



## THE LETHARGY OF PROJECTS IMPLEMENTATION IN AFRICA

In the face of rapid globalization and demand for products, increased trade, expansion of manufacturing into Developing Countries and Countries with Economies in Transition (CEIT), new chemicals, uses, or products, along with an increased awareness of real or potential negative impacts of chemicals, the last two decades has seen the rapid implementation of a number of regional and international agreements regarding chemicals management, which have focused concerns on the need for a globally effective and sustainable chemicals management process. One particular chemicals management response of note, is the Strategic Approach to International Chemicals Management (SAICM), which pays particular attention to chemicals, products, uses, releases, or wastes that are currently not under consideration or taken up by existing Multilateral Environmental Agreements (MEAs).

The world has come together to combat several challenges facing the global environment. Through the UN systems, international action has been mounted through the Multilateral Environment Agreements and the developing nations are normally the first to come through and ratify. Their enthusiasm is however followed by the eminent lack of capacity to implement, especially financial capacity.

To this effect, the agreements would include some financial support mechanism that would assist the developing countries and countries with economies in transition to prepare themselves, build some nominal capacity and raise awareness of their populace to the

specific subjects of the convention.

The Conventions secretariat would also continue to run capacity programs through Technical assistance.

The Strategic Approach to International Chemicals Management (SAICM) is a landmark initiative in international cooperation to protect human health and the environment. Its development was endorsed by Heads of State and Government at their

summits in Johannesburg in 2002 and in New York in 2005. Adoption of the Strategic Approach by the International Conference on Chemicals Management in Dubai, United Arab Emirates, on 6 February 2006 followed a consultative process involving representatives of Governments, intergovernmental organizations and civil society from all relevant sectors, including agriculture, environment, health, industry and labour. The Dubai Declaration on International Chemicals Management by the ministers, heads of delegation and representatives of civil society and the private sector, declare among others that:

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# THE EXECUTIVE DIRECTORS DESK

## A Closer Look at the Institute's Performance in the 2017/18 Financial Year

At its sitting of 24 - 25 May 2018, the Africa Institute governing Council considered the Institute's annual report for the 2017/18 financial year, which details the Institute's operation and performance for that period. I have deemed it prudent to share the information considered by the Council with the broader Africa Institute stakeholder community. It is my humble view that the broader Africa Institute stakeholder community has the right to know about the Institute's operations and its performance.

The salient points in the afore-mentioned report include the following:

**The Institute's financial performance.** The 2017/18 financial year saw the Africa Institute continue on the upward trajectory, with the inclusion of new projects in its portfolio and the significant improvement in its net worth. In addition, the Institute received clean financial audits, testimony to its sound financial management systems.

**Progress in implementation of projects.** Execution of ongoing projects progressed well for the period under review. The Institute expended significant efforts at resolving whatever challenges experienced and thereby ensuring that all projects are advanced as initially planned. There are cases where delays have been experienced and the Institute's ongoing engagement with affected countries is sure to bring such projects back on track. The Institute continued to attract new projects as an executing agency, notable among these being the PCB Elimination project for which the Development Bank of Southern Africa is the implementing agency. The level of activity has also increased following the commencement of one of the big projects, the African ChemObs, whose regional inception was held in the year under review. The Institute's efforts on capacity building in the region continued in the period under review, with

the workshop on the training of negotiators for the continent among the interventions that stand out.

Judging by the Institute's achievements, the year under review was by and large a very good one. It was, however, not without challenges. The appointment of an Executive Director meant a recalibration of approach in many fronts, and that resulted in the disruption of the established practices. With continuous explanation of the change in approach, its rationalisation, and concerted effort in change management strategies, a point of common understanding, acceptance and support of new approach was reached.

**Human Resources Management.** Following the Council's approval in 2017 for the recruitment of an additional staff member, the Institute appointed an additional staff member who joined in February 2018. This increased the Institute's staff compliment to 6. The increase in the Institute's staff compliment is expected to ease the workload pressure on the technical staff. Efforts have been made to equitably distribute projects responsibilities.

For the year under review the Institute revised its human resources management policy. This was done following the identification of gaps and deficiencies in the policy that was in existence. The revised policy was subjected to a discussion during the October 2017 EXCO meeting. It was subsequently discussed and approved by the Council at its May 2018 sitting. The revised HR management policy is expected to provide a more improved framework for HR management.

**Improving the Institute's Operational Efficiency.** To enhance the Institute's operational efficiency and improve its performance, the Institute staff went on a breakaway session which was organised for the 27th and 28th of July 2017. The primary purpose of the session was to consider the Institute's operational environment and how that can be improved to effect further improvement in the

Institute's service delivery. The following are among the resultant outcomes of the session:

- (i) The design of a framework for the development of performance agreements for staff members;
- (ii) The development of a framework for performance assessment;
- (iii) Revision of the HR Policy to address identified gaps in HR management;
- (iv) Revision of the travel policy;

Policies revised/developed pursuant to the session were discussed during the Council EXCO meeting of October 2017. These have subsequently been amended following inputs received from the EXCO meeting. The May 2018 sitting of the Council approved the policies.

**Profiling the Institute.** The Institute uses several platforms to profile its work and market its activities. Included in these, are the Institute's Website. The Institute's website remains a very important information dissemination tool for the Institute. It continues to provide up-to-date information on a wide range of issues and activities. Through the standing arrangement with the resident technical support of the Institute's website (an organisation that also developed the website), there is an ongoing upgrade of the website. This is done to take care of the needs of the Institute's clients and stakeholders. An assessment of the Institute's website analytics suggests an encouraging frequency of visits.

Whilst, according to the analytics data, South Africa tops the list in terms of users (at 26.5%), followed by the United States at 13.66%, there are also encouraging levels of visits from European countries such as the UK, Switzerland and Germany; and Africa countries such as Lesotho, Nigeria and Kenya, albeit at less than desirable frequency.

As part of the profiling of the Institute and disseminating information to stakeholders, the Institute produces and published two informative newsletters annually. The current publication is one of them. These are posted on the Institute's website and are also e-mailed to countries in the region. In addition for every meeting that members

of the Institute attend, hard copies of the newsletters are made available and distributed.

**Visibility at Stakeholder Meetings.** Efforts have been made by the Institute to ensure attendance of important and strategic stakeholder meetings. This is done not only to enhance the Institute's visibility, but to also ensure that the Institute is up to speed with developments and the direction matters are unfolding in its sphere of operation that it may be relevant in its provision of service. To enable the Institute's attendance of these meetings, funding, in some instances, is requested from various sources, to reduce the burden on the Institute's budget.

In addition, and as part of the Institute's obligation and support to countries in their implementation of projects, the Institute attended projects related events (such as workshops and training sessions) organised in participating countries for various projects.

**Providing Support to the Region.** On an ongoing basis the Institute provides support to its stakeholders within the region by, among others, making available regional experts for guidance and support during important and strategic stakeholder meetings. In the past year, funding was sourced by the Africa Institute to enable attendance and participation of regional experts at the following meetings:

- (i) Minamata COP 1 regional preparatory meeting held in Sandton, South Africa;
- (ii) Minamata COP 1 held in Geneva;
- (iii) SAICM regional preparatory meeting held in Abidjan, Cote D'Ivoire; and
- (iv) SAICM meeting held in Stockholm.

Participation by these experts add tremendous value in the development and pursuit of the regional agenda in various topics during the meetings. The Institute's ability to support the attendance and participation of experts in these meetings is thanks to the funding from the Swiss government, which the Institute managed to secure.



