<ul style="list-style-type: none"> <li>• Progress in eliminating PFOS, its salts and PFOSF</li> </ul>	<ul style="list-style-type: none"> <li>✓ Progress in eliminating the POPs listed in Annexes A and/or B</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Current users have yet to be identified. Eliminate according to UN guidelines .</li> </ul>
<ul style="list-style-type: none"> <li>• Progress in building the capacity to transfer safely to reliance on alternatives</li> </ul>	<ul style="list-style-type: none"> <li>✓ Experiences of using PFOS alternatives in the areas of the allowed acceptable purposes and specific exemptions</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Future activity after assessing for quantity and identification stockpiles and contaminated sites.</li> </ul>
<ul style="list-style-type: none"> <li>• Research on and development of safe alternatives to PFOS, its salts and PFOSF as stipulated in paragraph 4 (c) of part III of Annex B to the Convention</li> </ul>	<ul style="list-style-type: none"> <li>✓ Description of POPs measurement, analysis, alternatives and prevention measures;</li> <li>✓ POPs research and development activities</li> </ul>	
<ul style="list-style-type: none"> <li>• Purpose of the production and the years in which the chemicals were produced;</li> <li>• Purpose of the import, the countries from which the chemicals were imported and the years in which the chemicals were imported;</li> <li>• Purpose of the export, countries to which the chemicals were exported and the years in which the chemicals were exported;</li> <li>• Purpose of the use and the years in which the chemicals were used;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Purpose of the production, import, export and use</li> </ul>	<ul style="list-style-type: none"> <li>⊗ N/A.</li> </ul>
<ul style="list-style-type: none"> <li>• Conducting local monitoring of releases of PFOS from the use of sulfluramid</li> </ul>	<ul style="list-style-type: none"> <li>✓ Existent programmes for monitoring releases and environmental and human health impacts</li> <li>✓ POPs monitoring findings</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported as use of PFOS/PFOSF and its salts as AFFF is not clearly assessed.</li> </ul>
<ul style="list-style-type: none"> <li>• Relevant application of the alternatives to PFOS, its salts, PFOSF and their related chemicals (chemical/nonchemical alternatives or processes chemical name, CAS number and trade names of the alternative;</li> <li>• Name of the chemical substituted;</li> <li>• Characteristics of the non-chemical alternatives or processes;</li> <li>• Economic viability of the alternatives to PFOS, its salts, PFOSF and their related chemicals;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Experiences of using PFOS alternatives in the areas of the allowed acceptable purposes and specific exemptions</li> </ul>	<ul style="list-style-type: none"> <li>⊗ This area is not specifically addressed in the current NIP update.</li> <li>✓ List of additional PFOS + salts (7) are included in the HS code update listing, including Sulfluamid</li> </ul>



<ul style="list-style-type: none"> <li>• Cost-effectiveness, including environmental, health and socio-economic costs;</li> <li>• Demonstration of equivalent function and providing similar product performance characteristics by the alternatives to PFOS, its salts, PFOSF and their related chemicals;</li> <li>• Efficacy, including performance, benefits and limitations of the alternatives to PFOS, its salts, PFOSF and their related chemicals;</li> <li>• Whether the alternatives to PFOS, its salts, PFOSF and their related chemicals have actually been implemented or are at the trial or proposal stage;</li> <li>• Availability on the market and readiness for immediate use of the alternatives to PFOS, its salts, PFOSF and their related chemicals;</li> <li>• Geographic, legal or other limiting factors affecting the use of the alternatives to PFOS, its salts, PFOSF and their related chemicals</li> </ul>		
<ul style="list-style-type: none"> <li>• Classification according to the Global Harmonization System or other systems;</li> <li>• Exposure (e.g. monitoring data) and environmental fate of the chemical;</li> <li>• Socio-economic impacts associated with the alternatives to PFOS, its salts, PFOSF and their related chemicals</li> </ul>	<p>✓ Determine HS codes to 6, 8 and 10 digit levels to correct identifications of the POPs according to IUPAC name or specific to CAS number</p>	<p>✓ Additional 7 PFOS + salts have been added to the list.</p>
<ul style="list-style-type: none"> <li>• Testing thoroughly or evaluating the alternatives to PFOS, its salts, PFOSF and their related chemicals to avoid inadvertently increasing risks to human health/environment</li> </ul>	<p>✓ Description of the system for the assessment and regulation of chemicals already in the market</p>	<p>⊗ This area is not specifically addressed in the current NIP update.</p>

e 14 Quantitative data overlaps and gaps between other reporting obligations under the SC and NIP development process

