

Waste Information Today

A Quarterly newsletter that is aimed at communicating the Department of Forestry, Fisheries and the Environment (DFFE) Chemicals and Waste Management projects

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Welcome note

Welcome to the latest edition of our newsletter. We endeavour to bring you a diverse range of articles that inform, inspire, and entertain.

We would like to take this opportunity to thank you for your support. Please let us know if you have any feedback regarding this newsletter to sawic@dfpe.gov.za.

We look forward to hearing from you.

Regards,

Waste Information Team



DFFE AND IWMSA BRING THE INTERNATIONAL SOLID WASTE ASSOCIATION (ISWA) WORLD CONGRESS 2024 TO AFRICA

We are pleased to announce that Cabinet has approved the hosting of The International Solid Waste Association (ISWA) World Congress 2024 being organised by the Institute of Waste Management of Southern Africa, in partnership with the Department of Forestry, Fisheries and Environment, City of Cape Town Metropolitan Municipality, South African Airways, ISWA African Chapter and the ISWA Young Professionals Group. “Bringing this prestigious event to Africa would not have been possible without the strategic partnership formed between The Department of Forestry, Fisheries and the Environment (DFFE)

and the Institute of Waste Management of Southern Africa (IWMSA)”, said Mpendulo Ginindza, President of the IWMSA and Chair of the Organising Committee of the conference. The strategic partnership was formed as a result of a Memorandum of Understanding signed between the DFFE and the IWMSA in 2019.

The congress’s theme is “Waste to Wealth: Solutions for a Sustainable Future”, encompassing a comprehensive range of topics within the waste management field.

DFFE AND IWMSA BRING THE INTERNATIONAL SOLID WASTE ASSOCIATION (ISWA) WORLD CONGRESS 2024 TO AFRICA (continued)

The topics to be discussed at the conference include but not limit to the following:

- Biological Treatment
- Collection and Transfer Technology
- Public Participation
- Hazardous Waste
- Health Care Risk Waste
- Legal Matters
- Recycling and Waste Minimisation
- Thermal Treatment
- Landfill: Construction, Operations and Rehabilitation
- Funding, Finance, Affordability
- Public Private Partnerships
- SMMEs support

Key objectives for the conference

- Promote and develop sustainable and professional waste management in the region and the transition to a circular economy.
- Bring together waste experts from around the world to network, create best practices and produce industry reports.
- Foster and encourage the development and training of waste management in the region.
- Stimulate Knowledge and Skills Transfer - would facilitate sharing knowledge, ideas, techniques, materials, and technologies by providing local educators, practitioners and researchers with access to a network of international attendees.
- Encouraging international cooperation in waste management which in turn will hopefully generate innovation, ideas and research agendas for many years to come and support the region's economies.
- Stimulate Foreign Direct Investment in the region.
- Promoting resource efficiency through sustainable production and consumption in the region.
- Provide an opportunity to showcase the best available technologies and practices to the region.
- Allows the sharing and curating of knowledge among peers.
- Identify and promote competence in a body of individuals through accreditation.
- Providing support to the region's developing and emerging economies.
- Aid in the region's economic recovery both in tourism and waste management sectors.
- Stimulate other industry trade in products and services - showcase local entrepreneurs, artisans, artists and craftspeople and give them access to a global audience. These small, medium and micro-sized enterprises (SMMEs) form part of a sector which has been identified as crucial to growing the region's economies.
- Assist in the growth and development of these SMMEs and provide an impact long after the conference, and in turn, be responsible for launching or boosting many careers.
- Provide a social benefit to South Africa – the conference will take its social sustainability footprint seriously and work to expand the reach of the event to directly assist disadvantaged communities.
- Initiatives will extend the conference's footprint and leave a more lasting legacy. e.g., It will commission a "Waste Repurposed" project where students are invited to create works of art from waste. These repurposed items will be sold at the event to raise funds for sustainable projects in South Africa. The project will work both to further social sustainability through charitable contributions and boost the profile of emerging SMMEs. This will give you more and better products and still allow for some Waste to Art.
- Provide a legacy - through a dedicated focus on environmental sustainability by not just minimising damage but actively attempting to improve the environment when the event occurs, e.g., with an optional Carbon Footprint offset fee.
- Publishing the scientific proceedings.

