



Conservation and Environment Protection Authority

REPORT ON THE POTENTIAL LINKS OF THE INTEGRATED ELECTRONIC TOOLKIT WITH THE DATA MANAGEMENT SYSTEMS AT THE NATIONAL LEVEL



April 2024

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1.INTRODUCTION

This report is prepared within the framework of the UNEP/GEF project entitled "Stockholm Convention's Integrated Toolkit to improve reporting under Articles 07 and 15", with the aim of verifying the extent to which extend the existing information systems on chemical and waste data reporting in Papua New Guinea, which can be linked to the integrated electronic toolbox modules, developed within the framework of the project.

This online toolkit should provide Parties with the means to submit NIP and their updates, by integrating 4 modules: a NIP submission module, a guidance module to provide guidance documentation, a POPs inventory to support the collection of data on POPs inventories and a query module to allow querying the database behind the integrated electronic toolkit. These modules will bring benefits to the NIP update process and to Article 15 reporting. The NIP submission module will be automatically connected to the electronic reporting system of the Stockholm Convention. This connection will allow the Parties, at the time of notification, to use the data previously collected from the inventories in updates to their NIP.

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The report provides a general overview of existing reporting systems in Papua New Guinea and potential links that can be used to provide reporting under the Stockholm Convention on POPs and populate data under the update. of the NIP.

2. NATIONALLY AVAILABLE DATA ON CHEMICALS AND WASTE MANAGEMENT SYSTEMS WITH POTENTIAL LINKS TO THE INTERGRATED ELECTRONIC TOOLKIT.

2.1. Information system of the Conservation and Environment Protection Authority

Conservation Environment Protection Authority (CEPA) is a key PNG national statutory authority responsible for regulatory, monitoring, enforcement, planning, implementation and management of biodiversity conservation and environmental protection in Papua New Guinea. The CEPA is responsible for work at provincial and sub-provincial level government including being a signatory to regional and international treaties (e.g. Stockholm convention) and agreements on biodiversity conservation and environmental protection. Thus, CEPA is entrusted with the responsibility of establishing and managing the information system outlined in this document. This includes design, implementation coordination, and ongoing development of the system(s).

CEPA implements Environmental law and its regulations (Environment Act 2000 (amended 2015) including review of information contained in annual Environment Performance Reports (EPRs) and Environmental Management Plans (EMPs). The CEPA collaborates with relevant sectoral government agencies and private sector entities to propose environmental limit values and develop standards and guidelines.

As required by the governing law and regulations to promote environmental risk prevention, CEPA coordinates the compliance monitoring of EMPs and recommends appropriate punitive measures when necessary. Additionally, CEPA champions the implementation of Environmental Impact Assessments (EIAs) by providing expert guidance and support to environmental permit (license) holders and applicants. Finally, CEPA manages the Integrated Environmental Information System (IEMIS), fostering environmental monitoring and evaluation to inform environmental and biodiversity assessments and support well-informed planning and decision-making at all levels.

Description of the Integrated Environmental Information System

To effectively support the implementation of the two core businesses of CEPA, the organization continues to invest in the development and use of the IEMIS. The aim of the IEMIS is to streamline data management efforts within the organization and therefore centralize business data. This is accomplished through the development of relevant functional databases, toolkits, usage of drone technology, remote sensing, GIS and establishing legal mechanisms with key state agencies to share data. In addition, relevant indicators were introduced for respective reporting obligations including that of Stockholm conventions. An Indicator Reporting Tool was developed and commissioned. Illustrated below in Figure 1 is CEPA's idle Enterprise Systems Architecture where Stockholm Toolkit will fit into.