Data Requested under other Reporting obligations under SC	Overlaps between Data on Other Reporting Requirements and generated through NIP and/or update	Gaps between Data on Other Reporting Requirements and generated through NIP and/or update
Source inventories and release estimates of PCDD/PCDF	<p>✓ Source inventories and release estimates of PCDD/PCDF in air, water, land, product and residue (g-TEQ/year)</p>	<p>✓ Reported data obtained using uPOPs Toolkit for various industries. Extend Toolkit applications to other industries as listed in the spreadsheet. Utilize shared data from related waste management projects such as JPRISM II.</p>

	Source inventories and release estimates of PCBs	✓ Source inventories and release estimates of PCBs in air, water, land, product and residue (g-TEQ/year)	⊗ New assessment requirement
	Source inventories and release estimates of PeCB	✓ Source inventories and release estimates of PeCB in air, water, land, product and residue (g-TEQ/year)	⊗ New assessment requirement
	Source inventories and release estimates of HCB	✓ Source inventories and release estimates of HCB in air, water, land, product and residue (g-TEQ/year)	⊗ New assessment requirement
	Source inventories and release estimates of PCN	✓ Source inventories and release estimates of PCN in air, water, land, product and residue (g-TEQ/year)	⊗ New assessment requirement
PCBs	Identification of articles and materials containing more than 0.005% (50 ppm) PCB contaminated through open applications of PCB (data on type of article and year/period)	Number of equipment in service/ out of service; Total mass of equipment in service/out of service [Kg]; Mass of liquids (oil) of equipment in service/out of service [Kg]; PCB content in oil of equipment in service/out of service (%)	⊗ No. Requires audit and inspection for quantification. Regular HSE audit reports may contain historical information. Data collection to Tier II and III level may suffice all the data required. Extend studies to independent Power generation entities within the country
	Proportion of waste containing greater than 0.005% (50 ppm) PCB identified in your country is managed in an environmentally sound manner (data on proportion of articles identified, year in which the environmentally sound management was completed and proportion of waste environmentally sound managed)	Source data from in-house environmental audits and reports. Embed this reporting requirement in existing SOPs.	⊗ No data reported. Assess internal environmental audits for power generation and distribution entities.
	Equipment containing greater than 10% (100,000 ppm) PCB and volumes greater than 5 Liters ( Status of equipment, year of inventory, number of equipment, total mass of equipment (Kg), mass of solid parts of equipment ( equipment without oil) (Kg), mass of liquid (oil) (kg), PCB content in Oil (%) and total mass (Kg))	Source data from in-house environmental audits and reports. Embed reporting requirement in existing SOPs. Data may be sourced from commissioning and maintenances of equipment (Preventative Maintenance Reports).	⊗ No data reported. Assess internal environmental audits for power generation and distribution entities.
	Equipment containing greater than 0.05% ( 500 ppm) PCB and volumes greater than 5 Liters ( Status of equipment, year of inventory, number of equipment, total mass of equipment (Kg), mass of solid parts of equipment ( equipment without oil) (Kg), mass of liquids (oil) (Kg), PCB content in oil (%) and total mass (Kg))	Source data from in-house environmental audits and reports. Embed reporting requirement in existing SOPs. Data may be sourced from commissioning and maintenances of equipment (Preventative Maintenance Reports).	⊗ No data reported. Assess internal environmental audits for power generation and distribution entities.