Overview

The conference will also provide a comprehensive Technical Tours programme and a full and varied social programme. The overview of the ISWA World Congress 2024 is as follows:

- Day Conference Sessions - 16 - 18 September 2024
- Welcome Function – 16 September 2024 at 17h30 for 18h00
- Conference Gala Dinner – 17 September 2024 at 19h30
- Technical Tours – 18,19,20 September 2024

DFFE AND IWMSA BRING THE INTERNATIONAL SOLID WASTE ASSOCIATION (ISWA) WORLD CONGRESS 2024 TO AFRICA (continued)

The ISWA World Congress is the foremost event in the field of solid waste management. It serves as a global assembly featuring elevated plenary sessions, technical site visits, and a rich cultural and social itinerary. Here, waste management professionals, government officials, industry leaders, policymakers, scientists, and emerging professionals convene, engaging in constructive dialogues to encourage scientific and technical advancements in sustainable solid waste management. This congress usually commences with the ISWA General Assembly, alongside the ISWA board and scientific and technical committee meetings.

ISWA 2024 offers a platform for the exchange of knowledge, ideas, techniques and technologies. By granting regional and local educators, practitioners, and researchers access to an international network, this conference and exhibition fosters opportunities for regional and local participants to establish novel business connections and research collaborations. This collaborative networking endeavour is poised to stimulate innovation, catalyse ideas, set research agendas for years to come and bolster the region's economy.

Participation from the African region is driven in different ways, one of which is through the ISWA Africa Chapter. The participation of the chapter ensures that this is not just a South African conference, but a truly African event. Solid waste management experts in the region are contributing to the formulation of the programme, bringing regional knowledge, services and products which will continue to promote a circular economy in the region. The conference will, subject to funding availability, include a volunteer programme designed to facilitate participation by students, interns and retirees involved in waste management.

“We hope to have the wider DFFE family participating in this historical event. We hope to include in our technical tours sites that show the contribution of your work. All regions are encouraged to send attendees to the conference so they may take advantage of the networking and knowledge transfer.” said Mpendulo Ginindza.

For queries related the International Solid Waste Association (ISWA) World Congress 2024, please contact:

Nicolle de Bruyn
Conference Secretariat
iwmsa@iwmsa.co.za
+27 11 675 3462

Sindiswa Duma
DFFE contact
SPDuma@dffe.gov.za

THE DEVELOPMENT OF AN EPR FEE GUIDELINE

The Extended Producer Responsibility (EPR) is an environmental policy where a Producer's obligations for a product or a class of products extend to encompass its post-consumer phase of the product life cycle. This policy aims to ensure that producers bear responsibility for the entire product life cycle they place on the market.

The Minister of Forestry, Fisheries and the Environment published the Extended Producer Responsibility Regulations, 2020 (as amended) together with six (6) sector notices covering the following identified products and their resulting waste streams: Paper, Packaging and some single-use products, Electrical and Electronic equipment, Lighting, Lubricant oils, Pesticides and Portable batteries Section 18 (2) of the Waste Act empowers Minister to specify financial arrangements of a waste minimisation programme, with concurrence of the Minister of Finance. The Minister specified the financial arrangements through Regulation 7 of the EPR Regulations, which stipulates that:

"7(1) The producer responsibility organisation that establishes and implements an extended producer responsibility scheme must, together with its members, determine the proposed extended producer responsibility fee and apply the extended producer fee proportionally to all members based on the identified products placed on the market. "

"(2) The proposed extended producer responsibility fee must be submitted electronically to the Minister, including the motivation, justification and any other relevant information, who must obtain concurrence on the proposed extended producer responsibility fee from the Minister responsible for finance within 60 days of submission.

To assist PROs in complying with the above provision and the EPR fee determination criteria as required in regulation 7(3) of the EPR Regulations, the Department, through the panel of experts appointed to advise the department, has developed a draft Guideline for EPR Fee Determination and a Toolkit in August 2023.

The purpose of the Guideline is to:

- Guide Producers and PROs on determining the EPR fees.
- Provide a consistent mechanism for determining the EPR fees applicable to the identified products.
- Ensure transparency, fairness, standardisation and universality in the EPR fee determination process.
- Assist Producers or PROs in meeting their financial obligations in terms of EPR Regulations.

As part of Stakeholder Consultation, the draft guideline was circulated for stakeholder comments and inputs, and this culminated in several stakeholder consultation meetings, which were conducted as follows:

- Intergovernmental Committee on Waste Management (IGCWM) Meeting: 06 September 2023;
- Industry Stakeholder Consultation workshop (attended by PROs and Producers): 08 September 2023
- South Africa - Norway EPR webinar: 13 September 2023 for international benchmarking purposes
- Department of Trade, Industry and Competition: 18 September 2023

Following the stakeholder consultation sessions, written comments were received and considered in revising the EPR guideline. The draft EPR fee guide will be gazetted for public comments.