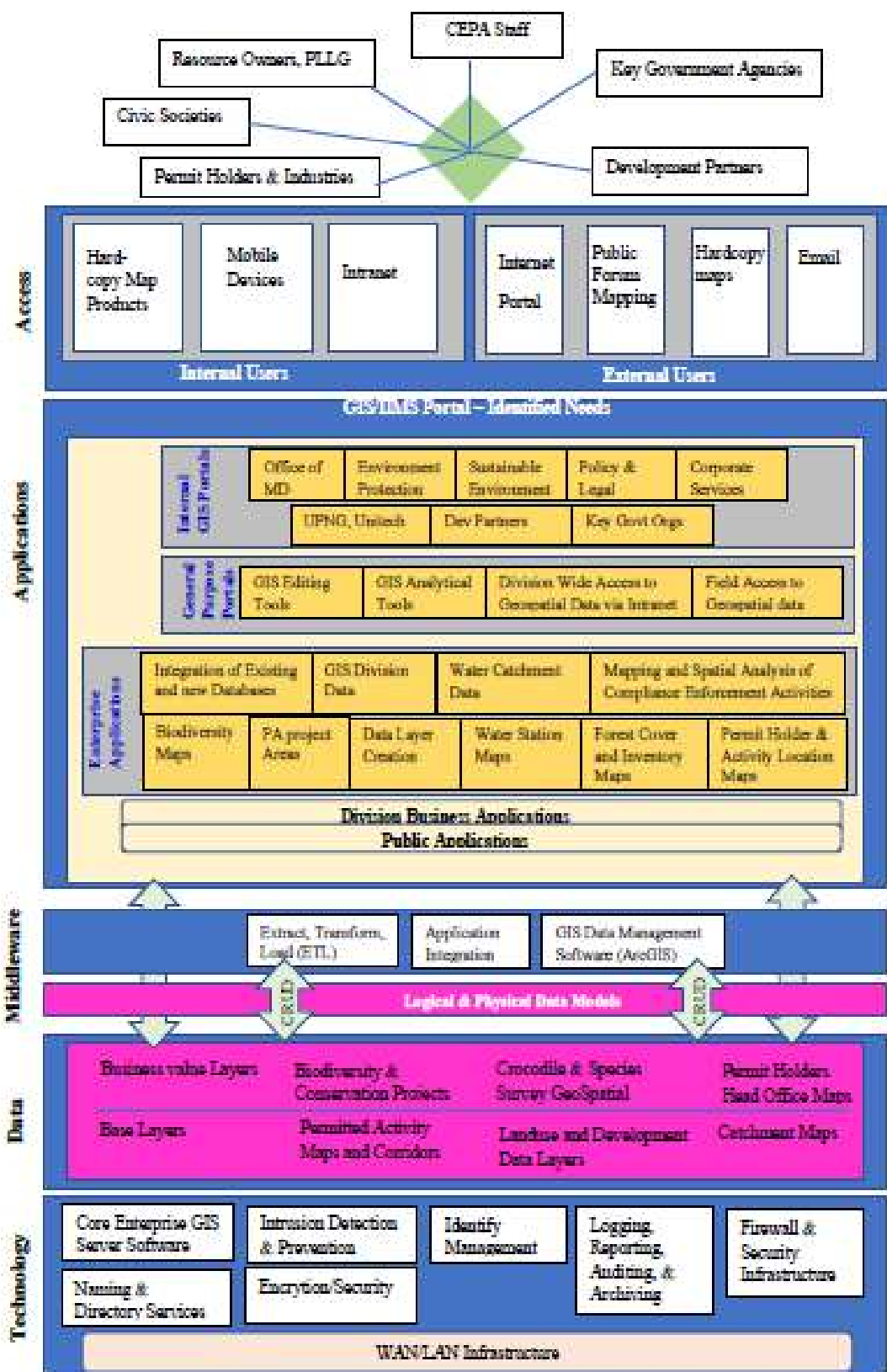


Figure 1: Existing CEPA Enterprise Architecture

2.1.1 Purpose of the Information System

CEPA's IEMIS is designed as a comprehensive business management and decision support tool in executing the two core business obligations – Environment Protection and Biodiversity Conservation. The system aims to improve efficiency and productivity by automating tasks, centralizing data, and providing better access to information. It helps CEPA employees and stakeholders to comply with environmental regulations by providing them with a centralized system for tracking and managing compliance data. This system tracks the state of the environment as well as its temporal changes. By leveraging this information, investors and other value chain participants can gain a deeper understanding of environmental challenges and opportunities. Additionally, the system facilitates the assessment of environmental impacts and biodiversity monitoring associated with various laws and economic activities. Ultimately, the information serves to guide policymakers in their strategic planning and decision-making processes and inform the actions of diverse stakeholders across all sectors. The system comprises of:

- Gathering information on the environment through EMP, compliance monitoring, biodiversity monitoring, thematic and interagency network formed with the key government organizations and institutions working in the field of the environment and other related fields. Permit holders, NGOs and other businesses are also key partners in data.
- Develop or improve indicators using the Indicator Reporting Tool allowing better monitoring of the environment according to the Environmental Assessment and Reporting frameworks.
- Disseminate information to public, decision-makers, permit holders, business houses and the public by publishing, among other things, periodic reports on the state of the environment as well as other publications presented in different forms (newsletters, educational sheets, posters, etc.).
- Produce geospatial information concerning the state of natural ecosystems from the use of satellite images, remote sensing, physical site visits, GPS, and survey tools like Lukim Gather.
- Developing a statistical system leading to environmental accounting that can eventually be integrated into national statistics to measure the short term and long-term national development goals (*Protected Area Act 2024, MTDP IV, Vision 2050*).

2.1.2 The “design” of the Information System

The IEMIS is made up of two main components:

1) Business Information Management Systems

- Papua New Guinea Resource Information System (PNGRIS)
- Environment Permit Registry
- Hydrological Management System
- GIS
- Forest Information Mapping System (Forestry Owns)
- PNG tenement System (PNG MRA owns)

2) Decision Support System

- Indicator Reporting Tool
- POPs & uPOPs Registry
- Accounting ERP
- Hydrological Management System
- GIS - ArcGIS Enterprise
- Asycuda (PNG Customs owns)
- Protected Area Management System

The above-listed databases are the main functional information systems. Other tools for communication and publications are also used, email services, environmental data portal, educational brochures, publications, project reports and State of the Environment Reports.

A dedicated reporting system bridges the divide between the two components. This system facilitates the transformation of descriptive indicator records into concrete outputs specifically designed to enhance planning and decision-making. However, it is essential to acknowledge that an integrated environmental information system extends beyond the mere provision and accessibility of indicators. In its entirety, the system represents a holistic framework encompassing essential tools, relevant actors, and well-defined business processes that are closely linked to policy frameworks and legislations.

For stakeholders and other interested parties seeking access to specific data categories or datasets beyond those readily available on the PNG Environmental Data Portal, a formal request process is established. The CEPA Data Sharing Policy outlines a systematic approach to governing the dissemination of these datasets.

2.1.3 Indicators

The development of environmental indicators considered a collaborative process that carefully examined the country's specific environmental context. This context included the nation's most pressing environmental challenges, its existing environmental policies, and its commitments under relevant international agreements. The seven key thematic areas: Atmosphere and Climate, Inland Waters, Land, Marine, Biodiversity, Culture and Heritage, and Built Environment.

These thematic areas have sub-category themes to capture such specific areas like pollution and management of chemicals. These capture the social, economic and environmental impacts that result from changes in the state of the environment.

We use the Drivers, Pressures, State, Impact and Response (DPSIR) model (*refer to Figure 2 below*) to define and capture other indicators like socio-economic factors. Environmental indicators and program indicators combined with other factors enable the CEPA to have cordial interactions with the communities at large.