As pointed out above, the 2017/18 financial year was a very successful year for the Institute. This success is owed largely to the very good working relationships the Institute has with its stakeholders. Moving forward the Institute will continue to put significant efforts at continuing to nurture and strengthen these relationships.

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The Strategic Approach represents a global commitment to protect our environment and future generations from chemical hazards. However, it remains for all stakeholders to ensure that the aspirations of the Strategic Approach are fulfilled in its implementation. The governments are thus faced with an important work of coordinating these efforts.

While many aspects of chemicals and waste management, such as increased trans boundary movement of chemicals through trade or following release are already regulated or recognized by existing MEAs or MEAs under negotiation, there are however, issues highlighted by recent and current research, as well as increased concerns and awareness that are not or only partially covered or recognized by regulation. These are commonly and collectively termed Emerging Chemical Management Issues (ECMIs). ECMI is generally defined as any potential or recognized human health and/ or environmental effects concern associated with chemical(s) whose management is not or only partially addressed by existing MEAs.

The struggle of the developing world continues and by in large is centered on issues of governance and lack of investment in the chemicals and hazardous waste sector. The Africa Review Report on Chemicals notes sizeable progress made in the region by putting in place sectoral policies and institutions for environmentally sound management of chemicals, separate legislation and institutions for pesticides, industrial and commercial chemicals, etc., integration of sectoral policies on chemical management and phasing out leaded petrol and ozone depleting substances.

The report also notes despite all these, domestication of the conventions and/or implementation of National Implementation Plans (NIPs) remain slow for most of the conventions. Without actual domestication of an international convention and political will, mere accession to a convention cannot prevent issues such as illegal trafficking of chemicals in the continent.

There is always a renewed enthusiasm when a new instrument is negotiated, but the momentum soon dies off when the reality of implementation hits the local conditions. The low political will at the highest levels trickle down to lethargy, demotivation and indifference among the technocrats who remain frustrated that the Governments they work for have lost touch with the real issues that are killing the masses of the populace. As a result, even the assisted projects are implemented with a very slow pace.

Several other factors come into play even in the event that finances are provided through international support such as GEF funding, these have been the experience of Institutions like the Africa Institute in the execution of regional projects:

- Funds for Regional projects are always very limited and Governments (both management and Focal points) fail to take advantage of them as they are looking at total solutions for their local situations. The result of the little funds frustration is loss of focus and interest in identifying best strategies.
- Management leaves all work and look up to desk officers but fails to give them decision making powers. When serious issues are faced, the desk officers simply refrain from responding to any calls for minimum impacts approach.
- Some desk officers take liberty to make decisions that are counterproductive in the darkness of management about the projects.

While the Lessons learned and the way forward provided in the report outlays important aspects, these are only generic and blanket. Each country has to introspect and make decisions regarding the capacities and commitment of personnel they engage in MEAs and projects management. Perhaps real projects managers should be

assigned rather than unprepared desk officers who are predominantly environmental officers or inspectors.

The Public Sector Environment and Project Governance are the major culprits in essence to failures of projects. Public sector organizations are run by and ultimately report to the government. Looking at the operations of one of the government ministries directly responsible for delivery of a specific service to the citizenry, such as Environment in our case, generally Ministries belong to the Executive branch of government headed by the Prime Minister and Cabinet. Within each ministry, there is a Minister who provides representation to the Cabinet and a Permanent Secretary who serves as liaison with the individual department heads as the Ministry head. These high level structures seldom know enough about externally driven projects such as those sponsored by UN systems, especially when they are deemed to have little or no political cloud (no impact on driving political support for the next elections) or have perceived low financial inputs.

Project management is really suffering in the region. Project governance can be defined as a set of management systems, rules, protocols, relationships and structures that provide the framework within which decisions are made for project development and implementation to achieve their intended business or strategic motivation. These structures simply do not exist in most countries and thus there is no program direction; project ownership and internal sponsorship; nor monitoring of the effectiveness of project management functions; and reporting and disclosure (including consulting with stakeholders). The aims of a project governance structure should:

- Set out lines of responsibility and accountability within the departments for the delivery of the project;
- Give the stakeholders in the government system, the ability to manage their interest in the project;
- Support the department's project team to deliver the required outcomes by providing resources, giving direction, and enabling trade-offs and timely decision taking;
- Provide a forum for issue resolution;

- Provide access to best practice and independent expert advice;
- Disseminate information by reporting to stakeholders so that they can effectively fulfil their roles; and
- Provide a framework for project disclosures.

In the absence of these above, the desk officers find themselves serving as Projects managers by default and have no support in the framework.

The Conventions administrations call for appointment of National Focal Points, Designated National Authorities or Competent National Authorities.

What is a focal point?

A national focal point is a person nominated by one of the designated national competent authorities. The nomination of a focal point is a working arrangement to allow for the information exchange and flow between the secretariat and the competent authority (ies) nominated as per provisions of a Convention.

*What are the key role and tasks of the focal point?*

As a contact person in the different countries, a key role of the focal point is to facilitate the liaison between the secretariat and the national competent authority(ies) by ensuring coordination at the national level among the different authorities dealing with the prevention of, preparedness for and response to industrial accidents.

Amongst the tasks of a national focal point are the following:

- Coordination of activities related to the Industrial Accidents Convention at the national level amongst the different authorities dealing with the prevention of, and preparedness for and response to industrial accidents;
- Facilitation of information sharing amongst national authorities/institutions;
- Forwarding relevant information to the national authorities/institutions (e.g. to the points of contact);
- Facilitation of communication between the secretariat and the competent authority(ies), including with regard to the attendance of meetings, financial

contributions by Parties to the Convention's trust fund and in-kind contributions;

- Coordination of the preparation and submission of the national implementation report to the secretariat, including ensuring that the deadline for submission is met;
- Facilitation of the distribution of information on the Convention mandate and implementation at the national level, supporting the Convention's implementation and/or awareness-raising with regard to possible accession/ratification, in cooperation with other national counterparts;
- Providing information and advice to the secretariat on organizational and substantive matters related to the implementation of the Convention and its Assistance Programme in the country, or facilitating the provision of such information by liaising with colleagues;

Throughout the International Negotiations Committees (INC) sessions, one of the contentious issues that always arises is the capacity of the developing nations to implement the obligations once they have ratified the conventions. Fairly so, as most of these countries are still struggling with basic human necessities and have no financial means to cater for additional responsibilities despite their importance of management of chemicals and hazardous waste due to the adverse impacts they have on the populace.

This concern is normally read to mean financial constraints. But while the financial limitations maybe at the helm, people are always at the center and are the ones who can make things happen. Many a times even when finances are availed as they are through international support projects, projects are frustrated due to lack of support of the project personnel. All they may need is the conducive operational framework that supports project management. Almost all countries in the region lack project management structures.

### **Project Management structures**

A project organization is a structure that facilitates the coordination and implementation of project activities. Its main reason is to create an environment that fosters interactions among the team members with a minimum amount of disruptions, overlaps and conflict. One of the

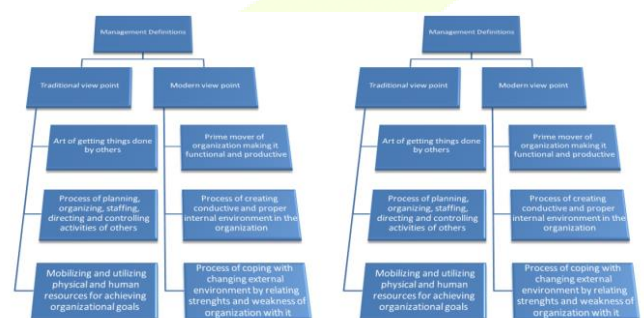
important decisions of project management is the form of organizational structure that will be used for the project.

