Federated States of Micronesia

NATIONWIDE CHEMICAL MANAGEMENT POLICY & ACTION PLAN

2024 – 2030

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Acronyms and Abbreviations

CBO	Community-Based Organization
CCS	Chuuk Conservation Society
CDS	Container Deposit Scheme
CMS	Chemical Management System
CSP	Conservation Society Pohnpei
DCHW	Division of Chemicals and Hazardous Waste
DECEM	Department of Environment, Climate Change and Emergency Management
DHSA	Department of Health and Social Affairs
DOFA	Department of Foreign Affairs
DRD	Department of Resources and Development
EPA	Environmental Protection Agency
FSM	Federated States of Micronesia
FSMNG	Federated States of Micronesia National Government
GEF	Global Environment Facility
GEF-PAS	Global Environment Facility – Pacific Alliance for Sustainability
HFC	Hydrofluorocarbon
IMO	International Maritime Organization
IOM	International Organization for Migration
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
J-PRISM	Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries
KCSO	Kosrae Conservation & Safety Organization
KIRMA	Kosrae Island Resource Management Authority
M&E	Monitoring and Evaluation
NCMP	National Chemical Management Policy
NCMP & AP	National Chemical Management Policy and Action Plan
NGO	Non-Governmental Organization
NSWMS	National Solid Waste Management Strategy
PPE	Personal Protective Equipment
POPs	Persistent Organic Pollutants
SAICM	Sustainable Approach to International Chemical Management
SDG	Sustainable Development Goal
SMART	Specific, Measurable, Achievable, Relevant, and Time-Bound
SOPAC	South Pacific Applied Geoscience Commission
SPC	The Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SSWMS	Sustainable Solid Waste Management System
TC&I	Department of Transportation Communications and Infrastructure
TNC	The Nature Conservancy
TOR	Terms of Reference
UNEP	United Nations Environment Programme
UPOPs	Unintentional Persistent Organic Pollutants
US	United States
YapCAP	Yap Conservation Action Plan

1. Policy Title

The policy title is the 'National Chemical Management Policy & Action Plan (NCMPAP), which sets out a guiding framework for the sustainable management of chemicals and hazardous waste in the Federated States of Micronesia (FSM) throughout their lifecycle.

2. Purpose of the Policy

The NCMP establishes principles and options for the sustainable and environmentally sound management of chemicals and hazardous waste in line with the Sustainable Approach to International Chemical Management (SAICM)[1], now known as the United Nations Global Framework on Chemicals (UNGFC)[2]. Although the FSM was not a signatory to the SAICM, the OCEA, Inc. team used SAICM's principles and framework to guide the development of the FSM's Action Plan.[3] This approach was adopted because SAICM/UNGFC is considered the global standard and best practice for chemical management. The Policy provides guiding principles and options to strengthen the FSM national capacity to effectively implement and enforce international environmental Conventions by identifying strategies to guide long-term national priority actions for environmentally sound and sustainable life-cycle management of chemicals.

Effective implementation of the Policy is dependent on the support and cooperation of all stakeholders, including the general public. It will necessitate the institutionalization of comprehensive chemical and hazardous waste management regulatory, institutional, and infrastructural frameworks to guide national and state legislative structures to monitor compliance and implementation of stated Policy goals, objectives, and strategies.

3. Importance of a National Chemical Management Policy

The development of a National Chemical Management Policy (NCMP) in the FSM is crucial for several reasons, most notably for protecting human health and safeguarding the islands' unique environment.[4] With the constant influx of chemicals, some with potentially hazardous properties, it is essential that the NCMP meticulously outlines the safe handling, usage, and disposal practices to prevent adverse health outcomes and the degradation of the environment. The NCMP will serve as a foundational framework directing the nation's chemical management approach, providing clear regulatory guidance that reflects international standards and local realities. This ensures the conservation of the FSM's rich marine and terrestrial ecosystems and the well-being of its communities.

The development and endorsement of the NCMP also enhance the capacity for open communication and improve state and national coordination on chemical and hazardous waste management activities among government agencies, importers, and civil society. It underpins the importance of continuous

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[1] FSM was not a signatory to SAICM. OCEA, Inc. utilized the framework provided by SAICM as a guide to develop a management plan for the FSM.

[2] On 30 September 2023, the Global Framework on Chemicals - for a Planet Free of Harm from Chemicals and Waste was adopted as a successor to SAICM. The information on the SAICM website was transferred to the UNGFC website. "*The new Global Framework on Chemicals, adopted by the 5th International Conference on Chemicals Management in Bonn in 2023,* ***provides a vision for a planet free of harm from chemicals and waste, for a safe, healthy and sustainable future*** *– where industry and private sectors are* ***strategic actors to foster innovation****, move* ***towards sustainable business models*** *and* ***drive change****. It is backed up by a High-Level Declaration that provides the political drive for its fast implementation and reminds stakeholders [of] commitment to actively promote and* ***support transitions to circular economies***."
For more information, please refer to the UNFGC website: https://www.chemicalsframework.org or the SAICM website: https://www.saicm.org.

[3] The OCEA, Inc. team ensured that the principles from SAICM used to develop the FSM Action Plan were aligned with the United Nations Global Framework for Chemicals (UNGFC).

[4] Peiry, K. K. (2021). 18. International chemicals and waste management. Research Handbook on International Environmental Law, 441.

education and training programs, which are crucial in enhancing national and state capacity and awareness in managing chemical risks in the agriculture, environment, health, transport, and waste sectors. The NCMP will establish a proactive stance on international cooperation, embracing the collective wisdom from global environmental treaties. The NCMP must remain fluid, regularly integrating the latest advancements in chemical safety and management and promptly reflecting updates on the list of prohibited chemicals as mandated by the Basel, Stockholm, and Rotterdam conventions, among other pertinent international and regional agreements to which FSM is a signatory.

The UNGFC, adopted at the 5th International Conference on Chemicals Management in Bonn in 2023, envisions a planet free from the harms of chemicals and waste, aiming for a safe, healthy, and sustainable future. It emphasizes the role of industry and the private sector as strategic actors in fostering innovation, adopting sustainable business models, and driving change. This framework is supported by a High-Level Declaration that provides political momentum for its swift implementation and reaffirms stakeholders' commitment to actively promoting and supporting transitions to circular economies. The agreement is meant to complement and reinforce existing international agreements and conventions related to chemicals, such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal[5], the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade[6], and the Stockholm Convention on Persistent Organic Pollutants.[7]

The newly adopted UNGFC is a comprehensive initiative designed to cover the entire chemical lifecycle, including products and waste. It emphasizes a "life cycle approach," advocates for responsible management, and allows flexibility for future instruments.

SAICM, the precursor to the new UNGFC, was instrumental in shaping this new initiative. Despite SAICM's ambitious goal to achieve responsible management of all chemicals by 2020 and reduce environmental and human health risks, it fell short. Consequently, this shortcoming led to the development and negotiation of the new UNGFC.

The five objectives of the Global Framework on Chemicals encompass:[8]

1. Importance of legal frameworks: Establishment of legal frameworks, institutional mechanisms, and capacities.
2. Comprehensive knowledge: Generation, availability, and accessibility of comprehensive and sufficient knowledge, data, and information.
3. Progress on issues of concern Identification, prioritization, and addressing of 'issues of concern.
4. Promotion of safer alternatives: Safer and sustainable alternatives should be promoted in product value chains and responsible chemical management across various sectors, including industry, agriculture, and healthcare, while enhancing transparency and access to information regarding chemical risks.

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[5] "*The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989, and it came into force in 1992. It is the most comprehensive global environmental agreement on hazardous wastes and other wastes*." https://www.unep.org/resources/report/basel-convention-control-transboundary-movements-hazardous-wastes

[6] "*The objective of this Convention is to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties*."
https://www.pic.int/TheConvention/Overview/TextoftheConvention/RotterdamConventionText/tabid/1160/language/en-US/Default.aspx

[7] "*The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.*" https://www.pops.int/TheConvention/Overview/tabid/3351/Default.aspx

[8] https://www.chemicalsframework.org/page/introduction

5. Enhanced implementation: Achieved through increased and effective resource mobilization, partnerships, cooperation, and capacity-building.

4.1 Situational Analysis of Chemical Consumption (Imports, Productions, Exports) Institutional, Policy, and Regulatory Framework

The FSM does not have the means to produce chemicals and imports all its chemicals needed across all sectors of the economy, with the sole exception of the LP gas industry, which produces oxygen. The Nation imports and stores nitrogen, argon, helium, carbon dioxide, and acetylene for distribution to local users. Businesses provide information on the safe handling and use of these substances and monitor the canisters and containers' condition. Importers and retailers in the nation are responsible for bringing in general-use chemicals, such as solvents and paint additives, and most can supply Material Safety Data Sheets (MSDS) as needed. Generally, the FSM's industrial sector does not prioritize chemical management beyond what is necessary for the safe execution of its operations. Chemical exports are sparse and revolve around the export of used oil or hazardous waste intended for disposal or destruction at certified facilities outside the Pacific region. Such chemical export activities are frequently part of regional waste or used oil disposal projects funded by bilateral or multilateral partners. The high export costs are perennial challenges for state governments and often warrant financial and coordinative support from international or regional development partners.

The petroleum industry is the main importer of petroleum products in the FSM, distributing and selling them wholesale and retail. This industry is responsible for the bulk storage of petroleum products at facilities located in each of the four states. The petroleum business is international in scope and has established comprehensive procedures for managing its chemical products. Employees receive regular training on safety and emergency protocols to ensure proper handling and response.

The transportation sector is a significant user and handler of petroleum products in the FSM. Each state's airport and seaport has storage and dispensing facilities for airplanes and ships. The airlines serving the FSM, being international or regional carriers, adhere to established international guidelines. Employees of these airlines receive regular training in safety and emergency procedures. Local shipping services operated by national and state governments have served the outer islands for several decades. The staff is responsible for the day-to-day operations and possesses the expertise needed to safely manage the chemicals commonly used on board the ships.

"Industrial" activities in each FSM state are primarily linked to the maritime/fisheries sector, construction, and power generation. The copra industry, once significant, now plays a minor role in the country's exports. Locally produced coconut oil products, such as soap, shampoo, body and cooking oils, and biofuel, are available for both local sale and export. Small-scale furniture production shops also meet local demand. In Yap, a small business processes coral into lime for commercial sale to betel nut chewers. Each state hosts construction companies of varying sizes involved in road construction and building erection. Asphalt plants in Kosrae and Pohnpei supply paving materials, while cement batch plants and concrete block production facilities are present nationwide, with most states having two or more of these facilities.

All four FSM states have a central power generating facility, with Chuuk and Yap also operating plants on their more populated outer islands. Hospitals, telecommunications offices, government buildings, banks, and many larger commercial enterprises are equipped with generators of various sizes to supply or back up their power needs. These generators range from thousands of small portable units to larger stationary units capable of providing power across entire islands.