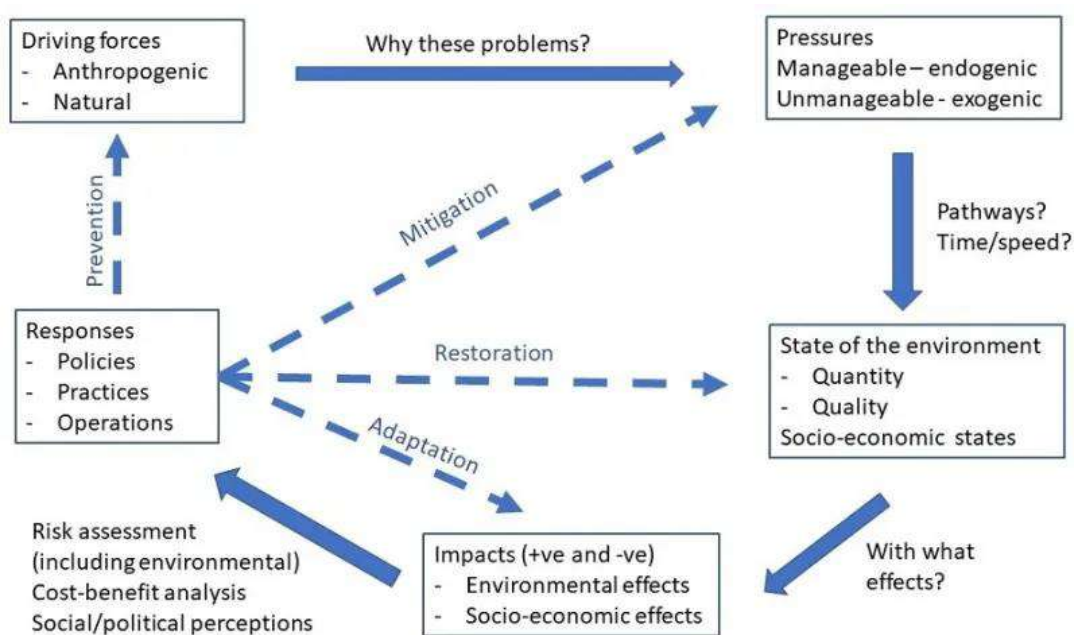


Figure 2: CEPA's adopted DPSIR Model

2.1.4 The Environmental Portal

The Environmental Portal serves as a platform for the storage, generation, and dissemination of published data; synthetic, reliable, and readily accessible environmental information. The portal is interlinked at backend (API) with other regional data portals like fisheries and marine (SPC). It is also intended as a communication platform for key stakeholder collaborations; for instance, sharing working documents under POPs on the portal which is only accessed by the allowed users. This information is intended to empower decision-making processes across various political, economic, and social actors at all national levels. It is also intended for the wider stakeholders for research, education, and forth.

The Portal represents a specific modality for the presentation of environmental indicators. These user groups require information that is concise, clear, and readily interpretable. By providing synthesized data on the state of the environment, the Portal facilitates the integration of environmental considerations into national policies and strategies, as well as regional and sectoral development plans.

The user interface is designed to facilitate rapid comprehension of the environmental situation, underlying causes of identified problems, and ongoing mitigation efforts. The Portal utilizes a summarized table structure, organized thematically. Indicators are presented through numerical descriptors accompanied by clearly defined measurement units. Benchmarking is

facilitated via comparisons with established national or international standards, relevant domain references, or objectives outlined within sectoral and territorial policies or programs. Figure 3 is a screenshot of the portal. Site link is <https://png-data.sprep.org>. Note that this is a working project and data is still being populated.

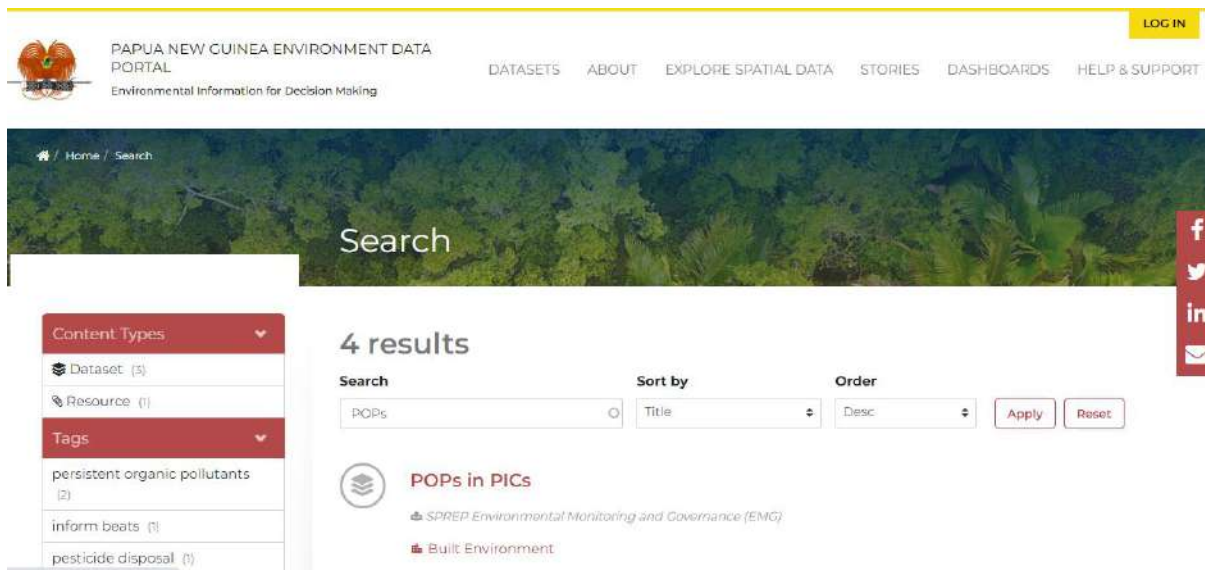


Figure 3: Dashboard of the portal showing results of a POPs search.

2.1.5 The Systems for Biodiversity Conservation Program (Monitoring the Protected Areas and Managed Conservation Areas)

This information system has three main databases to support the Biodiversity Conservation Function of the Conservation and Environment Protection Authority. A.) Papua New Guinea Resources Information Systems (PNGRIS), B.) Papua New Guinea National Biodiversity Information System (NBIS), C.) Protected Area Register.

A.) Papua New Guinea Resources Information Systems (PNGRIS)

The Papua New Guinea Resource Information System (PNGRIS) is a geographic information system containing an inventory of natural resource and physical data, land-use, and population parameters for Papua New Guinea. It is an inter-agency coordination and collaborative system that contains multifaceted data/information related to Environment, land-use, and socio-economic aspects.

Each resource mapping database contains a summarized list of landform types, physical data, land-use information, and population figures.

B.) Papua New Guinea National Biodiversity Information System (NBIS)

The Papua New Guinea National Biodiversity Information System (NBIS):

- Establishes a centralized and standardized platform to facilitate and coordinate a unified approach to biodiversity monitoring and reporting efforts.
- Caters to the diverse needs of stakeholders including national, provincial, and local government agencies, conservation organizations, researchers, and data providers.
- Provides comprehensive management of biodiversity data, empowering researchers, conservationists, policymakers, and decision-makers in achieving their objectives. Additionally, the platform aids planners in informed decision-making and facilitates CEPA's assessment of anthropogenic impacts on biodiversity, all presented in a user-friendly manner.
- Enables the direct publication of structured biodiversity data on the web via Application Programming Interfaces (APIs) or Linked Data protocols.
- Adheres to established CEPA policies and principles, ensuring alignment with its mission and facilitating data-driven decision-making.

The Database will be delivered as a standalone GIS package with spatial layers suitable for uploading to existing centralized spatial data Infrastructure in PNG ministries, specifically the National Biodiversity Information System (NBIS). Note that CEPA also has other tools like survey Mobile Apps for data collection.

C.) PROTECTED AREAS REGISTER

- The digital toolkit functions as a comprehensive software suite designed to empower communities and organizations engaged in establishing, managing, and conserving Protected Areas throughout Papua New Guinea.
- Facilitates informed decision-making processes for PNG policymakers, civil society organizations, and other relevant stakeholders regarding policy formulation, investment strategies, and livelihood initiatives.