Each project has its unique characteristics and the design of an organizational structure should consider the organizational environment, the project characteristics in which it will operate, and the level of authority the project manager is given. A project structure can take on various forms with each form having its own advantages and disadvantages.

One of the main objectives of the structure is to reduce uncertainty and confusion that typically occurs at the project initiation phase. The structure defines the relationships among members of the project management and the relationships with the external environment. The structure defines the authority by means of a graphical illustration called an organization chart.

A properly designed project organization chart is essential to project success. An organization chart shows where each person is placed in the project structure. An organization chart is drawn in pyramid form where individuals located closer to the top of the pyramid have more authority and responsibility than members located toward the bottom.

It is the relative locations of the individuals on the organization chart that specifies the working relationships, and the lines connecting the boxes designate formal supervision and lines of communication between the individuals. Majority of Focal persons are not project management practitioners and the ministries have no project management structures, but the Focal persons are expected and given project management responsibilities simply by default.Ω





## GHS IMPLEMENTATION IN SOUTH AFRICA, SADC COUNTRIES AND OTHER AFRICAN COUNTRIES

The SADC (Southern African Development Community) is a regional organisation consisting of 14 Member Countries, The Seychelles is still in the process of ratifying the SADC Treaty.

SADC Countries that agreed to implement the SADC GHS Policy by 2020, but with no implementation plans, include: Angola, Lesotho, Malawi, Mozambique, Namibia, Seychelles, Eswatini, Tanzania and Zimbabwe.

The following SADC countries agreed with SADC's intention to implement GHS by 2020 at the latest, as communicated to UN SCE GHS in 2013:

**Botswana** - has mandated itself to have completed and started the implementation of the regulatory law by August 2017, three years before the agreed deadline.

**DRC** - a GHS Planning and Inception Workshop was held in January 2014, but the development of a National GHS implementation strategy is still on-going.

**Madagascar** - held its National Strategic Approach to International Chemicals Management (SAICM) Planning and Inception Workshop from 22 to 23 May 2012 with the participation of UNITAR, which will include supporting GHS capacity building.

**Mauritius** was the first country to publish an act, the Dangerous Chemicals Control Act, for the implementation of GHS in 2004, but it is still based on the original GHS version of 2003. Although Mauritius agreed with SADC's intention to implement GHS by 2020, no deadlines for the implementation of the requirements for substances or mixtures defined.

**Zambia** - a Zambian Standard for GHS (GHS STANDARD: ZS 708 – Globally Harmonized System of Classification and Labelling of Chemicals) was developed, which is based on UN GHS Rev 1.

Preparations are under way to update this Standard in accordance with GHS Rev 3.

Other African countries, with the exception of Nigeria, have not yet implemented the GHS and are still busy with capacity building or action plan developments. Nigeria has been working since April 2006 on the development of a harmonised Hazardous Chemicals Management Bill. The draft Act was subject to a sectoral review process for multi-stakeholder input during the first quarter of 2007. Even though this process led to the development of a strategic plan for national GHS implementation in 2008, no further current information is available.

### SOUTH AFRICA LEADING THE WAY

Legislative processes are slow and bureaucratic. It would be very difficult to set a common implementation schedule for the GHS in SADC for all countries. It is more likely that SADC countries will domesticate the SADC GHS at differing paces, depending on their technical and financial capacity to regulate.

However, in order to achieve uniformity, the year 2020 is targeted for the region to achieve full implementation. Full uptake of the new regulations will depend on the speed at which stakeholders understand and are able to use the new regulations. Therefore, educating employees, consumers, emergency responders on the updated chemical and product classifications and related pictograms, signal words, hazard statements and precautionary measures will present a significant training challenge.

Finally, when considering the above and progress made to date, it can be concluded that South Africa is leading the implementation of GHS in Africa, where other SADC countries have committed to the implementation of GHS by 2020. The implementation of GHS, or its intention to do so by other African countries, is yet to be determined.





## DISPOSAL OF PCB OILS CONTAINED IN TRANSFORMERS AND DISPOSAL OF CAPACITORS CONTAINING PCB IN SOUTHERN AFRICA

The objective of this project is to reduce environmental and human health risks from PCB releases through the demonstration of a regional approach to the introduction of cost-effective and socially acceptable environmentally sound management (ESM) practices for oils, equipment and wastes consisting of, containing or contaminated by PCB held by electrical utilities and others in participating countries.

This project seeks to build capacity in and remove the barriers to environmentally sound PCB waste management by supporting the development and supervising the initial operation of a public-private partnership between the electrical utilities and other who may have PCB and waste management companies. The project builds on existing regional structures, including the “Africa Institute”, established under two conventions as (1) the Stockholm Convention Regional Centre for Capacity Building and the Transfer of Technology and (2) the Basel Convention Regional Centre for English speaking Countries in Africa and its partners in the region, including the Southern Africa Power Pool (SAPP), to provide a regional market opportunity for private sector service providers to deliver cost effective ESM for PCB oils, equipment and wastes. The project will be executed over a period of five years.

Component 1: The first component will prepare a regionally harmonized regulatory and administrative framework; the characterization and organization of wastes within the electrical utilities; and the raising of awareness amongst decision makers and professionals within government and the electrical industry.

Component 2: In the second component, a realistic and pragmatic phase-out plan of PCB in use will be developed and endorsed by the governments and stakeholders in the project. The first step will be the establishment of a robust management system to identify and monitor the PCB in use and in storage. The system will have a

dynamic component built in to follow the reduction of the PCB in use and the amounts being taken out of service, subject to further treatment and final disposal (to be undertaken in component 3 of the project). Based on the amounts and types of PCB identified in the Component 2, a technology will be selected best suited to treat the types and amounts of PCB in the region. The project is open to all options for the efficient disposal of PCB and PCB-containing equipment. It is envisaged to apply a tiered approach with respect to (a) owners of PCB – mainly utilities, which are thought to have the majority of PCB in their possession vs. other sectors, (b) PCB in transformers with an option for local or centralized draining of equipment vs. closed system capacitors which have to be disposed off as “total” equipment, (c) high contaminated PCB oil (“pure” PCB) vs. lower contaminated oils and equipment’s, and (d) fixed vs. mobile units for both, draining and disposal.

The utility personnel in each participating country but also personnel in other sectors concerned will receive training for the collection, handling, storage and transport of PCB and wastes and will have their capacity built to operate according to agreed standards. All stages of the waste handling routines will be governed by international guidance and practices and monitored by an independent third party.

Component 3 contains the actual activities that lead to the collection of PCB oils and equipment, their transport and interim storage facility, the manipulation activities such as drainage, packaging, refilling, and finally destruction (or interstation) of the PCB contained.

Component 4 will summarize and assess the activities and experiences gained in the implementation of the project and have a quantitative assessment. The project will not have only the PCB taken out of service and destroyed but also have developed the regional approach within the legal framework as well as costs (including recovery of potentially valuable materials) and time demands.

Lessons learned during execution will be shared amongst participants during the course of the project and best



practices determined during the project will be published for use in similar initiatives in other countries or regions.

The project and its proposed activities are consistent with the GEF-5 Chemicals Results Frameworks' goal "to promote the sound management of chemicals throughout their life-cycle in ways that lead to the minimizations of significant adverse effects on human health and the global environment." In particular, the project will contribute to Objective 1 "Phase Out POPs and Reduce POPs Releases" through the following interventions:

GEFV Strategy Indicator: Outcome 1.4: POPs waste prevented, managed and disposed of; Indicator 1.4.1 Amount of PCBs and PCB-related wastes disposed of, or decontaminated; measured in tons as recorded in the POPs tracking tool.