It should be noted that PROs may use the current EPR fee guideline to determine the proposed EPR fees for 2024 to be submitted to the Minister, who must obtain concurrence from the Minister of Finance. The Guideline will also inform the technical assessment of the 2024 EPR fee applications, as required by the National Treasury.

For queries related to the EPR Fee Guideline, please contact:

Mr. Kgauta Mokoena – kmokoena@dffe.gov.za
Mr. Jeremia Sibande – jsibande@dffe.gov.za

INDUSTRIAL SYMBIOSIS- CONNECTING COMPANIES THAT CAN TRADE IN WASTE



Ash to bricks

Project team: Ronald Maditse, Zimasa Nhlapo,
Surprise Zwane and Budu Manaka

As a department, we have a tendency to use many acronyms and big terms, which sometimes confuse people. Fortunately, these terms are globally understood and used extensively within the environmental, biodiversity, conservation and circular economy sectors. One of these terms is Industrial Symbiosis, abbreviated “IS”. Others use words such as waste brokering, waste recycling and waste exchange when referring to IS. The major sector players involved in IS are within the Green Economy, Circular Economy, Waste Economy and Industrial Ecology.

Industrial Symbiosis (IS) has become a popular term in recent years to describe industrial activities where a waste or by-product of one actor becomes a resource for another actor.

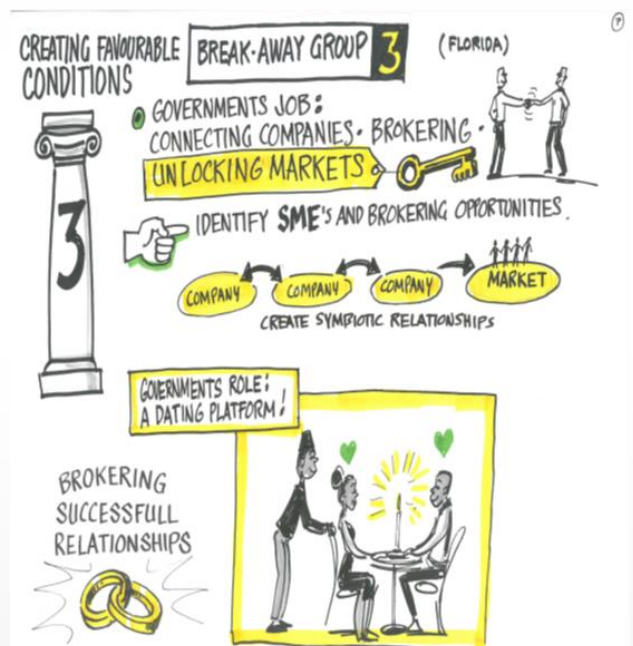
In technical terms, IS can be defined as a subset of industrial ecology and describes how a network of diverse organizations can foster eco-innovation and long-term culture change, create and share mutually profitable transactions and improve business and technical processes.

In simple terms, it is a form of brokering to bring companies together in innovative partnerships, finding ways to use the waste from one company as raw materials for another company while reducing the amount of waste that would typically be directed to landfills.

This form of waste brokering can reduce the demand for virgin raw materials and reduce waste disposal, thereby closing the material loop – a fundamental feature of the circular economy and a driver for green growth and eco-innovative solutions. It can also reduce emissions and energy use while creating new revenue streams for companies.

In this waste brokering approach, the government’s role is to facilitate and connect the companies to unlock markets. This can be compared to a dating platform. This is where SMMEs and corporate companies are identified, and their collaboration and partnership are established for waste brokerage or trading purposes.

The National Cleaner Production Centre- South Africa (NCPC-SA’s) is a programme of the government hosted by the CSIR on behalf of **the dtic** and has been playing a significant role in this space for the past eight to ten years in implementing the IS Programme.



INDUSTRIAL SYMBIOSIS- CONNECTING COMPANIES THAT CAN TRADE IN WASTE (continued)

This Programme is a free facilitation service that promotes the exchange of residual resources for businesses in Gauteng, Kwa-Zulu Natal, Western Cape, Mpumalanga and Limpopo. To date, the IS programme has been launched and implemented in seven provinces with North West to be launched in November 2023 and the Western Cape planned for early next year. Green Cape has already established the IS programme in the City of Cape Town, and collaboration with additional partners will expand the footprint across the entire Western Cape.