- Acts as a data repository, ingesting and aggregating information from diverse sources. This comprehensive data resource empowers users with enhanced capabilities in project planning, reporting, and the evaluation of natural resource management processes.

2.1.6 Reports on the State of the Environment

The PNG State of Environment Reports adhere to international standards and practices. These reports analyze the current state and trends of the environment, natural resources, and environmentally linked human health. This analysis encompasses livelihood activities across economic, social, and cultural dimensions. The work is categorized into two programs:

A.) Report Development

- Subject matter experts and specialists collaborate in authoring the reports, ensuring in-depth analysis across covered thematic areas.
- The reports leverage environmental indicators from the Integrated Environmental Information System for data-driven insights.

B.) Prioritization and Collaboration

- Content prioritization aligns with specific environmental concerns or sectoral needs.
- National reports involve subject matter specialists who contribute information, analyses, and draft relevant sections.
- Inter-agency working committees, established at national and provincial levels, guarantee the technical and scientific quality of the State of Environment Reports.

2.1.7 The Key Stakeholders

At the national level, the Ministry of Environment, Conservation and Climate Change spearheads project management activities related to the implementation of environmental indicator initiatives and the development of environmental information portals. The ministry is responsible for overseeing the coordination of various environmental data systems.

National Interagency and provincial governments, along with various technical and steering committees established at the decentralized level, are considered key stakeholders and owners of the information products generated within their respective domains. For example, mining tenement data is owned by the Mineral Resource Authority, while PNG Forest Inventory and

Forest Cover data belongs to the PNG Forest Authority. Similarly, POPs data is centrally collected by PNG Customs, and fisheries and marine data is collected and partially owned by the PNG Fisheries Authority. The same organizations are potential information users including provincial and local level governments, provincial stakeholders and decision-makers, decentralized communities and services, regional executing agencies, and other development programs. These inter-agency institutions include technical services from various ministries (e.g., agriculture, fisheries and forests, rural development, energy, customs), NGOs, the private sector, universities, research centers, and other development programs/projects.

Steering Committees have been established to guide and monitor the implementation progress of the Information Management System. This committee comprises key stakeholders including national government agencies, provincial and local level governments, NGOs, and development partners. Working Committees and Special interest groups dedicated to environmental information systems, such as thematic groups and the national POPS Review Committee, CEPA Data Champion Club, play a critical role in fostering information exchange and dissemination. The effectiveness and accessibility of these networks are fundamental to the successful development and production of environmental indicators.

In essence, the key stakeholders who create data are also its potential users. Hence, the greater need for effective collaboration and resource corroborations in developing the IEMS, populating of the respective databases and environmental portals, and sustaining.

2.1.8 Acquisition of information

The acquisition of data for the measurement of indicators is done in two ways:

Direct Acquisition:

- Environment Act 2000 (s41, 45, 74, 77, 105, and 132) allows for permit applicants to provide required datasets in electronic formats with their EMPs.
- Research and exploitation of documentation (summary, statistical analysis, mapping).
- Data collection from onsite Compliance Monitoring, Biodiversity Studies and surveys, and research collaborations
- Access data on open platforms.

Indirect Acquisition:

- Processing of data generated by other government agencies such as mining tenement, forestry cover, soil profiling. For instance, POPs Data are periodically acquired through PNG Customs using established legal mechanisms (MOU).
- Environment Permit holders own impact studies - Carrying out of surveys, studies, biodiversity conservation initiatives or additional measures.
- Satellite image processing using geographic information system tools - both open source (QGIS) and Commercial (ArcGIS Enterprise).

CEPA prioritizes significant investment in the aforementioned three areas – data generation specifically. This focus aims to address information needs and consequently, guarantee enhanced data reliability.

It is important to note that additional commercially sourced data might necessitate acquisition from the respective data owners. However, the data transactions pertaining to CEPA's generated data are entirely free of charge, facilitating its unrestricted access.

2.1.9 Management of databases and indicators

The CEPA and relevant national government organizations establish and manage dedicated databases to store collected information. These databases facilitate the generation and input of environmental indicators and reports. The data is organized thematically, by reference site location, and adheres to the CEPA adopted Drivers, Pressures, State, Impact and Response (DPSIR) methodology.

Individual national government agencies are responsible for procuring (designing, developing), and managing their own databases and software applications. Examples include the POPs register, NBIS, and Environment Permit register, all developed by CEPA using tools like MS Excel and GIS software. Where applicable, respective agencies and organizations combine to develop and maintain the respective information management system like PNGRIS. These systems serve various purposes, such as:

- Consulting indicator descriptive sheets
- Storing indicator values

The Environmental Data Portal, developed using DKAN, focuses on publishing public environmental documents and data, along with managing existing metadata. Notably, this portal will also ensure interconnectivity between other government agency information systems and the overall Integrated Environmental Management System (IEMS).

2.1.10 Dissemination of information

The internal CEPA Data Sharing Policy provides the mechanism for data sharing within the organization as well as with external stakeholders. Information regarding planning and decision-making tools are disseminated through a multi-channel approach. This includes the publication of brochures, project reports, and printed documents. Additionally, interactive electronic versions of these documents are made available on external drives, and relevant information is also published on the internet (<https://png-data.sprep.org> , <https://pngbiodiversity.org>).

2.2 Interagency Coordination

Interagency working arrangements are established when there is a specific development need requiring specific information and collaboration from various key agencies and resource persons. The arrangements allow for both the private sector, government as well as NGOs to come together to share information and deliberate on environmental matters.

The agency requiring assistance to address a specific development agenda is normally the lead agency that facilitates the establishment of the interagency group and all activities to be carried out by the group to allow for data sharing to take place.

The working members are those participating as requested by the lead agency to provide information and guidance related to a specific development need. In this case the working members would be resource persons from various agencies responsible for the administration of legislation associated with chemicals/POPs in PNG.

In certain arrangements a contractual engagement may be arranged while in most cases it is done so on a voluntary basis or as directed by the government.

The PNG National Waste (and Chemical) Management Policy will seek to establish a National Steering Committee for National institutional, policy and regulatory framework.

2.2.1. Requirements for effective Inter Agency coordination.

Goals

- Facilitate and encourage the sharing and publication of reliable information and data concerning the environment.
- Contribute to a broader vision of addressing environmental issues through data sharing that facilitates informed decision making.
- Bring together organizations and resource persons producing, disposing, using or custodians of information relating to the environment required for specific decision making.
- Capacity Building for stakeholders involved chemical management including POPs
- Provide exposure to data that is available in the country, in the region and internationally as well as share information on how to access such data.