GEFV Strategy Indicator: Outcome 1.5: Country capacity built to effectively phase out and reduce releases of POPs; Indicator 1.5.2 Progress in developing and implementing a legislative and regulatory framework for environmentally sound management of POPs, and for the sound management of chemicals in general, as recorded through the POPs tracking tool.

Participating countries are all eligible to receive GEF funding as per the criteria set by the COP, that is: being a Party to the Stockholm Convention; and having submitted the NIP to the SC Secretariat.

The project will complete inventory and PCB disposal activities in SADC countries. Countries are at varied stages of PCB management, and to ensure the project is not delayed, the project will take a two-tiered approach.

Disposal activities will include all countries, but activities will not be delayed by countries who fail to complete the detailed inventory phase according to the project workplan. In such cases, these countries will enter the second-tier, with a focus on completing a robust inventory, and safeguarding, with disposal activities for second-tier countries to be the focus of a follow up initiative.

The disposal approach will involve: retro-filling and decontamination at the national level, including transformer draining at utility level, and transporting PCB contaminated oil (<2,000ppm) to a national storage site

for Dechlorination using a mobile unit; and, export of a limited amount (estimated at 500te) of PCB contaminated dielectric fluid (>2,000ppm PCB) and solid waste (including askaral transformer casings and capacitors) for disposal.

At the time of this publication, all the countries were still juggling with Inventory verification. Concerns from the executing and implementing agencies is that it took close to two years for countries to absorb and get seriously engaged in the project. The question that may need to be investigated is why such lethargy in implementing national activities of projects.

## INTEGRATED HEALTH AND ENVIRONMENT OBSERVATORIES AND LEGAL AND INSTITUTIONAL STRENGTHENING FOR THE SOUND MANAGEMENT OF CHEMICALS IN AFRICA (AFRICAN CHEMOBS) PROJECT.

*By Thabo Moraba*

Africa's contribution to global chemicals production is currently small but trends indicate a shift in chemicals production and use from developed to developing countries. The chemicals sector is thus expected to play an increasingly important role in the economies of specific African countries (UNE, GCO, 2012). In most African countries, industrial and agricultural production has intensified, accompanied by the corresponding use of chemical inputs. UNE's Costs of Inaction Report reveals that the costs of injury (lost work days, outpatient medical treatment, and inpatient hospitalization) from pesticide poisonings in sub-Saharan region alone amounted to USD \$4.4 billion in 2005, and conservatively projected to US\$6.2 billion in 2009. Heavy metals such as lead and mercury, Persistent Organic Pollutants (POPs), and highly hazardous pesticides which are either controlled or withdrawn in the developed world, continue to be used in Africa with major environmental and health impacts.



The root causes of the current problems include lack of awareness and capacity. Greater awareness of the impacts, including the health impacts, of harmful chemicals and waste is required and needs to be communicated to policy makers at the national level so that sound management of chemicals and waste is fully integrated into national budgets and sector level plans.

Realizing the dramatic health gains that could be achieved through preventive strategy that protects populations from major environmental hazards, African health and environment Ministers gathered at Libreville in Gabon on 29 August 2008, and adopted the Libreville Declaration on Health and Environment in Africa. Reflecting on the need for an environment and health information system to support decision making, Ministers agreed in the Declaration to support the establishment of an African network for surveillance of communicable and non-communicable diseases, in particular those with environment determinants.

In November 2010, at the Second Interministerial Conference on Health and Environment in Africa held in Luanda, Angola, Ministers adopted the Luanda Commitment in which they committed to accelerate the implementation of the Libreville Declaration and identified chemicals management as one of the top continental health and environment priorities to be addressed for the years to come.

A Situation Analysis and Need Assessment exercise (SANA) completed in 2013 in 34 African countries, reveals that quantitative up-to-date data for immediate use in decision making and action are crucially missing. This is due to incomplete information systems, fragmentation of surveillance activities, and insufficient coordination among the various established systems, harmonized methodologies, obsolete tracking tools and lack of standardized indicators. Even where data are available, their analysis to adequately inform decision making processes remains poor. In circumstances where policy recommendations exist, there are challenges in the uptake and implementation of such recommendations.

African ChemObs project was therefore, proposed to develop a prototype of national integrated health and environment observatory, including a core set of

indicators enabling data aggregation, to provide timely and evidence based information to predict, prevent and reduce chemicals risk to human health and the environment. The project is implemented in nine countries in the region. Its implementation by Member States will contribute to improving capacity for data collection through the chemical life-cycle, establishing an integrated health and environmental monitoring and surveillance system, reducing risks posed by chemicals and raising community awareness, a formal mechanism for intersectional coordination for health and environment; and improved understanding of the link between health and environment issues, to facilitate effective policymaking. The following are the beneficiary countries for the project, Ethiopia, Zambia, Zimbabwe, Tanzania, Kenya, Gabon, Madagascar, Mali and Senegal. The project is funded by Global Environment Facility (GEF) with United Nation Environment (UNE) as an Implementing Agency. The Africa Institute and WHO Africa serve as executing agencies.

## The Project Components

The project consists of the following components;

*Component 1:* Is focused on strengthening capacity of selected existing relevant national government departments and institutions to monitor pollution, prioritize areas for intervention as well as plan and implement solutions through active involvement of local communities. This will lead to removal of barriers preventing adequate management of harmful chemicals, providing decision makers with access to objective data. Activities in this component include, establishment of integrated health and environment Observatory in each country based on an initial capacity assessment completed under the leadership of the relevant Basel / Stockholm regional centre identification and prioritisation of major chemicals, waste and pollution problems requiring action; establishment of key progress indicators to measure improvements in sound chemicals and waste management; assessment of institutional/legal and capacity building needs; and, identification of priority capacity building activities.

*Component 2:* The component is focused on the development of broad-based action plans to promote sound chemicals management and reduce negative impacts on health and the environment. The component will be executed in partnership with the relevant Basel / Stockholm Regional Centre. This will lead to the mainstreaming of chemicals and waste issues in decision making processes and national planning and the advancement of national implementation of chemicals and waste related Multilateral Environmental Agreements. Activities in this component include, identification of the main immediate and longer term chemicals, and pollution risks and priorities for action; improved country reporting under Basel and Stockholm Conventions and notification of final regulatory actions under the Rotterdam Convention; identification of population sub/vulnerable group needs that are particularly exposed to chemicals; definition of benefits and cost of action to mitigate risks and specific interventions; and, development of national action plans.