	Equipment containing greater than 0.005% ( 50 ppm) PCB and volumes greater than 0.05 liters ( Status, of equipment, year of inventory, number of equipment, total mass of equipment (Kg), mass of solid parts of equipment ( Equipment without oil) (Kg), mass of liquids (oil) (Kg), PCB content in oil (%) and total mass (Kg))	Source data from in-house environmental audits and reports. Embed reporting requirement in existing SOPs. Data may be sourced from commissioning and maintenances of equipment (Preventative Maintenance Reports).	⊗ No data reported. Assess internal environmental audits for power generation and distribution entities.
	Stored liquids (oil) containing PCB ( Status of equipment, year of inventory, number of equipment, total mass of equipment (kg), mass of solid parts of equipment ( equipment without oil) (Kg), mass of liquids (oil) (Kg), PCB content in oil(%) and total mass (Kg)	Source data from in-house environmental audits and reports. Embed reporting requirement in existing SOPs. Data may be sourced from commissioning and maintenances of equipment (Preventative Maintenance Reports).	⊗ No data reported. Assess internal environmental audits for power generation and distribution entities.
	Other wastes containing PCB (status of equipment, year of inventory, number of equipment, total mass of equipment [kg], mass of solid parts of equipment (equipment without oil) [kg], mass of liquids (oil) [kg], PCB content in oil (%) and total mass (kg))	Source data from in-house environmental audits and reports. Embed reporting requirement in existing SOPs. Data may be sourced from commissioning and maintenances of equipment (Preventative Maintenance Reports).	⊗ No data reported
	Statistical data of locally destroyed, in an environmentally sound manner, of equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB (e.g. transformers, capacitors or other receptacles containing liquid stocks) (type of PCB, year and quantity (Metric Tons))	Quantity of PCBs locally destroyed (tons)	⊗ No data reported. No records of PCBs disposed in the country.
	Statistical data of imported equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB for environmentally sound destruction (type of PCB, year and quantity (Metric Tons))	✓ Quantity of PCBs locally destroyed (tons)	⊗ No data reported. SOP's on disposal of waste PCB shall be derived as ESM measures if destructed here.
	Statistical data of exported equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB (e.g. transformers, capacitors or other receptacles containing liquid stocks) for environmentally sound destruction (type of PCB, year and quantity (Metric Tons))	✓ Quantity of PCBs locally destroyed (tons)	⊗ No data reported
PBDEs	Quantity of bromine contained in articles in use that contain or may contain brominated diphenyl ethers	Quantity of POP-PBDE to manufacture article/products (historical, tons); Quantity of POP-PBDEs in article/products in use (especially EEE and vehicles) (tons);	✓ Reported PBDE data as Imports of EEE, Land transport sector. Extended calculation requirement required to determine the bromine quantity in articles.

		Quantity of in polymeric fraction containing POP-PBDEs (tons) Quantity of POP-PBDE to manufacture article/products (historical, tons); Quantity of POP-PBDEs in article/products in use (especially EEE and vehicles) (tons); Quantity of in polymeric fraction containing POP-PBDEs (tons) Inventory on articles in stocks, usages and disposed	
	Quantity of bromine contained in articles disposed of	Quantity of POP-PBDE to manufacture article/products (historical, tons); Quantity of POP-PBDEs in article/products in use (especially EEE and vehicles) (tons); Quantity of in polymeric fraction containing POP-PBDEs (tons) Quantity of POP-PBDE to manufacture article/products (historical, tons); Quantity of POP-PBDEs in article/products in use (especially EEE and vehicles) (tons); Quantity of in polymeric fraction containing POP-PBDEs (tons) Inventory on articles in stocks, usages and disposed	✓ Reported PBDE data as Imports of EEE and vehicles. No specific data on bromine was reported. Calculated values for c-decaBDE, c-octaBDE and c-pentaBDE can be reported as per specific POPs.
DDT	Total production capacity (kg)	✓ Quantity of POPs pesticides produced ( tons)	N/A
	Net output per year (kg)	N/A	N/A
	Formulation (type & % active ingredient (a.i.))	N/A	⊗ Not reported,
	% for in-country use	✓ Quantity of POPs pesticides used ( tons)	⊗ Not reported. Need to quantify stockpile levels
	DDT repackaged/ reformulated in the country (data on formulation type, % of active ingredient and quantity per year (kg))		⊗ Not reported. Repackaging and reformulations activity on pesticides may happen in the country.
	DDT exported (data on quantity per year (kg), formulation type and % of active ingredient)	✓ Quantity of POPs pesticides exported (tons)	⊗ Not reported.
	DDT imported (data on total quantity imported per year (kg), formulation type and % of active ingredient)	✓ Quantity of POPs pesticides imported/exported (tons)	Reported import data ascertained from PNG Customs trade data for periods 2006-2016 as Pesticides total due to HS code clustering. Improve data collation process by using a correctly assigned HS code for DDT alone.
	<ul style="list-style-type: none"> <li>Usable stocks of DDT (data on total amount in storage (kg), formulation type and % of active ingredient)</li> <li>Total amount (kg of DDT used annually for disease vector control, including formulation type and % of active ingredient)</li> </ul>	✓ Quantity of POPs pesticides used (tons)	⊗ Not reported. Failed to yield stock values from inventory survey.