4.2 Evaluation of existing chemical and waste management practices:

4.2.a General Chemical & Waste Management:

FSM confronts entangled waste management challenges, particularly compounded by the inherent limitations of an island ecosystem. As levels of imported goods increase, it will inevitably lead to more solid waste accumulating in the nation's dumpsites and landfills. Managing solid waste is particularly challenging for residents of small islands and atolls. Economic development must be planned with an effective waste management strategy to address this issue in these settings. Operating landfills, critical for waste management, demands significant fiscal outlays, a pressure point for smaller island administrations. Failing to manage these sites adequately could precipitate public health emergencies or unleash severe environmental repercussions. Notably, not all of the states possess adequate incerators that are an integral part of hazardous waste management. For instance, Pohnpei employs an interim solution, incinerating waste in specialized containers at the state dump site, employing a combination of diesel and waste oil to enhance combustion.[9]

Municipal and state centers, including every inhabited island in the FSM, face significant challenges in managing the growing problem of municipal solid waste disposal. Although the amount of waste processed varies between states, the methods are generally limited to dump or landfill disposal, with only about 4% being incinerated. Data suggests that the per capita generation rate of municipal solid waste in the FSM is approximately half that of the United States. This situation is clearly unsustainable, highlighting the urgent need to reduce the waste stream in the FSM. Alarmingly, while there's an emerging framework for data collection on waste ingress, the realm of potentially hazardous chemical waste still needs to be explored. However, specific waste categories, including e-waste, used oils, and discarded vehicles, are systematically segregated at disposal sites.

Operating a dump or landfill is a costly endeavor for small island governments. However, failing to address this critical aspect of community health could lead to a public health crisis or an environmental disaster. No state in the FSM currently has an operational incineration system capable of properly handling all hazardous wastes, so the best available technology is utilized. In Pohnpei, hazardous items are burned in a dedicated container at the dump, using a mixture of diesel and waste oil to aid combustion. Waste oil is stockpiled in drums, awaiting removal by ship. Data collection on incoming waste is now being conducted in the states. Besides oil and biological material from hospitals, it is unclear which waste chemicals may be hazardous. Certain items, such as e-waste, used oil, tires, and discarded vehicles, are segregated at the dump site.

Outer island municipal waste management typically involves using a designated convenient location for disposal. Recyclable and reusable items of sufficient value may be transported back to the main island, but this effort does not significantly reduce the overall waste. All of the FSM's approximately 60 inhabited outer islands face a solid waste problem, with the severity of the issue correlating with the population size.

4.2.b Transport

Transport protocol for chemicals needs robust regulations and standardized operating procedures. Currently, the movement of highly flammable petroleum-derived fuels, publicly known hazardous chemicals, is monopolized by the Vital Corporation. While they adhere to international transport protocols, the FSM itself has yet to instate specific regulations governing the safe transit of these substances. This regulatory void is evident in the casual attitude of local populations, as observed in

[9] Secretariat of the Pacific Regional Environmental Programme. (2014). (rep.). Consultancy for Contemporary Used Oil Audits in Selected Pacific Island Countries Report for the State of Pohnpei Federated States of Micronesia (p. 14). Apia, Samoa.

their transport of flammable liquids in repurposed fuel drums or commonplace plastic containers, exacerbating potential safety and environmental risks.

To address this, FSM needs a well-rounded approach: instituting a comprehensive regulatory framework focusing on hazardous chemicals, emphasizing storage, handling, and transportation. Regular training for those involved, alongside public campaigns, can enhance community compliance and safety. The state should also dictate the kind of containers fit for specific chemicals and prioritize the safety of its transport infrastructure. Other valuable steps include establishing prompt emergency response mechanisms and partnering with entities like Vital Corporation to leverage their expertise. However, while these regulations promise safety and environmental protection, weighing the potential cost implications is essential. Light-handed regulation – one that does not over-impose on operations expenses – should be considered. FSM must find a balance, ensuring a thriving business environment and prioritizing the well-being of its populace and surroundings.

4.2.c Labeling

The FSM does not have a substantial chemical or industrial base, and most chemical imports adhere to U.S. labeling standards, reflecting the fact that 64% of these imports come from the US.[10] Nevertheless, to enhance safety and facilitate international trade, it's imperative for FSM to formally adopt the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The adoption would standardize chemical labeling, supported by stakeholder education and regular regulatory reviews. Moreover, considering local nuances, including local adaptations or translations to the labels, might be prudent, ensuring comprehensibility for all FSM residents.

4.2.d Storage & Stock Management

FSM displays a mixed landscape regarding chemical storage and stock management practices. On the positive side, the state Environmental Protection Agencies (EPAs), Quarantine authorities, and various public sector laboratories have set commendable benchmarks by adhering to stringent storage practices for hazardous chemicals. They typically ensure these chemicals are safely housed within designated locked storerooms or stainless-steel cases, clearly demarcated with appropriate hazard warnings.

However, the scenario significantly deteriorates regarding the storage of obsolete power transformers and waste oil. Threats from outdated transformers, which are haphazardly stacked in the open, potentially releasing toxic substances and accumulating large amounts of waste oil, are of considerable concern for human health and the environment. Numerous waste oil drums are located near critical mangrove and coastal ecosystems, exposed to natural events (i.e., typhoons, storms, sea waves), which could trigger widespread environmental disasters. Moreover, the presence of storage areas in proximity of freshwater sources, containing unlabeled waste stored within metal and plastic drums, further exacerbates the threat to human health and the environment. There is a glaring need to address waste storage sites located perilously close to freshwater sources. Relocating these storage facilities can undeniably play a pivotal role in preserving the region's water quality[11].

A pressing need exists to revamp existing chemical storage and stock management protocols. To this end, a proactive approach would be to prioritize establishing a centralized waste management facility for each state.[12] Such a facility should not only cater to the storage needs of hazardous waste but also be equipped for its treatment and disposal. By ensuring this facility meets international best practices, the nation can safeguard itself against environmental threats that storms or typhoons might pose. Furthermore, considering the present vulnerability of waste oil storage in Pohnpei, it's paramount to

[10] According to the latest chemical import analysis baseline using 2019 – 2021 FSM Customs Data
[11] Ibid.,
[12] SPREP. 2016. Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025. Apia, Samoa: Secretariat of the Pacific Regional Environment Programme.
ww.sprep.org/attachments/Publications/WMPC/cleaner-pacific-strategy-2025.pdf.

deploy emergency containment measures. Simple yet practical solutions, such as erecting temporary barriers or dykes around the waste storage zones, can substantially minimize risks, especially to neighboring ecological zones.

Another dimension that merits immediate attention is the issue of waste inventory and labeling. A systematic and thorough inventory process will not only aid in identifying the stored waste but also ensure each container, be it metal or plastic, is appropriately labeled. This practice will significantly reduce risks associated with mishandling or accidental substance mixing.

Lastly, while infrastructure and processes form the backbone of an effective waste management system, awareness must be considered. Educating stakeholders, especially those directly involved in waste management, about the potential hazards of improper storage can usher in a more cautious approach. Public awareness initiatives can further cement this prudent behavior at a community level. To ensure the longevity and efficiency of these measures, the FSM should also focus on regulatory strengthening and "beefing up" the M&E capacity of the state EPAs. By instituting stringent regulations governing hazardous waste handling, storage, and disposal and backing them with regular inspections and penalties for non-compliance, the FSM can set a firm foundation for oversight – a component of any enforcement mechanism.

4.2.e Safe Use

Ensuring the safe handling and use of chemicals across various settings, from educational laboratories to expansive industrial units, necessitates deploying specialized tools and equipment. Central to this suite of equipment are fume hoods and chemical storage cabinets. Fume hoods play a pivotal role in venting out hazardous vapors preventing inhalation of toxic substances, while chemical storage cabinets are engineered to store chemicals in segregated compartments. Also integral to safety measures are eye wash stations and safety showers, designed to offer immediate response to chemical exposures, mitigating potential harm from chemical splashes or accidental contact.

A cornerstone of chemical safety is using Personal Protective Equipment (PPE). This includes gloves tailored for specific chemical resistances, safety goggles for eye protection against potential splashes or fumes, lab coats, aprons to shield the skin and clothing, and respirators for those working in environments with toxic gases or limited ventilation. Spill kits and designated chemical waste containers are vital in tandem with PPE. While spill kits provide the means to address accidental spills effectively, chemical waste containers ensure the environmentally safe disposal of hazardous byproducts. Moreover, fire safety equipment tailored for chemical-related incidents, such as specific fire extinguishers and blankets, should be readily accessible.

Another layer of safety is achieved through monitoring and informational tools. Gas detectors, for instance, are invaluable in alerting users to hazardous gases or diminished oxygen levels. Grounding and bonding equipment are imperative in scenarios involving flammable chemicals, preventing potential fires or explosions resulting from static electricity build-up. Complementing these tools are Safety Data Sheet (SDS) binders, offering comprehensive data on each chemical's properties, risks, and emergency procedures.

4.2.f Chemical Disposal

In the FSM, chemical disposal practices are not uniform and vary significantly from state to state, presenting a piecemeal approach to what should be a systematic and environmentally conscious process.[13] The FSM lack a comprehensive chemical disposal guideline that apply universally across its diverse island states. Waste segregation is the most common practice in place. Still, it predominantly focuses on clearly hazardous materials, including medical waste, asbestos, lead-acid batteries, and used

[13] Secretariat of the Pacific Regional Environmental Programme. (2022). Waste Audit Report, Federated States of Micronesia. ISBN 978-982-04-1037-8

oil, which are treated with a higher degree of caution due to their recognized potential for environmental harm and human health risks. However, this leaves many other chemicals, such as fertilizers, pesticides, and inorganic and organic substances, without specific disposal protocols. Consequently, these chemicals often enter general waste streams without stringent guidelines. They are disposed of in state dumpsites, which can lead to environmental contamination and pose risks to public health.

The urgent need for established disposal guidelines becomes particularly evident when considering the range of chemicals encompassed under Chapters 28 to 38 of the *Harmonized System (HS) code*. These chapters cover a broad spectrum of substances including inorganic chemicals; organic or inorganic compounds of precious metals, rare-earth metals, radioactive elements or isotopes (Chapter 28); organic chemicals (Chapter 29); pharmaceutical products (Chapter 30); fertilizers (Chapter 31); tanning or dyeing extracts, tannins and their derivatives, dyes, pigments, paints, and varnishes (Chapter 32); essential oils and resinoids, perfumery, cosmetic or toilet preparations (Chapter 33); soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis of plaster (Chapter 34); albuminoidal substances, modified starches, glues, enzymes (Chapter 35); explosives, pyrotechnic products, matches, pyrophoric alloys, specific combustible preparations (Chapter 36); photographic or cinematographic goods (Chapter 37); and miscellaneous chemical products (Chapter 38). Each chapter includes substances requiring specific handling and disposal methods to mitigate their impact on the environment and human health. Developing a cohesive chemical disposal policy, with clear guidelines for substances falling under these categories, is imperative for the FSM to ensure safe and sustainable management of its chemical waste, thus protecting its fragile ecosystems and the health of its communities.

Again, fiscal and budgetary constraints at the state and municipal levels remain a primary challenge.

4.2.g Waste Disposal

Within the FSM, each state has exhibited a distinct approach to waste management.[14][15] The following provides an overview of current waste disposal practices in each of the states:

Yap: The primary locus of waste collection remains in Colonia, targeting public institutions and offices via a contract with the Department of Public Works & Transportation. A noteworthy initiative is the pilot waste collection program in Tamil Municipality, which might serve as a blueprint for further expansion. Most of the waste (over 80%) is processed at the public landfill, leveraging the semi-aerobic sanitary landfilling 'Fukuoka Method', marking a progressive step towards sustainable chemical management. Furthermore, Yap has instituted a Container Deposit Legislation (CDL) Recycling Program under the aegis of the Yap State EPA, and there's a proactive ban on plastic bags.

Chuuk: The Division of Public Works under the Department of Transportation and Communication is pivotal in waste collection, although collection by municipal governments (excluding Kolonia Town Government) remains suboptimal. The Marina interim dump site remains the primary waste disposal hub, absorbing over 70% of the generated waste. An area of concern is the 23.2% uncontrolled waste dumping. The revised CDL law, awaiting legislative endorsement, is expected to strengthen waste management protocols. The state also actively bans plastic bags.