As of 2020, the NCPC has assisted 46 businesses in cost savings of R17,713,486 through landfill diversion and R45,881,696 through airspace savings. The participating businesses also saved 862,795 m³ of industrial water, 111,502 tonnes of waste diverted from landfills and 70,390 tonnes CO₂e of GHG emissions savings. The NCPC-SA has partnered with provincial departments to provide continuous support and to ensure the sustainability of such symbiotic relationships

As such, the DFFE has included support for such programmes within the recently published National Waste Management Strategy (NWMS 2020), which provides government policies and strategic interventions for the waste sector. The NWMS 2020 has identified the NCPC-SA as the lead Implementing Institution of IS across South Africa. Section 8 of the NWMS 2020 outlines an implementation plan, with key interventions, targets and timelines, as well as stakeholders responsible for key actions and delivery of the strategy's objective.



Plastics to pellets

Stakeholders and partners include DFFE, provinces, industrial development zones, industrial parks, business chambers and industry associations. The role of the DFFE is to strengthen the capacity and national reach of the NCPC-SA through establishing waste symbiosis programmes in all provinces. The intervention in this case is to prevent waste generation through cleaner production, industrial symbiosis and extended producer responsibility (EPR).

An example of products from waste for the Waste Economy where industrial symbiosis and waste exchange have taken place are presented below.



INDUSTRIAL SYMBIOSIS- CONNECTING COMPANIES THAT CAN TRADE IN WASTE (continued)

Furthermore, DFFE has contracted three service providers to assist the NCPC_SA in securing symbiotic partnerships and diverting waste away from landfills. The country was divided into three regions, with Region A consisting of the three coastal provinces: Northern Cape, Western Cape and Eastern Cape. Region B consists of Free State, KwaZulu Natal and Mpumalanga. Region C consists of Gauteng, North West and Limpopo.

In the future, when you walk around and see waste, remember the following -

- “one man’s trash is another man’s cash”.
- “energy can never be destroyed but transformed from one form to another”. In the case of waste, it can also be transformed into valuable and treasured products.
- Waste provides opportunities for circularity and job creation, as well as the creation of new markets and innovative solutions
- addressing waste is not only for DFFE but all partners from the three spheres of government, industry, industrial development zones, industrial parks, business chambers and industry associations.

For queries related to the project, please contact:

Mr Ronald Maditse – rmaditse@dffe.gov.za

Ms Zimasa Nhlapo – zinhlapo@dffe.gov.za

Ms Budu Manaka – bmanaka@dffe.gov.za

Mr Surprise Zwane – szwane@dffe.gov.za

SUPPORT TO SMMS INVOLVED IN WASTE RECYCLING INSIDE AND OUTSIDE OF THE KRUGER NATIONAL PARK THROUGH DFFE MICROGRANTS

Have you driven around the Kruger National Park lately? Have you noticed that there is less litter and illegal dumping spots insight? Do you know what this means to the immediate communities, our visiting tourist and waste recycling opportunities?

As it turns out, there used to be complaints about how communities surrounding the Kruger National Park boundary fence and visitors to the Park were contributing to waste generation and an unsightly visual display of litter and illegal dumping spots across key attraction entry points to the Park. This was creating a considerable negative impact on biodiversity and ecological resources, to some extent affecting the economic footprint in the area.



SUPPORT TO SMMEs INVOLVED IN WASTE RECYCLING INSIDE AND OUTSIDE OF THE KRUGER NATIONAL PARK THROUGH DFFE MICROGRANTS (continued)

Furthermore, Park Management are capable of managing and diverting waste, but struggle with resources due to limited budget allocated for waste management. Outside the Park, municipalities bordering the Park were failing to do waste collection and to address illegal dumps both in Limpopo and Mpumalanga provinces. This is outside the jurisdiction of the Park, and through public private partnership and collaboration, it will be possible to address waste management issues by supporting activities implemented by SMMEs involved in waste recycling

Of note is that a socio-economic impact analysis conducted in 2016/17 highlighted that the Greater Kruger Protected Area network is a key driver for inclusive rural economic development, supporting more than 22,300 conservation and tourism jobs with a personal income of R3.4 billion annually, while adding R6.6 billion to South Africa's GDP and contributing R1.5 billion in taxes.

Therefore, negative media sentiments, the health and well-being of communities, and declining visiting numbers would significantly affect employment opportunities and any economic activities around the Park.

To address this issue and to meet legislative obligations, the DFFE in partnership with the South African National Parks (SANParks), through the Kruger National Park have joined forces and are currently implementing a programme for supporting SMMEs involved in waste recycling by providing microgrants for infrastructure and assets to increase waste recovery and recycling.