	<ul style="list-style-type: none"> <li>• % total national population at risk that is covered by DDT use</li> </ul>		
	<ul style="list-style-type: none"> <li>• DDT alternatives used (data on product, formulation, % of active ingredient and quantity per year (kg))</li> <li>• DDT alternatives that have been used but are no longer in use (data on quantity (kg))</li> </ul>		<ul style="list-style-type: none"> <li>✓ DDT assessment covered in NIP update highlighted in use of Long lasting insecticidal nets as alternative to DDT. Quantify Dicofol as it derived from DDT. Need to determine formulation mechanism.</li> </ul>
PFOS	Quantities of PFOS, its salts and PFOSF produced per year (kg)	<ul style="list-style-type: none"> <li>✓ Quantity of PFOS, its salts and PFOS-F produced as allowed by the specific exemptions/acceptable purposes (tons)</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported as not data was ascertained during inventory survey. PNG Fire Services indicated not using AFFF type foams during fire.</li> </ul>
	Quantities of PFOS, its salts and PFOSF imported per year (kg)	<ul style="list-style-type: none"> <li>✓ Quantity of PFOS, its salts and PFOS-F imported (tons)</li> <li>✓ Quantity of PFOS, its salts and PFOS-F in articles/products imported (especially firefighting foams and hydraulic fluids) (tons)</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported. HS codes ascertained to determine imported quantities.</li> </ul>
	Quantities of PFOS, its salts and PFOSF exported per year (kg)	<ul style="list-style-type: none"> <li>✓ Quantity of PFOS, its salts and PFOS-F used to manufacture article/products (tons) as allowed by the specific exemptions/acceptable purposes</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No export data reported. Obtained new and historical data from Customs trade data using HS codes.</li> </ul>
	Quantities of PFOS, its salts and PFOSF used per year (kg)	<ul style="list-style-type: none"> <li>✓ Quantity of PFOS, its salts and PFOS-F used to manufacture article/products (tons) as allowed by the specific exemptions/acceptable purposes</li> </ul>	<ul style="list-style-type: none"> <li>⊗ No usage of PFOS reported.</li> </ul>
	Quantities of sulfluramid produced per year (Kg)	<ul style="list-style-type: none"> <li>✓ Quantity of POPs pesticides produced (tons)</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported as this is not produced in the country. Sulfluramid is a new inclusion to be assessed.</li> </ul>
	Quantity of sulfluramid imported per year (Kg)	<ul style="list-style-type: none"> <li>✓ Quantity of POPs pesticides imported (tons)</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported as this is a new requirement.</li> </ul>
	Quantity of sulfluramid exported per year (Kg)	<ul style="list-style-type: none"> <li>✓ Quantity of POPs pesticides exported (tons)</li> </ul>	<ul style="list-style-type: none"> <li>⊗ Not reported. Review customs data and request.</li> </ul>
	Quantity of sulfluramid used per year (Kg)		
	Quantities of production and use of the alternatives to PFOS, its salts, PFOSF and their related chemicals per year (Kg)		<ul style="list-style-type: none"> <li>⊗ Not produced in the country.</li> </ul>
	General price of the alternative (e.g. USD/kg)		N/A
Data used for assessing POPs characteristics (persistence, bioaccumulation, and potential for long-range environmental transport, adverse effects or other hazards).		Requires Tier III research study mainly derived from the inventory data and information which may highlight areas of contamination	

## 8 Conclusions and Recommendations/Action Plan

### 8.1 Conclusion

Conclusions drawn from the gap analysis were categorized into two main areas; General POPs information and data and Specific POPs information and data

#### 8.1.1 General POPs Information and Data

It was concluded from this assessment that;