Pohnpei: Waste collection is fragmented with the major burden shared by municipal governments and private entities. The Dekehtik landfill site, operational since 1997, stands as a testament to progressive waste management practices, especially with the adoption of the 'Fukuoka Method'. However, the

[14] Secretariat of the Pacific Regional Environmental Programme. (2019). (rep.). Federated States of Micronesia: State of the Environment Report 2018 (pp. 133-135). Apia, Samoa.

saturation of the first site in 2018 underscores the need for anticipatory planning. Pohnpei has an active CDL Recycling Program and a ban on plastic bags.

Kosrae: Despite individual municipalities' decentralized waste collection services, only 16.6% of the total generated waste undergoes systematic collection. The state's reliance on the public landfill, initiated in 2009 with Japanese assistance, is commendable, given its adherence to the 'Fukuoka Method'. Concurrently, Kosrae's CDL Recycling Program further amplifies its commitment to sustainable chemical management. The state has also imposed a ban on plastic bags.

In synthesizing this information, it becomes evident that while strides have been made in waste management, consistent and expansive efforts are crucial. The 'Fukuoka Method', where adopted, provides a sustainable approach to waste disposal. Container deposit legislations, plastic bag bans, and waste collection initiatives across states demonstrate a forward momentum but underline the need for holistic, integrated policies for effective chemical management.

4.2.h Waste/ Used Oil Disposal:

FSM's approach to managing used oil is fraught with difficulties. The nation's scattered island geography hampers establishing a unified and effective disposal system, leading to ad-hoc, interim solutions that tend to become "default" used oil storage solutions due to benign neglect. Used oil from various sources within the states is collected intermittently at service stations or designated spots, often stored in barrels or makeshift containers without a long-term plan for proper disposal. The islands lack the facilities to process or recycle this hazardous waste effectively. Consequently, accidental spills or negligent disposal of used oil on land threatens water supplies and, in some states such as Kosrae and Pohnpei, where torrential rains are frequent, may exacerbate the rate of used oil seepage into streams, rivers, and thereby the ocean. Exporting the waste oil for proper processing is not a viable solution due to the exorbitant transport costs unless subsidized with bilateral or multilateral funded projects.[16] This constraint means that much of the oil remains within the islands, posing a persistent environmental risk. The situation is a stark reminder of the need for a more resilient waste management system, better regulatory oversight, and external assistance to uphold environmental integrity and facilitate a more consistent approach to waste/used oil stock management and disposal.

4.2.i Monitoring, Evaluation, and Verification of Chemical Stock

The country's efforts to monitor, evaluate, and verify chemical stocks face significant challenges due to a lack of standardized procedures.[17] While the country has taken a commendable step by compiling a national chemical database with import data from 2019 to 2021, this information primarily offers a broad snapshot of chemical imports rather than a detailed and dynamic oversight of current chemical stocks. Currently, the practices of inventorying chemicals are conducted sporadically, tied to specific projects, and differ across organizations, such as Japan International Cooperation Agency (JICA), United Nations Environment Programme (UNEP), Secretariat of the Pacific Regional Environment Programme (SPREP), and The Pacific Community (SPC). These inventories vary not only in frequency but also in methodology, with national or state laboratories often employing distinct approaches from those utilized for general and hazardous waste. To achieve a cohesive and accurate understanding of chemical stockpiles, it is essential to streamline these practices and fully integrate them with the national chemical database.

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[16] Pacific Region Infrastructure Facility. (2018). Federated State of Micronesia (FSM) profile in the solid waste and recycling sector. See: https://www.theprif.org/document/federated-states-micronesia-fsm/solid-waste-management-and-recycling/federated-states

[17] Secretariat of the Regional Environmental Programme. (2020). (rep.). Assessment of Legislative Frameworks Governing Waste Management in the Federated States of Micronesia (pp. 7–23). Apia, Samoa.

To enhance the management of chemical inventories, a policy directive should focus on operationalizing the national chemical database as the central tool for all chemical management teams at both state and national levels. This would involve ensuring that inventory data from various sources and projects are consistently fed into the database, providing a real-time and comprehensive view of chemical stocks. Additionally, there is a need to delineate clear user permissions within the database to safeguard the integrity and security of the data. Access to the database should be strategically granted, with roles such as read-only, data exporting, and full editing privileges assigned based on the responsibilities and needs of different users. This would ensure that appropriate stakeholders have the necessary access for their roles, while maintaining stringent controls over modifying this critical information. Establishing such protocols would significantly bolster the FSM's ability to manage its chemical inventory effectively, a crucial step in safeguarding the environment and public health.

5. Previous Reference

Table 1: *Projects and initiatives for waste management (solid, chemical, organic, etc.) implemented in the FSM.*

Project / Initiative	Description and relevant contents for waste management
National Implementation Plan: Persistent Organic Pollutants (POPs)	1. Focused on strategies and measures to eliminate or reduce the release of Persistent Organic Pollutants (POPs) in the FSM. 2. An outline of how the FSM intends to fulfill its obligation to the Stockholm Convention. 3. A plan that includes identifying sources of POPs within the FSM, assessing the risks they pose, and strategies for managing or eliminating the risks, including regulating or banning certain substances, managing waste more effectively, and monitoring POPs levels in the environment. 4. Includes a list of banned POPs under the Convention and lists an additional 16 chemicals that the FSM needs to be included in their list of banned chemicals.
2015 Chemical & Hazardous Waste Management Country Report	1. A three-year project to strengthen its capacity to manage chemicals and waste, aligning with obligations under international conventions such as the Basel and Stockholm Conventions. 2. Establish a national chemical profile, develop a national management policy, and create a centralized chemicals and waste management database in an effort to provide a long-term, sustainable approach to chemicals and waste management in the FSM. While this information is related to the FSM's broader environmental management strategies post-2015, it provides context for understanding the issues and approaches detailed in the 2015 report.
The Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in the Pacific Island Countries (J-PRISM)[18]	1. FSM National Government (FSMNG) to create a mechanism for solid waste management in the four states. a. DECEM to formalize sustainable solid waste management systems (SSWMS) in each state. b. Standardize practice for solid waste management, applying 3Rs[19] are promoted across the FSM. 2. Promote the establishment of a solid waste management system. a. Create a SSWMS and action plan that are aligned with the Cleaner Pacific (2016-2025) initiative. b. Improve waste collection. c. Container Deposit Scheme (CDS) are sufficiently examined by appropriate agencies.

[18] Funded by the Japanese International Cooperation Agency (JICA) and implemented in collaboration with SPREP.
[19] Reduce, Reuse, and Recycle

Project / Initiative	Description and relevant contents for waste management
The European Union-funded Pacific Hazardous Waste Management (PacWaste) Project[20]	1. Enhance hazardous waste management in the Pacific, focusing on asbestos, healthcare waste, E-waste, and integrated atoll solid waste management. 2. Aimed to strengthen regional collaboration through a recycler's network and national coordination committees. It also facilitated regional workshops to share experiences and lessons learned among participating countries. 3. SPREP provided assistance to DECEM to develop a national waste management policies and frameworks, supporting new and existing regulatory systems. Outcomes for FSM: 1. Partnership established between women's groups and department of agriculture to establish compositing programs. 2. Creation of goals to divert organic waste from landfills to suitable organic waste processing systems and ensuring roadside market vendors and urban communities participate effectively in organic waste management projects. 3. Waste Stream Composition & Challenges: a. 64% of waste stream considered organic. b. Organic material take up critical landfill space and generate leachate and methane gas, impacting the environment. c. No waste segregation practiced in communities. 4. Objective(s): a. Divert all organic waste to organic waste processing systems to eliminate dumping, landfilling, and burning. b. Improve soil quality through the use of processed organics.
The Pacific POPs Release Reduction through Improved Solid and Hazardous Wastes Management Project[21]	The initiative represents a comprehensive effort to tackle environmental challenges related to waste management in the Pacific, with an emphasis on capacity building, policy development, and sustainable practices. 1. Reduce unintentional POPs (uPOPs) emissions by improving waste management practices, by developing and implementing uPOPs strategies and guidelines, establish vocational training, and developing capacity to improve chemical management. 2. Supported the implementation of national solid waste management strategies. 3. Three Components: a. Develop and deliver vocational training. b. Contribute to reducing negative impacts of waste oil by developing frameworks for waste oil collection and disposal. c. Prepare proposals for additional funding.

[20] Implemented by SPREP.
[21] Funded by the Global Environment Facility (GEF) – Pacific Alliance for the Sustainability (GEF-PAS), implemented by the United Nations Environment Programme (UNEP) and executed by SPREP.

Project / Initiative	Description and relevant contents for waste management
The Regional Solid Waste Management Initiative[22]	An initiative aimed to improve waste management practices in the Pacific region, focusing on capacity building, policy development, and the implementation of sustainable practices. 1. Development and delivery of vocational training program in waste management through regional institutions. 2. Contribute to the reduction of negative impacts of waste oil on the environment by developing frameworks for waste oil collection and disposal. 3. Support the islands in preparing country activity proposals for additional funding.
The Integrated Cooperation Programme[23]	Program to enhance maritime environmental protection and address the risks associated with oil spills in the Pacific. 1. Establish contingency plans for oil spill response and liability and compensation for pollution damage caused by shipping incidents. 2. Create a framework for determining liability and compensation for pollution damage. 3. After ratification of conventions, countries will establish action plans that includes the development of policies, legislation, awareness programs, interagency cooperation, and capacity building.

[22] Funded by l'Agence Française de Developpement and executed by SPREP.
[23] Funded by the International Maritime Organization (IMO) and implemented by SPREP.

6. Related National Policies and Strategies

Establishing an effective National Chemical Management Policy and Action Plan (NCMP&AP) it is important for the FSM to harmonize its current policies and strategies with international treaties and agreements and aligns with current national and state legislation. These should support broader objectives such as sustainable development, safeguarding the environment, and enhancing public health. This section will list pertinent policies and strategies that play a significant role in shaping the NCMP&AP. Table 2: National Policies and Strategies is a summary of relevant legislation, policies, and strategies to inform the FSM's NCMP&AP.

Table 2: *National Policies and Strategies*

Title 25 – Environmental Protection Act	Regulate and control hazardous materials, chemicals, and waste through adopting and enforcing relevant regulations, compliance with international treaties, and implementing environmental impact assessments. The Act emphasizes the protection of human health and the environment from the risks associated with hazardous substances.
National Solid Waste Management Strategy (NSWMS) 2015-2020	1. Formulate policies for effective solid waste management. 2. Raise awareness about solid waste management issues and practices. 3. Improve the management of landfill sites. 4. Enhance the efficiency and effectiveness of waste collection and disposal. 5. Promote recycling activities to reduce waste and recover valuable materials.
Sustainable Development Goals relevant to FSM chemical management	
SDG 3: Good Health and Wellbeing[24] 	Reduction of environmental pollution to ensure health and wellbeing of every stage of life. Target 3.9: Integrating chemical management standards into healthcare systems. • Preventing health conditions that are associated with hazardous chemicals and reducing premature mortality. • Integration of chemical management practices that reduce environmental contamination and prevent adverse impacts to human health. • Safeguarding maternal health through preventative measures to limit exposure to chemicals during pregnancy.
SDG 6: Clean Water and Sanitation 	Target 6.3: To improve water quality by reducing pollution, eliminating dumping, minimizing the release of hazardous chemicals and materials, having the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally. • Reduction of chemical pollution originating from industrial runoff and agriculture activities. • Preventing chemical pollutants from infiltrating water systems. • Ensuring chemicals utilized in water treatment facilities do not adversely impact human and ecosystem health.