*Component 3:* This component focuses on the support of countries to reduce risks from chemicals and wastes identified as posing specific risks to public health and environment. The interventions foreseen include the development of integrated waste management approaches to chemicals and waste issues at national level with targeted pilot interventions to remove risks in high priority cases from wastes such as POPs and highly hazardous pesticides, PCB, electronic wastes, flame retardants such as PBDE and related compounds used in the textiles and building products sectors, specific Mercury waste issues identified at national level and reduction of risks from recycling of lead acid batteries. Therefore the component can be seen to focus on assisting countries to implement the national action plans developed under Components 1 and 2, leading to reduced risk of exposure of humans and the environment to harmful chemicals and waste through reduced exposures and emissions. Activities in this component include, mobilisation of key stakeholders with strengthened capacities for on the ground action to mitigate health risks;

informing of communities about the local level public health risks of chemicals exposure and communication

for behavioural impact undertaken to support community based responses and reporting to regulators; implementation of specific interventions and policy measures to reduce exposure to harmful POPs chemicals and other highly toxic substances resulting the environmentally sound disposal of prioritized stockpiles of waste and/or remediation of contaminated sites posing the greatest risk; and, dissemination of accessible, policy relevant messages, on scope of pollution, and impacts of hazardous chemicals and wastes. Incremental/additional cost reasoning and expected contributions from baseline:

This project is intended to serve as a demonstration and proof of concept, with eventual replication and roll-out of chemical observatories to many more African countries and in other regions. Without this project, participating countries lack the resources to overcome barriers and systematically assess vulnerable populations, set national priorities, and manage chemicals soundly. This project will provide incremental support to improve institutional capacity to define the benefits of sound chemicals management and the costs of inaction at the national level, and to raise awareness with communities, resulting in communities that are empowered to protect themselves and to communicate chemicals issues to their national chemical observatory, allowing governments to take informed decisions and action.

The project seeks to increase the awareness of the health, environmental and economic impacts of harmful chemicals and mainstreaming into national development plans in nine African countries. It contributes to the enabling conditions and provides tools to remove the barriers currently preventing adequate management of harmful chemicals and wastes through; the provision of the sound data, analysis and policy framework to mainstream chemicals and hazardous waste management concerns into the national budgets, national planning and policies; and, development agenda as well as sector policies. It will also include actions to reduce specific health and environment risks caused by current unsound management of chemicals, protecting vulnerable populations in priority locations, as well as reducing emissions to the global environment.Ω



PORT LOUIS, MAURITIUS, 14-17 MAY 2018

*By James Mulolo*

The first meeting of the Household Waste Partnership working group was opened by Mr. Prakash Kowlessar (Mauritius), Co-Chair of the Household Waste Partnership working group. Together with his Co-Chair, Ms. Gabriela Medina (Uruguay), he welcomed participants to the meeting. Recalling how the Partnership originated from the concept for creating innovative solutions through the Basel Convention for the environmentally sound management of household waste, he emphasized the objectives of the current meeting which were to discuss its work plan and to agree on the approach to developing modules for the overall guidance document.

Secretariat of the Basel Convention, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants was represented by Mr. Alexander Mangwiro who welcomed the meeting participants to Mauritius and thanked the Governments of Norway and Switzerland for their generous financial assistance for the face-to-face meeting and in supporting the participation of developing countries and countries with economies in transition. He also thanked the Government of Mauritius for hosting the meeting, and the Basel and Stockholm Conventions Regional Centre in South Africa for arranging all the logistics.

The keynote speech highlighting the importance of the work of the Partnership and the relevance to developing countries and countries with economies in transition, in particular small island developing states like Mauritius was given by Mr. Etienne Sinatambou, Minister of Social Security, National Solidarity and Environment and Sustainable Development.

The meeting was attended by representatives of the following members of the working group: Ms. Magalid Luján Cutina (Argentina), Mr. Artak Khachatryan (Armenia), Ms. Jaime Short (Cook Islands), Mr. Harald Junker (Germany), Mr. Prakash Kowlessar (Mauritius), Mr. Marco Buletti (Switzerland), Mr. Godfrey Oluka

(Uganda), Ms. Pauline Dhlakama (Zimbabwe), Mr. Iyengararasan Mylvakanam (United Nations Environment Programme), Mr. Martin Jakuš (Basel Convention Regional Centre for Training and Technology Transfer for Central Europe (BCRC-Slovakia)), Mr. James Mulolo (Basel Convention Regional Centre for Training and Technology Transfer for the English-Speaking African countries (BCRC-South Africa)/Stockholm Convention Regional Centre for Capacity-building and the Transfer of Technology (SCRC-South Africa), Ms. Jewel Joy Batchasingh (Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean Region (BCRC-Caribbean)), Ms. Gabriela Nair Medina Amarante (Basel Convention Coordinating Centre for Training and Technology Transfer for Latin America and the Caribbean Region (BCCC-Uruguay)/Stockholm Convention Regional Centre for Capacity-Building and the Transfer of Technology (SCRC Uruguay), Mr. Ross Bartley (Bureau of International Recycling (BIR), Ms. Talat Afzal (Bury Council), Ms. Ieva Rucevska and Ms. Elaine Baker (GRID-Arendal) and Mr. Dharmesh Shah (International POPs Elimination Network (IPEN)). A number of representatives of the Government of Mauritius also attended the meeting.

## **A. Working modalities of the Household Waste Partnership working group**

### *Membership of the Household Waste Partnership working group*

The Secretariat introduced the sub-item, outlining the information in document CHW.13/INF/33/Rev.1, highlighting the information on membership. The Secretariat reported that as of 30 April 2018, there were following members: 50 Parties; 1 signatory; 4 intergovernmental organisations; 14 regional centres; 2 industry associations; 1 municipality and 12 non-governmental organisations. Providing information on how the Secretariat had issued a communication to potential members from various stakeholder groups and invited their participation in the Partnership, the Secretariat explained that the members had to represent either Parties or observers to the Basel Convention in accordance with paragraph 6 of Article 15 of the Convention and the rules of procedure

UNEP/CHW/HWPWG.1/2 for the Conference of the Parties to the Convention and that some applicants were in the process of applying for admission as observers.

In the ensuing discussion, several members expressed appreciation for the efforts made by the Secretariat to increase membership, reiterated the importance of participation of regional and local authorities, private sector and academia. They also shared their experiences in reaching out to potential partners such as by advertising the Partnership on the website of their organizations, directly contacting representatives of municipalities, communicating through competent authorities and focal points of the Basel Convention.

One member, supported by others, pointed out that the Partnership needed to be attractive to various stakeholders, in particular municipalities, informal sector and industry. Political awareness was also vital and this could be achieved, he said, once it had defined its goals, undertaken concrete activities and produced some products such as guidance or roadmaps for the environmentally sound management of household waste. These could then be presented at a larger forum such as the meeting of the Conference of the Parties. Other members also suggested that, though it might take some time, a small-scale pilot project in one country, for example on strengthening legislations or institutional mechanisms, might lead to drawing political attention of other countries.

Another member noted that there were other partnerships and initiatives related to the sound management of wastes and that the present Partnership should focus on developing high quality tools that could be used by other partnerships.

One member raised a question on the annual contributions to the Partnership, noting the sliding scale provided in the terms of reference requiring individual companies, producer responsibility organizations, business associations and environmental non-governmental organizations to contribute in order to maintain their membership. He also expressed concerns on overlaps with other partnerships and initiatives, such as those addressing issues related to marine plastic litter.

Other members emphasized a potential leadership role of the Partnership towards sustainable development and opportunities in promoting sustainable consumption and the circular economy. One member shared experiences in her country where the municipalities cooperated with informal groups, private sector, community groups and the public to provide services that municipalities would normally provide in order to address their financial constraints and highlighted the interest of the private sector in ensuring corporate social responsibility. Raising awareness, educating the public, including the younger generation, they said, plays a key role in changing behaviours and creating sustainable societies.

One member, supported by another, indicated that household waste management had been considered a sanitary issue and that the involvement of the health sector was crucial. The member also pointed out that the work of the Partnership could pay attention to different social status groups, regional aspects, climate and geographic diversity, and gender.

In concluding the discussions, the Co-Chairs highlighted that engaging various stakeholders, in particular the informal sector, municipalities, industry, including the packaging industry, was very important, and that how to attract those stakeholders was the major challenge of the working group.