- PNG was not able to submit National Reports to the SC Secretariat during the reporting cycles 1- 4 pursuant to Article 15.
- The initial PNG NIP developed in 2006 and submitted to SC Secretariat in 2013 only covered the initial 12 POPs chemicals ('Dirty Dozen).
- The NIP Update 2019 is currently being compiled and addresses POPs chemicals up to the 7<sup>th</sup> COP of the SC (26 POPs chemicals).
- There has been very little work done in terms of implementation of the Action Plans under the NIP as well as other SC obligations and therefore limited country specific information and data on POPs is available in PNG.
- Under the Three Tiered Approach for POPs data collection, the current information and data generated during the NIP development/update process indicates that assessments have been conducted involving a Tier I approach where general information on POPs issues and areas requiring further assessment have been highlighted as well as a Tier II approach where preliminary inventories of specific sectors considered relevant in the country have been developed and were assessed in detail. The country has not undertaken a Tier III approach where in-depth inventories are to be conducted including more analytical measurements to gather specific data and information in the different sectors generating POPs in the country.

#### 8.1.2 Specific POPs Information and Data

It was identified in this assessment that the level of POPs information and data in the country is very limited and needs to be further analysed. Current situation with regards to POPs information and data is summarized in Table 15. Further indicative assessment shows 50% of data required under Article 15 predominantly due to absence of production of POPs chemicals as commodities. About 40% of the data may exist but was not ascertained during the NIP review and update. Furthermore, a mere 10% of quantitative data was obtained mainly from previous work on uPOPs and the inventory assessment of new POPs covering POP-PBDE's, HBCD and Pesticides. Therefore, a total of 50% of the quantitative data is required to comply with the Article 15 reporting sourced mainly from imports, exports, usage and waste stockpile sources for the country.

Table 15 Summary of key areas of POPs quantitative data that are available and need to be generated in PNG

POPs	Production	Import	Export	Quantity Used	Stockpiles	Waste Stockpiles	Contaminated sites	Remarks
Aldrin	✗	✓	!	✗	✗	✗	✗	Previously reported quantified as mixture
Chlordane	✗	✓	✓	✗	✗	✗	✗	Quantified as mixture
Chlordecone	✗	✓	✓	✗	✗	✗	✗	New assessment with HS codes
c-decaBDE	✗	✓	✓	!	✓	!	!	New assessment likely reduction c-octaBDE
DDT	✗	✓	✓	!	✓	✓	✓	Reassess legacy stockpiles
Dieldrin	✗	!	!	✗	✗	✗	✗	Indicative presence, need to quantify
Endrin	✗	✗	✗	✗	✗	✗	✗	Clustered import data, quantify with correct HS codes
Heptachlor	✗	✗	✗	✗	✗	✗	✗	Legacy indicative presence - obsolete insecticide
HBB	✗	✗	✗	✗	✗	✗	✗	Reduced due to no production, not quantified
HBCD	✗	✓	✓	!	!	✓	✗	Import articles to be reviewed.
c-octaBDE	✗	✓	✓	!	!	!	✗	Imports upto 2016 - reduced production
HCBz	✗	✗	✗	✗	✗	!	✗	Low import values
HCBd	✗	!	!	!	!	!	✗	Low import values
a-HCH	✗	!	!	!	✗	✗	✗	HS codes pending, assess for import/export
b-HCH	✗	!	!	!	✗	✗	✗	HS codes pending, assess for import/export
Lindane	✗	✓	✓	✓	✗	✗	✗	Assess for imports/exports using correct HS codes
Mirex	✗	✓	✓	✓	✗	✗	✗	Low import values, reassess quantity and usage
PCBz	✗	✗	✗	✗	✗	✗	✗	Low import values, reassess quantity and usage
PCP	✗	✓	✓	!	!	!	✗	Low import values, reassess quantity and usage
PFOS	✗	✓	✓	✓	✓	!	!	Reassess import quantity with correct HS codes
PCB	✗	✓	✓	✓	✓	✓	✓	Legacy PCB to assess, quantify using HS codes
PCDD	✓	✗	✗	✗	!	✓	✓	Toolkit applications on waste stockpiles
PCDF	✓	✗	✗	✗	!	✓	✓	Toolkit applications on waste stockpiles
PCN	✗	✗	✗	✗	!	✓	✓	Toolkit applications on waste stockpiles
SCCP	✗	✓	!	!	!	✗	✗	New assessment
Endosulfan	✗	✓	✓	!	!	!	✗	Commonly used need full assessment
c-pentaBDE	✗	✓	✓	!	✓	!	!	Assess usage/WEEE in waste sites
Toxaphene	✗	!	!	!	✗	✗	✗	Low usage
Dicofol	✗	!	!	!	✗	✗	✗	New assessment and relates to DDT