[24] UN Sustainable Development Goals, "Sustainable Development Goals," United Nations, accessed August 28, 2023, https://sdgs.un.org/goals

SDG 11: Sustainable Cities and Communities 	Target 11.6: Reduce the adverse per capita environmental impact of cities, including special attention to air quality and municipal and other waste management. Indicators include the proportion of urban solid waste regularly collected with adequate final discharge and annual mean levels of fine particulate matter in cities. • Incorporating chemical risk assessments into urban planning. • Include zoning regulations to delineate chemical and hazardous chemical facilities from residential areas. • Ensure proper emergency response strategies are developed to mitigate adverse impacts of chemical disasters. • Develop infrastructure standards that adequately includes utilization, management, and disposal of chemicals during infrastructure projects.
SDG 12: Responsible Consumption and Production 	Target 12.4: Achieve environmentally sound management of chemicals and all waste throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release into the air, water, and soil. Target 12.5: Substantially reduce waste generation through prevention, reduction, recycling, and reuse.
SDG 13: Climate Action 	• Emission Reduction from Chemical Processes: Chemical manufacturing and other industrial processes contribute to greenhouse gas emissions. Adopting cleaner and energy-efficient production methods, known as green chemistry, helps curtail the carbon footprint associated with chemical production and reduces the sector's contribution to climate change. • HFC Phase-Out: Hydrofluorocarbons (HFCs) are potent greenhouse gases used in refrigeration, air conditioning, and other applications. Their phase-out in favor of climate-friendly alternatives aligns with SDG 13's aim of reducing short-lived climate pollutants and slowing the rate of global warming. • Low-Carbon Technologies: Chemical management involves the evaluation and adoption of low-carbon technologies that reduce emissions and minimize the environmental impact of chemical processes. This transition supports climate action by aligning with emission reduction goals. • Renewable Feedstocks: Sustainable alternatives to conventional fossil fuel-based feedstocks are pivotal in chemical management. Utilizing renewable feedstocks such as bio-based materials contributes to the reduction of carbon emissions and aligns with SDG 13's emphasis on transitioning to a low-carbon economy. • Waste Management: Proper chemical waste management, including waste-to-energy processes, helps prevent the release of methane, a potent greenhouse gas, from decomposing organic chemicals in landfills.

SDG 14: Life Below Water 	Target 14.1**:** Prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution.
SDG 15: Life on Land 	• Remediation of Contaminated Sites: Chemical pollution stemming from various sources can degrade terrestrial ecosystems, undermining biodiversity, and soil health. Chemical management strategies encompass the identification and remediation of contaminated sites, aiding in the restoration of affected land to its natural state. • Protection of Soil Quality: Proper chemical management helps prevent soil contamination by toxic substances. By minimizing chemical runoff and leaching, nations can protect the quality of soil, vital for the sustenance of ecosystems and agricultural productivity. • Reduced Chemical Runoff: The adoption of organic farming practices, characterized by limited pesticide use, aligns with SDG 15's goals. Reduced pesticide application minimizes the risk of chemical runoff into surrounding ecosystems, safeguarding water bodies and preserving terrestrial biodiversity. • Soil Health: Organic farming practices nurture soil health and reduce soil degradation caused by chemical-intensive agriculture. The integration of organic methods aids in maintaining the integrity of terrestrial ecosystems and supports the sustainable use of land resources. • Biodiversity Conservation: The minimized use of pesticides in organic farming practices protects pollinators and other beneficial insects, fostering biodiversity and contributing to the conservation of terrestrial ecosystems.

7. Requesting agencies

The Department of Environment Climate Change Emergency Management (DECEM), specifically the Division of Chemicals and Hazardous Waste (DCHW) is the departmental lead for organizing, communicating, and supporting the establishment of effective chemical and hazardous waste management with other departments in the national government, such as the Department of Resources and Development (R&D), the Department of Transportation Communications and Infrastructure (TC&I), Department of Health and Social Affairs (DHSA) and especially with each of the state Environmental Protection Agencies (EPA) and the Kosrae Island Resource Management Authority (KIRMA).

8. Implementing Agencies

Table 3: *National & State implementing entities.*

Agency	Role and Mandate
Department of Environment Climate Change & Emergency Management (DECEM)	Acknowledging the vital role nature places in the wellbeing and future success of the people of the FSM, DECEM was established to safeguard the nation's ecological systems against both natural and human-induced hazards and ensure the sustainable development of its natural resources.
Department of Resources & Development (R&D)	Supports the management and cultivation of the FSM economy and the sustainable use of its natural resources in accordance with the nation's strategic, economic, and conservation priorities.
Department of Health & Social Affairs (DHSA)	Is responsible for maintaining and improving health and sanitary conditions are established throughout the FSM and ensuring that waste management safety standards are met.
Department of Transportation Communications & Infrastructure (TC&I)	Develop and administer sound policies and regulations to ensure reliable sea and air transportation systems and communication networks, and also, capital projects meet construction and safety standards, are cost-effective, and meet the nation's strategic development and infrastructure plans.
Pohnpei EPA	Regulations: • Air Pollution Control Standards and Regulations Effective April 3, 1995 • Pesticide Regulations Effective April 3, 1995 • Solid Waste Regulations Effective April 3, 1995 • Marine and Fresh Water Quality Standard Regulations Effective April 3, 1995
Pohnpei Division of Public Works –T&I	
Kosrae Island Resource Management Authority (KIRMA)	Title 19. Environmental Protection and Management • §19.101. KIRMA Purpose • §19.102. (4) Prevent contamination of drinking water • §19.102. (6) Pesticide control • §19.102. (7) air, land, and water pollution • Kosrae State Code, Title 19, Chapter 5, Subchapter C Persistent Organic Pollutants Act of 2009.
Chuuk EPA	Title 22. Chapter 1 Chuuk EPA • §1005. (1) Control and prohibit air, land, and water pollution. • §1005. (1) c prevent, control, abate pollution of air, land and water.

Chuuk Public Works	
Yap EPA	• Prevention, control, and abatement of pollution of the air, land and water.
Yap Public Works	

9. Other stakeholders relevant to policy implementation

Table 4: *Relevant agencies*

United Nations Environment Program (UNEP)	The leading global authority on the environment and primary United Nations (UN) system that is supporting activities related to the sound management of chemicals. UNEP aims to promote chemical safety, develop sound management practices, and provide countries with information on toxic chemicals.
United Nations Development Program (UNDP)	UNDP supports countries to access financial and technical resources and provides technical assistance and implementation support to improve the holistic management of chemicals and waste at national, regional, and global levels.
International Organization for Migration (IOM)	IOM Waste Inventory collects data on the amount and non-hazardous and hazardous waste generated onsite and ways they are managed.
Japanese International Cooperation Agency (JICA)	An implementing agency of Japanese Official Development Aid (ODA) to support developing regions to integrate solid, hazardous and pollution control strategies and improve waste control and management efforts.
South of the Pacific Regional Environment Programme (SPREP)	Has led regional coordination and delivery of waste management and pollution control action. It has supported Micronesia in building capacity to implement waste, chemical, and pollutants programs. It works with international and regional partners to integrate sustainable funding and support waste, chemical, and pollution management programs.

Table 5: *Other Relevant Stakeholders*

The Nature Conservancy (TNC)	An international nonprofit organization in Micronesia supports the conservation of natural resources, climate adaptation, and resilience and provides technical assistance to regional, national, state, and community natural resource managers.
Micronesia Conservation Trust (MCT)	Provides sustainable financing for environmental projects and initiatives across the Micronesia region.
Kosrae Conservation & Safety Organization (KCSO)	An NGO working in Kosrae to support conservation and resource management projects in the state of Kosrae. It is an active partner of the FSM and Kosrae State governments.
Conservation Society of Pohnpei (CSP)	An NGO working in Pohnpei to support conservation and resource management projects in the state of Kosrae. It is an active partner of the FSM and Pohnpei State governments.
Chuuk Conservation Society (CCS)	An NGO working in Chuuk to support conservation and resource management projects in the state of Kosrae. It is an active partner of the FSM and Chuuk State governments.
Yap Conservation Action Plan (YapCAP)	An NGO working in Yap to support conservation and resource management projects in the state of Kosrae. It is an active partner of the FSM and Yap State governments.

10. Goals & Objectives

The goal of the FSM NCMP is to minimize the adverse effects of chemicals use and production on human health and the environment in the FSM.

The FSM NCMP objectives align to the SAIMAC global policy framework and voluntary international agreement established to promote the safe and sustainable management of chemicals throughout their life cycle. The Policy is organized around five key themes:

- Risk Reduction: to minimize the adverse effects of chemicals on human health and the environment. It emphasizes risk assessment, hazard communication, and the promotion of safer alternatives to hazardous chemicals.

- Knowledge and Information: to improve access to information about chemicals, including their properties, hazards, and safe use. It calls for developing chemical information systems, awareness campaigns, and capacity-building in chemical management.

- Governance: to establish and enforce effective governance in order to strengthen FSM institutional and regulatory frameworks, promote coordination and cooperation, and enhance public participation in decision-making.

- Capacity-Building: to support capacity-building through training programs, technical assistance, and knowledge sharing, in order to equip stakeholders with the necessary skills and expertise for sound chemical management.

- Illegal International Trade: to prevent illegal international trade in hazardous chemicals and pesticides through improved customs and border control measures and adherence to relevant international agreements.

In the following sections, the Policy reports on specific objectives on the five key themes.

10.1a Risk Reduction

Risk reduction entails minimizing the adverse effects of hazardous chemicals on human health and the environment. This objective is about identifying, assessing, and mitigating the potential risks associated with chemical substances to protect FSM's people and the ecosystems they depend on. In the FSM context, this will involve reducing chemical risks through the following strategies:

- Legislation and Regulation: Actively developing and strengthening chemical management regulations to control hazardous chemicals' production, use, and disposal.

- Chemical Risk Assessment: Committing to conducting comprehensive risk assessments of chemicals to identify potential hazards and ensure appropriate risk mitigation measures.

- Promoting Safer Alternatives: Encouraging to adoption of safer alternatives to hazardous chemicals in various sectors, including industry, agriculture, and healthcare.

10.1b Knowledge & Information

The Knowledge and information objective focuses on providing access to accurate and comprehensive information about chemicals. It emphasizes the importance of sharing knowledge on chemical hazards, safe handling practices, and alternatives. This objective empowers decision-makers and the public with the information for responsible chemical management. This should be reached by pursuing the following objectives:

- Chemical Information Systems: Establishing a national chemical information system to collect, manage, and disseminate data on chemicals used within the country.

- Public Awareness: Engaging in awareness campaigns to educate the public, industries, and professionals about the safe handling and management of chemicals.

- Capacity Development: Supporting capacity-building initiatives to enhance the skills and knowledge of relevant stakeholders in chemical management.

10.1c Governance

Governance underscores the need for effective chemical management oversight and regulation. It calls for strengthening regulatory frameworks and coordination among relevant authorities, ensuring that laws and policies safeguard chemicals' safe use and disposal. Effective governance is vital for ensuring the responsible management of chemicals. FSM's governance objectives:

- Institutional Strengthening: Improve its regulatory and institutional frameworks to enhance chemical management at the national level.

- Coordination and Cooperation: Participate in regional and international cooperation efforts to address cross-border chemical issues and share best practices.

10.1d Capacity-Building

Capacity-building is about enhancing the knowledge and skills of individuals and institutions involved in chemical management. The capacity-Building objective supports training, technical assistance, and the sharing of expertise to equip countries and stakeholders with the capabilities required for responsible chemical management. FSM capacity-building objectives entail:

- Training and Education: Support training programs and educational initiatives to build the capacity of individuals and institutions involved in chemical management.