The working group supported the leaflet developed by the Secretariat and requested the Secretariat to make use of it. The leaflet is available on the website of the Convention.

<http://www.basel.int/Implementation/HouseholdWastePartnerships/Overview/tabid/5082/Default.aspx>.

## **B. Matters related to the activities of the Household Waste Partnership**

### *Household Waste Partnership work plan for the biennium 2018–2019*

Introducing the item, the representative of the Secretariat drew attention to the work plan of the Partnership for the biennium 2018–2019 set out in the annex to decision BC-13/14 as well as the draft proposal for the development of the guidance document on the environmentally sound

management of household waste and establishment of working groups and the draft outline of the overall guidance document on the environmentally sound management of household waste prepared by the consultants and made available on the Convention website<sup>3</sup> in advance of the meeting. Invited by the Co-Chair, the consultants gave a presentation on the draft proposal and the draft outline and the working group considered them in detail.

There was a general agreement among the members that the draft proposal and the draft outline were prepared in line with the mandate and the work plan of the Partnership. The working group agreed that the main target audience of the first set of modules to be developed would be governments and municipalities at the policy level, and practitioners at the operational level, e.g. collectors, transporters and disposal operators, while other targets such as households, consumers and producers would be addressed at the next stage. There was a general agreement that the final guidance therefore should propose an appropriate style including visual communication and easily accessible language to reach out to these target groups in a meaningful way.

Many members expressed the need for an interface between the readers and the different modules, which could also serve as a tool for conducting a situational analysis. The working group discussed extensively about such an interface and prepared a draft matrix table as set out in annex III to the present report, which could be taken into account in developing module 1 on assessment and decision making.

The working group agreed on the approach for the development of the guidance document on the environmentally sound management of household waste and the draft outline of the overall guidance document on the environmentally sound management of household waste as set out in annexes I and II to the present report, respectively.

#### *Establishment of project groups.*

The working group identified the priority modules to be developed and agreed that by July 2018, these modules would be drafted.

The working group also identified the lead drafter and drafting group members for each of the modules. A table listing the prioritisation of the modules and the composition of the drafting groups is set out in annex IV to the present report.

#### *Resource mobilization opportunities.*

Introducing the sub-item, the Secretariat reported key activities undertaken so far by the Secretariat on resource mobilization for the Partnership and expressed appreciation to the Governments of Norway and Switzerland whose generous financial support had enabled the engagement of the consultants in preparing the draft approaches to developing guidance documents and the draft outline, and the organization of the first face-to-face meeting of the working group in Port Louis, Mauritius. The Secretariat informed the working group of the generous financial support expected from the European Union in June 2018.

Recalling the successful example of the Partnership for Action on Computing Equipment under the Basel Convention, the working group agreed that the sliding scales of assessment for annual subscriptions to the Partnership contained in appendix II to the terms of reference of the Partnership in annex II to document UNEP/CHW.13/INF/33/Rev.1 should be actively implemented.

### **C. Preparations for the eleventh meeting of the Open-ended Working Group**

Introducing the item, the representative of the Secretariat recalled that, in decision BC-13/14, the Conference of the Parties, among others, requested the Secretariat to report on progress in the implementation of that decision to the Open-ended Working Group at its eleventh meeting to be held from 3 to 6 September 2018 and the Conference of the Parties at its fourteenth meeting to be held from 29 April to 10 May 2019 in Geneva. She indicated that the





Secretariat would prepare a working document to provide a progress report and an information document setting out the outline of the modules and contents of three specific modules to be drafted by July 2018.

In the ensuing discussion, many members suggested the organization of a side event at the eleventh meeting of the Open-ended Working Group, as well as at the fourth session of the United Nations Environment Assembly to be held from 11 to 15 March 2019 in Nairobi. If possible, the latter may be organized in cooperation with actors relevant to addressing issues on marine plastic litter and microplastics. Ideas such as developing more outreach and information materials and reaching out to celebrities, for example, Sir David Attenborough, were shared. Others suggested that for the fourteenth meeting of the Conference of the Parties, a signing ceremony could be organized inviting high-profile members, including those from the private sector.

The Co-Chair invited the Secretariat to give a presentation on the work under the Basel Convention on marine plastic litter and microplastics. The Secretariat drew attention to the work programme of the Open-ended Working Group for the biennium 2018-2019 which included the consideration of relevant options available under the Convention to further address marine plastic litter and micro-plastics, taking into account inter alia the assessment requested by UNEA resolution 2/11, any relevant decision by UNEA-3, and existing guidance documents and activities under the Basel Convention that address issues related to marine plastic litter and micro-plastics and the development of a proposal for possible further actions, within the scope of the Convention and avoiding duplication with activities relating to this matter in other forums, for consideration at the fourteenth meeting of the Conference of the Parties. Furthermore, the conferences of the Parties to the Basel and Stockholm conventions, in decisions BC-13/11 and SC-8/15, respectively, encouraged the regional and coordinating centres of the Basel and Stockholm conventions to work on the impact of plastic waste, marine plastic litter, microplastic, and measures for prevention and environmentally sound management.

Several members recognized the strong link between the issue of household waste management and marine plastic litter and supported the cooperation and coordination in any future work related to marine plastic litter under the Basel Convention. One member, supported by others, voiced that the Household Waste Partnership and all relevant work under this Partnership works towards proposing practical solutions to combat waste including plastic leakage into the oceans and fresh water ecosystems. Many members thus agreed that it was important to communicate the work under the Partnership with those working on marine plastic litter to work effectively and avoid duplication.

#### **D. Venue and date of the second meeting of the Household Waste Partnership working group**

The working group agreed that its second meeting would be held in June 2019 at a venue yet to be decided. The BCRC-Caribbean and BCRC-Slovakia expressed their interest in hosting the meeting. In addition, the working group agreed that it would meet via online meetings, as necessary.

#### **Closure of the meeting**

Following the customary exchange of courtesies, the meeting was declared closed at 4.00 p.m. on Wednesday, 16 May 2018.

## **IS CLIMATE CHANGE A WASTE MANAGEMENT ISSUE?**

Waste management has at least five types of impacts on climate change, attributable to: (1) landfill methane emissions; (2) reduction in industrial energy use and emissions due to recycling and waste reduction; (3) energy recovery from waste; (4) carbon sequestration in forests due to decreased demand for virgin paper; and (5) energy used in long-distance transport of waste: A recent USEPA study provides estimates of overall per-tonne greenhouse gas reductions due to recycling. Plausible calculations using these estimates suggest that countries such as the US or Australia could realise substantial greenhouse gas reductions through increased recycling, particularly of paper.

There is a very interesting piece entitled “Climate Change is a Waste Management Problem” written by Klaus S. Lackner, Christophe Jospe. The full article can be found in *Issues in Science and technology*, Volume XXXIII Issue 3, spring 2017. Part of it goes like this:

“The physical problem underlying climate change is very simple: dumping carbon dioxide and other greenhouses gases into the air raises their concentrations in the atmosphere and causes gradual warming. In the several decades since climate change has been an important international political issue, the necessary solution to this simple problem has been viewed as equally simple: the world must radically reduce its emissions of carbon-carrying gases. From a waste management perspective, carbon dioxide emissions represent the metabolic by-product of industrial activities on which billions of people depend to survive and thrive. Now we must learn to safely dispose of this by-product

An important part of a waste management approach to excess carbon would be a transparent, generally accepted auditing methodology that results in certificates of negative emissions for the disposal of carbon

Carbon dioxide is a waste product; dumping it into the open air is a form of littering. Dumping can be avoided or cleaned up with technological fixes to our current infrastructure. These fixes do not require drastic reductions in energy use, changes in lifestyle, or transformations in energy technologies. Keeping carbon dioxide out of the atmosphere is a waste management problem. The rapid mixing of carbon dioxide in the atmosphere simplifies this waste management problem compared with others, such as sewage or municipal garbage, where local buildup of waste is deleterious and therefore requires the disposal of the specific waste material as it is generated. By contrast, carbon dioxide does not create local damage, and it does not matter where carbon dioxide molecules are removed from the atmosphere as long as the amount removed equals the amount added.