Unlikely data ✗  
 Likely data !  
 Most likely data ✓

## 8.2 Recommendations and Action Plan

### 8.2.1 Recommendations

In line with the development of this Gap Analysis Report, the following is recommended to address the information and data gaps for POPs in the country:

- CEPA as lead agency will set up a multi-stakeholder national inventory team to conduct inventory including identifying relevant stakeholders and data collection methods. The likely team structure of the inventory project coordination unit (PCU) is as shown Figure 3 in Appendix A.
- Key stakeholders for the National Coordinating Committee (NCC) are CEPA, PNG Customs Services, Department of Agriculture and Livestock (DAL)<sup>4</sup>, National Forest Authority(NFA)<sup>5</sup>, PNG Power Limited, UPNG, UNITECH, NCDC, and ULLG and Provincial Governments to be included in the POPs data collection process. Industry sector is part of the Thematic Task team as shown in Figure 3 can liaise in partnership with both Chambers of Commerce and Industry and the Mines and Petroleum. In addition, the commentary feedback (Trawen, 2020) from the Gaps Analysis-SC Toolkit consultation meeting (30 June, 2020) suggested to extend the stakeholder team to NFA, MRA, PNG DataCo Ltd, NICTA, Department of Mineral Policy and Geohazards (DMPG), Department of Commerce and Industry (DCI). In regards to assessing PBDE's in transport sector, it is suggested both MVIL and DoT (Department of Transport) may be included.
- Data and information sharing is significant to fill the gaps required by Article 15. PNG Customs Services only provides raw data on import and export. However, Article 15 requires additional trade information on source suppliers, users and country of origin of POPs chemicals. Due to confidentiality requirements (Kenny, 2020) a legal review on sanctioning an information sharing agreement (MOU) is currently pursued. Furthermore, an additional MOU's with other stakeholder partners will pursued with DAL, NSO, NDoH, etc in due course.
- Upcoming collaborative studies by NARI/FAO partnership on Pesticides residues (Konia, 2020) in food are some of the important data required for planning the Tier III activity. This vital information is required for reporting as discussed in Table 5.

An immediate specific activity that emanated from these discussions where:

- Review and scrutiny of POPs- Pesticide chemicals to distinguish imports of chemical substances and mixtures based on HS code groups 29 and 38. This should resolve the issues of data clusters for POPs – Pesticides quantities previously reported as clustered POPs. Historical data and information from periods 2006-2019 will be requested to ensure previous reportable data are assessed for reporting under the new SC Toolkit development process. Inclusion of **sulfluramid**<sup>6</sup> under quantification of PFOS in Table 14 is new required assessment. This is because PFOS is incorporated into polymers or other substances such as sulfluramid (UNEP, 2017, p. 14).
- Inclusion of missing import and export data for the POP-Pesticides previously negated due to absence of HS code will be reviewed to fill the data gaps. Progress work on ascertaining correct HS codes has begun and current updated codes are provided in Appendix B.
- Develop a raw data collection system to capture the requirements of Article 15 reporting protocol. A reporting matrices will be developed to form the basis of SC Toolkit development.
- Review all the questionnaires according to specific POPs guidelines. Identify the gaps and include provisions to capture the data in the questionnaire forms.
- Review existing historical data for accuracy and completeness to meet Article 15 reporting requirements. Determination of **bromine** content in brominated flame retardants (BFR) listed articles is now required for reporting.
- Embed specific and detail PCB concentrations accorded for quantification as discussed in Table 14 as part of the questionnaire survey.

<sup>4</sup> Coordinate use of Pesticides in major agricultural commodities such as coffee (CRI), cocoa (CIB), oil palm (OPRA), sugar, coconut (KIK).