- Technical Assistance: Seek technical assistance and collaboration with international partners to enhance its chemical risk assessment and management capabilities.

10.1e Illegal international trade

Combating illegal international trade addresses the unlawful movement of hazardous chemicals across borders. This is achieved by preventing illegal international trade by strengthening customs and border control measures, ensuring compliance with international agreements, and disrupting the illicit trade that can have severe consequences for human health and the environment. FSM objectives to prevent illegal international trade involve:

- Customs and Border Control: Strengthen customs and border control measures to detect and prevent the illegal import and export of hazardous chemicals.

- International Agreements: Take part in relevant international agreements, such as the Rotterdam Convention and the Basel Convention, to regulate the transboundary movement of hazardous chemicals and waste.

By aligning with SAICM's Global Plan of Action and pursuing these objectives, the FSM is dedicated to achieving safe and sustainable chemical management, ensuring the protection of human health and the environment.

10.2 Guiding Principles

Guiding principles in chemical management are the fundamental values and concepts that underpin responsible and sustainable practices. These principles serve as a compass, directing actions and decisions to minimize the adverse impacts of chemicals on human health and the environment. They include the precautionary principle, emphasizing preventive action in the face of uncertainty; the polluter pays principle, holding responsible parties accountable for cleanup; and a life cycle approach, considering chemicals from production to disposal.[25] Transparency, inclusivity, and sustainability are paramount, ensuring chemical management aligns with ethical and environmental standards.[26] These guiding principles collectively shape the responsible use, handling, and disposal of chemicals, safeguarding human well-being and the future of our planet.

10.2a Precautionary Principle:

The Precautionary principle is a foundational concept in chemical management that advocates taking proactive measures in the presence of scientific uncertainty or when there's insufficient information about the potential risks associated with a chemical substance. It strongly emphasizes preventing harm to human health and the environment, even in cases where the full extent of harm hasn't been conclusively established through scientific evidence.

Under this principle, decision-makers are encouraged to take anticipatory action when there are reasonable grounds to suspect that a chemical might pose serious or irreversible risks. This means that waiting for absolute scientific certainty is optional before taking steps to protect public health and the environment. The Precautionary principle also promotes transparency and public participation, involving various stakeholders in decision-making processes. It recognizes the value of diverse perspectives and aims to ensure that decisions are made for the well-being of all concerned.

While the Precautionary principle allows for initial measures based on incomplete information, it doesn't discourage further research and data collection. Instead, it encourages ongoing efforts to reduce uncertainty, monitor developments, and adjust decisions as new information becomes available. This approach ensures that decisions evolve as our understanding of the risks and impacts of chemicals advances.[27]

10.2b Pollution Prevention:

Pollution prevention in chemical management is a central concept focused on avoiding or minimizing the generation and release of hazardous substances into the environment at the source. It represents a proactive and sustainable approach that prioritizes preventing pollution rather than managing its consequences. This principle emphasizes adopting cleaner production practices, using safer alternatives, and reducing waste and emissions throughout a chemical's life cycle. Pollution prevention protects human health and the environment and promotes resource efficiency and cost savings by eliminating the need for costly remediation measures after pollution has occurred.[28] It forms a critical foundation for responsible and sustainable chemical management, aligning with environmental protection and resource conservation goals.

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[25] OECD. Guiding Principles for Chemical Accident Prevention, Preparedness and Response.[URL: https://www.oecd.org/chemicalsafety/chemical-accidents/Guiding-principles-chemical-accident.pdf]

[26] Kümmerer, Klaus. "Sustainable chemistry: a future guiding principle." Angewandte Chemie International Edition 56, no. 52 (2017): 16420-16421.

[27] Cousins IT, Vestergren R, Wang Z, Scheringer M, McLachlan MS. "The precautionary principle and chemicals management: The example of perfluoroalkyl acids in groundwater." Environmental International. 2016 Sep;94:331-340. doi: 10.1016/j.envint.2016.04.044. Epub 2016 Jun 20. PMID: 27337597.

[28] Enander, R., Gute, D., & Cohen, H. 2003. "The concordance of pollution prevention and occupational health and safety: a perspective on U.S. policy." American Journal of Industrial Medicine 44(3): 312-320. https://doi.org/10.1002/AJIM.10261.

10.2c Polluter Pays Principle:

The Polluter pays principle in chemical management is a fundamental concept that holds those responsible for introducing hazardous chemicals into the environment accountable for the costs associated with cleanup and remediation. This principle places the financial burden on the entities or individuals responsible for pollution, encouraging them to internalize the external costs of their actions. Doing so incentivizes responsible chemical use, discourages pollution, and promotes environmental stewardship. The Polluter pays principle not only ensures that those who benefit from chemical production and use bear the costs of environmental harm but also contributes to a fair and equitable distribution of responsibility in managing the impacts of hazardous chemicals.[29]

10.2d Right To Know:

The right to know in chemical management is a fundamental principle that emphasizes transparency and public access to information about chemicals and their potential risks. It recognizes the importance of empowering individuals and communities with the knowledge they need to make informed decisions about their exposure to chemicals. Under this principle, people have the right to access information regarding the identity, hazards, safe handling practices, and potential impacts of chemicals. This transparency fosters awareness, accountability, and active participation in chemical management decisions, ensuring that individuals and communities can take steps to protect their health and the environment. The right to know principle is essential in promoting responsible chemical use, safeguarding public health, and facilitating meaningful public engagement in chemical management processes.[30]

10.2d Life Cycle Approach:

The life cycle approach in chemical management is a comprehensive strategy that considers the entire life cycle of a chemical, from its production and distribution to its use, storage, and disposal. This approach recognizes that the environmental and health impacts of chemicals are not limited to a single stage in their life cycle but can occur at various points along the way. By examining each phase of a chemical's life, decision-makers can better assess and manage potential risks and impacts, implement preventive measures, and adopt environmentally sound practices. The life cycle approach promotes sustainable and responsible chemical management by taking into account the broader context and consequences of chemical use, ultimately aiming to minimize negative effects on human health and the environment while optimizing resource efficiency.[31]

10.2e Risk-Based Approach:

The risk-based approach in chemical management is a fundamental concept that centers on evaluating and managing the potential risks associated with chemicals in a systematic and scientifically informed manner. Under this approach, decisions regarding the handling, use, and regulation of chemicals are based on a thorough assessment of the associated risks, considering factors such as toxicity, exposure, and potential harm to human health and the environment. By prioritizing actions in accordance with the level of risk identified, this approach enables responsible authorities to allocate resources efficiently and target measures where they are most needed. The risk-based approach provides a structured framework for making informed decisions that balance the benefits of chemical use with the imperative

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[29] Coly, Robert A. "Development and implementation of the polluter pays principle in international hazardous materials regulation." Environmental Claims Journal 24, no. 1 (2012): 33-50.
[30] Baram, Michael S. "Chemical industry accidents, liability, and community right to know." American Journal of Public Health 76, no. 5 (1986): 568-572.
[31] Wu, Fan, Keyan Cheng, Fei Cheng, and Jing You. "Life cycle thinking supports 21st-century new pollutant and chemical management." Integrated Environmental Assessment and Management 19, no. 4 (2023): 859-860.

to protect human health and the environment, ensuring that actions taken are proportionate to the level of risk involved.[32]

10.2f Sound Science:

Sound science in chemical management is a foundational principle that underscores the importance of relying on credible and rigorous scientific evidence to inform decision-making processes related to chemicals. It emphasizes the use of established scientific methodologies, research, and data analysis to assess the hazards, risks, and potential impacts of chemical substances accurately. Decisions made under the principle of sound science are based on objective and peer-reviewed scientific information, ensuring that policies and regulations are grounded in the best available knowledge. This approach not only enhances the quality and validity of chemical management decisions but also fosters transparency, accountability, and public confidence in the safety and effectiveness of these decisions.[33] Sound science forms the cornerstone of responsible and evidence-based chemical management practices, safeguarding human health and the environment.

Public Participation:

Public participation in chemical management is a crucial principle that emphasizes the involvement of the public and relevant stakeholders in decision-making processes related to chemicals. It recognizes that individuals and communities have a right to be informed about chemical risks, and their perspectives and concerns should be considered in shaping policies and regulations. This principle promotes transparency, inclusivity, and accountability in chemical management by providing opportunities for public input, feedback, and engagement.[34] By actively involving those affected by chemical-related decisions, it ensures that diverse voices and interests are taken into account, leading to more informed, equitable, and effective chemical management practices that align with the values and priorities of society.

10.2g International Cooperation:

International cooperation in chemical management is a critical principle that recognizes the global nature of chemical challenges and the need for collaborative efforts to address them effectively. It involves countries, organizations, and stakeholders working together to harmonize standards, share information, and coordinate actions to manage chemicals in a way that protects human health and the environment across borders. This principle acknowledges that chemicals do not respect national boundaries, and problems related to chemical safety and pollution often have transboundary or even global implications. Through international cooperation, countries can share best practices, expertise, and resources, ensuring that the responsible management of chemicals becomes a collective effort. It also facilitates the development of international agreements and conventions, such as the Stockholm Convention on Persistent Organic Pollutants and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, which set common goals and standards for chemical management on a global scale. International cooperation in chemical management is essential for addressing shared challenges, reducing duplication of efforts, and advancing the responsible use and handling of chemicals worldwide.

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[32] Plant, Jane A., James Bone, Kristin Vala Ragnarsdottir, and Nickalaos Voulvoulis. "Pollutants, human health and the environment–A risk-based approach." Applied geochemistry 26 (2011): S238-S240.

[33] Crawford-Brown, Douglas. "The concept of 'sound science'in risk management decisions." Risk Management 7 (2005): 7-20.

[34] Wang, Yuanni, Ruilian Zhang, Sandy Worden, Hailin Cao, and Chunhua Li. "Public participation in environmental governance initiatives of chemical industrial parks." Journal of Cleaner Production 305 (2021): 127092.

10.2h Capacity Building & Technical Assistance:

Capacity building and technical assistance in chemical management is a critical principle that recognizes the importance of enhancing the knowledge, skills, and infrastructure needed to manage chemicals effectively and responsibly. It involves providing training, education, and technical support to governments, organizations, and individuals involved in chemical management. This principle acknowledges that many countries, particularly developing nations, may face challenges in building the necessary capacity to implement robust chemical management programs and comply with international standards. Capacity building and technical assistance aim to bridge these gaps by equipping stakeholders with the expertise and resources required to assess chemical risks, develop regulatory frameworks, and implement safe handling practices. This approach not only strengthens a country's ability to protect human health and the environment but also fosters international cooperation and knowledge sharing, ensuring that chemical management practices align with the highest safety and sustainability standards.

10.2i Global & Regional Cooperation:

Global and regional cooperation in chemical management is a fundamental principle that recognizes the interconnectedness of chemical-related challenges and the need for collaborative efforts on a global and regional scale. This principle involves countries, organizations, and stakeholders working together to address common chemical management issues that transcend national boundaries. It emphasizes the importance of harmonizing regulations, sharing information, and coordinating actions to ensure the responsible use, handling, and disposal of chemicals.

On a global level, this cooperation results in the development of international agreements and conventions, such as the Rotterdam Convention and the Stockholm Convention, which set common goals and standards for chemical management worldwide. These agreements facilitate the exchange of knowledge, resources, and best practices among countries, fostering a global community committed to chemical safety.

At the regional level, cooperation among neighboring countries and regions allow for the sharing of experiences, challenges, and solutions specific to their geographical and environmental contexts. Regional initiatives help countries pool resources, conduct joint assessments of chemicals, and coordinate responses to chemical emergencies.