The programme involves procuring assets in the form of personal protective equipment (PPE), machinery, equipment such as glass crushers, litter pickers, trailers, health and safety equipment, fire extinguishers, scales, forklifts and waste recycling related tools.



To ensure a successful implementation of this project, budget was allocated for the 2023/24 financial year. The funds are being used for the procurement of tools of trade and over time, SMMEs will also be provided with business development and training in partnership with other organizations.

here are 23 SMMEs that are being supported and these include companies manufacturing briquettes, glass beads, generating biogas from organic waste, bag manufacturing from plastic bottles that have been recycled into woven fiber, diesel and petrol made out of recycled plastic bottles. Other companies recycle paper, boxes, plastic and cans, while others do river and community clean-ups.



The DFFE and Department of Public Works are also rolling out Cleaning and Greening Programmes in Mpumalanga and Limpopo to accelerate waste recovery and clearing of illegal dumping sites. This creates increased job creation opportunities and ensures that collaborative effort and shared resources from government goes a long way to protect and manage our biodiversity and ecological resources while keeping our country clean and contributing to waste diversion targets as set out in the 2022 National Waste Management Strategy.

For queries related to the project, please contact:

Mr Ronald Maditse – rmaditse@dffe.gov.za

Ms Zimasa Nhlapo – zinhlapo@dffe.gov.za

Ms Budu Manaka – bmanaka@dffe.gov.za

Mr Surprise Zwane – szwane@dffe.gov.za

GREEN GURU SOLUTIONS & QONDUBUHLE SA WASTE FACILITIES- MBOMBELA LOCAL MUNICIPALITY

The Waste Act is based on the principles of the Waste Hierarchy (5 methods of managing waste), which requires that the generation of waste is avoided, or where it cannot be avoided, that it is reduced, reused, recycled, or recovered and only as a last resort treated and safely disposed of to landfill.

The National Environmental Management Act, 2008 (Act 59 of 2008), as amended (NEMWA), places a duty on the State to place uniform measures that seek to reduce the amount of waste generated and, where waste is generated to ensure that waste is reused, recovered recycled in an environmentally sound manner. However, this is not the department's responsibility in isolation; hence, promoting public and private partnerships, SMMEs, and the informal waste sector is essential.

Pillar 1 & 2 of the National Waste Management Strategy 2020 places emphasis on:

- *“Minimise general waste streams from landfill.”*
- *“Advance Waste as a Resource”*
- *“Waste Collection including separation at source.”*

The National Department of Forestry, Fisheries and the Environment visited Green Guru Solutions, a recycling facility in Mbombela Local Municipality, on 7th June 2023. These two facilities are assisting in achieving the objective of the Waste Act through the diversion of waste from the landfill.

Green Guru is a locally owned business operating in the waste management industry as on-site waste managers, waste collectors and recyclers within the Mbombela region of Mpumalanga. At Green Guru, they are committed to providing environmentally friendly waste handling solutions to Mbombela and the surrounding areas, with a vision to be the leading waste management company within the Agricultural, Residential and Schooling sectors around Mbombela region.

Green Guru Solutions offers the following services:

- On-site waste management and removal services.
- They assess clients' waste production and reduce waste to landfills through recycling and organic waste management.
- Provides clients with a monthly waste report and a waste compliance certificate.
- Residential recycling collection services free-standing homes and residential complexes/estates. Each household receives one clear bag per week; all recyclables are placed in the bag, left on the curb and collected by Green Guru.

Green Guru is not limited to but does have a specific focus on the residential, schooling, and agricultural sectors. They are registered with CropLife SA to ensure companies fit all criteria relating to Global Gap and are certified to remove all chemical containers, providing all clients with a declaration of safe disposal. Their commercial clients receive a complete waste management solution, from skip to landfill; Green Guru manages and ensures as much waste as possible is diverted, with the aim of zero-waste to landfill. Within the residential areas, they offer door-to-door residential recycling collections.

Green Guru believes waste education is critical to waste reduction and provides free on-site waste management training for all its clients and free school waste presentations. It is of utmost importance to note that all this aligns with South Africa's goal to have zero waste to landfill by 2030. This adds value and can potentially create numerous environmental, social and economic opportunities for South Africa. If zero waste to landfill is to be achieved at the source of waste generation, waste needs to be managed effectively to ensure it is useful and avoid being contaminated.