<sup>5</sup> Coordinate work of Forest Research Institute (FRI), especially studies in impacts of invasive species against the native species.

<sup>6</sup> Another name as EtFOSA CAS# (4151-50-2)



- Develop ESM for all the POPs based on information gathered from the survey and capture them as current BAP/BET system for the country. Associated objectives and activities to improve the systems will be required to ensure these systems are documented as implemented by the users. Initial review of annual environmental reports submitted under as permit (EP) obligations should provide details of in-house ESM measures.

## 8.2.2 Action Plans

In order to progress work on implementation process, the action plans of key recommendations from the NIP update will be pursued as per strategies outlined in 2019 NIP update report. The regulatory and institutional framework for the management of POPs chemicals and hazardous substances include:

- Establish a Chemical and Hazardous Substances Management Unit within CEPA. An overwhelming sentiments to support for the unit requires recognition from the management to ease workload on current staff structure of the organization. As highlighted in the current NIP update showed the magnitude of the work required to accomplish the objectives of the Strategies and the Action Plans as outlined in section 4 (CEPA, 2018, pp. 39-50). The establishment of the National Waste Management Policy (Sam, 2019); is the way forward to address emerging pollutants such as POPs in the country.
- Develop a database on chemicals and hazardous substances in PNG. The gaps arose from addressing the Article 15 requirements requires a need for the database to be set up in order to consistently meet the obligations. It also supports and provide overall information for other MEA data and information requirements. The comprehensive work on data collection systems elevates the SC to an operationalize status as discussed (Griffin, 2020). The data generated from the waste stockpile and the contaminated sites supports the Basel Convention requirements in correct classification of waste characteristics.
- Develop an interim management procedure on Management of Chemicals and Hazardous Substances pursuant to EA 2000 and consistent with other relevant national legislation and international conventions. The procedure shall fill the data and information gaps requirements mostly experienced during implementations of all the various Convention and most importantly scrutinize imports of new chemicals as a significant management control to eliminate and reduce levels of contaminants into the country.
- Design and carry out an awareness and education programme on procurement, storage as well as handling of chemicals and hazardous substances. This action plan is equally significant to ensure correct applications of BAT/BEP practices is maintained to minimize risk levels posed by POPs into the environment.
- Develop and implement a management plan in partnership with NDoH on the disposal of obsolete DDT. A high level of scrutiny is required to ensure an alternative of DDT is put in place in a timely manner to minimize incidences of vector borne diseases.
- Design and carry out a management plan in collaboration with PPL on the disposal of PCB contaminated fluids and PCB containing equipment. A detail and full assessment of the PCB situation with PPL operations should require a thorough case study of implementing the SC in full. Lessons learned are significant as the issues related to increasing stockpiles and identification of contaminated sites is an elevated environmental concern.
- Investigate options for the development of laboratory analysis capability for residual POPs chemicals and hazardous substances. The in country status on laboratory infrastructure and testing services are sufficient to meet the demands for Tier II and Tier III quantitative assessments of POPs.
- Identify training needs in relation to the management of chemicals as well as hazardous substances and determine appropriate training arrangements. Currently, the focus is to ensure the data collections systems are addressed appropriately to ensure quality of the data ascertained is statistically acceptable for reporting.

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## 10 Appendices

Appendix A - NIP review framework cycle and Project Coordination Unit team structure.