10.2j Continuous Improvement:

Continuous improvement in chemical management is a core principle that emphasizes the ongoing effort to enhance and refine chemical management practices and policies. It recognizes that the field of chemical management is dynamic, with evolving scientific knowledge and technologies. This principle encourages responsible authorities, organizations, and stakeholders to periodically review and adapt their approaches, regulations, and processes. It fosters a culture of learning from past experiences, embracing innovation, and staying updated with the latest best practices to minimize risks, reduce environmental impacts, and continually improve the responsible use and handling of chemicals.

11. Relationship to International strategies/conventions

a. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
b. Stockholm Convention on Persistent Organic Pollutants (POPs)
c. The Vienna Convention for the Protection of the Ozone Layer
a. The Waigani Convention to Ban the Importation into [Pacific] Forum IslandCountries of Hazardous and Radioactive Wastes and to Control the Trans-boundary Movement and Management of Hazardous Wastes

a. Convention for the Protection of the Natural Resources and Environment of the South Pacific Region

12. Expected benefits from the policy

The integration of SDGs with the NCMP&AP of the FSM exemplifies a holistic and forward-thinking approach to chemical management. By aligning national priorities with the SDGs, the FSM demonstrates its commitment to safeguarding human health and the environment and advancing the broader global sustainable development agenda.

The process of aligning the NCMP&AP of the FSM with specific targets and indicators of relevant SDGs involves a strategic approach that ensures the policy's impact on local and global sustainable development objectives. This integration contextualizes the policy within a broader framework and provides a clear roadmap for measuring progress and success.[35]

1. Identifying Relevant SDGs: The FSM begins by identifying the SDGs that directly intersect with chemical management and align with its national priorities (see previous sections).
2. Translating SDGs into Policy Targets: The FSM then translates the selected SDGs into concrete targets within the National Chemical Policy (see previous section). These targets should be specific, measurable, achievable, relevant, and time-bound (SMART).[36] For example, a target could be to reduce the concentration of specific hazardous chemicals in drinking water sources by a certain percentage over a designated period.
3. Selecting Appropriate Indicators: Indicators are chosen to measure progress towards each target quantitatively. These indicators provide tangible metrics that reflect whether the policy effectively contributes to realizing the chosen SDGs.
4. Data Collection and Monitoring: Data collection mechanisms are established to track the chosen indicators regularly. This requires collaboration with relevant government agencies, research institutions, and other stakeholders to ensure accurate and up-to-date information. Regular monitoring enables the FSM to assess whether it is on track to meet its SDG-aligned targets.
5. Reporting and Accountability: The FSM ensures transparency and accountability by regularly reporting progress on the SDG-aligned targets and indicators to domestic and international audiences. These reports showcase the FSM's commitment to sustainable development and provide a platform for learning from successes and challenges.
6. Adaptive Management: If the data indicates that progress needs to be made towards specific targets, the National Chemical Policy can be adapted and refined to address the identified gaps. This iterative approach ensures the policy remains dynamic and responsive to changing circumstances.

Incorporating SDG considerations within the strategies and actions of the FSM NCMP&AP is of paramount importance. By infusing the principles and priorities of relevant SDGs into policy design and implementation, the FSM not only strengthens its commitment to global sustainable development but also enhances the effectiveness and relevance of its chemical management efforts.

- Enhanced Relevance and Alignment: The integration of SDG considerations ensures that the National Chemical Policy is aligned with broader global objectives. For example, incorporating SDG 12 (Responsible Consumption and Production) means the policy is designed to reduce the

[35] UN Sustainable Development Goals, "National Sustainable Development Strategies," United Nations, accessed August 29, 2023, https://sdgs.un.org/topics/national-sustainable-development-strategies.
[36] United Nations, "About Partnerships for Sustainable Development," United Nations Sustainable Development, accessed August 29, 2023, https://sustainabledevelopment.un.org/partnerships/about.

ecological footprint of chemical manufacturing and promote sustainable practices that resonate not only with local concerns but also with international imperatives.

- Comprehensive and Holistic Approach: SDGs offer a comprehensive framework that spans diverse aspects of sustainable development, from environmental preservation to social well-being and economic growth. By embedding SDG considerations, the National Chemical Policy becomes a holistic strategy that addresses multiple dimensions of sustainability, creating a more integrated and well-rounded approach.
- International Collaboration and Reporting: The integration of SDG considerations enables the FSM to collaborate effectively with international partners and showcase its efforts on a global stage. When policy strategies are designed with SDGs in mind, the FSM's actions become more relatable and resonate with the shared goals of the international community.
- Policy Coherence: SDGs provide a cohesive framework that links various developmental areas. By integrating SDG considerations into the National Chemical Policy, potential conflicts or inconsistencies with other policies are minimized. This coherence ensures that different policy efforts work synergistically towards common sustainable development outcomes.
- Long-Term Vision: SDGs are designed to create lasting change and a sustainable future. By weaving SDG considerations into policy strategies, the FSM demonstrates a commitment to long-term planning and transformative change. This approach ensures that chemical management practices contribute to lasting positive impacts on both local communities and the global environment.
- Accountability and Monitoring: Incorporating SDG considerations facilitates more effective monitoring and reporting of policy progress. Since SDGs come with established targets and indicators, integrating them into policy strategies provides a structured framework for accountability and transparency.

Incorporating SDG considerations within the strategies and actions of the National Chemical Policy is a testament to the FSM's dedication to harmonizing its developmental goals with global priorities. This integration elevates the policy from a local instrument to a powerful tool that contributes to the realization of a sustainable and prosperous future for both the FSM and the broader international community.

FSM NATIONWIDE CHEMICAL ACTION PLAN

2024-2030

1. Other Institutions, Policies, and Regulatory Frameworks

The legal instruments in the FSM that specifically address chemical management almost entirely focus on the toxic substances found in pesticides and insecticides. According to the 2018 FSM State of Environment (SOE) report, "While the FSM has many laws, policies, and regulations that promote sustainable use and protection of its environment, there are still many gaps." These gaps include informational deficiencies regarding the types and quantities of chemicals identified in-country, resource shortages such as insufficient trained staff, materials, equipment, and funding, and organizational issues related to jurisdictional matters and regulatory activities. Research from the original POPs in PICS project, conducted 15 years ago, indicated that while FSM's legal framework for chemical management was fairly comprehensive in terms of banned or restricted chemicals, there were still significant gaps in procedures, communication, skilled human resources, budgetary/financial support, and jurisdictional cooperation between the national and state governments.

The FSM Constitution does not explicitly mention the word "environment," leading to the interpretation that environmental matters are a state-level issue. Although the implementation, monitoring, and enforcement of chemical-related laws and regulations are primarily conducted at the state level, it is essential for the national government to establish some degree of coordination and standardization. It would be illogical to permit one state to import a POPs chemical while another state is prohibited.

Before 2008, there was no national entity solely responsible for environmental management. The Office of Environment and Emergency Management (OEEM) was part of the Department of Health Services. Currently, the FSM Department of Environment, Climate Change, and Emergency Management (DECEM) holds the responsibility for chemical management at the national level. Within DECEM, the Division of Environment and Sustainable Development coordinates chemical management-related activities.

Approaches and procedures for chemical management are primarily conducted at the state level in the FSM. Each of the four states has an office responsible for EPA-related activities, with three operating as EPAs and KIRMA in Kosrae. The actual implementation activities, regardless of sector, typically occur at the state level. Limited information exists regarding chemical control because this issue has not been a high-priority topic of discussion in the nation. Currently, pesticide registration is the only major chemical management work being done by the states. Each state has developed registration forms to collect information on the import and use of pesticides. Since state-level staff are responsible for protecting the local environment and possess the most extensive and accurate knowledge of their specific situations, it is reasonable for most monitoring and enforcement activities to be handled by state governments. The EPA Administrator has the authority to suspend and revoke licenses, access records, inspect shipments, restrict and ban use, seize materials, and issue "stop sale, stop use, or removal" orders. However, without sufficient resources and support from the national level, these state monitoring and enforcement efforts will be weak.

The table below provides an overview of the legal mechanisms in place to control various aspects of the importation, sale, storage, application, handling, use, distribution, disposal, and removal of chemicals used in pesticides and insecticides. The regulations also identify certain prohibited investment activities throughout the country due to the associated chemical risks. The examples provided here are from the national government and Yap State, with each state having similar regulations.

- Regulations under numbers 1, 2, and 3 refer to Insecticide Control, Water Pollution Control, and Pesticide Control, respectively.

- Item number 4 is a more recently developed piece of national legislation created to facilitate the implementation of the FSM's Foreign Investment Act of 1997.
- Numbers 5, 6, and 7 of Table 4A reflect the types of legislation that exist at the state level.

Table 1: *References to existing legislation & regulations that address chemicals*

Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories Covered	Objective of Legislation	Relevant Article / Provisions	Resource Allocated	Enforcement Rank 1=effective 3=weak
1 Regulation – FSM Code (from TT Code – 1974)	Health Services	Insecticide Control	Control of Banned & Restricted Insecticides	Title 41 Parts 165 to169	None specifically listed	3
2 Regulations – FSM Code (from TT EPA Board Regulations 1975)	FSM-DECEM	"Chemical Wastes"	Water Pollution Control	Title 25	None specifically listed	3
3 Regulations – FSM Code (from TT EPA Board Regulations) Effective Date: 1 Aug 1980	State EPA's	Pesticides	Pesticide Control: Importation, Distribution, Sale, and Use	Title 63 Chapter 13 Subchapter IV	None specifically listed	3
4 Regulations for Foreign Investment Act of 1997 - FSM Public Law No. 10-49	Secretary of the FSM Department of Economic Affairs	Biological & Chemical Warfare Components	Economic Sectors in which Foreign Investment is Prohibited or Restricted	Title 32	None specifically listed	2
5 State Level Regulations Example: Yap State Environmental Quality Protection Act (YSL 3-73), 29 Nov 94	State EPA's	Transportation Sector and Consumer Use Land & Water Emissions	Oil Spill Reporting	Example: Title 18 Yap State Code Section 1507(a)	None specifically listed	2

6 State Level Regulations Example: Yap Environmental Quality Protection Act (YSL 3-73) 15 Feb 95	State EPA's	Pollution to Air and Water	Environmental Impact Statements (EIS)	Example: Title 18 Yap State Code Section 1509(a)	None specifically listed	1
7 State Level Regulations Example: Yap State Pesticides Regulations, 10 Oct 01	State EPA's	Pesticides	Control of Pesticides - Importation, through to Disposal	Example: Yap EPA Regulation No. 2001-1	None specifically listed	2

The Kosrae State Code does provide information reguarding air quality and the control of hazardous substances and pollution.

September 2014 update of the KOSRAE STATE CODE – PART 2

TITLE 12 - Chapter 12 – Section 12.1205: Indoor Clean Air Act

Section 12.1601. Title. This Act shall be known as the Indoor Clean Air Act of 2010.
Section 12.1602. Definitions. For purpose of this Act, the following terms shall have the meaning stated below:

(1) “Smoking” means the activity of inhaling and exhaling smoke from tobacco and other substances that are lit in cigars, cigarettes, and pipes, and to possess or transport cigars, cigarettes, pipes and smoking articles while lit.

(2) “Public place” means that portion of any building or vehicle used by and open to the public, regardless of whether the building or vehicle is owned in whole or in part by private persons or entities, the Kosrae State Government, or other public entity, and regardless of whether a fee is charged for admission or use.