2.2.2 Engagement Activities

- Information and data sharing between agencies occurs through various types of engagement activities such as:
- Stakeholder consultation workshops/ Information Forums
- National Coordinating Committees, Technical Working Groups etc. are established for deliberation on specific programs/initiatives.
- Training is facilitated where required.
- Outcome Reports are drafted and disseminated to partner agencies.
- Conduct joint environmental impact assessments/investigations, consultations and awareness raising activities.
- Involvement of key agencies in Regional or International level meetings to drive sound national decision making.

2.2.3 Policy Requirements

- Development of Information Sharing Policy/ Legislation that will enable data sharing between agencies with considerations around data credibility, ownership, privacy and user protection etc.

- Establishment of Memorandums of Understanding with key agencies such as PNG Customs Services whose trade data is the main source of POPs quantitative data in PNG.

3. INFORMATION SYSTEMS AND POTENTIAL LINKAGES TO POPS

3.1 Existing databases, data dissemination tools and platforms

The access to information on databases relevant to POPs are to a certain extent sufficient, however, little information is made available leading to the inability of the services to produce statistics on a regular basis to periodically feed the sites present. In CEPA, there are existing databases relating to pesticides which are like databases kept by PNG Customs, but they are specifically for trade.

3.2 Websites and other digital platforms

Information or data on POPs is available with CEPA, PNG Customs and other relevant inter-agencies that generally have access to the internet, however, the quality and connectivity of the internet may pose challenges to access this information from time to time.

The websites of the key state agencies in the agricultural and food statistical system are:

- PNG Customs Services – www.customs.gov.pg
- National Agriculture Quarantine Authority – www.pngnaqia.com
- National Statistics Office – www.nso.gov.pg
- Department of Agriculture and Livestock – www.agriculture.gov.pg
- Department of Information and Communications Technology – www.ict.gov.pg
- National Information and Communication Technology Authority – www.nicta.gov.pg
- Department of Commerce and Industry – www.dci.gov.pg

The access information on corporate websites and data portals of relevant inter-agencies pose challenges as there is very little information made publicly available on these platforms leading to the inability to produce statistics on a regular basis.

3.3 National POPs Database

As mentioned previously there is no specific centralized database system to gather information on POPs in the country. However, there are various potential data sources that can be utilized to extract required data.

Individual agencies are responsible for acquiring and managing their own databases and software applications. Data types, the database system and how it is managed may differ from agency to agency depending on the core function and priorities. For example, some agencies may have a more centralized and robust data management system like PNG Customs, while others might have data scattered within respective branches and divisions on individual computers and files.

Major sources of data for POPs include.

- Trade data from PNG Customs Services
- CEPA Environment Permit Registry
- Statistical data presented from the National Statistics Office on imported trade goods.
- Statistical data presented as part of Environmental Performance reporting by Environmental.
- Permit Holders that relate to the various economic sectors that use/produce POPs.
- Other key agencies have internal information systems and databases related to their core function. For example, Motor Vehicle Insurance Ltd list of all vehicle registrations in PNG or National Department of Health data related to DDT and uPOPs (healthcare waste treatment activities) in PNG.
- Industry Reports including sustainability reports that address environmental management practices. These reports could offer insights into a particular industry's efforts to minimize emissions and potentially mention POPs if they have relevant control measures in place.
- Academic Research under academic journals or research papers focusing on POPs in the region or specific industries. Universities or independent research institutions might have conducted studies that shed light on the issue.

3.4 Requirement for POPs Information platform

Reporting in accordance with Article 15 of the Stockholm Convention on POPs requires national coordination and the collection of data from multiple stakeholders such as government agencies, private sector, NGOs, individuals, and research groups etc.

The establishment of a reliable POPs information platform will enable PNG to meet its obligations under Article 7 and Article 15 whilst also enabling decision makers to have access to timely information as and when required.

The requirements needed to give access to and compile statistical data on POPs include:

- 1) Establishment of a registry of various POPs sources and sectors of use in the country hosted by CEPA as the focal point.
- 2) An assessment needs to be conducted to identify if there's existing legislation mandating or authorizing the creation of a POPs register. This work will need to be done in collaboration with relevant government bodies. Development and/or support an Information Sharing Policy/Legislation that will enable the establishment of a POPs register through which timely, secure, comprehensive, and reliable data can be kept and accessed by relevant stakeholders.
- 3) Determination of data to be included in Registry and Privacy Protection. This work will include determining what data will be collected on various POPs products, how it will be stored and used, and how user privacy will be protected.
- 4) Identifying major POPs data sources such as the PNG Customs Services. Data types, sources and custodian functions will vary for each economic sector that POPs are used in. Establishing interagency working arrangements to facilitate appropriate collection, recording and storage will ensure data required for POPs reporting to the Stockholm Convention is considered and shared.
- 5) Capacity building of stakeholders to collect, store, interpret/analyze and manage POPs data.

4. CONCLUSION

Papua New Guinea's government sector lacks a centralized data management system, leading to inefficiencies in data collection, storage, and utilization. In addition, the overlapping organizational legislations and policies add more complexities to accessing and sharing data

between inter-governmental agencies. These regulations create confusion regarding data ownership, access rights, and sharing procedures resulting in:

- A. Data Inconsistencies due multiple data producers create conflicting or incompatible datasets.
- B. Incomplete Data Coverage Data collection lacks temporal and geospatial comprehensiveness.
- C. Limited expertise and resources within data collection units lead to data quality issues.
- D. Resource constraints hinder data production and dissemination, thus availability of data as and when required.
- E. Data analysis capabilities are hampered by resource limitations.
- F. Insufficient communication between data users and producers leads to data that doesn't meet actual needs.
- G. Data Silos are common due to overly restrictive regulations within the government agencies that discourage data sharing.
- H. Data Redundancy occurs often as a result of agencies collecting duplicate data due to a lack of centralized information access.
- I. Limited data sharing hinders collaboration and impacts policy and program development, thus reducing efficiency and effectiveness impacting policy and program planning and implementation.
- J. Lack of reporting under Article 15 as well as specific inventory such as the PCB inventories

5. RECOMMENDATIONS

By fostering stronger inter-agency coordination and collaboration, initiatives like the integrated electronic toolkit can address these data management shortcomings. Through improved organization and coordination, such tools can facilitate the collection and organization of more reliable and consistent data and information on POPs. Furthermore, this tool will be in-line with CEPA implementing the PNG National Government's Digitalization and Data Governance Policies and government data centralization program.

Key recommendations include.