For global climate change, a change in primary focus from emissions reduction and resource conservation to waste disposal changes the approach to the carbon problem.

Current policies tend to encourage and reward reductions in carbon dioxide emissions. If the world were to consider carbon dioxide like sewage, this would not be the case. Rewarding people for going to the bathroom less would be nonsensical. Low-flow toilets would certainly be encouraged, but the reduced flow must still be properly channelled into a sewage system. Similarly, the alternative to littering is to properly dispose of (or recycle) trash, not to expect that people let trash accumulate in their cars. As a policy response, parking lots at scenic overlooks feature garbage bins.

The focus on reducing emissions to address climate change has typically included with it a moral judgment against those who emit. Such a moral stance makes virtually everyone a sinner, and makes hypocrites out of many who are concerned about climate change but still partake in the benefits of modernity. A waste management perspective makes it unnecessary to demonize or outlaw activities that create waste streams. It's okay for people to use toilets and generate garbage; society in turn provides appropriate means of waste disposal to protect the common good. From a waste management perspective, carbon dioxide emissions represent the metabolic by-product of industrial activities on which billions of people depend to survive and thrive. Now we must learn to safely dispose of this by-product.

Another key element of a carbon dioxide waste management approach is that it does not demand a global transformation of existing energy infrastructures and technologies. Waste management demands only the construction of a parallel infrastructure to collect the carbon dioxide and dispose of it safely and permanently. The waste management perspective therefore does not threaten the political, social, and economic interests associated with the fossil energy system—and does not automatically trigger opposition from those interests.

Nor does a waste management orientation require the type of large-scale, coordinated effort that has dominated climate change policy initiatives to date. Because energy systems and transport systems are highly integrated and coordinated, efforts to reduce emissions must be integrated and coordinated as well. For example, adding renewable energy capacity to an electricity grid will not

necessarily reduce emissions if the back-up power system necessary to balance intermittencies is still fossil-based. A waste management approach does not demand large-scale coordination; it requires only that individuals and companies start finding ways to dispose of or recycle carbon.

Are there affordable technologies for implementing carbon waste management? Would companies recognize a business model around carbon waste management? And can consumers be convinced that carbon waste management is necessary and that claims of carbon disposal can be trusted?

The centerpiece of carbon waste managements are technologies for carbon dioxide capture and disposal. Such technologies already exist. Disposal is often referred to euphemistically as carbon storage. Carbon can be stored in many ways. It can be tied up in mineral carbonates or biomass; it can be injected underground; it can be stored in waste-disposal sites or bound up in materials that are used in the built infrastructure. Geological storage, the injection of carbon dioxide into underground reservoirs, has been demonstrated, is known to be affordable, and is virtually permanent. Geological surveys indicate that the storage capacity in diverse localities is sufficient for the large-scale introduction of carbon disposal. Most options other than geological storage are not yet well developed. They vary in cost, scalability, and permanence. Biomass options often fall short on storage capacity and permanence. Mineral sequestration is often too expensive, and substantial storage in the built infrastructure would require big changes in its design.

The most expensive part of managing carbon waste, however, is the capture of carbon dioxide. Most capture technologies have been developed for point sources, such as coal-fired power plants, but such capture cannot address emissions from distributed sources, such as cars or homes. This leaves behind roughly half of all

emissions. Distributed emissions require technologies that can take carbon back from the environment, specifically from the air.

Capture of carbon dioxide from air is technically feasible. Until recently, much of the scientific focus has been on biological methods that use photosynthetic organisms to pull carbon dioxide out of the atmosphere. The biomass accumulated during the removal process would then be burned, and the resulting bio char would be stored along with any residual carbon dioxide produced during the combustion process. Biomass capture is certainly feasible and very often affordable. Unfortunately, growing enough biomass to affect the world's carbon balance would require vast amounts of agricultural land. Biological processes are simply not carbon-intensive enough to balance out industrial carbon emissions, but they can help start the process.

Chemical engineering approaches focused on capturing carbon dioxide directly from the air and then disposing of it by various means will make it possible to stop littering the air with carbon dioxide. Direct air capture (DAC) has been demonstrated in the laboratory and by several small start-up companies in small pilot plants. Collectors absorb carbon dioxide from air on filter surfaces, much like leaves on a tree. Several DAC methods have been proposed. In our own design, collectors stand passively in the wind like trees. Such synthetic trees are one thousand times faster in collecting carbon dioxide from the air than natural trees of similar size. The wind blows over the leaves of the synthetic trees and carbon dioxide sticks to them. Once loaded with carbon dioxide, the leaves need to be regenerated; the carbon dioxide that has been stripped off then needs to be processed further. Regeneration may involve heating the sorbent or exposing it to a vacuum.

Through our own research we discovered a sorbent that absorbs carbon dioxide when dry and releases it when exposed to moisture. Our leaves absorb carbon dioxide in the dry wind, and then release the carbon dioxide when wetted in a closed chamber. The raw product stream then needs to be cleaned, dried, and compressed. In our version, the initial product is a gas stream that contains one hundred times more carbon dioxide than in ambient air. If the regeneration chamber where we strip off the gas





is evacuated prior to wetting, the carbon dioxide product is quite pure. If the chamber is filled with air when regeneration starts, then we produce a stream of carbon dioxide-enriched air. Further processing will depend on what is to be done with the carbon dioxide. Although some storage technologies can handle our carbon dioxide with little or no additional processing, if it is to be stored in geologic features, the carbon dioxide must be converted into a concentrated form under higher pressure. Technologies to upgrade the purity of carbon dioxide are already commonly used during flue gas scrubbing in what are called carbon capture and sequestration operations, and they are also used in various other commercial applications ranging from the production of carbonated beverages to the filling of fire extinguishers.

DAC and direct air capture with carbon storage (DACCS) can reach the scale of current carbon dioxide emissions without excessive land use and without the environmental impact of biomass growth. A collector the size of a trailer truck could pull a ton of carbon dioxide per day out of the air. Thousands of mass-produced units could be aggregated into air capture farms collecting a few million tons of carbon dioxide per year on a square mile of land, before the amount of air passing over the land limits carbon dioxide collection. Moving from a single tree farm to the global scale, a hundred million collector units would keep up with current world emissions. Befitting the size of the problem, this scale is huge but in no way unimaginable for a complex yet essential industrial product; the number of cars and trucks on the road globally amounts to about a billion. Moreover, our initial estimates suggest that a synthetic tree farm would be much more compact, perhaps hundreds of times more so, than a wind farm that would prevent an equivalent amount of carbon dioxide emissions.