TITLE 19 - Chapter 12

Chapter 5 – Hazardous Substances and Pollution
Subchapter A – General Provisions

Subchapter B – Pollution
Section 19.502. Littering.
Section 19.503. Fouling of public rivers and public water supply.
Section 19.504. Polluting.
Section 19.505. Contamination of fishery waters.
Subchapter C – Persistent Organic Pollutants
Section 19.506. Title: Persistent Organic Pollutants Acts of 2009.
Section 19.507. Purpose. Protect the environment and the health of persons of Kosrae
Section 19.508. Definitions.
Section 19.509. Hazardous Substances Covered by this Act.
(1) Aldrin (7) Furans
(2) Chlordane (8) Heptachlor
(3) DDT (Dischloro –diphenyl trichloroethane) (9) Hexaclorobenzene (HCB)
(4) Dieldrin (10) Mirex
(5) Dioxins (11) Polychlorinated Biphenyls (PCBs)
(6) Endrin (12) Toxaphene
Section 19.510. Additions to the Priority List.
Section 19.511. Sale, Use, Possession and Discharge of Substances on the Priority List.
Section 19.512. Labeling Requirements.
Section 19.513. Permits.
Section 19.514. Violation, Warning Notices and Penalties.
Section 19.515. Liability.
Section 19.516. Cooperation.
Section 19.517. Authority to Inspect.
Section 19.518. Exemptions.
Section 19.519. Community Education.
Section 19.520. Implementation of the Stockholm Convention.

Chapter 6 – Waste Management and Recycling

Subchapter A – Kosrae Recycling Program
Section 19.601. Recycling Program Established.
Section 19.602. Recycling Agent.
Section 19.603. Regulation.
Section 19.604. Recycling Deposit Fee.
Section 19.605. Recycling Fund.
Section 19.606. Payments by Recycling Agent.

As of the time of this report, other than the aforementioned laws and regulations, no additional control measures on chemicals are in place in the FSM. Many control efforts are outdated, sometimes obsolete, and relevant databases in each state are mostly limited to pesticide registries in the EPA offices. The Tax and Revenue Office of the FSM Department of Finance maintains a database of import information collected from the submission of Self Assessed Declaration (SAD) forms by importers. Unfortunately, this data usually does not specify whether the product's ingredients include any POPs substances. There

are strategies that could increase the sensitivity of the data collected from the SADs, but improving the system to this level may not be a priority for the Tax and Revenue division. Enhanced coordination between offices would improve the chances of identifying illegal and/or dangerous chemicals.

A similar situation exists with regard to the FSM's involvement in various regional and international agreements, conventions, and treaties. Some of these agreements directly address chemical safety and management, while others focus more on the protection of natural resources and the environment. The country's status with respect to these agreements varies; some have been signed, some have "entered into force," some have been ratified, and some have achieved accession status. This is indicated in Table 4 below.

Table 2: *International Agreements & Protocols*

International Agreements	Primary Responsible Agency	Ratification Date	Relevant National Implementation Activities
Compact of Free Association between the FSM and US.	FSM Dept. of Foreign Affairs	03 Nov 86	Government Operational Relationship
Agenda 21 - Commission for Sustainable Development	DECEM	N/A	Sustainable Development Initiatives
Stockholm Convention on POPs	DECEM	February 2005	Persistent Organic Pollutants Project - National Implementation Plan
Convention on Biological Diversity	DECEM	20 June 94	Biological Diversity Issues
Cartagena Protocol on Biosafety	DECEM	1 Jan 03	Safe handling, transport and use of living modified organisms (LMOs)
London Guidelines/United Nations Environment Program (Set of voluntary procedures)	DECEM	1989	Process of increasing chemical safety in all countries through the exchange of information on chemicals in international trade.
Food and Agricultural Organization (UN) Code of Conduct (voluntary procedure)	FSM Dept. of Economic Affairs	2014	Establish voluntary standards of conduct for all entities associated with the management of pesticides and other substances
Vienna Convention (1985)	FSM Dept. of Economic Affairs	06 Sept 95	Control Import & Use of Ozone-Depleting Substances
Montreal Protocol (1987)	FSM Dept. of Economic Affairs	06 Sept 95	Control Import & Use of Ozone-Depleting Substances
Waigani Convention (1995)	DECEM	23 May 97	Ban Imports & Control Transport of Hazardous and Radioactive Wastes

Basel Convention (1989)	DECEM	06 Sept 95	Control of Transboundary Movements of hazardous substances
Convention for Protection of the Natural Resources and Environment of the South Pacific Region (Noumea Convention)	DECEM	29 Nov 88	Natural resource and environmental protection issues
Chemical Weapons Conventions (1997)	Dept. of Foreign Affairs	21 June 99	Nuclear and Chemical Weapons Ban
Convention on Biological Diversity	Dept. of Economic Affairs	20 June 94	Biodiversity Issues
US Environmental Protection Act	DECEM / State EPA Offices	On-going - Compact support	Technical and Funding Assistance for Environmental Protection Activities
Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	DECEM	17 May 17	Control Import & Use of Ozone-Depleting Substances
Paris Agreement under the United Nations Framework Convention on Climate Change (2016)	DECEM	15 Sept. 16	An agreement within the UNFCCC), dealing with greenhouse gas emissions
Pacific Regional Pesticide Registration Scheme (PRPRS), approved in Vanuatu 2017	DECEM	2017	Pesticide registration systems

2. Departments & Agencies Involved In Chemical Management

The management of chemicals in the FSM involves several government departments at both the national and state levels. These government institutions will be critical for the implementation of chemical management in the FSM. This structure, detailed in the table below, has been in place for many years, with only office names changing over time. Not every office or department is involved at every stage of handling each POPs and other hazardous chemical substances. For example, state agricultural offices manage chemicals because they are used in their operational programs. Issues related to overlapping responsibilities and gaps in accountability can arise, similar to many other government operations. Human factors and attitudes can affect their performance despite existing coordinating mechanisms, leading to less-than-optimal outcomes.

Table 2: *International Agreements & Protocols*[37]

Stage of Life-cycle→ Department Concerned ↓	Import	Production	Storage	Transport	Distribution / Marketing	Use & Handling	Disposal
Environment	X		X	X	X	X	X
Health Services	X		X	X	X	X	
Agriculture	X		X	X	X	X	X
Trade / Commerce						X	
Finance / Customs	X						
Transport	X		X	X	X	X	
Justice	X		X	X	X	X	X
Foreign Affairs	X				X		X

3. Proposed action planning and implementation: priority areas

The proposed FSM Chemical Action Plan offers a roadmap for effective policy implementation. Initiatives and measures outlined in this section can be undertaken individually, by stakeholder groups, or through partnerships. However, they must align with the goals and objectives specified in the Policy. Short-to medium-term activities for effective management of chemicals and hazardous wastes will establish the necessary framework for ongoing improvement. This framework will enable the country to manage chemicals and hazardous waste in an environmentally sound manner through collaboration across all sectors.

It should be noted that this plan is not separate from the proposed National POPs Management Plan; rather, it fully incorporates the elements of the original plan as requested by stakeholders at the National and state levels.

The overall goal of this action plan is the safe management of all aspects of pesticide and insecticide use (from importation through to disposal) on all islands in the country. This includes all aspects of these substances' 'local life': import, marketing and distribution, storage, use, discard by the consumer/applicator, and final disposal.

The NCMPAP will provide national-level oversight for various POPs and other hazardous waste activities. An oversight committee or a unit dedicated to supporting and coordinating activities related to the management of all POPs and hazardous chemicals should be established.

In addition to the objectives outlined in other FSM Action Plans, this plan specifies three objectives to achieve safe pesticide and hazardous waste management:

[37] Tables sourced from FSM POPS report.

- Public Awareness and Education: Establish a program to enhance the general population's understanding and knowledge of targeted sub-groups (such as those in the agricultural and construction sectors) about the proper handling and use of all pesticides available in the FSM, including the potentially hazardous consequences of misuse. This program will cover all relevant aspects of pesticide management, from procurement to disposal.
- Capacity Building: Improve the capacity of the appropriate offices (at both the national and state levels) and commercial entities to implement safe management practices for all aspects of pesticide use in the country. This includes importation, marketing and distribution, storage, application, and disposal.
- Data Collection and Maintenance: Enhance the capacity of the four state EPA Offices to collect and maintain data on the registration and inventory of pesticides in the FSM.

4. Proposed management options

An important aspect of the success of the NCMPAP is ensuring that individuals involved in the agricultural and construction sectors in the FSM understand the benefits of proper pesticide use and the negative consequences of misuse. Alongside the goal of increasing pesticide knowledge among the general population, this effort is relatively straightforward, with few alternatives to consider. Potential options include hiring a consultant, adjusting the schedule of activities, changing the methods used to disseminate appropriate, up-to-date, and accurate information to the population (and specific subgroups), and utilizing private sector or non-governmental organization expertise to conduct parts of the information campaign.

Furthermore, financial support for the operation of a dedicated chemical management unit is imperative. Once a dedicated unit is established, it will serve as a source of in-country expertise, providing relevant and accurate information to the nation’s leadership regarding all activities related to the proper management of pesticides and related substances. This group is responsible for monitoring and evaluating the progress and effectiveness of the various POPs and chemical management activities and for recommending adjustments and changes to the NCAP.

DECEM and the four state EPAs (or their equivalents) will coordinate activities aimed at the safe management of pesticides and similar substances. While a consultant with expertise in pesticides may be required, external expertise included in other Action Plans is anticipated to be utilized. If in-country expertise is unavailable, the DECEM office will arrange for the necessary technical assistance.

The responsibilities of the four state Environmental Protection Offices (or their equivalents) will include conducting a state-wide survey to identify existing supplies of pesticides as outlined in NCMPAP. These stockpiles may consist of government reserves or imported commercial items awaiting wholesale or retail sale.

5. Proposed work plan

The elements of the work plan below were created based on the current needs of the FSM as specified by the stakeholders at the state levels. Unlike the FSM proposed POPs Action Plan, this is not overly detailed as the FSM and its states will need to revise and incorporate timelines that are well within manageable levels. It is estimated that this basic plan to fully implement would range in cost in the millions of dollars. As the states recently increased salaries and operating budgets, the original estimates on the cost of implementing this plan need to be evaluated and sustainable financing assessed under new budgeting criteria established by the four FSM states.

For potential cost for implementation, the OCEA, Inc. team included the POPs pesticides management Action Plan as a reference (see Table 4).