- Establishment of a National POPs database in CEPA
- Establishment of a National Steering Committee

- Institutional Strengthening related to IT infrastructure and training etc.
- Implementation of the National Implementation Plan (NIP)



Conservation and Environment Protection Authority



**Brief description of the necessary arrangements identified
in Papua New Guinea for the administration of the
integrated electronic toolkit of Articles 7 and 15 at the
national level after the end of the project**

April 2024

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1. Introduction

Persistent Organic Pollutants (POPs) chemicals are toxic, persist in the environment, bio-accumulate in the food chain, and have trans-boundary transportation capabilities, often ending up in locations and being bio-accumulated in human and animal populations that are removed from the source of generation.

The 28 POPs chemicals managed under the Stockholm Convention include pesticides, industrial chemicals, and unintentionally produced POPs (uPOPs), which are listed under three Annexes as follows:

- Annex A: these chemicals are mostly, but not exclusively, pesticides scheduled for elimination; Parties may register specific exemptions to continue the use of Annex A chemicals to allow for the time that may be needed to adapt and take necessary management measures required by the Convention.
- Annex B: Parties must take measures to restrict the production and use of these chemicals; Parties may register specific exemptions or restrict use of Annex B chemicals to an 'acceptable purpose' listed under the Convention.
- Annex C chemicals are produced unintentionally due to incomplete combustion, and during the manufacture of pesticides and other chlorinated substances. They are emitted mostly as a by-product of the burning of hospital waste, municipal waste, and hazardous waste, and from automobile emissions, and the combustion of biomass including coal and wood. Parties must take measures to reduce the unintentional release of chemicals in Annex C, with the goal of continuous minimization and, where feasible, ultimate elimination.

PNG became a Party to the Stockholm Convention on POPs in October 2003. As a party, PNG is required to transmit reports on a regular basis to the Secretariat. To facilitate and improve the transmission of information relating to measures taken at the national level within the framework of the Stockholm Convention, the United Nations Environment Program (UNEP) has implemented a pilot project known as "Integrated toolkit project to improve the transmission of information under Articles 07 and 15 of the Stockholm Convention".

As a recipient country of this pilot project implemented through the Conservation and Environment Protection Authority, PNG is required to outline how the toolkit can be linked to existing databases at the national level, as part of its obligation on reporting to the Secretariat of Stockholm Convention.

This report presents how the Stockholm Convention reporting Tool Kit can be applied to comply with PNG's national data and information on POP's as outlined in the Convention. It presents findings of this assessment on existing data management systems in the country, and how the toolkit can potentially be linked to existing databases at the national level. The assessment also includes a review of how CEPA is linked to key government agencies and other institutions, in making available POPs data and information to the BRS Secretariat.

The report outlines recommended arrangements for administration and sustainability of the Integrated Articles 7 And 15 Toolkit at the National Level.

2. Key recommendations of the proposed Integrated Electronic Toolkit include:

- The need for all government line ministries, agencies, and institutions to provide reports and information pertaining to relevant POPs data. This will support easy access to current and historical information as required under the Stockholm Convention.
- The need for CEPA as the focal point for the Convention to have in place legal mechanisms such as MOU with other agencies for sharing of POPs related data.
- A clear business process and workflow for administering the electronic toolkit for SC reporting.
- The need for adequate financial resource allocation for core information systems.
- The need to strengthen institutional capacity within the Conservation and Environment Protection Authority (CEPA) and key stakeholders to implement the provisions of the Stockholm Convention Toolkit.
- The report also outlines potential linkages and activities needed to ensure a compatible reporting toolkit for the Stockholm Convention.

The system for managing the electronic toolkit for reporting under Articles 7 and 15 of the Stockholm Convention should be designed to:

- Assist the national inventory team by:
 - Simplifying data gathering and evaluation of both numerical data (quantitative) and descriptive information (qualitative).
- Guarantee data quality by ensuring:
 - Accuracy of the collected information.
 - Consistency of data over time.
 - Preservation of data integrity (completeness and trustworthiness).
- Support NIP integration by:
 - Making reporting under the Stockholm Convention a seamless part of the country's National Implementation Plan (NIP) for managing POPs.
- Accessibility of data
 - centralized storage of data
 - sharing of data

3. Institutional arrangements

Institutional arrangements for waste and chemical management vary depending on a country's policy and legislative framework. These arrangements are crucial for the integrated administration of Articles 7 and 15 of the Stockholm Convention. Therefore, it is critical to set up institutional arrangements that support the Focal Point and the national inventory team.

This support should encompass:

- collecting, assessing, and documenting both quantitative (numerical) and qualitative data on POPs needs.
- ensuring data continuity and integrity (completeness and trustworthiness).
- promoting the institutionalization of the National Implementation Plan (NIP) within the government and private sector.

In PNG, waste and chemicals are managed by different agencies and there are different sources of data and information on chemicals and waste management. (see table 1 below)

Table 1: Key POPs Data Sources in PNG

Ministry/Organization	Entity/Agency/Department
Ministry of Environment and Conservation and Climate Change	<ul style="list-style-type: none"> ● Conservation and Environment Protection Authority (CEPA) ● Climate Change Development Authority (CCDA)
Ministry of Agriculture and Livestock	<ul style="list-style-type: none"> ● Department of Agriculture and Livestock (DAL) ● National Agriculture Research Institute (NARI) ● National Agriculture Quarantine Inspection Authority (NAQIA)
Ministry for Commerce and Industry	<ul style="list-style-type: none"> ● National Institute of Industrial Technology (NISIT) ● Department of Commerce and Industry
Ministry for Health	<ul style="list-style-type: none"> ● National Department of Health
Ministry of Treasury	<ul style="list-style-type: none"> ● PNG Customs Service ● Internal Revenue Commission (IRC)
Others	<ul style="list-style-type: none"> <input type="checkbox"/> National Capital District Commission (NCDC) holds data on waste management within the jurisdiction of NCDC. <input type="checkbox"/> The University of Papua New Guinea (UPNG) as the academia responsible for all capacity building programs relating to wastes and chemicals <input type="checkbox"/> PNG Power Ltd is the power Authority that is responsible for generation, transmission, distribution and retailing of

	<p>electricity throughout PNG and holds data relating to PCB's transformers.</p> <ul style="list-style-type: none"> □ Motor Vehicle Insurance Limited (MVIL) is responsible for registration and licensing of motor vehicles and road safety. Data on vehicle registration and licensing are held by MVIL. □ The private sector comprises primarily private companies that provide services in the areas of waste management such as collection and environmentally safe disposal of hazardous wastes. These also includes mining companies that discharge hazardous wastes into the environment because of their operations. Other related sector industries are also local manufacturers of goods such as plastic shopping bags. □ Provincial and Urban Local Level Governments are primarily responsible for waste management in municipalities and possess relevant data on waste management and chemicals.
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3.1 Conservation and Environment Protection Authority

The CEPA's mandate is in protecting PNG's environment and safeguarding its rich biodiversity. CEPA is the principal government agency responsible for overseeing environmental protection and biodiversity conservation efforts across Papua New Guinea. This includes:

- Developing and enforcing environmental regulations and policies.
- Monitoring environmental quality and identifying potential threats.
- Promoting sustainable resource management practices.