GREEN GURU SOLUTIONS & QONDUBUHLE SA WASTE FACILITIES- MBOMBELA LOCAL MUNICIPALITY (continued)

QONDUBUHLE SA- FROM HUMBLE BEGINNINGS

Qondubuhle SA is a Waste Management Facility specialising in large-scale recycling projects. It was established by a young African woman, Lehlohonolo Mphakathi, based in White River, City of Mbombela Municipality. During her time as a student at Wits University, she needed extra money to cover her expenses, and seeing recyclers all over Braamfontein, she enquired how they generate money. That is when recyclers told her what they do and how they do it. She then took it upon herself to try it and started by collecting papers from the lecture rooms.

The company has employed 20 community members who collect and sort waste on the premises. The company offers services from their facility in Kabokweni, where community members can bring their recyclables in exchange for cash. The facility contributes to waste diversion through the recycling of white paper, cardboard, newspapers, medical waste, and seven types of plastics. They offer collection services to housing complexes, schools, and malls in and around Mbombela.

The emergence of these two facilities signifies the opportunities to maximise waste recycling and expand the value of the waste economy while sustainably minimising the environmental and health impacts by reducing waste as early as possible in the value chain.



Figure 1: Qondubuhle SA owner Lehlohonolo Mphakathi



Figure 2: Qondubuhle SA Facility



Figure 3: PET collected at Qondubuhle SA

For any further information sharing, contact:
Directorate: General Waste Management
Tel: +27 12 399 8794/ 9093/9812

Email: BSdlamini@dffe.gov.za
ASiyengo@dffe.gov.za
LSeabelo@dffe.gov.za
Beja@dffe.gov.za

HYDROCHLOROFLUOROCARBON (HCFC) NEWS

Climate change and ozone layer depletion are severe global environmental problems globally. Hydrochlorofluorocarbons (HCFCs) are not only ozone-depleting substances (ODSs) but also are potent greenhouse gases (GHGs) with high global warming potentials (GWP). HCFCs are presently used in various sectors, including Refrigeration and air-conditioning (RAC) servicing sector (56%) and foam manufacturing sectors (43%), among others.

The international community of the Montreal Protocol on substances depleting the ozone layer decided to accelerate HCFCs phase-out at the 19th Conference held by Montreal Protocol Parties in September 2007. According to the latest phase-out schedule under the Montreal Protocol, South Africa, as a developing country, is expected to limit the production and consumption of HCFCs in 2013 at the average level of 2009–2010. Further, it is expected to reduce HCFCs by 10% in 2015, 35% in 2020, 67.5% in 2025, 97.5% in 2030 and finally phase out all HCFCs in 2040.

In 2013, South Africa launched its HCFC Phase-out Management Plan (HPMP) to meet the 2030 deadline by reducing HCFCs in stages. South Africa has successfully achieved a complete phase-out of 1656 metric tonnes with an Ozone Depletion Potential (ODP) of 182.2 of HCFC-141b, a chemical used by foam manufacturing enterprises as a blowing agent in the production of rigid polyurethane (PU) foams. The R141b phase-out had environmental benefits: (i) assisting the healing of the stratospheric ozone layer and (ii) towards climate change mitigation due to transitioning to low global warming potential alternative technology.

However, the accelerated phase-down is continuing with HCFC-22 (R-22), a refrigerant widely used in residential air-conditioners, industrial and commercial refrigeration, refrigerators and freezers, cold storage, retail food refrigeration equipment, chillers, and industrial process refrigeration (IPR) with ODP of 0.055 and a global warming potential (GWP) of 1810 tCO₂e.

South Africa's HCFC phase-out is on track with the 45% reduction target of the baseline consumption met and exceeded in 2022.

The country will phase out HCFC for the next five years as per the following reduction targets:

- 2024: HCFC consumption will be reduced by 60%, which is 3084,2 tons from the baseline of 5140.20 tons (not exceeding the allowable consumption of 2056,08 tons)
- 2025: HCFC consumption will be reduced by 67.5%, which is 3469,635 tons from the baseline of 5140.20 tons (not exceeding the allowable consumption of 1670,565 tons)
- 2026: HCFC consumption will be reduced by 97.5%, which is 5011,695 tons from the baseline of 5140.20 tons (not exceeding the allowable consumption of 128,505 tons)
- 2027: HCFC consumption will be reduced by 97.5%, which is 5011,695 tons from the baseline of 5140.20 tons (not exceeding the allowable consumption of 128,505 tons)
- 2028: HCFC consumption will be reduced by 97.5%, which is 5011,695 tons from the baseline of 5140.20 tons (not exceeding the allowable consumption of 128,505 tons)

Beyond the 2028 reduction milestone, the phase-out of HCFCs will continue over the years until an absolute phase-out of all HCFCs is reached in 2040.