With these technologies, a picture of a possible carbon-neutral future emerges. Companies, communities, and environmentally conscious individuals are already looking for ways to reduce their carbon footprints. Forests of DAC trees could be installed in remote locations where carbon disposal problems will be minimal. Devices could also be installed near industrial sites that use carbon dioxide as a raw material, such as in the production of synthetic fuels, thus eliminating costs of shipping liquid carbon dioxide for

commercial applications. As the market for disposal grows, more such units could be deployed. In such scenarios, the cost of closing the carbon cycle will define the carbon price. In cases where it is cheaper to capture carbon at the source (such as a coal- or gas-fired power plant) or eliminate the use of fossil carbon, the markets will move in this direction. Wherever biomass capture turns out to be cheaper, it will also be incentivized. At the very least, DAC can take back emissions that are difficult to avoid, such as from aircraft, heavy trucks, and ships. DACCS even makes it possible to collect and dispose of carbon dioxide that has been emitted in the past; indeed, it may be the only feasible option for removing the old waste that still litters the atmosphere.

The most pertinent question in our minds must be “But is it affordable?”

Managing waste is never free. As a cost of good governance, we pay for sewage removal and treatment, for garbage collection, and for the production of clean water—and we make these payments willingly because we recognize both the public good that results and the consequences that would ensue if we did not deal with these matters. But we also make them willingly because they are not overly burdensome. What cost will be tolerated for carbon disposal may ultimately depend on a shared understanding of the pain that climate change will inflict. But even amidst continuing disagreement about the seriousness of the climate risk, some people will be open to paying some level of clean-up costs simply because they dislike the mess, just as many individuals were willing to voluntarily recycle their trash even before policies were put in place to incentivize recycling.

The waste management paradigm can be adopted without waiting for the energy system to transform. Adoption of DAC technologies does not depend on phasing out or out-competing incumbent energy technologies, and thus adoption is not held hostage to those who create the carbon problem and see no immediate gain from solving it. Nor must DAC replace existing energy infrastructure or social and cultural arrangements that depend on that infrastructure. When technologies provide functions and services not previously available, they can scale up rapidly.Ω



## COURT ORDERS BAN ON HARMFUL PESTICIDE, SAYS EPA VIOLATED LAW

Scientific evidence shows the pesticide chlorpyrifos, which is widely sprayed on citrus fruits, apples and other crops, causes neurodevelopmental damage to children

August 9, 2018, by Michael Biesecker, the Associated Press

WASHINGTON—A federal appeals court ruled Thursday that the Trump administration endangered public health by keeping the widely used pesticide chlorpyrifos (clor-PEER-i-fos) on the market despite extensive scientific evidence that even tiny levels of exposure can harm babies' brains. The 9th U.S. Circuit Court of Appeals in San Francisco ordered the Environmental Protection Agency to remove chlorpyrifos from sale in the United States within 60 days.

A coalition of farmworkers and environmental groups sued last year after then-EPA chief Scott Pruitt reversed an Obama-era effort to ban chlorpyrifos, which is widely sprayed on citrus fruits, apples and other crops. The attorneys general for several states joined the case against EPA, including California, New York and Massachusetts.

In a split decision, the court said Thursday that Pruitt, a Republican forced to resign earlier this summer amid ethics scandals, violated federal law by ignoring the conclusions of agency scientists that chlorpyrifos is harmful. "The panel held that there was no justification for the EPA's decision in its 2017 order to maintain a tolerance for chlorpyrifos in the face of scientific evidence that its residue on food causes neurodevelopmental damage to children," Appeals Court Judge Jed S. Rakoff wrote in the majority's opinion.

EPA spokesman Michael Abboud said the agency was reviewing the decision. It could appeal the ruling to the Supreme Court. Environmental groups and public health advocates hailed the court's action as a major victory.

"Some things are too sacred to play politics with, and our kids top the list," said Erik Olson, senior director of health and food at the Natural Resources Defence Council. "The court has made it clear that children's health must come before powerful polluters. This is a victory for parents everywhere who want to feed their kids fruits and veggies without fear it's harming their brains or poisoning communities."

Chlorpyrifos was created by Dow Chemical Co. in the 1960s. It remains among the most widely used agricultural pesticides in the United States, with the chemical giant selling about 5 million pounds domestically each year through its subsidiary Dow AgroSciences. Dow did not immediately respond to an email seeking comment. In past statements, the company has contended the chemical helps American farmers feed the world "with full respect for human health and the environment."

Chlorpyrifos belongs to a family of organophosphate pesticides that are chemically similar to a chemical warfare agent developed by Nazi Germany before World War II.

As a result of its wide use as a pesticide over the past four decades, traces of chlorpyrifos are commonly found in sources of drinking water. A 2012 study at the University of California at Berkeley found that 87 per cent of umbilical-cord blood samples tested from newborn babies contained detectable levels of the pesticide.

Under pressure from federal regulators, Dow voluntarily withdrew chlorpyrifos for use as a home insecticide in 2000. EPA also placed "no-spray" buffer zones around sensitive sites, such as schools, in 2012.

In October 2015, the Obama administration proposed banning the pesticide's use on food. Pruitt reversed that effort in March 2017, adopting Dow's position that the science showing chlorpyrifos is harmful was inconclusive and flawed.

[https://www.canadianmanufacturing.com/regulation/court-orders-ban-on-harmful-pesticide-says-epa-violated-law-217514/?custnum=2097495&title=&utm\\_source=CMO&utm\\_medium=email&utm\\_campaign=180810A](https://www.canadianmanufacturing.com/regulation/court-orders-ban-on-harmful-pesticide-says-epa-violated-law-217514/?custnum=2097495&title=&utm_source=CMO&utm_medium=email&utm_campaign=180810A)



## POINT TO PONDER: THE BIG QUESTION!

*Can the world give up fossil fuels at this time? How much longer are we going to rely on them and keep polluting before the next big bang?*

### What's Up BRS?

The Basel Convention meetings take place in Geneva and for the first time feature a parallel High-Level Event on Marine Litter, whose aim is to continue to focus attention and build momentum towards implementing solutions for this pressing global issue.

The Convention's Open-ended Working Group (OEWG), stages its 11th meeting from 3 to 6 September with a range of important topics under consideration including electronic waste, household waste, marine plastic litter and microplastics, and waste containing nanomaterials. Addressing strategic, scientific and legal matters, the OEWG guides and reviews the intersessional work between COPs and makes recommendations for decisions to be taken at the next Basel Convention COP, in April/May 2019 in Geneva.

Back-to-back with OEWG, the Basel Convention's Implementation and Compliance Committee (ICC) stages its 13th meeting from 7 to 10 September. The ICC members will work towards improving national reporting, combating illegal traffic, controlling transboundary movements of covered wastes, developing legislation and reviewing the implementation fund, together with consideration of nine existing and one new specific submissions.

The Rotterdam Convention's Chemical Review Committee (CRC) stages its 14<sup>th</sup> meeting from 11 to 14 September. CRC-14 considers draft decision guidance documents for acetochlor, hexabromocyclododecane and phorate, reviews the Handbook of Working Procedures and Policy Guidance, and reviews notifications of final regulatory actions for three chemicals (hexabromocyclododecane, methyl-parathion and PFOA). The Committee's recommendations and draft decision guidance documents will be forwarded to the next Rotterdam Convention COP, in April/May 2019 in Geneva.

The Stockholm Convention's POPs Review Committee (POPRC) stages its 14th meeting from 17 to 21 September. POPRC-14 considers a draft risk profile for PFHxS, takes into account additional information in order to strengthen its

recommendation for listing of PFOA, and also evaluates the continued needs for acceptable purposes and specific exemptions for PFOS. The Committee's recommendations will be forwarded to the next Stockholm Convention COP, in April/May 2019 in Geneva.

## THE AFRICA INSTITUTE

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- To protect the human health and the environment from the hazardous wastes and chemicals in the member states

### Mission

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