CEPA serves as the focal point for several international agreements ratified by PNG related to waste and chemicals including the Stockholm Convention on POPs as well as the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal. And is working to accede to the Rotterdam Convention prior informed decision-making concerning the import and export of hazardous chemicals. In addition, CEPA plays a crucial role in coordinating the collection of data and information related to waste and chemicals management. This data is used for preparing national reports that are submitted to the respective international conventions (Stockholm, Basel, and Rotterdam) as well as developing National Implementation Plans (NIPs) which outline strategies and actions for each convention, tailored to Papua New Guinea's specific context.

3.2 Climate Change Development Authority (CCDA)

The Climate Change Development Authority (CCDA) is Papua New Guinea's primary government agency tasked with tackling climate change. The CCDA is designated as the National Authority under the United Nations Framework Convention on Climate Change (UNFCCC). This means they act as the official point of contact between Papua New Guinea and the UNFCCC, coordinating the country's efforts on a global stage. Key focus areas for the CCDA include:

- **Mitigation:** Reducing Papua New Guinea's greenhouse gas emissions by promoting renewable energy sources like solar and wind power, encouraging energy efficiency measures, and reducing deforestation.
- **Capacity Building:** Building the capacity of government agencies, communities, and the private sector to address climate change.

3.3 Department of Agriculture and Livestock (DAL)

The Department of Agriculture and Livestock is the leading government agency for management of the agriculture sector and provides policy advice, technical and administrative support for the sector in the country. The agency is responsible for implementation of the Codex Alimentarius and addresses Food Safety issues together with relevant government agencies such as the Health Ministry. Information and data on pesticides and agriculture quarantine is held with the department.

3.4 National Agriculture Research Institute

The National Agriculture Research Institute (NARI) was established as a public funded, statutory research organisation to conduct and foster applied and adaptive research into; any branch of biological, physical, and natural sciences related to agriculture; cultural and socio-economic aspects of the agricultural sector, especially of the smallholder agriculture; and matters relating to rural development and of relevance to PNG. NARI's research and data collection activities make them a significant source of information on POPs in Papua New Guinea's agricultural sector.

3.5 National Agriculture Quarantine Inspection Authority (NAQIA)

NAQIA is the mandated authority in PNG to provide sound scientific quarantine and inspection services to assist and encourage agricultural production by minimising the risks of introducing exotic animal and plant pests and diseases. PNG is relatively free of many of the world's pests and diseases that are detrimental to its agricultural production, the environment, and the livelihoods of Papua New Guineans at large.

3.6 National Institute of Standards and Industrial Technology (NISIT)

The National Institute of Standards and Industrial Technology is the government agency that is established under the NISIT Act and whose function is to cover technical standards, metrology, assessment schemes, productivity, and technical barriers to trade in PNG. Standards relating to environment standards are held and developed by CEPA in consultation with the NISIT.

3.7. The National Department of Health

The National Department of Health is responsible for implementation of national policies and strategies on health care waste. For this, NDoH through the Provincial Health Authorities facilitates infrastructure support to provinces to improve their waste collection and disposal facilitates and the collection of data and information on healthcare waste at all levels of government from local, provincial, and national level. The department of Health is working in collaboration with CEPA has phased out DDT and is in the process of implementing the environmentally safe disposal of a DDT stockpile in a province.

3.8 PNG Customs Service of the Internal Revenue Commission

The PNG Customs Service controls imports of chemicals and relevant articles on the Stockholm Convention prior to importation hence protecting the environment and human health including control of our borders from illegal trade. The PNG Customs and CEPA are developing a Memorandum of Understanding between PNG Customs to strengthen collaboration between both agencies. As part of this agreement, both agencies will continue to build capacity in illegal trade and to implement the relevant agreements related to trade ratified by the country.

3.9 PNG Chamber of Commerce and Industry / PNG Chamber of Resource and Energy

Both the PNG Chamber of Commerce and Industry and Chamber of Resource and Energy as a non-profit and non-governmental organization as representative and voice of local communities by providing a unified approach to government and other Associations. The Association can be a useful information source on economic activities, national, regional, and municipal development plans, goals, and issues. It can be used as a platform for data gathering on POPs inventory. Similarly, the PNG Chamber of Resource and Energy represents the interest of the mining and petroleum industry including other industries. Both agencies are an integral part of information on POPs chemicals and wastes.

3.10 PNG Power LTD

PNG Power Ltd is the authority responsible for generation, transformation, distribution, and transmission of electricity throughout PNG. The agency plays a regulatory role on behalf of the Independent Consumer Competition Commission (ICCC). Information and data relating to PCB oils and PCB transformers is usually held by PNG Power Ltd. PNG Power is closely linked to CEPA within the framework of management and elimination of PCB waste and transformers contaminated by PCBs.

3.11 Private sector

There are private sector companies identified also has having important economic activities that are linked to data on POPs and these sectors include the mining, energy sector, producers of plastic shopping bags, vehicles, construction materials, transport (air and sea), textiles, and waste recyclers. These agencies currently hold relevant information on imported articles, waste management infrastructure including chemicals and are categorized as important sources of data and information.

3.12 Provincial and Urban Local Level Governments

Provincial and Urban Local Governments play a key role in managing municipal waste at the provincial level. As municipalities, these agencies possess significant waste management data

and information on waste infrastructure, collection, disposal, and waste audits. This information is crucial in assisting the national government develop relevant policies, strategies, and legislation on waste management.