The department aims to continue to achieve the phase-out targets by controlling and monitoring the imports and exports of HCFC refrigerants, issuing endorsement letters for import and export permits, monitoring quota allocation and encouraging the use of alternative refrigerants that are ozone and environmentally friendly.

Because of the phase-out of the HCFCs by 97.5% in 2030, the owners of most air conditioning and refrigeration equipment (AC&R) must determine in the near future how they want to respond to this situation. There are three possibilities: continue to use the existing refrigerant with HCFCs, convert the equipment to an alternate refrigerant, or replace the equipment with high-efficiency equipment designed to run on non-HCFC refrigerants. As such, the lengthy phase-out period allows you (industry and households) to replace your air-conditioning equipment that contains R-22 when you usually would, for instance, if it becomes old, inefficient, or ineffective. Realizing that supplies of R-22 will become more limited and that the price and illegal usage may increase should also be factors.

HYDROCHLOROFLUOROCARBON (HCFC) NEWS (continued)

In the meantime, R-22 remains available for servicing equipment made before 2030, but it is illegal to intentionally release refrigerant substitutes when making repairs. The balance can only come from refrigerant reclaiming from “replaced” systems. This refrigerant reclaiming is suddenly critical to the world’s refrigeration systems. The owner should attempt to contain the refrigerant by eliminating leaks on all systems.

As South Africa phases out refrigerant R-22, you must make informed choices when servicing, repairing, or replacing an existing air-conditioning unit or when purchasing a new one. The department has banned the manufacture of new equipment that contains R-22. i.e., all packaged RAC equipment charged with R-22 in consoles and split units and installation of all new systems charged with R-22, e.g., chillers.

As a homeowner or industry, you need to consider and balance several key factors in your decision to purchase a new unit, such as energy efficiency, performance, reliability, cost, and the refrigerant used.

For more information related to this article, please contact:
Mr Obed Baloyi
Chief Director: Chemicals Management
OBALOYI@dffe.gov.za

Ms Margaret Molefe
Director: Hazardous Chemicals Management
SMOLEFE@dffe.gov.za

Ms Lutendo Ndlovu
Deputy Director: Hazardous Chemicals Management
(Montreal Protocol)
LNDHLOVU@dffe.gov.za

Mr Gift Molokwane
Deputy Director: Hazardous Chemicals Management
(Montreal Protocol)
GMolokwane@dffe.gov.za

2023 TARGET SET BY THE STOCKHOLM CONVENTION ON THE PHASE-OUT OF POLYCHLORINATED BIPHENYLS SOON APPROACHING

South Africa is a party to the global treaty Stockholm Convention on Persistent Organic Pollutants (POPs) adopted in May 2001 and entered into force on 17 May 2004, with the purpose to protect human health and the environment from harmful chemicals that remain intact in the environment for long periods, become widely distributed geographically, and accumulate in the fatty tissue of humans and wildlife. These chemicals, known as persistent organic pollutants (POPs), can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease, and damage to the central and peripheral nervous systems.

Polychlorinated biphenyls (PCBs) were initially listed as POPs and among the first 12 chemicals to be listed as POPs. The PCBs have been listed in Annex A of the Convention as industrial chemicals, and unintentional by-products and countries are obliged to eliminate the use of PCB in equipment applications (such as electric transformers and capacitors) by 2025 and make determined efforts to lead to the environmentally sound manner (ESM) of waste liquids and equipment contaminated with PCB by 2028

2023 TARGET SET BY THE STOCKHOLM CONVENTION ON THE PHASE-OUT OF POLYCHLORINATED BIPHENYLS SOON APPROACHING (continued)

Where are PCBs mostly found?

PCBs were added to oils used in electrical equipment such as transformers, capacitors, mini-substations, switch gears, etc. Some of these electrical equipment are owned by Eskom, municipalities licensed to distribute and/or generate electricity by the National Energy Regulator of South Africa (NERSA) (including metros, district, and local municipalities) and other energy-intensive industries such as mining, cement, steel, aluminium, chemical, and petrochemical manufacturing, and transportation (Transnet). The manufacture of PCBs ceased in 1989. Some transformers produced before 1990 that may contain hazardous levels of PCBs in the cooling fluid are still in use. These old types of equipment present a health risk to humans and the environment and involve high energy loss.

Stockholm Convention set 2025 as the target date for the phase-out of PCBs.