Table 3: *Proposed work plan*

GOAL 1: Align country policy with SAICM Global Plan of Action and Objectives				
Objective	**Strategy**	**Action**	**Key Entities**	**Capacity Needs**
Risk Reduction	Chemical hazard and risk assessment	- Conduct a baseline assessment to understand the current chemical landscape and pinpoint high-risk pollutants. - Conduct a risk assessment for hazardous chemicals with key national and state stakeholders. - Provide recommendations to reduce risks from chemicals. - Inform and/or upgrade regulations based on the identified risks, including emerging risks. - Minimize climate change risks to waste storage zones.	DECEM Customs DHSA Quarantine ……	- Assess mandates – quarantine - Create Chem & Hazard unit – DECEM - Look at relevant legis at national level - Assess all of their roles - Chemical experts

		- Deploy emergency containment measures to temporarily mitigate known risks. - Identify and deploy specialized tools and equipment to reduce chemical and hazardous waste risks		
	Safe Storage, Transportation, and Disposal	- Establish a centralized waste management facility for each state for storage, treatment and disposal of chemical and hazardous waste. Such a facility should not only cater to the storage needs of hazardous waste but also be equipped for its treatment and disposal based on international best practices. - Develop guidelines for labelling and transportation which should include mitigation measures to reduce risks associated with unlabeled chemical products. - Ensure that regulations for safe storage, transportation and disposal are in place. - Work with states to develop or update states	EPA/KIRMA, DECEM, TC&I (regulate sea and air movement), States Department of Public works, states TC&I DOFA/CTA (at state level) R&D/Quarantine Chamber of commerce	- Hazardous material team that is trained in responding to chemical and hazardous spills and emergency - Recurring training to update hazmat team and provide capacity building to include chemical and hazardous material - KIRMA staff to deal with chemical and hazardous material - Provide proper gear for assigned individual to deal with chems and hazard

		chemical and hazardous waste regulations, including the development of a M&E framework. - Identify capacity needs for effective storage, transportation and disposal of chemicals, including the type of containers fit for specific chemicals and prioritization for safety transport infrastructure. - Identify financial resources for effective implementation of safe storage, transport and disposal of chemicals at state level. - Develop a comprehensive chemical disposal guideline to apply universally across FSM's diverse island states. - Ensure that chemical risks to people and the environment are reduced through deployment of spill over procedures and kits, Personal Protective Equipment (PPE) and Safety Data Sheet (SDS) binders that offer comprehensive data on each chemical's properties,		

		risks, and emergency procedures.		
	Emergency Preparedness and Response	- Establish regulations to mitigate chemical waste impacts. - Establish guidelines and best practices for chemicals spill over and dispersal into the environment. - Establish prompt emergency response mechanisms. - Adopt the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) to enhance community safety. - Develop safety protocols for handling and disposal of chemical waste	DECEM Disaster coordinating officer (DCO) – Gov. Office KIRMA, DHS, DREA, Public Safety – First Responders	- Training to deal with chemicals - Establish regular training schedule - Labeling requirements exist at national for food, but do not exist at state level… need to create labelling regs at national and must be adopted at state - Develop database and reporting utilizing technology - Have dedicated individual for managing safety protocols - Hire/contract someone to develop regs, sops, protocols
Knowledge & Information	Inventory and Data Management	- Establish a Chemical Management System (CMS) - Develop and operationalize a national chemical database. - Establish a protocol for accessing the database - Build the capacity of key stakeholders in collection	DECEM, Custom & Tax	- Training required to run CMS system and update it

		and recording data to inform the CMS. - Enforce the use of the system at national and state level.		
Governance	Legislation and Regulatory Framework	- Revise the National implementation Plan for the Stockholm POPs Convention. - Develop TOR defining role and responsibilities of the Chemical Waste Management Officer. - Develop a cohesive chemical disposal policy, with clear guidelines for substances falling under the *Harmonized System* (HS) categories 28 to 40. - Strengthen regulatory system and establish, where needed, regulations for ensuring that hazardous waste facilities meet international best practices, including Personal Protective Equipment (PPE) requirements. - Institute stringent regulations governing hazardous waste handling, storage, transport, and disposal and back them	DECEM, Department of Foreign Affairs (DoFA), DHS, DOJ AG Office at the state For implementation KIRMA	Lack state law that allows executing agencies at the state level to prosecute infractions dealing with chemicals and hazmat State laws on plastics passed before national, the ID bans are not equivalent to the national regs. needs to be updated at the state level. National law do not levy a penalty/ no fines. Importer has 30 days to make a claim; no claim it is destroyed by CTA. Device to measure the thickness of the plastic that is brought in as per the national regulation No labs to test substances to determine validity of products as being biodegradable – at KIRMA – to ensure quick turnaround time – provide data right away.

		through enforcement and penalties for non-compliance. - Establish policy directive to focus on operationalizing the national chemical database as the central tool for all chemical management teams at both state and national levels		Develop a unit for chem and hazardous
Capacity-Building	Research and development	- Build M&E capacity of states EPAs and KIRMA. - Build capacity on Personal Protective Equipment (PPE) for states EPAs, KIRMA, and other government officers involved in chemical and hazardous waste labeling, transport, handling and disposal		
	Public Awareness and education	- Develop a communication plan for the larger public. - Develop a guidance framework on chemical management for government entities. - Regular training for those involved, alongside public campaigns, can enhance community compliance and safety.	DECEM, DHSA	

		- Public awareness on chemical labeling - Train key stakeholder on safety protocols for handling and disposal of chemical waste		
Illegal international trade	Industry Oversight and Compliance	- Enhance customs capacity to identify hazardous chemicals.	FSM Custom and Tax, DOJ, TC&I	
	Define guiding principles for chemical management	- Partnering with entities like Vital Corporation to leverage their expertise. - Develop prompt emergency response mechanisms for chemical spill emergencies	DECEM Vital	
	Chemical Identification	- The “new” state law should also require CAS Registry Numbers to be included in all chemical inventory list.		
	Storage	- Chemical Storage Guidelines should be developed and enforced. - All unused and outdated chemicals shall be appropriately disposed of with the government's support. - Storage facilities should be in place in each of the states of FSM to contain chemical wastes and		

		substances confiscated by the FSM Customs & Tax office. - Instructions for storing dangerous goods must be unambiguous to avoid harmful or destructive circumstances. - Developing local capacity to become expert chemical practitioners should be a priority of the state of Kosrae.		
	Transport	- Chemical importers must inform relevant state and national government offices about chemical transport, usage, storage, and disposal. - Chemical transport procedures should be clearly defined from one container to another or from one facility to another. -		
	Labeling	- Amend the provisions on labeling requirements in the Persistent Organic Pollutants Act of 2009 to require proper labeling of all hazardous chemicals		

		entering the port of entry. -		
	Disposal/Destruction	- FSM government should export all highly hazardous chemical wastes and confiscated chemicals out of the country for proper disposal. - Regulations should be developed to regulate the disposal of all other hazardous chemicals that can be appropriately disposed of in Kosrae. - For used oil, prepare treatment procedure for O&M of waste oil combustion facility; and - Raise awareness for and business sectors to commence waste oil treatment. - To have separate drainage for waste and chemicals – medical waste/ sluice - To autoclave – 5 for the hospital - Update incinerators at hospital - Importers should be responsible for disposal –		

		importers pay		
	Monitoring and evaluation of Chemical Management Practices	- The government should develop mechanisms for stakeholder engagement to build awareness and strengthen the cooperation and compliance of stakeholders. - Develop an M&E plan. - Build the capacity of local environmental agencies to implement the M&E plan. - Produce periodic reports on results of M&E		

Table 3: *POPs Pesticides Management Action Plan*

Objective	Activities	Responsible	Performance indicator	Timelines	Resource needs
Objective #1: Creating, by the end of 2021, implement beginning in January 2022, and once a year thereafter, a public awareness program that will increase the understanding of the general population, and also the knowledge of specifically targeted sub-groups (such the agricultural and construction sectors), concerning proper handling and use of all	1.1 Identifying the specific sub-groups to be targeted for a more technically expanded presentation on pesticide issues.	National Government POPs Program Coordinator and State POPs Public Awareness Program Manager, in consultation with HWAPWG	Satisfactory progress in identification sub-groups to be targeted, compilation of reference materials list, development of presentation materials for targeted sub-groups, review of presentation materials at national workshop, presentations performed	March 2021	Resource Needs (2021): $5,000 Resource Needs (2022, 2023, 2024): $24,000
	1.2 Compiling a list of reference materials as sources of accurate and current information for developing guidance protocols	National Government POPs Program Co-ordinator and State POPs Public Awareness Program		April 2021	

pesticides available in the FSM, and the potential hazardous consequences of pesticide misuse. This information will include all aspects of pesticide management, from procurement to disposal.	about the pesticides in use in the FSM.	Manager, in consultation with HWAPWG			
	1.3 Creating a list of pesticide-related topics to be included in the presentation, determine methods of knowledge transfer (pamphlets, workshops, etc.) and develop presentation materials for each topic to be used for targeted sub-groups.	National Government POPs Program Coordinator and State POPs Public Awareness Program Manager, in consultation with HWAPWG		July 2021	
	1.4 Including review of targeted sub-group presentations (developed in Activity 1.3 above) in the agenda of the national level workshop scheduled in Activity 4.3 of Action Plan 3.3.14.	National Government POPs Program Coordinator and State POPs Public Awareness Program Manager		November 2021	
	1.5 Performing the prepared presentations in each state once per year.	State POPs Information Officer and EPA staff		First presentation by June 2022 and then on-going in 2023 and 2024	
Objective #2: Improving, by the end of 2022, the capacity of the appropriate offices (at both the national and state level) and commercial entities, to successfully implement safe management	2.1 Conducting needs analysis, at the national Environment Office and state EPA Offices, of the focus, types, and content of training needed to improve the ability of both human resource and office operational systems	NACPCM, National Government POPs Program Coordinator and State EPA Offices	Satisfactory progress in identifying training needs, arranging and implementing training activities as scheduled, conducting workshop	January 2022	Resource Needs (2022): $16,000

of all aspects of the use of pesticides in the country (including importation, marketing and distribution, storage, application, discard, and disposal).	(national level government, state level government, and private sector) to put in force safe management practices for all aspects of pesticide use.				Resource Needs (2023, 2024): $96,000
	2.2 Conducting a national level workshop to discuss the findings of Activity 2.1 and determine what approaches must be utilized and specific groups targeted, to improve safety with regard to pesticides in each of the areas: importation, marketing and distribution, storage, application, discard, and disposal.	NACPCM, National Government POPs Pro-gram Coordinator and State EPA Offices		May 2022	
	2.3 Determining appropriate HR training methods and/or venues (ex: long-term college based, attachments, short term seminars/workshops, on-the-job training) for the identified training area needs	NACPCM, National Government POPs Program Coordinator and State EPA Offices		March 2022	
	2.4 Utilizing the information gathered in activities 2.2 and 2.3 above, identify, contact, and arrange currently available in-country training options, and subsequently identify, contact and arrange for out-of-country training options.	NACPCM, National Government POPs Program Coordinator		August 2022	

	2.5 Implementing training activities as organized - conducting one training per state per year with the following participants: state EPA and agriculture office staff, retail hardware stores, and commercial farming businesses.	NACPCM, National Government POPs Pro-gram Coordinator and State EPA Offices		August 2023 and 2024	
Objective #3: Improving, by the end of 2022, the capacity of the state EPA Offices (or equivalent) to collect and maintain data regarding the registration and inventory of pesticides in the FSM.	3.1 Updating existing pesticide data collection procedures in order to improve efficiency in the gathering of better quality information. The data should be related to all aspects of the 'local life' of these substances: import, marketing and distribution, storage, use, discard by the consumer/applicator, and final disposal.	NACPCM, National Government POPs Program Coordinator, State EPA Offices	Satisfactory (as scheduled) progress in developing new data collection procedures, identifying state level staff to handle pesticide data work, procurement of computer equipment, new procedures implemented, pesticide databases updated	September 2022	Resource Needs (2022): $28,000 Resource Needs (2023, 2024): $16,000
	3.2 Identifying and procuring needed computer equipment, database software, and related supplies for each state (e.g. Pesticides Stockpiles Management System (PSMS) of FAO).	National Government POPs Program Coordinator, in consultation with State EPA Offices		April 2022	
	3.3 Identifying staff in each state EPA Office to be responsible for pesticide data collection and	State EPA Offices		September 2022	

	database input/maintenance related work.				
	3.4 Implementing new data collection procedures and update pesticide databases in each state.	National Government POPs Program Coordinator, State EPA Offices		31 October 2022 and on-going thereafter	
	3.5 Implementing an empty pesticides containers management system	National Government POPs Program Coordinator, State EPA Offices, Vendors	System is collecting containers	31 October 2022 and on-going thereafter	No additional needed, vendor suppolied