Administering Quantitative Data Requirements for the Articles 7 and 15 Integrated Electronic Toolkit

CATEGORY OF POPS EVALUATED	PRIMARY DATA SOURCE
POP pesticides (Annex A, part I) (Import)	<ul style="list-style-type: none"> ● CEPA Permits Registry ● PNG Customs Trade Data (ASYCUDA) ● National Agriculture Research Institute ● Department Agriculture and Livestock ● National Agriculture Quarantine Inspection Authority
PCBs (Annex A, part II) (Import, Use)	<ul style="list-style-type: none"> ● PNG Power Limited ● National Energy Authority ● Industries
Assessment of POPs-PBDEs (Annex A, part IV and part V); HBB (Annex A, Part I); HBCD (Annex A, Part I and Part VII) (Import, Use, Recycling, Alternatives)	<ul style="list-style-type: none"> ● PNG Customs Trade Data (ASYCUDA) ● Industries ● Motor Vehicle Insurance Limited
PCN Assessment (Annex A, Part II) (Import, Use, Alternative)	<ul style="list-style-type: none"> ● PNG Customs Trade Data (ASYCUDA) ● PNG Forest Authority
DDT Assessment (Annex B, Part II)	<ul style="list-style-type: none"> ● National Department of Health
PFOS, its Salts and PFOSF (Annex B, part III)	<ul style="list-style-type: none"> ● PNG Customs Trade Data (ASYCUDA) ● PNG Fire Services
Assessment of releases of chemicals, produced unintentionally (Annex C)	<ul style="list-style-type: none"> ● CEPA Environment Permit Registry including EIAs, Environmental Performance Reporting from Permit Holders ● National Capital District Commission ● National inventory report ● Private Sector in the extractive and manufacturing industries

4. Additional Provisions for Quantitative Data Requirements

The toolkit will provide guidelines for creating templates specific to each data set. These templates can automatically generate the required information for reporting purposes.

To ensure future POPs inventories can be accurately reproduced and/or updated, reports should:

- clearly state the origin of the methodology (steps) used.
- describe the activity data sets, sources and emission factors used for each POP estimate.
- explain the specific calculations performed and any assumptions made.
- detail how the data was obtained (literature, national experts, etc.).

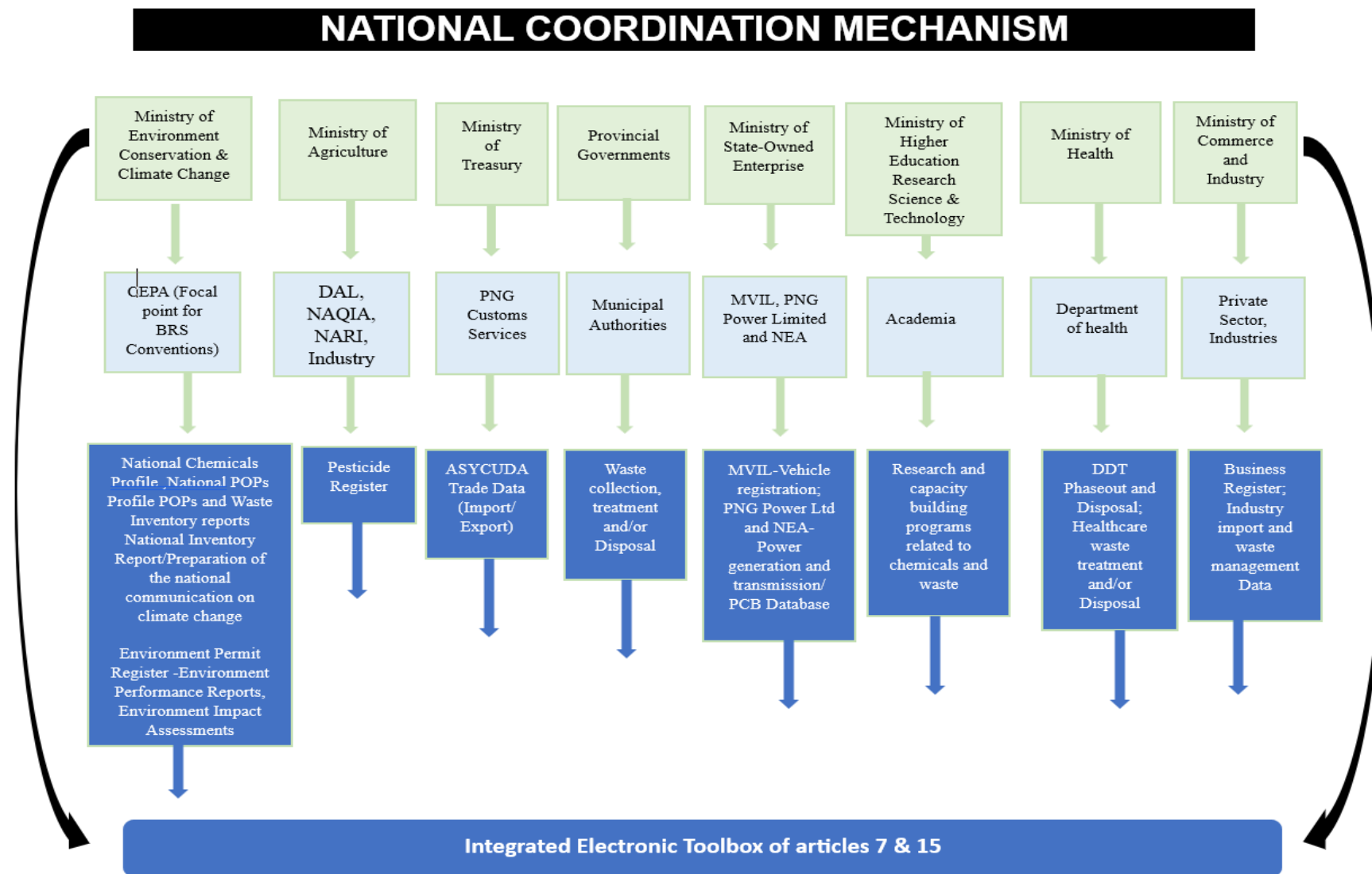
This will allow future national teams to replicate estimates, understand the model for each POP, identify data sources and assumptions as well as reproduce calculations for verification or updates.

To ensure accurate update and/or reproduction of uPOPs inventories, reports should highlight information on:

- Field data collection including information on site visits, records of GPS coordinates, perimeters, and waste management practices (particularly burning).
- Contact information register for key agencies including NCDC, LCA and respective Provincial Health Authorities and private sector for data on waste generation, collection as well as treatment and/or disposal;
- registry of information on location and waste, is compiled in an Excel file and converted to a spatial map using GIS tools for analysis, facilitating map generation of landfills, incineration and contaminated sites.

This approach will ensure data transparency, reproducibility of estimates, and avoids information loss, empowering future inventory personnel.

APPENDIX 1 Papua New Guinea National Coordination Mechanism for POPs Data Management



Acronyms: CEPA- Conservation and Environment Protection Authority, DAL-Department of Agricultural and Livestock, NAQIA- National Agriculture, Quarantine Inspection Authority, NARI- National Agriculture Research Institute, MVIL- Motor Vehicle Insurance Limited, NEA- National Energy Authority.