In ensuring that the PCBs are phased out and eliminated by countries, the Stockholm Convention set a target of 2025 for the phase-out of PCB equipment and 2028 for the disposal of resulting wastes (i.e., environmentally sound waste management (ESM) of liquids containing PCB and equipment contaminated with PCB (having a PCB content above 0.005% (50 mg/kg). This target date for the phase-out of PCB equipment is fast approaching, and the pressure is mounting for countries to phase out the equipment containing and contaminated with PCBs. South Africa is not immune to this need to phase out PCBs.

What is the country doing to phase out the PCBs

South Africa has made strides in putting in place and implementing mechanisms to enable its compliance with this treaty. Such initiatives include the development of “Regulations to phase-out the use of PCB materials and PCB contaminated materials” promulgated on 10 July 2014 - with the objective to phase out the use of PCBs in electrical equipment by 2023 and dispose of the resulting wastes by 2026 (NEMA Act No 107 of 1998) and SANS 290. These Regulations invited holders of PCB and PCB-contaminated materials to register with the Department and then submit the phase-out plans. To comply with the provisions of the Regulations, holders of PCB and PCB-contaminated materials registered with the Department and subsequently submitted their phase-out plans.

Industries, state-owned enterprises, and the local municipalities licensed to generate and/or distribute electricity by the National Energy Regulator of South Africa (NERSA) that own equipment targeted for phase-out by the Regulations have been registered as holders and are in the process of phasing out all their contaminated equipment.

In 2021, a full-size approved project was obtained, the South African project GEF ID: 9576 titled Environmentally Sound Management (ESM) and disposal of Polychlorinated biphenyls (PCBs) is supported by the Global Environment Facility (GEF) through the Development Bank of Southern Africa (DBSA) (the Implementing Agency). This Project aims to reduce and eliminate the use and release of PCBs to the environment through the development and implementation of the environmentally sound management and disposal of PCBs and PCB-contaminated oil, equipment and wastes in South Africa.

From March 2023 – to March 2024, the Project has appointed service providers for PCB Inventory establishment and verification in South Africa to support NERSA-licensed municipalities. Reliable POPs inventories are the first step in POPs management and will help to meet the aims and deadlines set in the Stockholm Convention. The inventory aims to identify, quantify and maintain records of POPs, equipment and materials prone to containing or being contaminated with POPs. This information is indispensable when preparing a national implementation plan, which should encompass the entire lifecycle of these products. The service providers include:

- Zabcor PTY Ltd is servicing Gauteng, Limpopo and Mpumalanga Province.
- Mamadi & Company SA PTY Ltd is servicing KwaZulu Natal, North West and Northern Cape Province.
- Young Messiah is servicing Eastern Cape and Free State Province.
- Dihlashana Consulting Cooperation is servicing Western Cape Province.

2023 TARGET SET BY THE STOCKHOLM CONVENTION ON THE PHASE-OUT OF POLYCHLORINATED BIPHENYLS SOON APPROACHING (continued)

In 2024, an integrated municipality phase-out management plan will be initiated. A Phase-out Plan presents a strategy and identifies the activities to be implemented in a set timeframe. The phase-out plan will be detailed and comprehensive enough. The PCB National Phase-out Plan sets the following general objectives:

- Identify key stakeholders responsible for sound management of PCB and ensure their roles and responsibilities are understood and enforceable.
- Establish and maintain a national inventory of all PCB-contaminated equipment.
- Agree on concrete actions by key stakeholders to ensure that all contaminated equipment is either decommissioned and disposed of or is scheduled for replacement and disposal by the owners of the contaminated equipment and
- Present the strategy and activities to be implemented in a set timeframe (a road map) by each entity, individually or in collaboration.

One of the challenges in the phase-out of PCB equipment is the cost associated with replacing the existing PCB-contaminated electric transformers and switchgear. Because PCB disposal requires a thorough understanding of where and how much PCB there is, tools to gather, analyze, manage, and visualize spatial data are important. The Project has identified a potential PCB treatment facility has been identified in South Africa with a treatment technology, including thermal desorption technology. South Africa will not ship out its PCB waste outside the country. The facility will produce greater added value in the future for the environmentally sound treatment of other hazardous waste as well as possible PCB waste identified after completion of the Project and may also contribute to job creation, e.g., through labour required to prepare transformers and PCB waste for treatment, as a result of the Project.

For more information related to this article, please contact:

Mr Obed Baloyi

Chief Director: Chemicals Management

OBALOYI@dffe.gov.za

Ms Margaret Molefe

Director: Hazardous Chemicals Management

SMOLEFE@dffe.gov.za

Ms Mangaka Mahlako

Deputy Director: Hazardous Chemicals Management (Persistent Pollutant Management)

MMAHLAKO@dffe.gov.za