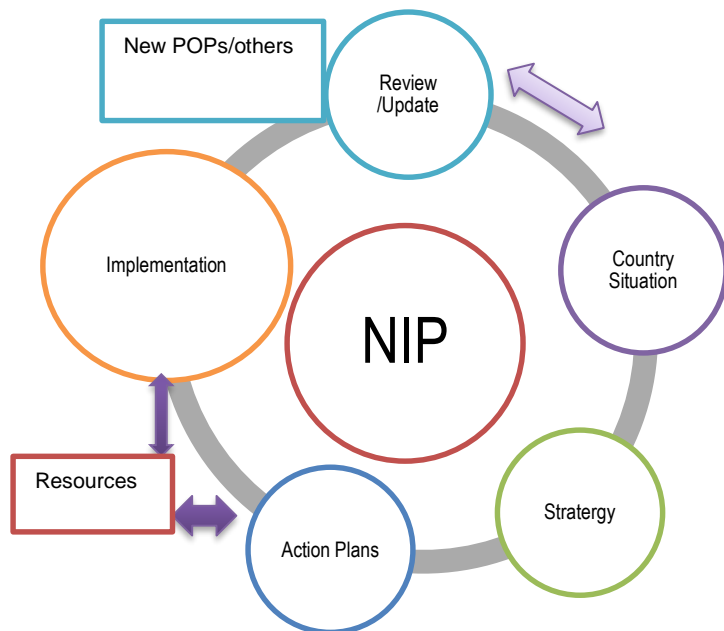


Figure 2 NIP review/update framework cycle

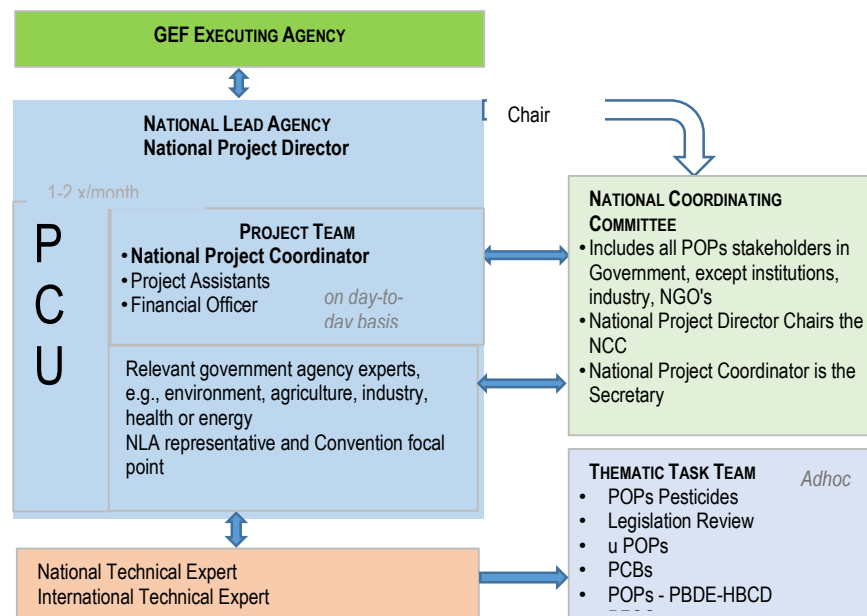


Figure 2 Likely framework of PCU structure for the National Coordinating Committee on POPs

## Appendix B - A summary count on GHS Codes collated to improve Import and Export data collection

POPs Category	Specific POPs values to be attained	No of HS codes
DecaBDE	c-decaBDE	35
	c-octaBDE	
	c-pentaBDE	
HBCD	HBCD	12
POP-PBDEs	c-decaBDE	71
	c-octaBDE	
	c-pentaBDE	
POP-Pesticides	aldrin, chlordane, heptachlor	1
	alpha-HCH, beta-HCH	1
	chlordane	1
	chlordecone	2
	DDT	1
	endosulfan	1
	HCB	2
	Lindane	1
	Mirex	1
	PeCBz	2
	PCP	1
POP-PFOS/PFOSF	PFOS +salts & PFOSF	7
SCCPs	SCCP	4
<b>Total</b>		<b>143</b>

## Appendix C - Listed POPs for Special Exemption and Acceptable Purpose

POP listed	Annex	Date of listing	Date of entering into force	Expiration date of specific exemption
DDT	B	May-04	May-04	
c-decaBDE	A	May-17	Dec-18	Dec-23
HBCD	A	May-13	Nov-14	Nov-19
c-octaBDE	A	May-09	Aug-10	
Lindane	A	May-09	Aug-10	Aug-15
PCP salts+esters	A	May-15	Dec-16	Dec-21
PFOS+salts/PFOSF	A	May-09	Aug-10	
PFOA+salts+related	B	May-19	Dec-20	Dec-25
PCN	A and C	May-15	Dec-16	Dec-21
SCCP	A	May-17	Dec-18	Dec-23
Endosulfan +isomers	A	Apr-11	Oct-12	Oct-17
c-pentaBDE	A	May-09	Aug-10	